

# European Patent Guide

How to get a European patent

July 2023

EPC

EPC

ONE PATENT – 44 COUNTRIES

HIGH QUALITY PATENTS

EPC

LEGAL CERTAINTY

EPC

EPC

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# European Patent Guide

## How to get a European patent

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## Chapter 1 – Foreword

The **European Patent Guide** aims to provide applicants and their representatives with an outline of the procedure involved in applying for a European patent.

This updated 23rd (2023) edition of the Guide is based on the revised European Patent Convention (EPC 2000) which entered into force on 13 December 2007. All references to articles or rules in this Guide therefore relate to the EPC as in force since that date or as amended between that date and July 2023. Please note, however, that in some cases certain provisions of the earlier Convention (EPC 1973) will continue to apply for applications which were pending at the time the revised EPC entered into force. The present edition has been updated to reflect the situation as at 1 July 2023, and takes account of changes to European Patent Office (EPO) procedures entering into force before or on that date. Users of this Guide should therefore always check the EPO website ([epo.org](http://epo.org)) for information about any changes which may have occurred since then.

Any comments and questions on the present Guide may be addressed to Directorate 5.3.1 Patent Law and Processes ([patentlaw@epo.org](mailto:patentlaw@epo.org)).

There is also another guide for applicants covering the Euro-PCT route (**Euro-PCT Guide: PCT procedure at the EPO** (see [point 2.3.002](#))).



## Chapter 2 – General

### 2.1 Introduction

**2.1.001** This Guide outlines the provisions relevant to the filing of European patent applications, offering practical advice to smooth the way to a European patent. In addition, it briefly describes the post-grant procedures carried out by the EPO. It cannot, however, go into the details or specific issues of the European patent grant or post-grant procedures, and it does not constitute an official commentary on the European Patent Convention (EPC).

If you need more detailed information, you are advised to consult the **Guidelines for Examination in the European Patent Office**, a comprehensive guide to every stage of the grant procedure and to EPO practice.

The charts in Annexes I and in IV to the present Guide illustrate the course of the grant procedure and the time limits applicants have to observe.

**2.1.002** In the right-hand margin<sup>1</sup> you will find references to the provisions of the EPC, the Implementing Regulations and the Rules relating to Fees, and to passages from the Guidelines for Examination in the EPO (2023 edition) and the Official Journal (OJ) of the EPO. You are strongly advised to consult the works in question before taking any decisions in practice.

The authentic texts of the EPC and the Guidelines are given in two EPO publications, the **European Patent Convention** and the **Guidelines for Examination in the European Patent Office**, both available on the EPO website ([epo.org](http://epo.org)), where you will find the latest edition of these and any of the other publications mentioned in this Guide. We also refer you to the decisions and notices published by the EPO in its Official Journal and on its website.

Decisions of the boards of appeal of the EPO (see points 5.7.001-5.7.012) are published on the EPO website. We recommend that you consult the relevant decisions when questions regarding the interpretation of particular EPC provisions arise. The **Case Law of the Boards of Appeal of the EPO** contains brief summaries of selected decisions and makes it easier to find the relevant ones.

The most important sources for European patent law and EPO practice, along with much other useful information, are accessible on the internet via the EPO website ([epo.org](http://epo.org)).

**2.1.003** As in any other patent grant procedure, you need to be thoroughly familiar with patent matters if you are to steer your way successfully through the European route. **So if you lack the**

<sup>1</sup> Not visible in the HTML version if viewed on a mobile device.

**requisite experience, we advise you to consult a professional representative before the EPO (see points 4.1.023-4.1.031).**

- 2.1.004** The EPO publication entitled **National law relating to the EPC** contains detailed information on the regulations and requirements governing European patent applications and patents in the contracting, extension and validation states. A valuable supplement to this Guide, it is available on the EPO website ([epo.org](http://epo.org)).

## **2.2 Nature and purpose of the European Patent Convention**

- 2.2.001** A patent is a legal title granting its holder the right – in a particular country and for a certain period of time – to prevent third parties from exploiting an invention for commercial purposes without authorisation. The EPC has established a single European procedure for the grant of patents on the basis of a single application and created a uniform body of substantive patent law designed to provide easier, cheaper and stronger protection for inventions in the contracting states.

The contracting states are: Albania, Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.

In each contracting state for which it is granted, a European patent gives its proprietor the same rights as would be conferred by a national patent granted in that state. If its subject-matter is a process, protection is extended to products directly obtained by that process. Any infringement of a European patent is dealt with by national law (but see point 2.3.004). *Art. 64*

A published European patent application provides provisional protection which is no less than that conferred by a contracting state for a published national application and which must at least include the right to reasonable compensation in the event of wrongful infringement. *Art. 67*

The standard term of a European patent is twenty years as from the date of filing. Provided that the annual renewal fees are duly paid, patents remain in force for the maximum term. *Art. 63*

Article 63(2) sets out circumstances in which the term of a patent can be extended or a longer term granted. This option of extension by means of a supplementary protection certificate (SPC) is intended primarily for medicinal or plant protection product patents, where the administrative approval procedure takes so long that the useful life of the patent is diminished.

**2.2.002** European patents may also be effective in some countries that have not acceded to the EPC (extension and validation states). At present these are Bosnia and Herzegovina (extension state) as well as Morocco, the Republic of Moldova, Tunisia and Cambodia (validation states) (see [point 2.5.001](#)).

## **2.3 Relationship to other international conventions**

**2.3.001** The EPC constitutes a special agreement within the meaning of the Paris Convention for the Protection of Industrial Property.

This means in particular that the principles of the Paris Convention on claiming priority and the national treatment principle also apply in the European procedure and to European applications. *Art. 87-89*

Since nearly all the EPC contracting states are members of the WTO, the relevant provisions of the TRIPS Agreement (Agreement on trade-related aspects of intellectual property rights) are implemented in the revised EPC.

**2.3.002** The EPC further constitutes a regional patent treaty within the meaning of [Article 45\(1\) PCT](#), which means that European patents can be granted on the basis of an international application filed under the PCT. The **Euro-PCT Guide** deals with this filing route to obtaining patent protection in Europe. It is available on the EPO website ([epo.org](#)). *Art. 150-153  
R. 157-165  
GL E-IX*

**2.3.003** The Agreement on the application of [Article 65 EPC](#) – the London Agreement – is an optional agreement aiming at reducing the costs relating to the translation of European patents. The EPC contracting states which have ratified or acceded to the Agreement undertake to waive, entirely or largely, the requirement for translations of European patents. For more information, please consult the EPO website ([epo.org](#)).

**2.3.004** The Unitary Patent is a "European patent with unitary effect", which means a European patent granted by the EPO under the rules and procedures of the EPC to which, after grant, unitary effect is attributed for the territory of the EU member states participating in the Unitary Patent scheme and bound by the Agreement on a Unified Patent Court (UPCA). After grant of the European patent – but no later than one month after the mention of grant is published in the European Patent Bulletin – you have the option to file a request for unitary effect with the EPO if you wish to obtain a Unitary Patent. The tasks of the EPO include:

- examining these requests and registering unitary effect
- setting up and administering the Register for unitary patent protection
- collecting renewal fees for Unitary Patents

*Supplementary publication 3, OJ EPO 2023  
OJ EPO 2016, A39, A40, A41  
OJ EPO 2013, 111, 132*

These tasks are carried out by the EPO under rules which implement Regulation (EU) No 1257/2012 of the European Parliament and of the Council.

The Unitary Patent became available on 1 June 2023 when the UPCA entered into force. A list of the EU member states which have ratified the Agreement is available at: [consilium.europa.eu/en/documents-publications/treaties-agreements/agreement/?id=2013001](https://consilium.europa.eu/en/documents-publications/treaties-agreements/agreement/?id=2013001).

For further detailed information, you can consult the **Unitary Patent Guide** (2nd edition, April 2022) on the EPO website ([epo.org](https://www.epo.org)).

## 2.4 Choosing a route: national, European or international

**2.4.001** The European procedure has not superseded the national grant procedures. So when seeking patent protection in one or more EPC contracting states you have a choice between following the national procedure in each state for which you want protection and taking the European route, which in a single procedure confers protection in all the contracting states that you designate.

**2.4.002** If you decide you want a European patent, you have a further choice between the direct European route and the Euro-PCT route (see point 2.3.002 and the **Euro-PCT Guide: PCT procedure at the EPO**). With the direct European route, the entire European patent grant procedure is governed by the EPC alone; with the Euro-PCT route, the first phase of the grant procedure (the international phase) is subject to the PCT, while the regional phase before the EPO as designated or elected Office is governed primarily by the EPC.

**2.4.003** We will now summarise the chief legal and economic factors that are likely to influence your choice between the European and national procedures.

### Legal factors

**2.4.004** A European patent is granted after an examination designed to establish whether the European patent application and the invention to which it relates comply with the patentability requirements of the EPC.

These requirements are the basis not only for the granting of a European patent, but also for the assessment of its validity by national courts. In addition, under the EPC the extent of the protection conferred by the European patent is determined uniformly for all the contracting states.

[Art. 69, 138](#)

**2.4.005** The grant procedure is conducted by the EPO's Receiving Section, search divisions and examining divisions; if they decide against your application, you can file an appeal before the boards of appeal of the EPO. Once a European patent has been granted, there follows a nine-month period in which third parties are entitled to file a reasoned notice of opposition; and at the end of the resulting opposition proceedings, either the patent is maintained

[Art. 16, 17, 18, 99, 106](#)

as granted or as amended or it is revoked. The decision taken in the opposition proceedings applies to all designated contracting states and can also be appealed before the boards of appeal of the EPO.

Once it has been granted, you can file a request for limitation or revocation of your own patent.

*Art. 105a, 105b*

**2.4.006** European patents have a uniform wording and a uniform extent of protection for all designated contracting states (but see [points 4.2.027](#) and [4.2.039](#)) and offer a high presumption of validity.

Patent law in the contracting states has been extensively harmonised with the EPC in terms of patentability requirements. However, as grant procedures continue to be differently structured and are conducted in parallel by several offices, the national route generally leads to national rights with differing extents of protection.

### **Economic factors**

**2.4.007** Processing fees in the European patent grant procedure are staggered; so at each stage of the procedure you have a further chance to decide, in the light of the completed stages, whether your interest in obtaining patent protection is still great enough to justify paying the next fee.

*Art. 2 RFees*

In particular, the separation between search and substantive examination (see [points 5.1.002](#) and [5.1.003](#)) enables you to decide in the light of the European search report (see [point 5.2.010](#)) whether it is worth requesting substantive examination.

**2.4.008** In certain circumstances you may be interested in having your application processed faster, at the search stage or the substantive examination stage or both.

If you file a request for accelerated processing, the EPO will make every effort to reduce the usual processing times as much as it can, under the programme for accelerated prosecution of European patent applications.

*GL E-VIII, 4*

**2.4.009** Your application may be a **first filing** with the EPO.

As a rule, you will be sent the search report within **five** months of the date of filing.

**2.4.010** Like a first filing with a national office, a European first filing gives rise to the right of priority for a national, European or international second filing made in the priority year (see [points 4.1.017-4.1.021](#)).

**2.4.011** Taking into account the fees levied for the European grant procedure, costs for representation by a single agent and the cost of conducting the proceedings in a single language, a European patent as a rule costs about as much as three or four national patents.

- 2.4.012** Information on fees and conditions for fee refunds is provided in points 4.3.010 ff.
- 2.4.013** The European procedure is conducted in one of the three official languages of the EPO (English, French, German), specifically the one in which you choose to file your application or a translation thereof. In addition, if you are from a contracting state whose language is not one of the EPO's official languages, you enjoy certain advantages as regards languages and fees if you use an official language of your contracting state (see points 4.1.008-4.1.011).
- Art. 14(2), (3)  
R. 6(3)  
Art. 14(1) RFees  
GL A-X, 9.2*
- 2.4.014** In the final phase of the European patent grant procedure, however, you are required to file a number of translations. You have to provide the EPO with translations of the claims in its other two official languages. Some contracting states require you to file a translation of the European patent specification or of the claims in one of their official languages, if different from the language of the proceedings, in order for the European patent to take effect there (see point 5.4.023). Further information is available on the EPO website (epo.org).
- Art. 65, 97  
R. 71(3)*
- 2.4.015** The European patent grant procedure lasts about two to four years from when the application is filed. It breaks down into two main stages. The first comprises formalities examination, search report preparation and the drafting of an opinion on whether the application and the invention to which it relates seem to meet the requirements of the EPC. The second comprises substantive examination.
- R. 55-66, 70-72*
- 2.4.016** In the first of these stages there is no need for your active involvement unless the Receiving Section finds formal deficiencies or the search division requests clarification of the subject-matter to be searched. However, in the second stage – substantive examination – your application is assigned to an examining division, which usually communicates with you or your representative before deciding whether to grant the patent or refuse the application (see points 5.1.003 and 5.4.001-5.4.022).
- R. 62a, 63, 71-72*
- Competent preparation of the patent application and of all procedural steps before the EPO is a crucial factor in ensuring that the examination procedure runs quickly and satisfactorily (see point 2.1.003).



## 2.5 Extending/validating European patents to/in non-contracting states

**2.5.001** The European Patent Organisation has signed cooperation and European patent extension agreements with a number of European states that are (or at the time were) not party to the EPC. Since 2010, it has concluded further agreements providing for European patents to have effect in non-contracting states. However, these "validation agreements" are not limited to European countries.

GL A-III, 12

As an applicant for a European patent you thus have a simple and cost-effective way of obtaining patent protection in some countries which are not contracting states. If you request extension/validation and pay the extension/validation fee(s) in time, you can have European patent applications (direct and Euro-PCT filings) and patents extended to/validated in these countries, where they will then in principle have the same effect as national applications and patents, will be subject to national law and will enjoy essentially the same protection as patents the EPO grants for EPC contracting states. You can currently request extension to Bosnia and Herzegovina, as well as validation in Morocco, the Republic of Moldova, Tunisia and Cambodia. Lists of countries which have concluded an extension/validation agreement with the EPO are available at [epo.org/about-us/foundation/extension-states.html](http://epo.org/about-us/foundation/extension-states.html) and [epo.org/about-us/foundation/validation-states.html](http://epo.org/about-us/foundation/validation-states.html).

The extension and validation systems are largely the same as the designation system for contracting states. For example, the period for payment of the extension/validation fee is the same as the period for payment of the designation fee. However, the extension and validation systems are based not on direct application of the EPC but solely on the relevant national law modelled on the EPC. Hence they are subject to the national extension/validation rules of the country concerned. Further information is available at [epo.org/law-practice/legal-texts/extension-validation-system.html](http://epo.org/law-practice/legal-texts/extension-validation-system.html).



## Chapter 3 – Patentability

### 3.1 Introduction

- 3.1.001** European patents are granted for inventions that are new, involve an inventive step and are susceptible of industrial application. An invention can belong to any field of technology. *Art. 52(1)*

### 3.2 Invention

- 3.2.001** The EPC does not define the meaning of "invention", but it does provide a non-exhaustive list of subject-matter and activities that may not be regarded as inventions, i.e. that are expressly excluded from patentability. *Art. 52(2), (3), 53  
GL G-II, 3*

In this respect your attention is particularly drawn to the following four fields:

- 3.2.002** The first is **programs for computers**, which are not regarded as inventions if claimed as such. However, a computer program is not excluded from patentability under Article 52 if, when running on a computer, it causes a further technical effect going beyond the "normal" physical interaction between the program (software) and the computer (hardware). An example of a further technical effect is where the program serves to control a technical process or governs the operation of a technical device. The internal functioning of the computer itself under the influence of the program could also bring about such an effect. *Art. 52(2)(c), (3)  
GL G-II, 3.6  
GL Index for  
Computer-  
Implemented  
Inventions*
- Thus computer programs are not automatically excluded from patentability. More information about the patentability of computer-implemented inventions is available on the EPO website ([epo.org](http://epo.org)).
- 3.2.003** The second field is **methods for treatment** of the human or animal body **by surgery or therapy**, and **diagnostic methods** practised on the human or animal body. These inventions are expressly excluded from patentability. The exclusion from patentability does not apply to products, substances and compositions for use in such methods, e.g. medicaments or surgical instruments. Substances and compositions are in fact singled out for special treatment in the EPC as regards the novelty requirement: even a known substance or composition may be patented for further medical or veterinary uses, provided that such use is novel and inventive. *Art. 53(c), 54(4), (5)  
GL G-II, 4.2*
- This exception does not exclude the patentability of other methods of treatment of living human beings and animals; moreover the treatment of body tissues after they have been removed from the human or animal body and diagnostic methods applied to such tissues are patentable as long as the tissues are not returned to the same body. *GL G-II, 4.2.1*

**3.2.004** The third field is **plant and animal varieties** and essentially biological processes for the production of plants or animals and the plants or animals exclusively obtained by such processes, which are expressly excluded from patentability.

*Art. 53(b)  
R. 26, 27, 28(2)  
GL G-II, 5.4*

In the case of plant varieties, a separate form of protection is available in most contracting states and under EU law.

A process for the production of plants or animals is essentially biological if it is based on sexual crossing of whole genomes and on the subsequent selection of plants or animals, even if other technical steps relating to the preparation of the plant or animal or its further treatment are present in the claim before or after the crossing and selection steps.

The exclusion does not apply to microbiological processes or the products of such processes. In general, biotechnological inventions are also patentable if they concern biological material that is isolated from its natural environment or produced by means of a technical process, even if it previously occurred in nature.

*GL G-II, 5.5*

**3.2.005** The last field is inventions excluded from patentability because their commercial exploitation would be contrary to "**ordre public**" or **morality**. In particular, patents are not granted in respect of processes for cloning human beings, processes for modifying the germ line genetic identity of human beings, uses of human embryos for industrial or commercial purposes, or processes for modifying the genetic identity of animals that are likely to cause them suffering without any substantial medical benefit to man or animal, and also animals resulting from such processes.

*Art. 53(a)  
R. 28(1)  
GL G-II, 4.1*

### 3.3 Novelty

#### Basic principles

**3.3.001** An invention is considered to be new if it does not form part of the state of the art.

*Art. 54(1)  
GL G-VI*

The definition of the state of the art in the EPC reflects the principle of absolute novelty: the state of the art comprises everything made available to the public anywhere in the world by means of a written or oral description, by use, or in any other way, before the date of filing or priority. However, novelty is prejudiced only by something which is clearly disclosed to a skilled person in a **single** source of prior art, e.g. in a patent application published before the date of priority.

*Art. 54(2), 89  
GL G-IV*

**3.3.002** An earlier disclosure of the invention is non-prejudicial only if it occurred less than **six months** before the filing of the European patent application **and** was due to an evident abuse in relation to the applicant or to display at an exhibition falling within the terms

*Art. 55  
R. 25  
GL A-IV, 3  
GL G-V*

of the Paris Convention on international exhibitions.<sup>2</sup> Except in these two cases, the second of which is rare in practice, any disclosure of the invention before the date of filing or, if applicable, the earliest priority claimed (see point 4.1.021) can be cited against the applicant as forming part of the state of the art, even if the applicant themselves was responsible for the disclosure.

## Prior rights

**3.3.003** The state of the art is also held to comprise the content of European patent applications filed before the date of filing or priority but not published until on or after that date. *Art. 54(3), 89 GL B-VI, 4*

A PCT application which is filed before the date of filing or priority but not published until on or after that date and for which the EPO acts as designated Office forms part of the state of the art for the purposes of Article 54(3) if the filing fee has been paid to the EPO and the PCT application is published in one of the EPO's official languages (English, French or German). If the PCT application was published in Arabic, Chinese, Japanese, Korean, Portuguese, Russian or Spanish, a translation into one of the official languages of the EPO must have been filed with the EPO, which will publish it (see point 2.3.002). *Art. 153(5) R. 165 GL G-IV, 5.2*

Everything in the earlier application as filed is prejudicial to novelty.

The consequences that any earlier national patent applications or patents have for the patentability of the invention in the designated contracting states are assessed by the competent national courts after the European patent has been granted (but see point 4.2.040). *Art. 139(2) GL H-III, 4.4*

**3.3.004** As a rule, a conflict between two European patent applications has only limited consequences, as the disclosed content of the earlier application is relevant only to the assessment of the later application's novelty, not its inventive step. Hence the later application's claims can mostly be drafted in such a way that the earlier application is not prejudicial to novelty. *Art. 56 GL G-IV, 5*

## 3.4 Inventive step

**3.4.001** An invention is held to involve an inventive step if it is not obvious to the skilled person in the light of the state of the art (which does not include prior rights, see points 3.3.003-3.3.004). In assessing inventive step as opposed to novelty (see point 3.3.001), **multiple** sources of prior art may be applied. *Art. 56*

The inventive step requirement is intended to prevent exclusive rights forming barriers to normal and routine development.

<sup>2</sup> Every year the EPO in its Official Journal publishes a list of exhibitions falling within the terms of this Convention that have been registered by the International Exhibition Bureau.

#### 3.4.002

The EPO seeks to make a realistic and balanced assessment of the inventive step criterion. Inventive step is usually evaluated on the basis of the "problem/solution" approach, in other words whether the solution presented to the problem in the patent application is obvious or not to the person skilled in the art.

GL G-VII

This always depends on the specific circumstances of the case. Depending on the situation, various factors are taken into account, such as the unexpected technical effect of a new combination of known elements, the choice of specific process parameters within a known range, the difficulty the skilled person has in combining known documents, secondary indicia such as the fact that the invention solves a long-standing technical problem which there have been many attempts to solve, or the overcoming of a technical prejudice.

If you need more detailed information, you are advised to refer to the Guidelines for Examination and to the decisions of the boards of appeal (see [point 2.1.002](#)).

## Chapter 4 – Preparing and filing a European patent application

### 4.1 Formal requirements

#### Entitlement to file European patent applications

- 4.1.001** A European patent application may be filed by any natural or legal person, or any body equivalent to a legal person, irrespective of nationality and place of residence or business (but see point 4.1.023). *Art. 58, 59, 118  
GL A-II, 2*

A European patent application may also be filed by joint applicants or by two or more applicants designating different contracting states; where there are different applicants for different contracting states, they are regarded as joint applicants for the purposes of proceedings before the EPO (see also point 4.1.029).

#### States for which European patent applications may be filed

- 4.1.002** When filing a European patent application all the contracting states for which the EPC has already entered into force on the date of filing are deemed to be designated (see point 2.2.001 for the list of contracting states). *Art. 79*

Switzerland and Liechtenstein may only be designated jointly. *Art. 149  
OJ EPO 1980, 407*

- 4.1.003** In addition, European patent applications and patents may be extended to states not party to the EPC. At present, the only extension state is Bosnia and Herzegovina (see point 2.5.001).

- 4.1.004** European patent applications and patents can be validated in the countries in which a validation agreement entered into force on or before the date of filing of the European patent application (see point 2.5.001).

#### References in this Guide to the designation of contracting states also apply to extension to and validation in non-contracting states, unless explicitly stated otherwise.

- 4.1.005** Even though all the contracting states are deemed to be designated upon filing of the application you must subsequently confirm the designations by paying the appropriate fee, which covers the designation of all contracting states, unless you have expressly withdrawn individual designations. *Art. 79(2)  
R. 39  
Art. 2(1), item 3,  
RFees  
GL A-III, 11*

As regards extension and validation states, the extension and all validations are deemed to be requested upon filing of the application, but you need to confirm the request for extension/validation by paying the extension/validation fee for each state to or in which you wish to extend or validate protection.

*GL A-III, 12*

## **Languages for European patent applications**

**4.1.006** The official languages of the EPO are English, French and German.

*Art. 14(1)*

**4.1.007** If you file your European patent application in any other language, you need to file a translation into one of the official languages of the EPO within two months of filing the application. If the translation is not filed in time, you will be invited to file it within two months of the notification of the invitation. If the translation is not filed within the time limit set in the invitation, the application is deemed to be withdrawn.

*Art. 14(2)  
R. 6(1), 58  
GL A-III, 14*

The language in which you file the European application (or its translation, if not filed in English, French or German) is used as the language of the proceedings, and any amendments made to the application or the European patent must be drawn up in that language. Otherwise, in written proceedings, any party may use any of the EPO's official languages.

*Art. 14(3)  
R. 3  
GL A-VII, 2, 3.1*

At any time during the proceedings before the EPO, the translation may be brought into conformity with the text of the application as filed.

*Art. 14(2)*

With regard to divisional applications see [point 5.8.004](#).

## **Language arrangements to assist applicants from certain contracting states**

**4.1.008** If you (or one of your co-applicants) have your residence or principal place of business in a contracting state that has a language other than English, French or German as an official language, or if you (or one of your co-applicants) are a national of such state but are resident abroad, you may file a European patent application and/or the request for examination in one of that state's official languages ("admissible non-EPO language").

*Art. 14(4)  
GL A-VII, 3.2*

**4.1.009** If you are thus entitled to file the application or the request for examination in an admissible non-EPO language and do so, a 30% reduction of the filing and/or examination fee applies if you, as an applicant, are a natural person, a small or medium-sized enterprise, a non-profit organisation, a university or a public research organisation. In order to benefit from the reduction, you must submit a declaration of entitlement at the latest by the time of payment of the (reduced) filing or examination fee. The declaration can be made directly in the request for grant of a European patent (EPO Form 1001; see [point 4.1.013](#)) or by filing EPO Form 1011, available on the EPO website ([epo.org](http://epo.org)).

*R. 6(3)-(6)  
Art. 14(1) RFees  
GL A-X, 9.2*



If you have co-applicants, each one of them must also be either a natural person or an entity according to the above definition and must declare so if you wish to benefit from the 30% reduction of the filing and/or examination fee. *R. 6(7)*

**4.1.010** If point 4.1.008 applies to you, at any time in the procedure after filing your application you may file any documents subject to a time limit in an official language of your state; but within **one month** of filing any such document you must submit a translation into the language of the proceedings. *Art. 14(4)*  
*R. 6(2)*  
*GL A-VIII. 3.2*

**4.1.011** However, if you use the official language of your state for filing an opposition, appeal or petition for review, you can file the translation into one of the official languages of the EPO **within** the opposition, appeal or petition for review period respectively, if that period expires after the one-month period mentioned in point 4.1.010. If you do not file the translation in due time, the document is deemed not to have been filed.

The fee reduction mentioned in point 4.1.009 does not apply to the fees for opposition, appeal (but see point 5.7.003), petition for review, limitation and revocation.

### Items making up a European patent application

**4.1.012** A European patent application consists of a **request** for the grant of a European patent, a **description** of the invention, one or more **claims**, any **drawings** referred to in the description or claims, and an **abstract**. *Art. 78(1)*

### Request for grant

**4.1.013** The request **must** be filed on a **form prescribed by the EPO** (EPO Form 1001). The request for grant form is integrated in the electronic filing tools EPO Online Filing and Online Filing 2.0. *R. 41*  
*GL A-III. 4.1*  
*OJ EPO 2023. A48*

The form, which can also be submitted using the EPO Web-Form Filing service or the EPO Contingency Upload Service, and the associated explanatory notes can be downloaded free of charge from the EPO website ([epo.org](http://epo.org)). You are strongly advised to read the explanatory notes carefully before completing the request form. By completing the form you meet all the mandatory requirements governing the information that the request for grant must contain.

The request must be **duly signed**. It may be signed by your representative if you have appointed one. Where it is signed on behalf of a legal person, the signatory's position within the legal entity must also be indicated. If you have co-applicants and do not appoint a European representative, the request for grant must be signed by all of the applicants (see point 4.1.029). *R. 2(2)*  
*GL A-III. 4.2.2*  
*GL A-VIII. 3.2, 3.4*

If you file on paper, one copy of the request itself must be filed; the receipt for documents (page 9 of the request for grant form) must be filed in triplicate, or in quadruplicate if filed with a national

authority (see point 4.3.003). If the application is filed electronically, no additional copies are necessary.

### Designation of inventor

- 4.1.014** In your European patent application you must designate the inventor(s). The inventors must be natural persons. *Art. 81  
GL A-III, 5*
- If you yourself are not the inventor or are not the sole inventor, you must file the designation of the inventor in a separate document, which must indicate the origin of your right to the European patent. *R. 19  
GL A-III, 5*
- You can designate the inventor(s) in the tools provided by the EPO for online filing. Another option is to fill in and file the "Designation of inventor" form (EPO Form 1002) available on the EPO website ([epo.org](http://epo.org)).
- 4.1.015** The person designated as the inventor will be mentioned in the published European patent application, in the European patent specification, in the European Patent Register and in the European Patent Bulletin, unless they waive this right in due time in advance of publication. *Art. 127, 128(4),  
129(a)  
R. 20(1), 143(1)(g),  
144(c)  
GL A-III, 5.2*
- 4.1.016** If you do not designate the inventor when you file the European patent application, you will be invited to correct this deficiency within **sixteen months** after the date of filing or, if priority is claimed, the earliest priority date, and in any event no later than five weeks prior to the intended date of publication of the application (see point 5.3.001). If you fail to submit the designation of inventor within the specified period, your application will be refused (see point 5.2.005). *Art. 90(3)-(5)  
R. 60(1)  
GL A-III, 5.5*

### Claiming priority

- 4.1.017** If you or your predecessor in title have duly filed an application for a patent, a utility model or a utility certificate in or for any state party to the Paris Convention for the Protection of Industrial Property or any member of the World Trade Organization you may claim priority when filing a European patent application in respect of the same invention. You must file the European patent application no later than **twelve months** after filing the first application (see points 5.10.008-5.10.010). *Art. 87  
GL A-III, 6  
GL F-VI, 1.3*
- If the earlier application was filed in or for an EPC contracting state, you may also designate that state in the subsequent European application. The earlier application whose priority you claim may also be a European or an international (PCT) application (see point 2.4.010).
- 4.1.018** You may claim multiple priorities in respect of one European patent application, even if they originate from different countries. You may also claim multiple priorities for any one claim. If you claim multiple priorities, time limits which run from the date of priority are computed from the earliest priority date. *Art. 88(2), (3)  
GL F-VI, 1.5  
GL A-III, 6.3*

**4.1.019** To claim the priority of an earlier application you must indicate the date, country and file number of the earlier application.

Art. 88(1)  
R. 52, 53  
GL A-III, 6.5, 6.7  
GL F-VI, 3.1-3.3  
OJ EPO 2023, A48

You must also file the priority document, i.e. a copy of the earlier application certified by the authority with which it was filed, together with authentication of its filing date from that authority, within 16 months of the priority date. Some patent offices issue electronic priority documents. These may be filed with the EPO, using Online Filing or Online Filing 2.0, provided they are in an accepted document format and are digitally signed by the issuing authority. In certain cases you are exempted from having to submit a priority document: currently the EPO includes a copy of the earlier application whose priority you claim in the file of the European patent application free of charge if the earlier application is a European patent application or an international patent application filed with the EPO as receiving Office.

It is also possible for you to request that the EPO retrieve the priority document electronically via the WIPO Digital Access Service (DAS), provided that the office where the first filing was made participates in this service. To enable you to make use of DAS, the Office of First Filing will generate a dedicated access code, which you will need to provide to the EPO together with your retrieval request. You can file the retrieval request directly in the request for grant of a European patent (EPO Form 1001; see point 4.1.013) or by filing EPO Form 1013, available on the EPO website ([epo.org](http://epo.org)). In response, the EPO will automatically retrieve, free of charge, the priority document issued by the Office of First Filing. For more information please consult the WIPO website ([wipo.int](http://wipo.int)).

OJ EPO 2021, A83  
OJ EPO 2019, A27

If you are filing a European patent application claiming priority from an earlier application, you have to file a copy of any search results in respect of the earlier application. Where the search results are not available when filing the European patent application, they have to be filed without delay after they have been made available to you. The obligation to file the search results for the earlier application exists as long as the application is pending before the EPO. Where the EPO notes, at the time when the examining division assumes responsibility, that the search results have still not been filed, it invites you to file them within a non-extendable time limit of two months. If you fail to file the search results or a declaration that they are not available to you, the European patent application will be deemed to be withdrawn.

Art. 124  
R. 70b, 141  
GL A-III, 6.12

You are exempted from the obligation to file a copy of the search results if the EPO drew up the search report or your priority application was filed in Austria, China, the Czech Republic, Denmark, Japan, the Republic of Korea, Spain, Sweden, Switzerland, the UK or the US. In future, further countries are expected to be included in this list.

**4.1.020** You should preferably submit the declaration of priority indicating the date, country and file number of the earlier application **when you file your European patent application**.

R. 41(2)(g), 52(1)  
GL A-III, 6.5, 6.7  
GL F-VI, 3.2

You must supply the complete declaration of priority and the priority document no later than **sixteen months** after the earliest priority date.

*R. 52(2), 53(1)*

If you do not indicate the file number or file the copy of the earlier application within the above time limit, you will be invited to remedy the deficiency; if you fail to do so, you will lose your right to priority (but see point 5.2.006).

*R. 59  
GL A-III, 6.7, 6.10,  
6.11*

- 4.1.021** Among the effects of a valid claim to priority is that the date of priority determines the prior art that can be cited against the European patent application.

*Art. 54(2), (3),  
60(2), 89*

As a rule, the EPO initially examines only the formal conditions for claiming priority. The examining division (see points 5.4.001 et seq.) normally checks whether a right to priority exists if it finds prior art (see point 3.3.001) from between the priority date and the date of filing of the European patent application or if it finds a prior right under Article 54(3) (see point 3.3.003). The subject-matter for which priority is claimed must be derivable directly and unambiguously from the full disclosure of the invention in the priority document.

*GL F-VI, 2.1, 2.4*

Where the priority document is not in English, French or German, you may be invited to file a translation of the previous application into one of the EPO's official languages. If you receive such an invitation, which may happen throughout the grant or opposition proceedings, you must file the translation within the period set by the EPO. Alternatively, if the European patent application is a complete translation of the previous application, you may submit a declaration to that effect. If you fail to supply the translation of the priority document or the declaration in due time, the right to priority with respect to the priority claim in question will be lost. However, during grant proceedings, you may file a request for further processing if you have failed to file the translation in time.

*Art. 121  
R. 53(3), 135  
GL A-III, 6.8  
GL F-VI, 3.4*

### Filing by reference

- 4.1.022** Instead of filing application documents, you may file a European patent application by making reference to a previously filed application. When filing your patent application by reference to a previously filed application, you should indicate in the request for grant form (section 26.1 of the paper form) the filing date, the file number and the state or office where the previous application was filed. The reference must indicate that it replaces the description and any drawings. You will then have to file a certified copy of the previously filed application within two months of filing the application. If the previous application is not in English, French or German, you must file a translation thereof into one of those languages within the same time limit unless such a translation is already available to the EPO. If you do not file the certified copy within the said time limit or within a time limit set in a subsequent invitation, the application will not be dealt with as a European patent application. If you do not file a translation of the previously filed application within the said time limit or within a time limit set in

*Art. 14(2), 90(1), (2)  
R. 40(1)(c), (2), (3),  
55  
GL A-II, 4.1.3.1,  
4.1.4  
GL A-III, 14*

an invitation, the application will be deemed to be withdrawn (but see [points 4.1.007 and 5.10.008 ff](#)).

Claims can also be filed by reference to those in the previously filed application. However, you may also decide to file a new set of claims replacing the set in the previously filed application.

## Representation

- 4.1.023** If you have your residence or principal place of business in a contracting state, you may act on your own behalf in proceedings before the EPO (but see [point 2.1.003](#)). *Art. 133(1)  
GL A-VIII, 1  
GL A-III, 2*
- If you have neither a residence nor your principal place of business in a contracting state, you must appoint a representative and act through them in all proceedings before the EPO other than in filing your European patent application and paying the fees. *Art. 133(2)*
- 4.1.024** Representation before the EPO may be undertaken only by professional representatives who are on a list maintained by the EPO, or by legal practitioners entitled to act before the EPO. You will find a searchable online database of professional representatives on the EPO website ([epo.org](http://epo.org)). *Art. 134(1), (8)  
GL A-VIII, 1.2, 1.5*
- 4.1.025** As a rule, professional representatives who identify themselves as such do not need to file an authorisation, unless required under special circumstances. *GL A-VIII, 1.6*
- Representatives may be authorised either by individual authorisation or by general authorisation. The relevant forms, to which amendments are permitted, can be downloaded free of charge from the EPO website ([epo.org](http://epo.org)). *R. 152(1), (4)  
GL A-VIII, 1.6, 1.7*
- General authorisations are registered at the EPO. These are a practical option for all concerned.
- 4.1.026** If an authorisation is required but not filed within the period specified by the EPO, any actions taken by the representative other than the filing of the European patent application and the payment of fees are deemed not to have been taken. *R. 152(2), (6)  
GL A-VIII, 1.8*
- 4.1.027** If several representatives are appointed, they may act either jointly or singly before the EPO, regardless of any provisions to the contrary in the notification of their appointment or in the authorisation. With multiple representatives it is also advisable to give the particulars of only one of them in the request for grant, appending "et al." to their name. The EPO will address its correspondence to the representative named in the request for grant as long as it is not informed to the contrary. *R. 152(10)*
- You may also appoint an association of representatives consisting of professional representatives in private practice or employed in a company. In such a case each representative practising in this association is deemed to be authorised. *R. 152(11)  
GL A-VIII, 1.6*

If you appoint an association, all communications will be notified to the registered address of the association indicated in the request for grant form (see point 4.1.013).

- 4.1.028** If you have your residence or principal place of business in a contracting state, you may also be represented by an employee, who need not be a professional representative. *Art. 133(3)  
GL A-VIII, 1.3*

An employee who is representing their employer and who is not a professional representative must have an individual or general authorisation (see point 4.1.025).

- 4.1.029** If an application is filed by more than one person, the request for grant should designate one of them or a professional representative as the common representative. Otherwise, the applicant named first in the request for grant is deemed to be the common representative. However, if one of the applicants is obliged to appoint a professional representative, the latter is deemed to be the common representative unless the applicant named first in the request for grant has appointed a professional representative. *Art. 133(4)  
R. 41(3), 151(1)  
GL A-VIII, 1.4*

- 4.1.030** The particulars of the representative's name and business address given in the request for grant are recorded in the European Patent Register, published in the European Patent Bulletin and printed in the published European patent application and patent. *Art. 129(a)  
R. 68, 143(1)(h)*

- 4.1.031** Notifications sent by the EPO (communications, notices, decisions and summonses) are addressed: *Art. 119  
R. 130  
GL E-II, 2.5*
- (a) to the representative recorded in the European Patent Register; or
  - (b) to you as applicant if you do not appoint a representative, and also if an employee is acting on your behalf.

If you are acting without a professional representative, have several addresses and wish notifications in proceedings before the EPO to be sent to one address while a different address is to be used for publications, the European Patent Register and the patent certificate, you can indicate an address for correspondence in the request for grant (see point 4.1.013), "Address for correspondence" (section 9 of the paper form). The address for correspondence must be your own address and must be located in an EPC contracting state. Post cannot be sent to a different (natural or legal) person, since that requires a valid form of representation under Articles 133 and 134. If you are acting through an employee (Article 133(3)), the address for correspondence still has to be one of your own addresses. To facilitate postal delivery or internal distribution of mail, the address may include a sub-division within a firm, provided it is not a separate legal person. *GL A-III, 4.2.1*



## 4.2 Presenting your invention

### Disclosing your invention

- 4.2.001** The European patent application must disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. *Art. 83, 84, 69(1)*

The description and any accompanying drawings form the basis for the claims, which determine the extent of the protection conferred by the European patent. The description and the drawings are also used to interpret the claims. *GL F-II, 4.1*  
*GL F-IV, 6.1*

- 4.2.002** Once a European patent application has been filed, no amendments extending beyond its content as filed may be made to the description, the claims or the drawings. Hence you are not allowed to add examples or features to the application documents at a later date to remedy deficiencies in the disclosure. Nor are you allowed to extend the subject-matter of the claims, e.g. by omitting certain features, unless there is clear support for such amendment in the application as filed. You must therefore make sure that the claims as filed clearly and accurately identify the invention that you want to protect (see also point 5.4.021). *Art. 123(2)*  
*GL H-IV, 2.1, 2.2*  
*GL F-II, 4.3*  
*GL F-III*

### Unity of invention

- 4.2.003** European patent applications must relate to a single invention only, or to a group of inventions so linked as to form a single general inventive concept. In the latter case, multiple independent claims in the same category are allowed as long as they comply with Rule 43(2); but the more usual scenario is multiple independent claims in different categories (see point 4.2.021). *Art. 82*  
*R. 43(2), 44*  
*GL F-V*

### Drafting the technical application documents

- 4.2.004** The requirements relating to the content of the description, claims, drawings and abstract are set out in Articles 83 to 85 and Rules 42, 43, 47 and 48. *Art. 83-85*  
*R. 42-50*  
*GL A-III, 3.2*  
*GL A-VIII, 2*  
*GL A-IX*  
*OJ EPO 2022, A113*
- The formal requirements for these documents and documents filed subsequently are defined in Rules 49(2) and 50 in conjunction with the EPO President's decision dated 25 November 2022 on the presentation of application and other documents.

- 4.2.005** The following are the main provisions governing the form of application documents and documents filed subsequently: *Art. 78(1)*  
*R. 49(2), 50*  
*GL A-VIII, 2.1*  
*OJ EPO 2022, A113*
- (a) The documents making up the European patent application (description, claims, drawings and abstract) must be filed in a single copy. The same applies to documents replacing these original documents.
  - (b) The documents making up the application must be of a quality so as to allow electronic and direct reproduction, in particular

by scanning, photography, electrostatic processes, photo offset and microfilming, in an unlimited number of copies.

- (c) In the case of paper filings, the documents must be on strong, pliable, white A4 paper (portrait format).
- (d) Each document making up the application (request, description, claims, drawings and abstract) must begin on a new sheet.
- (e) All the sheets must be numbered in consecutive Arabic numerals, which must be positioned top centre but not in the top margin.
- (f) The following minimum margins (type area) must be left blank:
  - top: 2 cm
  - left: 2.5 cm
  - right: 2 cm
  - bottom: 2 cm
- (g) The lines of each sheet of the description and the claims should be numbered in sets of five, the numbers appearing on the left side, to the right of the margin.
- (h) The line spacing must be 1.5.
- (i) The documents must be typed or printed, with a minimum character height of 0.21 cm for capital letters (normally font size 9 or 10).
- (j) There must be no handwritten additions to the text.

The special requirements for drawings are dealt with in Article 1 of the EPO President's decision dated 25 November 2022 and the Guidelines for Examination.

OJ EPO 2022, A113  
GL A-IX

**4.2.006** Annex II gives three examples of how to draft a European patent application.

### **Description**

**4.2.007** In the description you must:

R. 42  
GL F-II, 4

- (a) Specify the technical field to which the invention relates. You may do this for example by reproducing the first ("prior art") portion of the independent claims in full or in substance or by simply referring to it.
- (b) Indicate the background art of which you are aware, to the extent that it is useful for understanding the invention, preferably citing source documents reflecting such art. This applies in particular to the background art corresponding to the prior art portion of the independent claims. Source document citations must be sufficiently complete to be

R. 42(1)(a)

R. 42(1)(b)  
GL F-II, 4.3-4.4



verifiable: patent specifications by country and number; books by author, title, publisher, edition, place and year of publication and page numbers; periodicals by title, year, issue and page numbers.

- (c) Disclose the invention as claimed.

*R. 42(1)(c)*  
*GL F-II, 4.5-4.6*

The disclosure must indicate the technical problem that the invention is designed to solve (even if it does not state it expressly) and describe the solution.

To elucidate the nature of the solution according to the independent claims you can repeat or refer to the characterising portion of the independent claims or reproduce the substance of the features of the solution according to the relevant claims.

At this point in the description you need only give details of embodiments of the invention according to the dependent claims if you do not do so when describing ways of performing the claimed invention or describing what the drawings show.

You should state any advantageous effects your invention has compared with the prior art, but without making disparaging remarks about any specific previous product or process.

*R. 48(1)(b)*

- (d) Briefly describe what is illustrated in any drawings, making sure you give their numbers.

*R. 42(1)(d)*  
*GL F-II, 4.7*

- (e) Describe in detail at least one way of carrying out the claimed invention, typically using examples and referring to any drawings and the reference signs used in them.

*R. 42(1)(e)*  
*GL F-II, 4.8*  
*GL F-III, 1-3*

- (f) Indicate how the invention is susceptible of industrial application within the meaning of Article 57.

*R. 42(1)(f)*  
*GL F-II, 4.9*

- 4.2.008** In exceptional cases you may arrange the description in a different manner and order if this affords a better understanding or a more economic presentation.

*R. 42(2)*  
*GL F-II, 4.10*

- 4.2.009** Although the description must be clear and straightforward and avoid unnecessary technical jargon, the use of recognised terms of art is acceptable and often desirable. Little known or specially formulated technical terms may be allowed provided that they are adequately defined and that there are no generally recognised equivalents.

*GL F-II, 4.11-4.14*

You may use proper names or similar words to refer to a product only if they uniquely identify it. Even then, however, the product must be sufficiently identified, without reliance upon such terms, to enable the invention to be carried out by the skilled person. If such proper names or similar words are registered trade marks, that fact should be mentioned.

*GL F-III, 7*

## Biotechnology applications

### ***Nucleotide and amino acid sequences***

- 4.2.010** If your European patent application discloses nucleotide or amino acid sequences, the description must include a sequence listing in XML format complying with WIPO Standard ST.26. You are advised to use WIPO's free "WIPO Sequence" software for preparing a Standard ST.26 sequence listing. The sequence listing must not be filed on paper or in PDF or TXT format.

*R. 30, 57*  
*GL A-IV, 5*  
*GL F-II, 6*  
*OJ EPO 2021, A96, A97*

Electronic sequence listings are usually filed online, using the EPO's Online Filing or Online Filing 2.0. Uploading to EPO Form 1001 is enabled if you indicate that the application includes a sequence listing by ticking the relevant check box ("Biology/Application details" tab). The EPO Contingency Upload Service allows you to attach a sequence listing in XML format. Further advice is obtainable from the EPO by contacting User Services at [epo.org/contact](http://epo.org/contact).

- 4.2.011** The standardised presentation of such nucleotide and amino acid sequences in electronic form is mandatory. If you do not comply with the requirements even following an invitation to do so, including payment of the late furnishing fee, your European patent application will be refused (but see point 5.10.007).

*R. 30*

### ***Depositing biological material to supplement the description***

- 4.2.012** If your invention involves the use of or concerns biological material that is not available to the public and cannot be described in your European patent application in such a way that it can be carried out by a skilled person, you must deposit a sample of this biological material with a recognised depositary institution no later than at the date of filing.

*Art. 83*  
*R. 31-34*  
*GL A-IV, 4*  
*GL F-III, 6*  
*OJ EPO 2010, 498*

The recognised depositary institutions are the international depositary authorities under the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure. A full list of recognised depositary institutions is published once a year in the EPO's Official Journal.

*R. 33(6)*

- 4.2.013** The application as filed must also give any relevant information that is available to you on the characteristics of the biological material.

*R. 31(1)(b)*  
*GL F-III, 6.3*

If the biological material has been deposited by someone else, you must state the depositor's name and address in your application and submit a document satisfying the EPO that the depositor has authorised you to refer to the deposited biological material in your application and has given unreserved and irrevocable consent to the deposited material being made available to the public.

*R. 31(1)(d), 33*

- 4.2.014** Lastly you must state your chosen depositary institution and the accession number of the deposited biological material, as a rule within sixteen months after the date of filing or, if you have claimed

*Art. 83*  
*R. 31(1)(c), (2)*  
*GL A-IV, 4*  
*GL F-III, 6.3*

priority, after the earliest priority date. If any of these requirements is not satisfied, the biological material in question cannot be considered as having been fully disclosed by way of reference to the deposit. Please refer to the Guidelines for Examination for further details.

- 4.2.015** You should also ensure that you complete the corresponding sections in the EPO's Online Filing or Online Filing 2.0 online filing tools ("Biology" tab), or in EPO Form 1001, sections 35 to 37 ("Biological material") (paper, Web-Form Filing or EPO Contingency Upload Service). These sections are designed to alert the EPO that the application refers to biological material deposited under Rule 31 and to enable it to draw your attention to any deficiencies before the time limits laid down in Rule 31(2) expire.

*GL A-IV, 4.2, 4.4*

You are also strongly advised to file the deposit receipt issued by the depositary institution. This document shows the depositor, the chosen depositary institution and the accession number assigned to your deposit (see 4.2.013). This information enables the EPO to certify any requests for the issuance of a sample (see 4.2.017) and the examining division to establish whether the application satisfies the requirements of sufficient disclosure (see 4.2.012). A deposit receipt must be filed for each sample of biological material disclosed in the application and deposited at one of the recognised depositary institutions. The deposit receipt may be filed as long as proceedings before the EPO are pending.

- 4.2.016** From the date of publication of the European patent application (see point 5.3.001), the deposited material is available to anyone on request, but only if the requester makes certain undertakings to the applicant or proprietor regarding restrictions on the transmission and use of the material.

*R. 33*

Until the technical preparations for publication of your application are deemed to be completed (see point 5.3.001), you may inform the EPO that, for a certain period, the only way the biological material can be accessed is by the issue of a sample to an independent expert ("expert solution"). Any natural person may be nominated as an expert, provided that they fulfil the requirements and obligations laid down by the President of the EPO. The EPO must receive the information that you wish to choose the "expert solution" no later than about five weeks before the European patent application is published. You can select "expert solution" in the EPO's Online Filing and Online Filing 2.0 online filing tools ("Biology" tab) or in EPO Form 1001 (paper or Web-Form Filing) by ticking the corresponding check box.

*R. 32  
GL A-IV, 4.3  
OJ EPO 2017, A60,  
A61*

The "expert" option is mentioned in the published European patent application.

- 4.2.017** If you are interested in receiving a sample of biological material deposited in someone else's application, you must file a corresponding request with the EPO. Requests for the issue of samples of biological material deposited must be submitted on the requisite forms, which can be downloaded from the EPO website (epo.org). The completed forms must be sent to the EPO, which

*R. 33(4), (5)*

certifies them and transmits them to the competent depositary institution.

## Claims

- 4.2.018** The claims must define the matter for which protection is sought in terms of the technical features of the invention. They must be clear and concise and supported by the description. *Art. 84  
R. 43  
GL F-IV.1*
- 4.2.019** Wherever appropriate, claims should consist of two parts (see the examples in Annex II), a prior art portion and a characterising portion. In the first claim and all other independent claims, the prior art portion should designate the subject-matter of the invention and the technical features which are needed to define it but which, in combination, form part of the prior art. The characterising portion should state the technical features for which protection is sought in combination with the features in the prior art portion. *R. 43(1)  
GL F-IV.2*
- 4.2.020** An "independent" claim must state all the essential features of the invention. *R. 43(3)  
GL F-IV.3.4, 3.7, 3.8, 4.5*
- 4.2.021** A European patent application may not contain more than one independent claim in the same category (e.g. product and/or process) unless one of the exceptions applies. See point 5.2.011 for further information. *R. 43(2)*
- 4.2.022** Each independent claim may be followed by one or more "dependent" claims concerning particular embodiments of the invention. *R. 43(3), (4)  
GL F-IV.3.4-3.6*
- Dependent claims should include all the features of the claim to which they relate. They must contain, if possible at the beginning, a reference to this other claim, which may also be dependent, and then state the additional features for which protection is sought.
- As far as possible, all dependent claims referring back to one or more previous claims must be grouped together in the most appropriate way.
- 4.2.023** As Article 84 requires claims to be concise (a requirement that applies both to the claims in their entirety and to each claim individually), you must keep the number of claims reasonable in consideration of the nature of the invention you wish to protect. You should therefore avoid undue repetition resulting from the use of independent claims in the same category or a proliferation of dependent claims. *R. 43(5)  
GL F-IV.5*
- 4.2.024** You must number your claims consecutively in Arabic numerals. *R. 43(5)*
- 4.2.025** It is essential to formulate your claims clearly, as they define the matter that you want to protect. *Art. 84, 69  
GL F-IV.4.1*
- The wording you use in claims must leave no doubt as to their meaning and scope, and you must avoid any inconsistencies between the description and the claims. *GL F-IV.4.2-4.9*

The scope defined by the claims must be as precise as the invention allows. As a general rule, claims which attempt to define the invention in terms of the result to be achieved are not allowed. Where the invention relates to a chemical product, it may be defined by its chemical formula or as a product of a process or, exceptionally, in terms of its parameters.

GL F-IV, 4.10-4.16

Furthermore, references to the description or drawings, particularly in the form of "as described in part ... of the description" or "as illustrated in figure ... of the drawings", are not allowed unless they are absolutely indispensable.

R. 43(6)  
GL F-IV, 4.17

- 4.2.026** However, in a European patent application containing drawings, reference signs linking the claims to the drawings should be placed in brackets after the technical features mentioned in the claims if this makes the claims easier to understand. Reference signs are not to be construed as limiting the claims.

R. 43(7)  
GL F-IV, 4.18

- 4.2.027** In exceptional circumstances, a European patent application or patent may include separate sets of claims for specific designated states (see point 4.2.039).

Art. 139  
R. 138  
GL H-III, 4

### Claims incurring fees

- 4.2.028** If your European patent application comprises more than 15 claims, you must pay a claims fee in respect of each claim over and above that number. For the 51st and each subsequent claim the amount of the claims fee is higher. You must pay claims fees within one month of filing the first set of claims.

R. 45(1), (2)  
GL A-III, 9  
Art. 2(1), item 15.  
R Fees

If your application includes several sets of claims (see point 4.2.039), a fee is payable only in respect of each claim beyond the 15th in the set that contains the highest number of claims.

If you fail to pay the fees in due time, you may still validly pay them within a non-extendable period of one month after being notified of your failure to observe the time limit. If you do not pay the fees within this period, the claims for which you have not paid the fees are deemed to be abandoned, and you are notified accordingly (but see point 5.10.007).

R. 45(2), (3), 112(1)  
GL A-III, 9

- 4.2.029** If your application contains more than 15 claims at the time of grant, claims fees are payable at this stage if they have not already been paid. If you do not pay them in due time, your application is deemed to be withdrawn (see points 5.4.011, 5.4.014).

R. 71(4)  
GL C-V, 1.4

### Drawings

- 4.2.030** The requirements governing the representation of your invention in the drawings are set out in Article 1 of the EPO President's decision dated 25 November 2022 on the presentation of application and other documents. Reference signs not mentioned in the description and claims must not be used in the drawings,

GL A-IX  
GL F-II, 5  
OJ EPO 2022, A113

and vice versa. The same features, when denoted by reference signs, must be denoted by the same signs throughout the application.

**4.2.031** Drawings must not contain text matter except, when absolutely indispensable, keywords such as "water", "steam", "open", "closed", "section on AB" and, on electric circuits and block schematics or flow sheet diagrams, short catchwords indispensable for understanding. Any such keywords must be placed in such a way that they can be replaced by their translations without interfering with any lines of the drawings. *GL A-IX, 8*

**4.2.032** Flow sheets and diagrams are considered to be drawings. *GL A-IX, 1*

**4.2.033** Good-quality drawings are very important for the correct disclosure of the invention. If the drawings are unreadable, e.g. completely black, you may not be allowed to file better-quality drawings at a later stage, disclosing more details than those originally filed. *Art. 123(2)  
GL A-III, 3.2  
GL A-V, 2.1*

Although the EPC has no express provisions for photographs, they are nevertheless allowed. Colour photographs are scanned and made available in the electronic file in black and white. *GL A-IX, 1.2*

If you file the application in electronic form, you have the advantage that the original quality of the drawings will be available to the EPO, which in many cases may prevent you from receiving a deficiency communication.

## Abstract

**4.2.034** The abstract merely serves for use as technical information. It may not be taken into account for any other purpose, such as interpreting the scope of the protection sought or applying Article 54(3). It must be so drafted that it constitutes an efficient instrument for searching in the particular technical field and for evaluating whether it is worth considering the whole content of the application. *Art. 85  
R. 47(5)  
GL F-II, 2.1*

**4.2.035** The abstract, which must be preceded by the title of the invention, must contain a concise summary (preferably no more than 150 words long) of the disclosure as contained in the description, claims and drawings. It should indicate the technical field to which the invention relates, unless that is already clear from the title, and should be so drafted as to allow a clear understanding of the technical problem, the gist of the solution of that problem through the invention and the principal use of the invention. *R. 47(1)-(3)  
GL F-II, 2.3*

**4.2.036** If your application contains drawings, you must indicate the figure or, exceptionally, figures which you suggest should accompany the published abstract. In this case each main feature mentioned in the abstract and illustrated in the drawing must be followed by the corresponding reference sign in parentheses. *R. 47(4)  
GL A-III, 10.3*

**4.2.037** The definitive content of the abstract is determined by the examiner (see point 5.2.014). Once the abstract has been published as part of the European patent application (see point 5.3.001), it is not amended again. *R. 66  
GL A-III, 10.2  
GL F-II, 2.2, 2.7*



## Prohibited matter

- 4.2.038** Your application must not contain statements or drawings that are contrary to *ordre public* or morality. Nor should it contain statements disparaging the products or processes of any third party, or the merits or validity of any third party's applications or patents. Mere comparisons with the prior art are not considered disparaging *per se*. Furthermore, no statements should be made which are obviously irrelevant or unnecessary under the circumstances.
- R. 48*  
*GL A-III, 8*  
*GL F-II, 7*

## Unitary character of European patent applications and patents

- 4.2.039** European patent applications and European patents have a unitary character, which means that the text and any drawings are uniform for all designated contracting states.
- Art. 118*  
*GL H-III, 4*

The exceptions to this principle are as follows:

- (a) If the EPO is informed of the existence of a prior right under Article 139(2), the European patent application or patent may, for such state or states, contain different claims and, if the examining division considers it necessary, different descriptions and drawings.
- R. 138*  
*GL H-III, 4.1, 4.2*
- (b) If it is adjudged by a final decision that a third party is entitled to be granted a European patent in respect of only one part of the matter disclosed in the European patent application, the original European patent application must, for the designated states in which the decision was taken or recognised, contain claims, descriptions and drawings which, where necessary, are different from those for the other designated contracting states.
- R. 18*  
*GL H-III, 4.3*

- 4.2.040** National rights of earlier date do not form part of the state of the art for the purposes of the EPO's examination for patentability (see point 3.3.003, last paragraph).
- GL H-III, 4.4*

However, during substantive examination (see point 5.4.019) or opposition proceedings (see point 5.5.005) you may, on your own initiative, submit separate claims for each designated contracting state in which an earlier national right exists, provided that you supply evidence of its existence to the examining or opposition division as appropriate. In such cases the examining or opposition division examines only the admissibility of the separate claims; it does not have to judge whether you have adequately limited the scope of your application in relation to the earlier national right. What it does examine, however, is whether the invention identified in the separate claims meets the patentability requirements of the EPC.

## 4.3 Filing European patent applications

### Where and how to file

- 4.3.001** You can file European patent applications in electronic form using the EPO Online Filing software, which can be obtained from the EPO free of charge (see [epo.org](http://epo.org)). Filings using this software may be made online or on electronic data carriers admitted by the EPO.

*GL A-II, 1.2.2  
OJ EPO 2023, A48  
OJ EPO 2022, A70*

Alternatively, you may use the web-based Online Filing 2.0, the EPO Web-Form Filing service or the EPO Contingency Upload Service, which are also provided free of charge via the EPO website ([epo.org](http://epo.org)). Links to the online filing services are given in [Annex III](#).

If you use Online Filing, you can also file European patent applications in electronic form with the competent national authorities of the contracting states which so permit. Divisional applications must, however, be filed with the EPO direct.

*Art. 76(1)*

- 4.3.002** The EPO's electronic filing services have a number of advantages. They offer a secure, reliable and efficient way of filing applications with the EPO. They enable fully electronic handling of filings, save you time and paper-handling costs and provide you with an instant acknowledgement of receipt. A further benefit of electronic filing is that the original quality of the documents is maintained. In addition, for applications filed in electronic form with either the EPO or a competent national authority, the filing fee is reduced.

In the event of the unavailability of, or a general breakdown in, any of the means of electronic communication permitted by the President of the EPO, the general safeguards under the EPC apply.

*R. 134(1)  
OJ EPO 2020, A120*

On the EPO website you will find more information regarding the other online services provided by the EPO, including Central Fee Payment, MyFiles and the Mailbox service.

- 4.3.003** You can also file European patent applications in person or by postal services

*Art. 75  
R. 35  
GL A-II, 1.1  
OJ EPO 2018, A18  
OJ EPO 2017, A11*

- (a) with the EPO in Munich, its branch at The Hague or its sub-office in Berlin, but not at its sub-offices in Vienna and Brussels
- (b) with the central industrial property office or other competent authority of a contracting state if the law of that state so permits or prescribes (with the exception of divisional applications)

If you decide not to file online, the EPO's addresses are given in [Annex III](#). The addresses of the national patent authorities and national provisions of the contracting states governing compulsory or optional filing of European patent applications with such authorities are given in **National law relating to the EPC** (see [point 2.1.004](#)).



- 4.3.004** You cannot file European patent applications with the EPO by email. *GL A-II, 1.3  
OJ EPO 2000, 458*
- 4.3.005** If you file on paper, the quality of the documents may be reduced. As the EPO uses an optical character recognition system to capture European patent applications for printing, you are urged to use a machine-readable typeface for your applications (see point 4.2.005). *OJ EPO 2022, A113  
OJ EPO 1993, 59*

### **Date of filing**

- 4.3.006** The date of filing accorded to applications filed in electronic form (using the EPO Online Filing software, EPO Online Filing 2.0, the EPO Web-Form Filing service or the EPO Contingency Upload Service) or sent by post is the date on which the application documents are received at the EPO, provided the documents comply with the requirements of Article 80 and Rule 40 (see point 5.2.001). *OJ EPO 2023, A48*

Where applications are filed in person at the EPO, the corresponding date is the date on which they are handed in or posted in one of the EPO's automated mailboxes, which are available in Munich (PschorrHöfe building only, Zollstrasse) and Berlin.

*Art. 80  
R. 40  
GL A-II, 1.1  
OJ EPO 2018, A18  
OJ EPO 2017, A11*

The above rules similarly apply to applications filed with the competent national authorities of the contracting states.

### **Acknowledgement of receipt**

- 4.3.007** Receipt of documents filed online using the EPO Online Filing software is acknowledged electronically during the submission session. If you file on electronic data carriers admitted by the EPO, receipt is acknowledged by post. *R. 35(2)  
GL A-II, 3.1  
OJ EPO 2023, A48*

Similarly, receipt of documents filed via EPO Online Filing 2.0 is acknowledged electronically by the EPO via an acknowledgement of receipt.

Receipt of documents filed via the EPO Web-Form Filing service is acknowledged electronically via an acknowledgment of receipt on the website once the files have been transferred. You can also request to have acknowledgement of receipt sent to you by email.

The receipt of documents filed using the EPO Contingency Upload Service is confirmed electronically by the EPO in the service. An acknowledgement of receipt is also sent separately in accordance with the provisions governing the filing of documents on paper.

The acknowledgements of receipt provided by the EPO's online filing tools also inform you of the European patent application number.

If you file your application on paper, the authority with which you file it acknowledges receipt without delay by sending you page 9 of

the request for grant, on which it notes the date it received the application documents and the number of the application.

### **Applications filed with national authorities and forwarded to the EPO**

- 4.3.008** When you file a European patent application on paper with a national authority, the national authority issues the receipt for documents (page 9 of the request for grant). After checking the application for security or for other national requirements, it then forwards it to the EPO. The EPO then notifies you accordingly, indicating the date of receipt at the EPO, by sending you a copy of the receipt for documents (page 9 of the request for grant).

*R. 35(3), (4)  
GL A-II, 3.2*

You are also sent an acknowledgement of receipt from the national authority concerned if you file European patent applications electronically with any of the national authorities that so permit. If you do not receive this acknowledgement, please contact the national authority.

If the national authority withholds your European application on account of the above-mentioned national requirements, you may pursue it as a national application.

- 4.3.009** In the very rare event that your application fails to reach the EPO before the end of the fourteenth month after filing or after the earliest priority date, it is deemed to be withdrawn, and any fees that you have paid are refunded. The EPO notifies you accordingly, and you can then convert your European patent application into a national application.

*Art. 77, 135(1)(a)  
R. 37, 112(1)  
GL A-II, 1.6, 3.2*

You must file the request for conversion with the central industrial property office of the contracting state in which you filed the application, and you must do so within three months after receiving notification from the EPO. For more details see **National law relating to the EPC** (see [point 2.1.004](#)).

*Art. 135(2)  
R. 155(1)  
GL A-IV, 6*

### **Fees**

- 4.3.010** The following basic fees are payable in respect of a European patent application:

*Art. 2, RFees  
GL A-X*

- (a) filing fee and any additional fee for the 36th and each subsequent page of the application (see [point 4.3.014](#))
- (b) search fee
- (c) claims fee in respect of the 16th and each subsequent claim (where appropriate) (see [points 4.2.028, 4.2.029](#))
- (d) designation fee (see [points 4.3.015, 5.3.004](#))

- (e) extension fees (one for each extension state, see [point 2.5.001](#))
- (f) validation fees (one for each validation state, see [point 2.5.001](#))
- (g) examination fee (see [points 4.3.015, 5.3.004, 5.4.002](#))
- (h) fee for grant and publishing (see [point 5.4.011](#))
- (i) renewal fees in respect of the third and each subsequent year (see [points 5.9.001-5.9.006](#))

Further fees may fall due in the course of the proceedings.

- 4.3.011** After filing the application you must pay the filing fee (and any additional fee) and the search fee (as well as any claims fees, where claims were filed together with the application) within one month of the date of filing. If you file the claims after the date of filing, any claims fees must be paid within one month of filing the first set of claims (see [points 4.2.026, 5.2.002](#)). [Art. 78\(2\)](#)  
[R. 38, 45\(2\)](#)  
[GL A-III, 9, 13.1, 13.2, 15](#)  
[GL A-X, 5.2.1](#)
- You must pay the designation fee (and any extension and/or validation fees) within six months of the date on which the European Patent Bulletin mentions publication of the European search report. [Art. 79\(2\), 94\(1\)](#)  
[R. 39](#)  
[GL A-X, 5.2.2](#)  
[GL A-III, 11.2.1, 12.2](#)
- The examination fee is payable within the same period. [R. 70\(1\)](#)  
[GL A-X, 5.2.2](#)  
[GL C-II, 1](#)
- An overview of important deadlines for filing a European patent application, including deadlines for the payment of fees, is contained in [Annex IV](#) to this Guide.
- 4.3.012** The EPO will not send you invoices or reminders to pay these fees in due time. If you receive invoices, please check their origin carefully. [OJ EPO 2023, A55](#)
- 4.3.013** If you fail to pay the filing and search fees in due time, your European patent application is deemed to be withdrawn (but see [points 4.3.016 and 5.10.007](#)). [Art. 78\(2\)](#)  
[GL A-III, 13.1](#)
- If you fail to pay the designation or examination fee in due time, the application is deemed to be withdrawn (but see [points 4.3.016 and 5.10.007](#)). If you fail to pay the extension fee in due time, the request for extension to this state is deemed to be withdrawn (but see [point 4.3.016](#)). The same applies to payment of the validation fee and the request for validation (but see [point 4.3.016](#)). [R. 39\(2\)](#)  
[GL A-III, 11.2.3, 12.2](#)
- 4.3.014** An additional fee as part of the filing fee is payable for European patent applications comprising more than 35 pages. The amount of the additional fee depends on the number of pages over 35 and is calculated on the basis of the pages of the description, claims, any drawings and one page for the abstract, in the language of filing. The language reduction under [Rule 6\(3\)](#) applies if you as an applicant fulfil the relevant requirements (see [point 4.1.009](#)). The pages of the request for grant form (EPO Form 1001) are not counted, nor are any pages forming part of a sequence listing, provided that it complies with WIPO Standard ST.26 (see [point](#) [Art. 2\(1\), item 1a](#)  
[RFees](#)  
[GL A-III, 13.2](#)

4.2.010). The additional fee is payable within one month of the date of filing. If the application is filed without claims or by reference to a previously filed application, the additional fee is payable within one month of filing of the first set of claims or the certified copy of the previously filed application (see points 4.1.022 and 5.2.002).

**4.3.015** In the case of European divisional applications (see points 5.8.001-5.8.005), you must pay the filing fee, any additional fee for pages over 35 and the search fee (and any claims fees) within one month of filing. An additional fee is payable as part of the filing fee for divisional applications of second or subsequent generations. The amount of the fee depends on the generation to which the newly filed divisional application belongs.

*R. 36(3), 38(4)  
Art. 2(1), item 1b  
RFees  
GL A-IV, 1.4.1*

Renewal fees which have fallen due in the parent application must also be paid for the divisional application. The period for payment of these fees is four months after the date of receipt of the divisional application. If you fail to pay the renewal fees due, they can still be paid within six months of the date of receipt of the divisional application, provided that a surcharge of 50% of the renewal fees is paid.

*Art. 86(1)  
R. 51(3)  
GL A-IV, 1.4.3*

You must pay the examination fee, the designation fees and any extension and/or validation fees within six months of the date on which the European Patent Bulletin mentions publication of the European search report on the divisional application (see point 4.3.011).

*R. 39(1), 70(1)*

**4.3.016** You should note that, if you fail to observe the above-mentioned time limits for payment of the filing fee, additional fee(s), the search fee, the designation fee or the examination fee, further processing is available within two months of notification of a communication of loss of rights under Rule 112(1). To request further processing you must pay the outstanding fee(s) and the prescribed fee for further processing (see point 5.10.007).

*Art. 121  
R. 112(1), 135(1)  
GL E-VIII, 1.9, 2*

If you fail to pay the extension or validation fee in due time, the request for extension or validation in respect of the state concerned is deemed to be withdrawn. The EPO will not send a communication to that effect. However, the extension or validation fee can still be paid with a 50% surcharge within a period of two months of expiry of the basic period for payment.

*GL A-III, 12.2*

If a loss of rights has occurred due to non-payment of the designation fee, you will be informed of this in a communication noting the loss of rights under Rule 112(1). Together with the designation fee and the fee for further processing you will have the opportunity to pay any extension or validation fee within two months from notification of said communication together with a 50% surcharge on the respective extension or validation fee(s).

## Fee amounts and payment methods

### 4.3.017

Fee amounts, payment methods and effective payment dates are governed by the Rules relating to Fees (RFees) and by measures adopted by the President of the EPO implementing certain provisions of those Rules.

Art. 2, 5, 7 RFees  
Arrangements for  
deposit accounts  
(ADA)  
GL A-X

Guidance on fee payment is published in each issue of the EPO's Official Journal and on the EPO's website at epo.org, so you should consult the latest issue to find out the current situation.

Fees due to the EPO, including those for a European patent application filed with a national authority, must be paid in euros direct to the EPO. You can do this by paying them into or transferring them to the bank account held by the EPO, by debiting a deposit account you have opened with the EPO, or by means of a credit card.

GL A-X, 2, 3  
ADA  
OJ EPO 2022, A18,  
A81  
OJ EPO 2017, A72

Introduced on 11 September 2021, a new central service called Central Fee Payment provides users with a unique gateway for paying fees and claiming refunds across the entire patent grant procedure and via all permitted payment methods.

### 4.3.018

The following advice and recommendations on paying fees to the EPO should be noted:

- (a) Depending on how you pay, the deemed date of payment is the day on which
- the amount of the payment or transfer is actually credited to the bank account held by the EPO, or
  - the order to debit a deposit account is received at the EPO, provided the deposit account contains sufficient funds, or
  - the credit card transaction is approved by the contracting bank or other financial institution ("acquirer"), i.e. generally immediately.

Art. 7 RFees  
GL A-X, 4

- (b) If you can prove to the EPO that:
- in a contracting state, within the relevant period for payment
- you effected the payment through a banking establishment, or
  - you duly gave an order to a banking establishment to transfer the relevant amount

Art. 7(3) RFees

you will be considered to have observed the period for payment even if the amount paid is received by the EPO after expiry of the period for payment.

The EPO may request you to produce evidence of the date on which you took one of the actions listed above within a period which it specifies. If you fail to comply with this request, or if

Art. 7(4) RFees

you produce insufficient evidence, the period for payment is considered not to have been observed.

- (c) If you pay fees through a banking establishment, the following account with the Commerzbank in Germany is available for payments and transfers: *OJ EPO 2022, A81*

IBAN DE20 7008 0000 0333 8800 00  
BIC DRESDEFF700  
Commerzbank AG  
Leopoldstrasse 230  
80807 München  
Germany

- (d) The EPO only accepts debit orders filed in an electronically processable format (XML). Debit orders submitted in any other way, e.g. on paper, by fax, via the EPO Web-Form Filing service, using the EPO Contingency Upload Service or using a different format such as a PDF attachment or the annotation field in the online forms, are invalid and thus will not be carried out. For more information on paying fees online, e.g. via Central Fee Payment or MyEPO Portfolio, go to Online services on the EPO website (*epo.org*). *Point 7.1.2, 7.1.3 ADA*

- (e) If you are an EPO deposit account holder, you also have the option of issuing an automatic debit order, which must likewise be filed in an electronically processable format and individually for every application. *Point 14 ADA  
ADA, Annexes A.1 and A.2  
GL A-X, 4.3*

If an automatic debit order is filed in due time, any fee which must be paid in respect of your application within a time limit will be debited on the last day of that time limit unless special provisions apply. For more information, see the latest issue of the Arrangements for deposit accounts (ADA) and their annexes A.1 and A.2 on the EPO website (*epo.org*).

Payment by deposit account, using either an individual debit order or the automatic debiting procedure, reduces the risk of late payment and possible extra costs resulting therefrom.

## Refund of fees

- 4.3.019** In principle, validly paid fees are not refunded except where specifically provided for (see also *points 4.3.009, 5.4.002, 5.4.014*). There are two conditions for a fee payment to be fully valid: *GL A-X, 5.1.1, 10.1*

- (i) the payment must relate to proceedings that are pending; and  
(ii) the date of payment must be on or after the due date and before expiry of the respective time limit.

The examination fee is refunded in full if the European patent application is withdrawn, refused or deemed to be withdrawn before substantive examination has begun. *Art. 11(a) RFees  
GL A-VI, 2.5*



The examination fee is refunded at a rate of 50% if the European patent application is withdrawn after substantive examination has begun but before expiry of the time limit for replying to the first invitation under Article 94(3) EPC issued by the examining division proper or, if no such invitation has been issued by the examining division, before the date of the communication under Rule 71(3) EPC (see point 5.4.002).

Art. 11(b) RFees

Similarly, the search fee paid for a European search is refunded in full if the European patent application is withdrawn, refused or deemed to be withdrawn before the EPO has started drawing up the search report.

Art. 9(1) RFees  
GL A-X, 10.2.1

The European search fee is refunded in full or in part if the European search report can be based on an earlier search report already prepared by the EPO on a national, European or international application whose priority is claimed or, in the case of divisional applications, where the search report is based on an earlier search report prepared by the EPO on the parent application. Refund of the search fee can be requested by selecting the corresponding option in the "Fee" tab of Online Filing or Online Filing 2.0, or by crossing the box in section 40 of the paper request for grant form (see also point 5.8.005).

Art. 9(2) RFees  
GL A-X, 10.2.1  
OJ EPO 2022, A8

The designation fee falls due on the date on which the publication of the European search report is mentioned in the European Patent Bulletin. It can only be refunded if the European patent application is withdrawn, refused or deemed to be withdrawn before that publication date. After that date the designation fee is deemed to have been validly paid and can therefore not be refunded.

R. 39(3)  
GL A-X, 5.2.2

As a general rule, the EPO will make refunds to a deposit account held with it if you have instructed it to do so. Otherwise, it will invite you to claim any refund via its website ([fee-payment.epo.org](http://fee-payment.epo.org)) and specify a bank account to which the refund is to be credited.

OJ EPO 2019, A82

## 4.4 Filing other documents

### Where and how to file

**4.4.001** After you have filed a European patent application, you may file other documents as referred to in Rule 50 EPC with the EPO either electronically (via the EPO Online Filing software, EPO Online Filing 2.0, the EPO Web-Form Filing service or the EPO Contingency Upload Service) or by hand or by postal services. However, the EPO Web-Form Filing service cannot be used to file authorisations or documents in respect of post-grant or appeal proceedings (see also points 5.5.003, 5.6.002 and 5.7.004). Priority documents cannot be filed using the EPO Web-Form Filing service or the EPO Contingency Upload Service. Certain procedural acts may be filed electronically using the MyEPO Portfolio service (see point 4.4.002). For subsequently filed documents, it is recommended that you use the electronic filing

R. 50  
GL A-VIII, 2.5  
OJ EPO 2023, A48,  
A49, A50

tools, using EPO Form 1038E. For paper filings, the EPO provides forms which serve either as a prepared acknowledgement of receipt (EPO Form 1037) or as a letter accompanying subsequently filed documents (EPO Form 1038), available for download free of charge from the EPO website ([epo.org](http://epo.org)). Except during oral proceedings, documents may not be filed by email.

- 4.4.002** A new online service called MyEPO Portfolio was launched on 1 June 2022. A secure, web-based online service for parties to proceedings before the EPO, it allows users to view their application portfolios, consult documents in the digital file, receive EPO Mailbox communications and perform procedural acts in response to communications from the EPO. It also provides for a shared area in which you can work on your application documents with the examiner. The range of procedural acts which can be performed will be expanded progressively. You can use an EPO smart card or a secure two-factor verification method to access MyEPO Portfolio. *OJ EPO 2023, A49, A50, A59*

- 4.4.003** If you filed the application with a national authority, you may likewise file all other documents relating to the application with that authority, subject to any restrictions under national law, but only until the date on which you receive notification that the EPO has received your application. Once you have received this notification, you must file any documents with the EPO directly. *R. 35(4)  
GL A-II, 3.2*

Subsequently filed documents replacing parts of the European patent application, i.e. the description, claims or drawings, must also meet the formal requirements of Rule 49 and must be filed in typed form. *R. 49, 50(1)  
OJ EPO 2022, A113  
GL A-VIII, 2.1, 2.2*

## Signature

- 4.4.004** With the exception of annexes, any documents filed after filing of the European patent application in grant, post-grant or appeal proceedings must be validly signed. In Online Filing the signature may be in the form of a facsimile signature, a text-string signature or an enhanced electronic signature. *R. 2(2), 50(3)  
GL A-VIII, 3.1, 3.3  
OJ EPO 2023, A48, A49*

The signature on documents filed using EPO Online Filing 2.0, the EPO Web-Form Filing service or the EPO Contingency Upload Service may take the form of a facsimile signature or a text-string signature. Procedural actions performed in MyEPO Portfolio require a signature in the form of a text string.

On paper filings the signature may be a handwritten signature or a reproduction of the filer's signature (on faxes). The name and position of that person must be clear from the signature.

If the signature is omitted from a document, the EPO will invite the party concerned to sign within a fixed time limit. If signed in due time, the document retains its original date of receipt; otherwise it is deemed not to have been received. *GL A-VIII, 3.1*



### **Date of receipt**

- 4.4.005** The rules governing the filing of the European patent application set out in point 4.3.006 apply *mutatis mutandis* to the filing of other documents. [OJ EPO 2021, A42](#)  
[OJ EPO 2019, A18](#)

### **Acknowledgement of receipt**

- 4.4.006** For electronic filings (see point 4.3.007), an acknowledgement of receipt is generated immediately. For paper filings, the EPO acknowledges receipt of subsequently filed items on the forms provided for this purpose and completed by the applicant (EPO Forms 1037 and 1038). [OJ EPO 2021, A42](#)  
[OJ EPO 2019, A18](#)



## Chapter 5 – The European patent grant procedure

### 5.1 General survey

**5.1.001** The European patent grant procedure is an examination procedure beginning with a formalities examination and a mandatory search.

The first stage ends with the publication of the European patent application and the search report on the EPO publication server.

At the applicant's request this is followed by the second stage, substantive examination.

After the patent has been granted, there may be a further procedure in the form of opposition proceedings or, upon request of the patentee, limitation or revocation proceedings.

**5.1.002** The **first stage of the procedure** comprises an examination on filing, formalities examination, preparation of the European search report and a preliminary opinion on patentability, and publication of the application and the search report. Responsibility for this stage rests with the Receiving Section and a search division.

*Art. 16, 17, 90-93  
R. 55-69  
GL A, B*

**5.1.003** The **second stage** comprises substantive examination and grant. Examining divisions are made up of three technically qualified examiners, who may if necessary be joined by a legally qualified examiner. Until a decision has to be taken on the application, its examination is as a rule entrusted to one of the technically qualified examiners. This examiner is responsible for issuing the requisite communications and for discussing the application with the applicant in writing, on the telephone or by videoconference.

*Art. 18, 94-98  
R. 71-74  
GL C*

If oral proceedings are requested by the applicant or arranged at the EPO's initiative, they are held before the full examining division by videoconference. The final decision on the grant of the patent or refusal of the application is also a matter for the full examining division.

*Art. 116  
GL E-III  
OJ EPO 2022, A103, A106*

**5.1.004** After the grant of the patent, opposition proceedings may be initiated by third parties. Responsibility for examining oppositions rests with the opposition divisions, which are composed in the same way as the examining divisions, except that only one member of the opposition division may have been involved in the earlier grant proceedings, and that member is not allowed to chair the division. More details about opposition proceedings can be found in [points 5.5.001-5.5.012](#).

*Art. 19, 99-105  
R. 75-89  
GL D*

**5.1.005** After the grant of the patent, patent proprietors themselves may initiate revocation or limitation proceedings. The request for revocation or limitation may be filed at any time after the grant of the patent but not while opposition proceedings in respect of the European patent are pending. Decisions on the revocation or limitation of European patents are taken by the examining divisions. More details about revocation and limitation proceedings can be found in [points 5.6.001-5.6.008](#).

*Art. 105a-105c  
R. 90-96  
GL D-X*

**5.1.006** Appeal proceedings constitute a **special procedure**.<sup>3</sup> Appeals may be filed against decisions taken by the Receiving Section, the examining divisions, the opposition divisions or the Legal Division. A decision which does not terminate proceedings as regards one of the parties can only be appealed together with the final decision, unless the decision allows separate appeal.

*Art. 106-112a  
R. 99-103  
GL E-XII  
Supplementary  
publication 1, OJ  
EPO 2023*

Decisions on appeals are taken by the independent judicial body of the boards of appeal of the EPO.

*Art. 21*

**5.1.007** In certain cases it may be possible to file a petition for review by the Enlarged Board of Appeal. For further details, see [point 5.7.012](#).

*Art. 22, 112a  
R. 104-110*

## **5.2 Procedure up to publication of the application**

### **Examination on filing**

**5.2.001** On receiving an application the Receiving Section examines whether it can be accorded a date of filing. This is the case if the application documents contain:

*Art. 80, 90(1)  
R. 40  
GL A-II, 4.1*

- an indication that a European patent is sought
- information identifying the applicant
- a description or a reference to a previously filed application

**5.2.002** It is not necessary to file any claims in order to obtain a date of filing. You may file claims after the date of filing on your own initiative or within two months from an invitation requesting you to do so. However, you should take care that the late-filed claims do not contain subject-matter which extends beyond the content of the application as originally filed.

*Art. 90(3), 123(2)  
R. 57(c), 58  
GL A-III, 15*

**5.2.003** If any of the requirements mentioned in [point 5.2.001](#) have not been fulfilled, a date of filing cannot be accorded. The Receiving Section will inform you accordingly and invite you to remedy the deficiencies found within a non-extendable time limit of two months. If you file a timely response and remedy the deficiencies, the date of receipt of your response will be the date of filing of the application. If you do not file a (timely) response, the application will not be dealt with as a European patent application. The EPO will notify you under [Rule 112\(1\)](#), and you may then apply for a decision under [Rule 112\(2\)](#) or request re-establishment of rights under [Article 122](#) and [Rule 136](#).

*Art. 80, 90(1)  
R. 55  
GL A-II, 4.1.4, 4.1.5  
GL E-VIII, 1.9.3, 3*

For a date of filing to be accorded, the documents do not have to meet any particular requirements as to form or presentation. It is essential, however, that they be sufficiently legible to enable the information to be discerned.

<sup>3</sup> The EPO publishes information from the boards of appeal in an annual supplement to the Official Journal.

## Examination as to formal and other requirements

- 5.2.004** Once the date of filing has been accorded, the Receiving Section examines whether the filing fee, any additional fees and the search fee have been paid in due time (see points 4.3.010 and 4.3.011). If the filing fee or the search fee has not been paid in due time, the European patent application is deemed to be withdrawn (see point 4.3.013). However, see point 5.10.007 for the possibility of further processing.
- Art. 78(2), 90(3)  
R. 38  
GL A-III, 13*
- 5.2.005** If the application has been accorded a date of filing and is not deemed to be withdrawn, the Receiving Section checks for compliance with the provisions governing
- translations (see points 4.1.006-4.1.011)
  - the content of the request for grant (see point 4.1.013)
  - the presence of claims (see points 4.2.018-4.2.028, 5.2.002)
  - the filing of the abstract (see points 4.1.012 and 4.2.034-4.2.037)
  - representation (see points 4.1.023-4.1.031)
  - physical requirements of the application documents including any sequence listings and disclosure of biological material (see points 4.2.004-4.2.005, 4.2.010-4.2.011 and 4.2.012)
  - any priority claimed (see points 4.1.017-4.1.021)
  - the designation of the inventor (see points 4.1.014-4.1.016)
  - the filing of any drawings (see points 4.2.030-4.2.033)
- If the Receiving Section finds any deficiencies, it invites you to remedy them in accordance with the Implementing Regulations; if you fail to do so, the legal consequences provided for in the EPC take effect, i.e. the application is deemed to be withdrawn or is refused.
- Art. 14(2), 90(3)-(5)  
R. 57-60  
GL A-III, 2-6, 10, 14-16  
GL A-IV, 4, 5  
GL A-V, 1, 2, 2*
- 5.2.006** If the file number or the certified copy of the application whose priority is claimed is missing, you will be invited to file the missing item(s) within a specified time limit. If you fail to do so, you will lose your priority right (but see points 5.10.008-5.10.010).
- Art. 90(5)  
R. 59  
GL A-III, 6.5.3*
- 5.2.007** If formal examination reveals that parts of the description or drawings referred to in the description or in the claims appear to be missing, the Receiving Section will invite you under Rule 56(1) EPC to file the missing parts within a non-extendable time limit of two months. You can also file any missing parts of the description or drawings of your own motion within two months from the date of filing. In both cases the date of filing will then be re-dated to the day on which the missing parts are received at the EPO. Please be aware that a change of the date of filing may result in losing your priority right, namely if the newly accorded date of filing lies outside the 12-month priority period (see point 4.1.017).
- R. 56(1), (2)  
GL A-II, 5  
GL C-III, 1.1.1*

If you do not file a reply to the invitation under Rule 56(1) EPC, all references to the missing parts are deemed to be deleted and the original date of filing will be kept. *R. 56(4)*

The original date of filing will be kept if you declare and provide evidence within the applicable time limit that the late-filed missing parts of the description or drawings are completely contained in the earlier application whose priority is claimed. To this end, a certified copy of the priority application, unless already available to the EPO, and, if required, its translation into one of the EPO's official languages must be filed. You must furthermore specify where in the priority application the missing parts are contained. *R. 56(3)*

The EPO will inform you of the date of filing accorded once the Receiving Section has taken a decision.

The examining division may review the decision of the Receiving Section.

**5.2.008** The procedure for filing missing parts as described above essentially applies to erroneously filed application documents too. If formal examination reveals that the description, claims or drawings (or parts of them) appear to have been erroneously filed, you will be invited to file correct application documents within a time limit of two months. You can also file correct application documents of your own motion within two months. The date of filing will be re-dated to the date on which you file the correct application documents or parts, unless the correct application documents are completely contained in the priority document. *R. 56a*  
*GL A-III, 6*

If you realise on the filing date (or earlier if a date of filing cannot yet be accorded) that you filed incorrect application documents and file the correct documents on the same day, the documents will be exchanged without changing the date of filing. *R. 56a(2)*

If the EPO has started to draw up the search report before you file correct application documents, you will be invited to pay a further search fee. However, if the EPO detects the error during formal examination and sends a corresponding invitation, the search will not start as long as it is still possible to file correct application documents. *R. 56a(8)*

**5.2.009** With regard to the requirements governing documents filed after the filing of the European patent application see points 4.4.001-4.4.006 and 5.4.017-5.4.022.

### **European search report**

**5.2.010** As soon as the initial formal examination is concluded, the European search is initiated. The EPO normally issues the European search report within five months of the filing of the application. *Art. 92*  
*R. 61*  
*GL B*

The search report serves to provide information on the relevant prior art to the applicant, to the examining division and, by means of its publication, to the public. *R. 68(1)*

The search report is drawn up on the basis of the claims, with due regard to the description and any drawings. It mentions the prior-art documents available to the EPO when it is drawn up which may be taken into consideration in assessing novelty and inventive step.

R. 61(1)  
GL B-II, 2

The search report is accompanied by an opinion on whether the application and the invention to which it relates meet the requirements of the EPC.

R. 62  
GL B-XI

This opinion will not be issued if you have filed a request for examination, paid the examination fee and waived your right to receive the communication under Rule 70(2) EPC (see point 5.4.004) before the search report has been communicated to you. In this situation you will receive a first communication from the examining division instead.

GL B-XI, 7

The non-binding opinion is not published together with the search report but is available to the public by way of file inspection after publication of the application.

Art. 128  
R. 62(2)

**5.2.011** If the application contains more than one independent claim in the same category (see point 4.2.021) and none of the exceptions listed under Rule 43(2) applies, you will be invited to indicate, within a two-month period, the basis on which the search is to be carried out. If you fail to do so, the search will be carried out on the basis of the first independent claim in each category.

R. 62a  
R. 137(5)  
GL B-VIII, 4

Similarly, if it is impossible to carry out a meaningful search on the basis of all or some of the subject-matter claimed, you will be invited to file, again within a two-month period, a statement indicating the subject-matter to be searched. Should your statement not be sufficient to overcome the deficiency, the EPO will issue a partial search report or a declaration that no meaningful search can be carried out.

R. 63  
GL B-VIII, 3

You should note that, in response to such an invitation for clarification, you may not amend the application documents.

R. 137(1)

When the examining division assumes responsibility, it will invite you to delete the unsearched subject-matter from the application unless it finds that the objection was unjustified.

R. 137(5)

**5.2.012** Immediately after it has been drawn up, the European search report is transmitted to you together with copies of any cited documents. If you require additional copies of the cited documents, you can indicate this in the appropriate box in the request for grant form (section 39 of the paper form) when filing the application. The request is valid only if the prescribed administrative fee is paid.

Art. 92  
R. 65  
GL B-X, 11, 12

After receiving the search report, you may withdraw the application if you think it has no chance of success. If you decide to pursue the patent grant procedure (see point 5.4.001), you will, in the next step, be invited to pay the examination fee, if you have not yet done so, or to declare that you wish to proceed further with the application. At the same time you are invited to file a reply to any

R. 70, 70a, 137  
GL C-II  
GL A-VI, 2

objections raised in the search opinion within the same time limit (see points 5.4.001 et seq.).

### **Lack of unity of invention**

- 5.2.013** If the search division considers that the application does not comply with the requirement of unity of invention (see point 4.2.003), it draws up a partial European search report on those parts which relate to the invention first mentioned in the claims. It informs you that, if the search report is to cover the other inventions, you must pay a further search fee in respect of each of them within a non-extendable period of two months.

Art. 82  
R. 64  
GL B-VII  
GL F-V. 4

If you do not respond to this invitation, and if the examining division considers the search division's objection justified, you are deemed to want the application to proceed in respect of the invention for which the (partial) search report has been drawn up. If you pay further search fees, the European search report is drawn up for those inventions for which further search fees have been paid.

A provisional opinion on the patentability of the invention or unitary group of inventions first mentioned in the claims is provided together with the reasons for any non-unity findings and the invitation to pay further search fees. The provisional opinion is for information only. A reply addressing the points raised in the provisional opinion is not required and is not taken into account when the extended European search report is issued.

GL B-VII. 1.2

The application must not include claims for subject-matter for which a further search fee has not been paid. You may however file divisional applications for such subject-matter (see points 5.8.001-5.8.005).

Any further search fees paid will be refunded on request if it emerges during examination proceedings that the search division's findings concerning lack of unity of invention was not justified.

GL B-VII. 2.1  
GL C-III. 3.4

- 5.2.014** Upon drawing up the European search report, the search division determines the definitive content of the abstract and transmits it to you together with the search report.

R. 66  
GL A-III. 10.2  
GL F-II. 2

## **5.3 Publication of the European patent application**

- 5.3.001** The European patent application is published as soon as possible after the expiry of eighteen months from the date of filing or the earliest priority date. You may however request that it be published earlier.

Art. 93(1)  
GL A-VI. 1

The publication contains the description, the claims and any drawings, all as filed, plus the abstract. If the European search report is available in time, it is annexed (A1 publication); if not, it is published separately (A3 publication). If the European patent

R. 68(1)  
GL A-VI. 1.3, 1.5



application was not filed in English, French or German, its translation will be published.

All European patent applications, European search reports and European patent specifications are published in electronic form only, on the EPO's publication server. The publication server is accessible via the EPO website ([epo.org](http://epo.org)).

*GL A-VI, 1.4*

- 5.3.002** If you amend the claims after receiving the European search report but before completion of the technical preparations for publication (see point 5.4.018), the amended claims will be published in addition to the claims as filed. The technical preparations are deemed to have been completed five weeks before expiry of the eighteenth month after the date of filing or, if priority is claimed, after the date of the earliest priority.
- R. 68(4)*  
*GL A-VI, 1.1, 1.3*
- 5.3.003** The European patent application is not published if it has been finally refused or withdrawn or is deemed withdrawn before completion of the technical preparations for publication.
- R. 67(2)*  
*GL A-VI, 1.2*
- 5.3.004** The EPO informs you of the date on which the European Patent Bulletin mentions the publication of the European search report, and it draws your attention to the period for filing the request for examination (paying the fee for examination), which begins on that date (see points 5.2.012 and 5.4.001). It also informs you that the designation fee must be paid within six months of the date on which the European Patent Bulletin mentions publication of the European search report and that the same period applies to the payment of any extension and validation fees.
- R. 69*  
*GL A-VI, 2.1*
- 5.3.005** For the provisional protection that the application confers after publication see the fourth paragraph of point 2.2.001.
- Art. 67*
- A contracting state not having the language of the proceedings as an official language may prescribe that provisional protection does not take effect until a translation of the claims into one of its official languages at your option or, where that state has prescribed the use of one specific official language, in that language:
- (a) has been made available to the public in the manner prescribed by national law, or
  - (b) has been communicated to the person using the invention in that state.
- The contracting states may make provisional protection conditional upon a translation of the claims. The same applies to the extension and validation states (see point 2.5.001). For more information you are referred to **National law relating to the EPC** (Table III).
- 5.3.006** Once the European patent application has been published, files relating to it are available for public inspection by way of the European Patent Register, which can be accessed via the EPO website ([epo.org](http://epo.org)).
- Art. 128(4)*  
*R. 143, 144*

From that time, too, the public has access to the application's bibliographic data and to information about the state of the proceedings by means of the European Patent Register, which can be accessed via the EPO website (see [Annex VI](#)).

[Art. 127](#)  
[R. 143](#)  
[GL A-XI](#)  
[OJ EPO 2014, A86](#)

The European Patent Register also allows you to monitor patent applications for updates using the Register Alert Service.

Additional information about the form in which European patent applications and patents are published and about periodical EPO publications is given in [Annex VI](#).

[Art. 129](#)

## 5.4 Examination procedure

### Request for examination

- 5.4.001** You need to file the request for examination within six months of the date on which the European Patent Bulletin mentions the publication of the European search report (see [point 5.3.004](#)). The request, which you must submit in writing, is contained in the request for grant form (see [point 4.1.013](#)), but it is not deemed to be filed until you have paid the examination fee. Once filed, it cannot be withdrawn.

[Art. 94\(1\)](#)  
[R. 70](#)  
[GL A-VI, 2.2](#)  
[Art. 2\(1\), item 6.](#)  
[RFees](#)

If you do not validly file the request for examination within the time limit, the application is deemed to be withdrawn. However, the opportunity to request further processing is available (see [point 5.10.007](#)).

[Art. 94\(2\)](#)  
[GL A-VI, 2.3](#)

- 5.4.002** You also have the option of paying the examination fee when you file the application. No disadvantages can accrue from this, as the examination fee is refunded in full if the application is withdrawn, refused or deemed to be withdrawn before substantive examination has begun. The examination fee is refunded at a rate of 50% if the application is withdrawn after substantive examination has begun but before expiry of the time limit for replying to the first communication from the examining division (see [point 4.3.019](#)).

[Art. 11 RFees](#)  
[GL A-VI, 2.2, 2.5](#)

- 5.4.003** If you validly file the request for examination before receiving the European search report, pursuant to [Rule 70\(2\)](#) the Receiving Section invites you to indicate, within six months of the date when the European Patent Bulletin mentions the publication of the search report, whether you wish to proceed further with the application. If you do not reply to this invitation in due time, the application is deemed to be withdrawn.

[R. 70\(2\), \(3\)](#)  
[GL A-VI, 2.3](#)  
[GL C-II, 1.1](#)

In this case, too, further processing is available (see [point 5.10.007](#)).

- 5.4.004** To speed up proceedings, you can also, for example in the request for grant form, simply waive your right to the invitation to confirm the request for examination. In that case, when you receive the search report you are deemed to have indicated that you wish to proceed further with the application, and the examining division then assumes responsibility for the procedure (see [point 5.2.010](#)).

[Art. 18\(1\)](#)  
[R. 70\(2\)](#)  
[GL C-VI, 3](#)

With a request for accelerated examination under the programme for accelerated prosecution of European patent applications ("PACE") you can speed up the proceedings at the examination stage. *GL E-VIII, 4.2*

- 5.4.005** You will be invited to comment on the extended European search report and/or to correct any deficiencies noted in the opinion accompanying it, and to amend the description, claims and drawings as appropriate, within the same six-month time limit as applies to filing or confirming the request for examination. If you fail to comply with the invitation in due time, the application will be deemed withdrawn (for further processing, see point 5.10.007). *R. 70a, 137*

However, if no objections were raised in the opinion accompanying the European search report, no invitation will be issued. Instead, you will be informed about the possibility of filing comments or making amendments within the same period (see point 5.4.018).

### Stages of the procedure

- 5.4.006** Once you have filed the request for examination, the EPO examines, in the light of the search report, the preliminary opinion on patentability (search opinion) and your response to them, whether the application and the invention to which it relates meet the requirements of the Convention, and in particular whether the invention is patentable (see points 3.1.001-3.4.002). *Art. 94(1)  
GL C-III*

After receiving the search report and before receiving the examiner's first communication, you must file substantive observations on any objections raised in the search opinion; you may also amend the description, claims and drawings (see points 5.4.005 and 5.4.018). *R. 70a, 137(2), (3)  
GL C-III, 2*

In exceptional situations where despite your reply to the search opinion no possibility of a grant can be envisaged, the examining division may issue a summons to oral proceedings as the first action in examination, with at least six months' notice. You may take the opportunity to submit any arguments and amendments by expiry of the deadline set with the summons. Should your submissions contain a genuine effort to overcome the examining division's objections, oral proceedings may be cancelled or postponed. Otherwise, a decision will be taken during the oral proceedings, even if you do not attend them. *GL C-III, 5*

- 5.4.007** If the examiner responsible within the examining division has objections to the application, they will send you a first reasoned communication inviting you to file your observations and, if necessary, to submit amendments to the description, claims and drawings (see points 5.4.017-5.4.022). *Art. 94(3)  
R. 71(1), 137(3)  
GL C-III, 4  
GL H-II*

If you fail to reply in due time to this or any further communication, the application is deemed to be withdrawn (but see point 5.10.007). *Art. 94(4)*

You might also be invited to provide information on prior art taken into consideration in the examination of national or regional patent *Art. 124  
R. 141  
GL C-III, 6*

applications and concerning an invention to which the European patent application relates. If you do not provide this information within a specified time limit, the application is deemed withdrawn (but see [point 5.10.007](#)). It is recommended that you file any search results relating to a previous application from which priority is claimed as soon as they are available (see [point 4.1.019](#)).

**5.4.008** You must try to deal with all the examiner's objections, the guiding principle of the examination procedure being that the decision to grant a patent or refuse the application should be reached in as few actions as possible.

[GL C-IV, 3](#)

If, after examining your response, the examiner considers that a patent cannot yet be granted, they will continue with the examination procedure by issuing a further written communication or consulting you by videoconference or, exceptionally, by telephone. If you have access to your patent application via MyEPO Portfolio, informal consultations may also take place in the shared area there.

[GL C-IV](#)  
[GL C-VII, 2](#)  
[OJ EPO 2022, A106](#)  
[OJ EPO 2023, A59](#)

A consultation may also be used as the first action replacing the first communication in examination under [Article 94\(3\)](#) and [Rule 71\(1\), \(2\)](#), provided that specific requirements are met, namely: (a) minutes are issued, (b) the minutes present the matters discussed with the same level of information and structure as a written communication from the examining division and (c) the time limit set for reply is not shorter than four months, unless agreed otherwise with the applicant.

[GL C-VII, 2.5](#)

You may at any time request oral proceedings. As a rule, oral proceedings before examining divisions are held by videoconference.

[Art. 116](#)  
[GL E-III](#)  
[OJ EPO 2022, A103, A106](#)

Email is an admissible filing means only for the submission of subsequently filed documents during consultations and during oral proceedings. Other than in the aforementioned cases, email has no legal effect in proceedings under the EPC.

[R. 50](#)  
[GL C-VII, 3](#)  
[GL E-III, 8.5.2](#)

**5.4.009** The examiner may seek the advice of other members of the examining division whenever appropriate. The application will be referred to them at the latest when a decision has to be taken.

[GL C-VIII](#)

If the examining division is of the opinion that a European patent cannot be granted, it will refuse the application. The decision is issued by the examining division as a whole, and the grounds of refusal must be stated. Refusals may be based only on grounds on which you have had an opportunity to comment.

[Art. 97\(2\), 113\(1\)](#)  
[GL C-V, 14](#)  
[GL C-VIII, 6](#)

**5.4.010** If the application and the invention to which it relates meet the requirements of the Convention, the examining division will proceed to the grant stage.

[Art. 97\(1\)](#)  
[R. 71\(3\)-\(7\)](#)  
[GL C-V](#)

**5.4.011** The examining division informs you of the text in which it intends to grant the European patent, and invites you to pay the fee for grant and publishing and any claims fees for claims in excess of 15 which have not yet been paid, as well as to file a translation of the claims into the two official languages of the EPO other than the

[R. 71\(3\)](#)  
[GL C-V, 1](#)

language of the proceedings within a non-extendable period of four months. You are also invited to verify the bibliographic data at this stage.

If you pay the prescribed fees and file the necessary translations of the claims in due time, you are deemed to have approved the text intended for grant. If you do not respond to the invitation, the application is deemed to be withdrawn (but see point 5.10.007).

R. 71(5), (7)  
GL C-V, 2, 3

**5.4.012** Upon reviewing the proposed text for grant, you may wish to make minor amendments, and/or you may discover mistakes. In that case you have an opportunity to file amendments or corrections within the period set under Rule 71(3) (see point 5.4.011). If the examining division consents to the amendments or corrections, it will issue a new communication under Rule 71(3). It can then proceed to grant, provided you file the translations of the claims and pay the fees for grant and publishing within the time limit set.

R. 71(6), 137(3), 139  
GL C-V, 4  
GL H-II, 2.5

**5.4.013** If the examining division does not consent to the requested amendments or corrections, it will resume the examination proceedings. Depending on the circumstances of the individual case, the examining division may for example issue a communication under Article 94(3), summon you to oral proceedings or refuse the application.

R. 71(6)  
GL C-V, 4  
GL H-II, 2.5

**5.4.014** If you fail to meet the objections raised, the examining division will refuse the application under Article 97(2) because it does not meet the requirements of the Convention. If you fail to pay the fee for grant and publishing or any claims fees due, the application is deemed to be withdrawn (but see point 5.10.007). If you have paid said fees but ultimately no patent is granted, the fee for grant and publishing will be refunded.

Art. 97(2)  
R. 71(7)  
GL C-V, 4.7, 9

Before a patent can be granted, you must also have paid any renewal fee and, if applicable, any additional fee due (see point 5.9.001 et seq.). If a renewal fee falls due before the expected date of publication of the mention of grant of the European patent, you will be informed accordingly. The mention of grant will not be published until you have paid the renewal fee. If you fail to pay the renewal fee and any additional fee in due time, the application is deemed to be withdrawn.

Art. 86(1)  
R. 71a(4)  
GL C-V, 2

**5.4.015** If you overrun the period set under Rule 71(3), you may request further processing under Article 121 (see point 5.10.007).

Art. 121  
R. 135  
GL C-V, 3

**5.4.016** The grant does not take effect until the date on which it is mentioned in the European Patent Bulletin. At the same time as it publishes this mention, the EPO publishes a European patent specification containing the description, the claims and any drawings. The European patent specification and the European Patent Bulletin are published electronically on the EPO's publication server (epo.org).

Art. 97(3), 98  
GL C-V, 10

If you have activated the Mailbox service, you will receive the certificate for a European patent as a digital file for download from the Mailbox. Otherwise, the certificate will be sent to you in paper form. If there is more than one proprietor, a certificate will be

R. 74  
GL C-V, 12

issued to each of them. Certified copies of the certificate with the specification annexed will be issued to the proprietor upon request and payment of an administrative fee.

### **Amending applications before and during examination proceedings**

- 5.4.017** You are not allowed to amend the description, claims or drawings before you receive the European search report. You should always indicate any amendments made and identify their basis in the application as filed. *R. 137(1)  
GL A-V, 2  
GL H-II, 2  
GL H-III  
GL H-IV, 2, 5.2*
- 5.4.018** Within the time limit for requesting examination or confirming that request (i.e. when replying to the invitation to comment on the objections raised in the search opinion), you may of your own volition amend the description, claims and drawings (see points 5.3.002, 5.4.005, 5.4.006 and 5.4.021). *R. 137(2)  
GL B-XI, 8  
GL C-II, 3  
GL C-III, 2*
- 5.4.019** No further amendments are allowed without the examining division's consent. Amended claims may not relate to unsearched subject-matter which does not combine with the originally claimed invention to form a single general inventive concept. In deleting subject-matter from an application, you should avoid any statement which could be interpreted as abandonment of that subject-matter. Otherwise the subject-matter cannot be reinstated. *R. 137(3), (5)  
GL H-II, 2  
GL H-IV, 4*
- 5.4.020** The Guidelines for Examination provide information about the limits to the amendments that you can make to the description, claims and drawings after receiving the communication under Rule 71(3). If you file amendments or corrections in reply to the communication under Rule 71(3) concerning the claims, you should consider whether this necessitates any adaptation of the description. To avoid potential delays in cases where adaptation is necessary, you should preferably provide an adapted description when filing amended claims. If you do not file an adapted description, the examining division may carry out the adaptation itself and propose these amendments in a second communication under Rule 71(3). Alternatively, it may resume examination and issue a communication pursuant to Article 94(3) requesting you to provide the adapted description before issuing a second communication under Rule 71(3). Once you have received the text communicated to you pursuant to Rule 71(3) (including minor amendments and/or corrections of errors, see point 5.4.011), further amendments will only be allowed under the discretionary power given to the examining division by Rule 137(3). *R. 137(3), 71(6)  
GL C-V, 4.5, 4.7.2  
GL H-II, 2.5, 2.6  
GL F-IV, 4.3*
- 5.4.021** The application may on no account be amended in such a way that it contains subject-matter which extends beyond the content of the application as filed (which does not include the priority document). However, subsequently filed examples or statements of advantage may be considered by the examiner as evidence in support of the invention's patentability. *Art. 123(2)  
GL H-IV, 2*
- This technical information is generally added to the part of the file that is open to public inspection (see point 5.3.006). From the date on which it is added, it forms part of the state of the art within the *GL H-V, 2.3*



meaning of Article 54(2) (see point 3.3.001). A note is printed on the cover page of the patent specification to alert the public that information submitted after the application was filed is not included in the specification (see point 5.4.016).

**5.4.022** You can make amendments to the European patent application in one of the following ways: *GL H-III, 2*

- (a) by filing replacement pages. You should use this method only if the amendments are extensive and complicated. If it is not immediately clear how or why an amendment is to be made, you should provide explanatory notes in the margin of the replacement pages or on separate sheets. You must comply with the provisions governing application document presentation (see point 4.2.004).
- (b) by annotating a copy of the relevant page(s) of the application. This is the preferred method if the amendments are not too extensive, as it simplifies checking. The amendments must be typewritten. Amendments should preferably be identified using functions available in a text editor to clearly indicate deletions and insertions in the amended text. Pages with such indications should be submitted in addition to clean copies. If you are asked to identify the amendments and indicate the basis for them under Rule 137(4), the handwritten form is appropriate, provided that clean copies are free from handwritten amendments. *R. 49(2)  
GL A-III, 3.2*
- (c) by indicating the changes in a letter. This method is suitable if, for example, you wish to delete whole pages, paragraphs or drawings.

### **National requirements governing translations of European patents**

**5.4.023** Any contracting state may make the protection conferred by a European patent granted (or amended or limited) in a language that is not one of its official languages contingent upon your filing a translation into one of its official languages or its prescribed official language. It may also require you to bear some or all of the cost of publishing the translation. The same applies to extension and validation states. *Art. 65  
OJ EPO 2008, 123  
OJ EPO 2001, 549*

For more details on the legal position in the contracting states, see **National law relating to the EPC** (Table IV) and the key points of the London Agreement, which can be found on the EPO website at [epo.org/law-practice/legal-texts/london-agreement.html](http://epo.org/law-practice/legal-texts/london-agreement.html).

You should take great care to comply with these requirements, especially those governing time limits for filing translations, so as not to undermine the protection conferred by the patent in the designated contracting states. The same applies to extension and validation states.

Note: all those states which require a translation of the European patent specification have prescribed that, in the event of failure to observe the relevant national provisions, the European patent will be deemed to be void from the beginning.

Art. 65(3)

## 5.5 Opposition procedure

### Opposition period

**5.5.001** Up to nine months after publication of the mention that a European patent has been granted, anyone may give the EPO notice of opposition to the patent, except for the proprietor, who is not allowed to oppose their own patent. Notice of opposition must be filed direct with the EPO.

Art. 99  
GL D-I, 4

Notice of opposition is not deemed to have been filed until the opposition fee has been paid.

Art. 2(1), item 10,  
RFees

### Grounds for opposition

**5.5.002** Opposition may only be filed on the grounds that:

Art. 100  
GL D-III, 5

- the patent's subject-matter is not patentable within the terms of Articles 52-57.
- the patent does not disclose the invention clearly and completely enough for it to be carried out by a person skilled in the art
- the patent's subject-matter extends beyond the content of the application as filed.

### Form and content of the notice of opposition

**5.5.003** Notice of opposition must be filed within the opposition period in a reasoned statement. That means that the opponent must state at least one ground for opposition under Article 100 and indicate the facts, evidence and arguments presented in support of the ground(s). Otherwise the notice of opposition will be rejected as inadmissible. It is advisable to use the EPO opposition form (EPO Form 2300), which provides all the information needed to ensure that an opposition is admissible. This form is integrated in the permitted electronic filing tools. It is also available on the EPO website (epo.org).

Art. 99(1)  
R. 76  
GL D-III, 3, 6

Notice of opposition may be filed electronically via the EPO Online Filing software or EPO Online Filing 2.0, but not via the EPO Web-Form Filing service (see points 4.4.001-4.4.006). It may also be filed by post or by hand.

R. 2  
GL D-III, 3.2



## Examination of the notice of opposition for admissibility

- 5.5.004** Immediately after receiving the notice of opposition, the EPO will forward it to the proprietor. Then the admissibility of the opposition is checked. Deficiencies in the notice are communicated to the opponent. Deficiencies under Rule 77(1) must be remedied within the opposition period. Other remediable deficiencies must be corrected within a period specified by the EPO (generally two months). If the deficiencies noted are not corrected in due time, the notice of opposition is rejected as inadmissible.
- Documents cited in support of the opposition or as evidence must be specified in the notice of opposition and should be filed at the same time. If not filed with the initial notice of opposition, all cited documents will be requested from the opponent within an additional time limit of two months. If the opponent fails to do so in due time, the opposition division may decide not to take any arguments based on them into account.
- 5.5.005** Immediately after expiry of the opposition period or the period laid down for remedying deficiencies or presenting evidence, the patent proprietor is invited to file observations and, where appropriate, amendments within a period specified by the EPO (generally four months). Amendments are allowed only if they are occasioned by grounds for opposition under Article 100, including grounds not invoked by the opponent.
- 5.5.006** The EPO communicates notices of opposition and any letters filed during opposition proceedings to the other parties for information. However, the EPO does not automatically transmit copies of any documents annexed to notices of opposition or to letters which are available for inspection and download in the European Patent Register.

R. 77  
GL D-IV, 1.2

R. 83  
GL D-IV, 1.2.2.1  
OJ EPO 2016, A42

R. 79, 80  
GL D-IV, 5.2, 5.3

R. 79, 81  
OJ EPO 2022, A28

## Substantive examination of the opposition

- 5.5.007** Once these preliminaries have been completed, the opposition division examines whether the grounds for opposition prejudice the maintenance of the European patent. If necessary it will invite the parties to file observations on its or other parties' communications within a period which it specifies.
- Upon receipt of a communication sent in this way, the proprietor may file the description, claims and drawings in amended form where necessary. Late-filed proposals for amendment might not be considered.
- If oral proceedings have to be arranged at the request of a party or at the instance of the EPO where it considers them expedient, the summonses are issued as soon as possible. Oral proceedings in opposition are held by videoconference.
- In a note annexed to the summons, the opposition division lists and explains the points that in its view need to be discussed for the purpose of the decision that has to be taken. The note generally also includes the opposition division's provisional and

Art. 101  
R. 81  
GL D-V, VI  
GL E-VIII, 1.2

R. 81(3)  
GL D-VI, 4.2

Art. 116(1)  
R. 115  
GL D-VI, 1  
OJ EPO 2022, A103, A106

R. 116  
GL D-VI, 3.2  
GL E-III, 8.6

non-binding opinion on the positions adopted by the parties, and in particular on amendments to the patent filed by its proprietor. At the same time, the opposition division fixes a final date for filing written submissions or amendments in preparation for the oral proceedings. New facts and evidence presented after that date might not be considered, unless admitted on the grounds that the subject of the proceedings has changed.

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| <b>5.5.008</b> | If the opposition division finds that the grounds for opposition prejudice the maintenance of the European patent, it revokes the patent. If it finds that the grounds do not prejudice the maintenance of the patent as granted, it rejects the opposition.   | <u>Art. 101</u><br><u>R. 81</u><br><u>GL D-VIII, 1.2, 1.3</u>  |
| <b>5.5.009</b> | If the opposition division finds that the patent can be maintained in amended form, it delivers an interlocutory decision stating that, with the amendments made by the proprietor, the patent and the invention to which it relates meet the requirements of the EPC. A separate appeal is allowed against such an interlocutory decision.  | <u>Art. 101(3)(a)</u><br><u>R. 82</u><br><u>GL D-VIII, 1.4</u> |
| <b>5.5.010</b> | Once the interlocutory decision under point 5.5.009 becomes final, the proprietor is given three months in which to pay the fee for publishing a new specification and file a translation of any amended claims in the two official languages other than the language of the proceedings.  | <u>R. 82(2)</u><br><u>GL D-VI, 7.2.3</u>                       |
|                | If the proprietor has filed handwritten amendments during oral proceedings, they will be invited to file the amended text in a form compliant with <u>Rule 49(2)</u> within the above-mentioned three-month period.  | <u>R. 82(2)</u><br><u>GL D-VI, 7.2.3</u>                       |
| <b>5.5.011</b> | If these acts are not performed in due time, they may still be validly performed within two months of notification of a communication pointing out the failure to observe the time limit, provided that a surcharge is paid within this period. If any of these acts is not performed within this period either, the patent will be revoked. | <u>R. 82(3)</u>  |
| <b>5.5.012</b> | The contracting states make the amended text subject to the same translation requirements as the patent specification (see point 5.4.023).   | <u>Art. 65</u>   |

## 5.6 Limitation and revocation procedure

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| <b>5.6.001</b> | As patent proprietor you may request the revocation or limitation of your own patent. You can file the request at any time after grant, after opposition proceedings or even after expiry of the patent. However, a request for revocation or limitation filed while opposition proceedings in respect of the European patent are pending is deemed not to have been filed, since the opposition proceedings have precedence. In case of revocation, the requester will be informed that the request will be handled in the pending opposition proceedings without payment of a fee. Subsequently, the <u>Article 105a</u> proceedings will be terminated. If a revocation request is pending at the time of filing an opposition, the revocation procedure will be continued for reasons of procedural efficiency. If limitation proceedings are pending at the | <u>Art. 105a</u><br><u>R. 93</u><br><u>GL D-X, 7.1</u> |
|----------------|--|--|

time of filing an opposition, the limitation proceedings are terminated and the limitation fee is reimbursed. Opposition proceedings will be continued.

- 5.6.002** Requests must be filed direct with the EPO. Requests may be filed electronically via the EPO Online Filing software or EPO Online Filing 2.0, but not via the EPO Web-Form Filing service (see points 4.4.001-4.4.006). They may also be filed by post or by hand. Although not mandatory, it is recommended to use the dedicated EPO Form 2380, which is available on the EPO website ([epo.org](http://epo.org)). The general provisions for filing a European patent application (see Rules 35 ff) and the need for professional representation for non-resident patent proprietors apply (see points 4.1.023-4.1.024). Furthermore, the request is deemed to be filed only when the limitation or revocation fee is paid.
- 5.6.003** The subject of limitation or revocation proceedings is the European patent as granted or as amended in opposition or (earlier) limitation proceedings. Since limitation is effected by means of amendment of the claims, the request must include a complete set of the amended claims (and the description and drawings if applicable). If these or the general requirements regarding languages and representation (see points 4.1.006-4.1.010 and 4.1.023-4.1.031) are not met, the EPO invites you to correct any deficiencies within a period to be specified, normally of two months. If you do not correct the deficiencies within this period, the request is rejected as inadmissible. Re-establishment of rights is however available. The decision rejecting the request is open to appeal.
- 5.6.004** If the request is for **revocation** and is admissible, the examining division revokes the patent and communicates this to the requester.
- The decision takes effect on the date on which it is published in the European Patent Bulletin. It applies *ab initio* to all contracting states in respect of which the patent was granted. It is not possible for the patent to be revoked for some contracting states and not for others.
- 5.6.005** If the request for **limitation** is admissible, the examining division proceeds with its examination of the request. The basis for the examination is the patent as granted or amended in opposition or limitation proceedings. Where there have already been both opposition and limitation proceedings, then the basis for the examination is the patent as amended in the most recent of the procedures. The examining division only examines whether the amended claims constitute a limitation with respect to the claims as granted or amended and whether they are clear and concise and supported by the description and do not contain subject-matter which extends beyond the application as filed.
- 5.6.006** The term 'limitation' means a reduction in the scope of protection of the claims. Clarifications or changes made simply to protect different subject-matter are not considered to be limitations. If there are any deficiencies, you will be invited to correct them within a period generally set to two months.

Art. 105a(1)  
R. 35 ff  
Art. 2(1), item 10a,  
RFees

R. 90, 92(2), 94  
GL D-X. 2  
Art. 122

Art. 105b(2)  
R. 95(1)  
GL D-X. 3

Art. 105b(3), 64

Art. 84, 123(2), (3)  
R. 90  
GL D-X. 4

Art. 105b(1)  
R. 95(2)  
GL D-X. 4.3-4.5

- 5.6.007** If the request for limitation is allowable, you will be informed accordingly and invited to pay the prescribed fee for publishing an amended specification and to file a translation of the amended limited claims into the other two official languages within a non-extendable period of three months. If considered necessary, the description and drawings have to be adapted additionally. If these acts are not performed in due time, they may still be validly performed within two months of notification of a communication pointing out the failure to observe the time limit, provided that a surcharge is paid within this period.
- Art. 105b(2)  
R. 95(3), (4), 82(3)  
Art. 2(1), item 8.  
RFees  
GL D-X, 5*
- The procedure for this is the same as in opposition proceedings. If you pay the fees and file the translations as set out above in due time, then the examining division will limit the patent. Subsequently an amended specification as limited will be published and a new certificate will be issued. If not, the request will be refused.
- Art. 105c  
R. 96, 74*
- 5.6.008** The decision to limit the European patent takes effect on the date on which it is published in the European Patent Bulletin. Its effect is to limit the patent *ab initio*.
- Art. 105b(3), 68*

## 5.7 Appeals procedure

### Filing an appeal

- 5.7.001** Appeals may be filed against decisions of the Receiving Section, the examining divisions, the opposition divisions and the Legal Division. An appeal has suspensive effect, which means that the contested decision is not yet final (no formal *res judicata*) and its effects are suspended.
- Art. 106*
- 5.7.002** Notice of appeal must be filed in written form within two months after the date of notification of the contested decision. It is not deemed to have been filed until the appeal fee has been paid. Within four months after the date of notification of the decision, a written statement setting out the grounds of appeal must be filed. The above time limits cannot be extended. Further processing under Article 121 is excluded.
- Art. 108  
Art. 2(1), item 11.  
RFees*
- 5.7.003** A reduced fee for appeal applies to appeals filed by natural persons and by small and medium-sized enterprises, non-profit organisations, universities and public research organisations.
- R. 6(4)  
GL E-XII, 6*
- 5.7.004** The notice of appeal and the statement of grounds may be filed in electronic form using the EPO Online Filing software or EPO Online Filing 2.0 but not via the EPO Web-Form Filing service. They may also be filed by post or by hand. A valid electronic signature may take the form of a facsimile signature, a text string signature or an enhanced electronic signature (see point 4.4.004).
- R. 2  
OJ EPO 2023, A48*

**5.7.005** The notice of appeal must contain: *R. 99(1)*

- (a) the name and address of the appellant
- (b) an indication of the appealed decision
- (c) a request defining the subject of the appeal

**5.7.006** In the statement of grounds the appellant should indicate the reasons why the decision should be set aside, or the extent to which it is to be amended. Similarly, the facts and evidence on which the appeal is based should also be filed. All arguments should be presented in writing and not reserved for possible oral proceedings. *R. 99(2)*

The Registry gives each appeal its own reference number, which must be used throughout the appeal proceedings.

### **Interlocutory revision**

**5.7.007** If the department whose decision is contested considers an appeal to be admissible and well founded, it must rectify its decision within three months of receiving the statement of grounds. If the appeal is not allowed within that period, it must be remitted to the board of appeal without delay. *Art. 109  
GL E.XII.7*

Interlocutory revision is not possible where the appellant is opposed by another party to the proceedings (in particular in opposition proceedings).

### **Stages of the procedure before the boards of appeal**

**5.7.008** The boards of appeal of the EPO decide on appeals as a judicial and final instance. The members of the boards are independent in their decision-making and bound to comply with the EPC. The Rules of Procedure of the Boards of Appeal are published in the Official Journal and on the EPO website. *Art. 23(3)  
Supplementary  
publication 1, OJ  
EPO 2023*

The technical boards of appeal are responsible for appeals against decisions of the examining divisions concerning the refusal of European patent applications or the granting of European patents and for appeals against decisions of the opposition divisions. *Art. 21(3), (4)*

The technical boards normally consist of three members (two technically qualified and one legally qualified). This is increased to five (three technically qualified and two legally qualified) if a legally qualified member was involved in taking the decision or if the board considers that the nature of the appeal so requires (enlarged composition). *Art. 21(3)(a), (b)*

Where the technical boards of appeal are not competent – particularly in the case of appeals against decisions of the Receiving Section or the Legal Division – a legal board of appeal consisting of three legally qualified members deals with such procedures. *Art. 21(2), (3)(c)*

**5.7.009** To ensure uniform application of the law or if an important point of law arises, referrals may be submitted to the Enlarged Board of Appeal. During proceedings on a case and either of its own motion or following a request from a party, a board of appeal may refer any question to the Enlarged Board if it considers that a decision is required for the above purposes. The Enlarged Board's decision is binding on the referring board. The President of the EPO may refer a point of law to the Enlarged Board if two boards of appeal have given different decisions on the issue. Art. 22, 112

**5.7.010** The provisions relating to proceedings before the department which took the appealed decision are essentially applicable *mutatis mutandis* to appeal proceedings and proceedings for petition for review. In the examination of the appeal, the board of appeal invites the parties to file, within a specified period, observations on communications issued by itself or observations submitted by another party. Art. 110  
R. 100

Oral proceedings may be held at the request of a party or at the instance of the board of appeal. Art. 116

**5.7.011** In deciding on the appeal, the board may either exercise any power within the competence of the department which took the appealed decision or remit the case to that department for further prosecution. In the latter case, the department is bound by the board's decision, in so far as the facts are the same. Art. 111

#### **Petition for review**

**5.7.012** Any party to appeal proceedings adversely affected by the decision of the board of appeal can file a petition for review of the decision by the Enlarged Board of Appeal. Such petitions may be filed on the grounds either that the composition of the board was not correct, or that a fundamental violation of the right to be heard or any other fundamental procedural defect had occurred, or that a criminal act may have had an impact on the decision. The objections must have been brought up during the appeal proceedings. Art. 112a, 113  
R. 104-107

As a rule, petitions must be filed within two months of notification of the decision of the board of appeal. A petition is not deemed to be filed until the prescribed fee has been paid. Art. 112a(4)  
Art. 2(1), item 11a,  
R.Fees

If a petition for review is admissible and allowable, the Enlarged Board sets aside the decision of the board of appeal and orders re-opening of the proceedings before the responsible board of appeal as well as the reimbursement of the fee for petition for review. Art. 112a(5)  
R. 108(3), 110



## 5.8 Divisional applications

- 5.8.001** The usual reason for filing a European divisional application is that the parent application does not satisfy the requirements as to unity of invention (see point 4.2.003) and the applicant wishes to obtain a patent for all the inventions. *Art. 76, 82  
R. 36  
GL A-IV, 1  
GL C-IX, 1*
- 5.8.002** A divisional application may be filed only for subject-matter which does not extend beyond the content of the parent application as filed. If it complies with this provision and with the formal requirements for according a date of filing (see point 5.2.001 et seq.), it is deemed to have the same date of filing as the parent application. A valid divisional application also enjoys the priority right(s) of the parent application. *Art. 76(1), 80  
GL A-IV, 1.2  
GL C-IX, 1.1*
- All the states designated in the parent application at the time of filing of the divisional application are deemed to be designated in the latter. However, contracting states the designations of which have been withdrawn or are deemed to be withdrawn in respect of the parent application at the time of filing the divisional application cannot be designated in respect of the divisional application. The same applies to extension and validation states. *Art. 76(2)  
GL A-IV, 1.3.4*
- 5.8.003** A divisional application may be filed in respect of any pending earlier European patent application. An application is pending up to (but not including) the date on which the European Patent Bulletin mentions the grant of the European patent. It ceases to be pending if it is finally refused or if it is withdrawn or deemed to be withdrawn. If an application has been refused, a divisional application may still be validly filed until the expiry of the appeal period, regardless of whether an appeal has been filed or not. *R. 36(1)  
GL A-IV, 1.1.1*
- 5.8.004** Divisional applications must be filed direct with the EPO. They can be filed in electronic form (see point 4.3.001). The language of the proceedings is always the same as for the earlier (parent) application. If the parent application was filed in a language other than the language of the proceedings, the divisional application may also be filed in this other language. Then, however, a translation into the language of the proceedings of the parent application must be filed within two months. *R. 36(2)  
R. 57(a)  
GL A-IV, 1.3*
- 5.8.005** For the fees payable in respect of a European divisional application, and also for the time limits for payment and the legal consequences of missing them, see points 4.3.015-4.3.018.
- The search fee is refunded in full or in part, depending on the extent to which the search can be based on the search report for the parent (or, in the case of a sequence of applications, any preceding) application. *Art. 9 RFees*
- If the divisional application is filed more than two years after the date of filing of the parent application, the accumulated renewal fee(s) (see points 5.9.001-5.9.004) are due on filing of the divisional application but can be validly paid without any additional fee within four months of this filing. If not paid within this period, the accumulated renewal fees may still be validly paid within six *Art. 86(1)  
R. 51(3)*

months of the due date, provided they are paid together with an additional fee (see point 5.9.003).

After filing, each divisional application is treated as an independent patent application.

## 5.9 Renewal fees

**5.9.001** You are required to pay renewal fees to the EPO in respect of your European patent application. These are due in respect of the third and each subsequent year, calculated from the date of filing. *Art. 86  
R. 51  
Art. 2(1), item 4.  
RFees*

**5.9.002** Renewal fees in respect of the coming year are due on the last day of the month in which the anniversary of the date of filing falls. For fee amounts and payment methods see points 4.3.017 and 4.3.018. *R. 51(1)*

**5.9.003** Payment may still be validly made up to six months after the due date, provided that an additional fee equal to 50% of the belated renewal fee is paid within the same period. The EPO will normally send you an information letter if the renewal fee has not been paid by the due date; however, you are not entitled to base any claims on the omission of this courtesy service. Renewal fees may not be validly paid more than three months in advance of the date on which they fall due. The sole exception is the renewal fee for the third year, which may not be validly paid more than six months before it falls due. *R. 51(2)  
Art. 2(1), item 5.  
RFees  
GL A-X. 5.2.4*

**5.9.004** If you fail to pay the renewal fee and any additional fee in due time, the application is deemed to be withdrawn. As a means of redress you may request re-establishment of rights under Article 122 (see also point 5.10.008). Further processing under Article 121 is not available. *Art. 86(1)  
R. 135, 136*

**5.9.005** The last renewal fee payable to the EPO in respect of a European patent application covers the patent year in which the mention of the grant of the patent is published (see point 5.4.014 ff). *Art. 86(2)*

**5.9.006** Renewal fees falling due between the date of grant of the European patent and the expiry of its term are payable to the central industrial property offices of the designated states in which you have validated it. For more details refer to **National law relating to the EPC** (see point 2.1.004). *Art. 63, 141*

## 5.10 General provisions governing periods

**5.10.001** Annex IV contains charts illustrating actions applicants have to take within periods laid down in the EPC. *Art. 120-122  
R. 131-136  
GL E-VIII*

A period is calculated from the day after the date on which the relevant event occurred. In the case of a notification, the event considered is the receipt of the document notified, subject to the provisions governing notification. The generally applicable *R. 131, 134  
GL E-VIII, 1.4, 1.6.2*



procedure for notifications is indicated below. Period expiry is regulated in Rule 131(3) to (5). Under Rule 134(1) a period expiring on a day on which the EPO is closed or on which mail is not delivered is extended to the next day on which it is open and on which mail is delivered (for example, if a period expires on a Saturday or Sunday, the next day on which it is open is Monday). The provisions in Rule 134(2) and (5) also permit extension of a period in certain special cases.

A period will be deemed to have been observed if a document received late was posted, or delivered to a delivery service recognised by the President of the EPO (Chronopost, DHL, Federal Express, flexpress, TNT, SkyNet, UPS or Transworld), at least five calendar days before the relevant period expired, unless the document was received later than three months after the period expired.

R. 133  
OJ EPO 2015, A29

- 5.10.002** A period set by the EPO may also be extended provided that a request for extension is submitted before that period expires. However, a request for extension which would make the total period over six months long will be allowed only in exceptional cases.

R. 132(2)  
GL E-VIII, 1.2, 1.6.1

If an extension of a time limit is requested in applications which, at the request of the applicant, are being processed under the programme for accelerated prosecution of European patent applications (PACE), the application(s) will be removed from the PACE programme.

GL E-VIII, 4

In opposition proceedings, requests to extend time limits over and above the normal period of four months for communications from an opposition division raising matters of substance or two months for other communications will be granted only in exceptional, duly substantiated cases.

GL E-VIII, 1.6.1

- 5.10.003** All decisions, summonses, notices and communications from which a period is calculated are delivered as notifications.

Art. 119  
R. 125-129

If you have agreed to receive communications electronically, notification may be effected by means of electronic communication. The electronic document is deemed to be delivered to the addressee on the tenth day following its transmission, unless it fails to reach the addressee or reaches them at a later date.

R. 127  
GL E-II, 2.4

Notification may be effected by registered letter, which is deemed to be delivered on the tenth day following its posting, unless it fails to reach the addressee or reaches them at a later date.

R. 126  
GL E-II, 2.3

### **Missed time limits**

- 5.10.004** If you miss a time limit, **legal sanctions** are applied, such as refusal of the application, deemed withdrawal of the application or a (partial) loss of rights, for example a loss of the right of priority due to late filing of the priority document.

GL E-VIII, 1.8

- 5.10.005** Where the sanction applied is the refusal of the European patent application, this is communicated to you in a decision by the competent department. Whenever the EPO finds that rights have been lost, it will inform you in a communication noting this loss of rights.
- R. 112(1)*  
*GL E-VIII, 1.9.1, 1.9.2*  
*GL E-X, 1*
- If you consider that the EPO's finding is inaccurate, you may, within two months after receiving the communication noting the loss of rights, file a request for a decision on the matter. A decision will be taken only if the EPO stands by its opinion. Any such decision is open to appeal. If the request is allowed, no decision will be taken and the EPO will inform you that the loss of rights has been set aside.
- R. 112(2)*  
*GL E-VIII, 1.9.3*
- Completion of an omitted act**
- 5.10.006** The EPC makes provision for omitted acts to be completed, depending on the nature of the missed time limit.
- 5.10.007** If you miss a time limit vis-à-vis the EPO, it is in most cases sufficient to request further processing of the application. Further processing must be requested within two months of the date on which the communication concerning either the failure to observe a time limit or a loss of rights is notified. Further processing must be requested by payment of the prescribed fee. The omitted act must be completed within the period for making the request. No reasons for failing to observe the time limit need to be given. Further processing is ruled out in respect of certain time limits as listed in Article 121(4) and Rule 135(2).
- Art. 121*  
*R. 135*  
*Art. 2(1), item 12.*  
*RFees*  
*GL E-VIII, 2*
- 5.10.008** Re-establishment of rights (*restitutio in integrum*) is available for those time limits for which further processing is ruled out. However, a request for re-establishment of rights can be granted only if you were unable to meet the time limit despite taking all due care required by the circumstances.
- Art. 122*  
*R. 136*  
*GL E-VIII, 3*
- If you act through a representative, your application for re-establishment can be granted only if the representative has also exercised all due care demanded of the applicant under Article 122(1).
- 5.10.009** Re-establishment of rights is excluded in respect of those time limits for which further processing is available and in respect of the period for requesting re-establishment of rights. Re-establishment of rights is however available if you missed the time limit for requesting further processing. Further processing and re-establishment of rights are not available if you missed the time limit for paying extension and/or validation fees, as these are not EPC periods (see, however, point 4.3.016).
- Art. 122(4)*  
*R. 136(3)*  
*GL E-VIII, 3.1.1*
- 5.10.010** Requests for re-establishment of rights must be filed within two months from the removal of the cause of non-compliance with the time limit, but at the latest within one year of expiry of the unobserved time limit. The omitted act must be completed within the same period. Requests for reestablishment of rights in respect of any of the periods specified in Article 87(1) and in
- R. 136(1)*  
*GL E-VIII, 3.1.3*

Article 112a(4) must however be filed within two months of expiry of that period.

The request must state the grounds on which it is based and must set out the facts on which it relies. It must set forth the precise cause of non-compliance with the time limit concerned (i.e. the fact or obstacle which prevented the required action from being taken within the time limit), specify how and when it was removed, and present the core facts.

*R. 136(2)*  
*GL E-VIII, 3.1.4*

The request is not deemed to have been filed until the fee for re-establishment of rights has been paid. Where several independent procedural acts have been omitted, each resulting in the application being deemed withdrawn, a fee for re-establishment is due for each omitted act.

*R. 136(1)*  
*Art. 2(1), item 13.*  
*R Fees*  
*GL E-VIII, 3.1.3*

Where re-establishment of rights has to be requested in respect of the time limit(s) for requesting further processing, the number of unobserved time limits, each resulting in the application being deemed withdrawn and requiring a request for further processing, determines the number of requests for re-establishment and the corresponding number of fees for re-establishment.

## **5.11 How to register transfers, changes of name, licences and other rights**

### **Transfer of rights**

**5.11.001** A European patent application or patent may be assigned as a whole or in part for one or more of the designated contracting states.

*Art. 71-72, 74*  
*R. 22, 85*

**5.11.002** On request, the EPO will register the transfer of rights in respect of a pending European patent application in the European Patent Register, upon fulfilment of certain requirements. The transfer of a European patent can only be registered during the opposition period or as long as opposition proceedings are pending before the EPO.

*R. 22, 85, 143(1)(w)*  
*GL E-XIV, 3, 4*

**5.11.003** In order for a transfer of rights to be entered in the European Patent Register, the following requirements have to be met:

- (a) Filing of a request for registration of a transfer of rights in respect of one or more European patent applications or patents. For this purpose, you can use EPO Form 5050, which is available on the EPO website ([epo.org](http://epo.org)).
- (b) Payment of the corresponding administrative fee for each European patent application or patent concerned. The request is not deemed to have been filed until this fee has been paid. The amount of the fee is determined by the latest schedule of fees and expenses of the EPO.
- (c) Filing of documents providing evidence of the transfer.

*R. 22(1)*

*R. 22(2)*

*R. 22(3)*

- 5.11.004** Any kind of written evidence suitable for proving the transfer is admissible. This includes formal documentary proof such as the instrument of transfer itself (the original or a copy thereof) or other official documents or extracts from them, provided that they immediately verify the transfer. The signatures of the parties to the contract must appear on the documents submitted as evidence. Where the request is filed electronically with the EPO (see point 4.3.001), the assignment document may, instead of handwritten signatures, bear qualified electronic signatures as defined in the Notice from the EPO dated 22 October 2021. Where the original document is not in one of the EPO's three official languages, the EPO may require a certified translation in one of those languages. A declaration signed by the parties to the contract verifying the transfer is also sufficient, e.g. EPO Form 5055, which is available on the EPO website ([epo.org](http://epo.org)).
- Art. 72  
R. 5  
GL E-XIV. 3  
OJ EPO 2021. A86*
- 5.11.005** Where a document is signed on behalf of a legal person, only such persons as are entitled to sign by law, by the legal person's articles of association or equivalent or by a special mandate may do so. National law applies in that respect.
- GL E-XIV. 3*
- 5.11.006** If the evidence is found to be unsatisfactory, the EPO will inform the party requesting the transfer accordingly and invite it to remedy the stated deficiencies. If the request complies with the requirements of Rule 22, the transfer will be registered with effect from the date on which the request, the supporting evidence or the fee was received at the EPO, whichever is the latest. In case of a minor deficiency, i.e. if all requirements were complied with but not to the full extent required (e.g. the request was signed but the name and/or position of the person signing were missing), the date of receipt of the original request for registration will be considered the effective date once the deficiency has been rectified.

### **Changes of name**

- 5.11.007** On request, a change of the applicant's or proprietor's name will be entered in the European Patent Register as long as proceedings are pending before the EPO and so long as it does not involve any change to the legal identity of the applicant/proprietor. Relevant documentary evidence enabling the EPO to verify the change must be produced. Registration of a change of name is free of charge.
- R. 143(1)(f)  
GL E-XIV. 5*

### **Licences and other rights**

- 5.11.008** A European patent application may be licensed or give rise to rights in rem and may be the subject of legal means of execution in respect of the whole or part of the territories of the designated contracting states.
- Art. 73, 74  
R. 23, 24*
- 5.11.009** Rule 22 applies to the registration of the grant or transfer of a licence, the establishment or transfer of a right in rem and any legal means of execution affecting such an application (see point 5.11.003). The above standard of proof applies to the registration
- R. 23(1)  
GL E-XIV. 6*

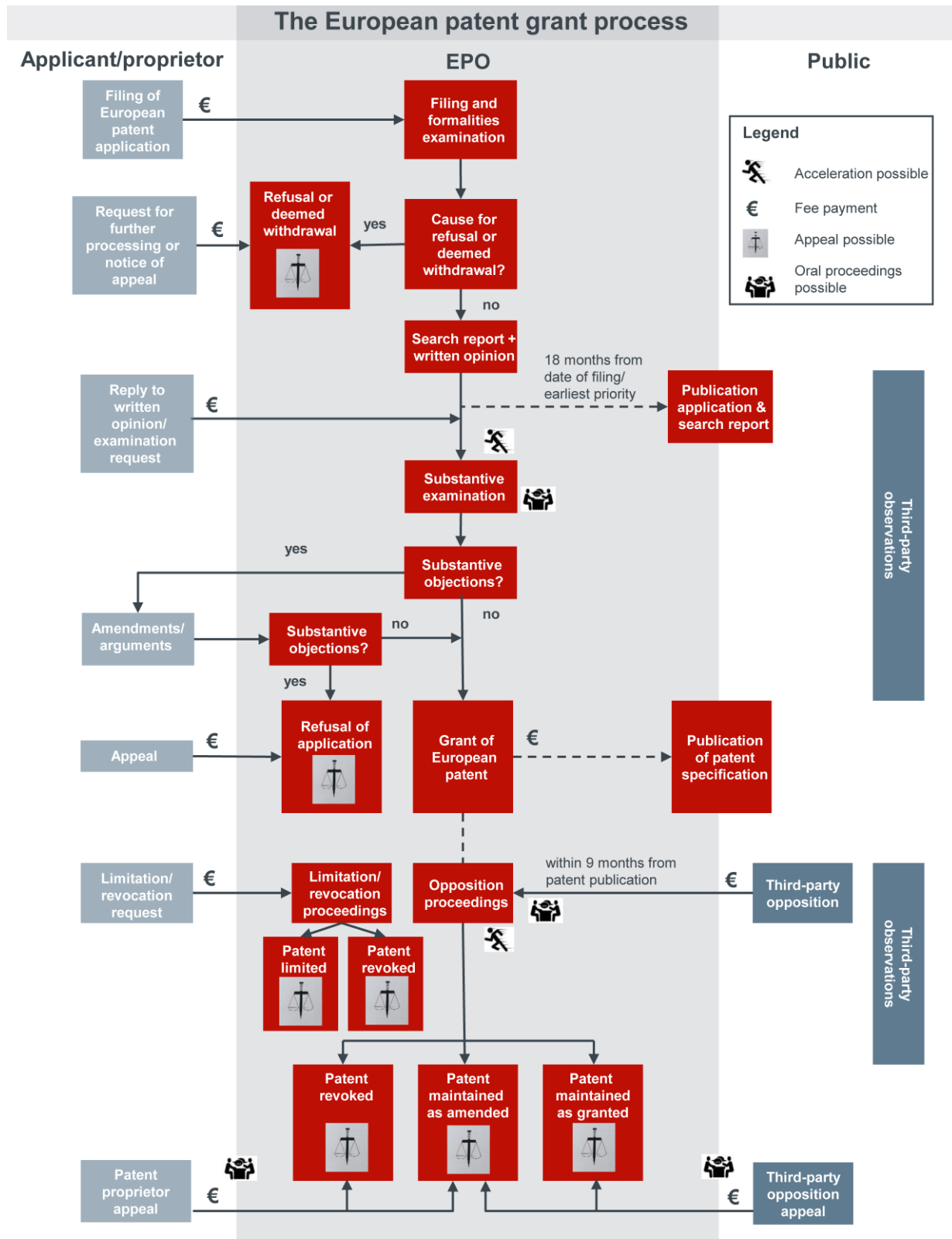
of licences and rights in rem. For the registration of legal means of execution, however, the instrument itself (the original or a copy thereof) must be filed.

- |                 |  |   |
|-----------------|--|---|
| <b>5.11.010</b> | Licences, rights in rem and legal means of execution are registered only in respect of pending European patent applications. No such rights are entered in the European Patent Register after a European patent has been granted.  | <u>Art. 73</u><br><u>GL E-XIV, 6.1</u>  |
| <b>5.11.011</b> | A licence will be recorded as an exclusive licence if the applicant and the licensee so request. A licence will be recorded as a sub-licence where it is granted by a licensee whose licence is recorded in the European Patent Register. The terms and conditions of the licences are governed by the national law applicable in each case. | <u>R. 24</u>                            |
| <b>5.11.012</b> | Upon request and subject to payment of the prescribed administrative fee, a registration of a licence or other right will be cancelled, subject to submission of documents providing evidence that the right has lapsed or of a declaration by the proprietor of the right that they consent to its cancellation.                            | <u>R. 23(2)</u><br><u>GL E-XIV, 6.2</u> |



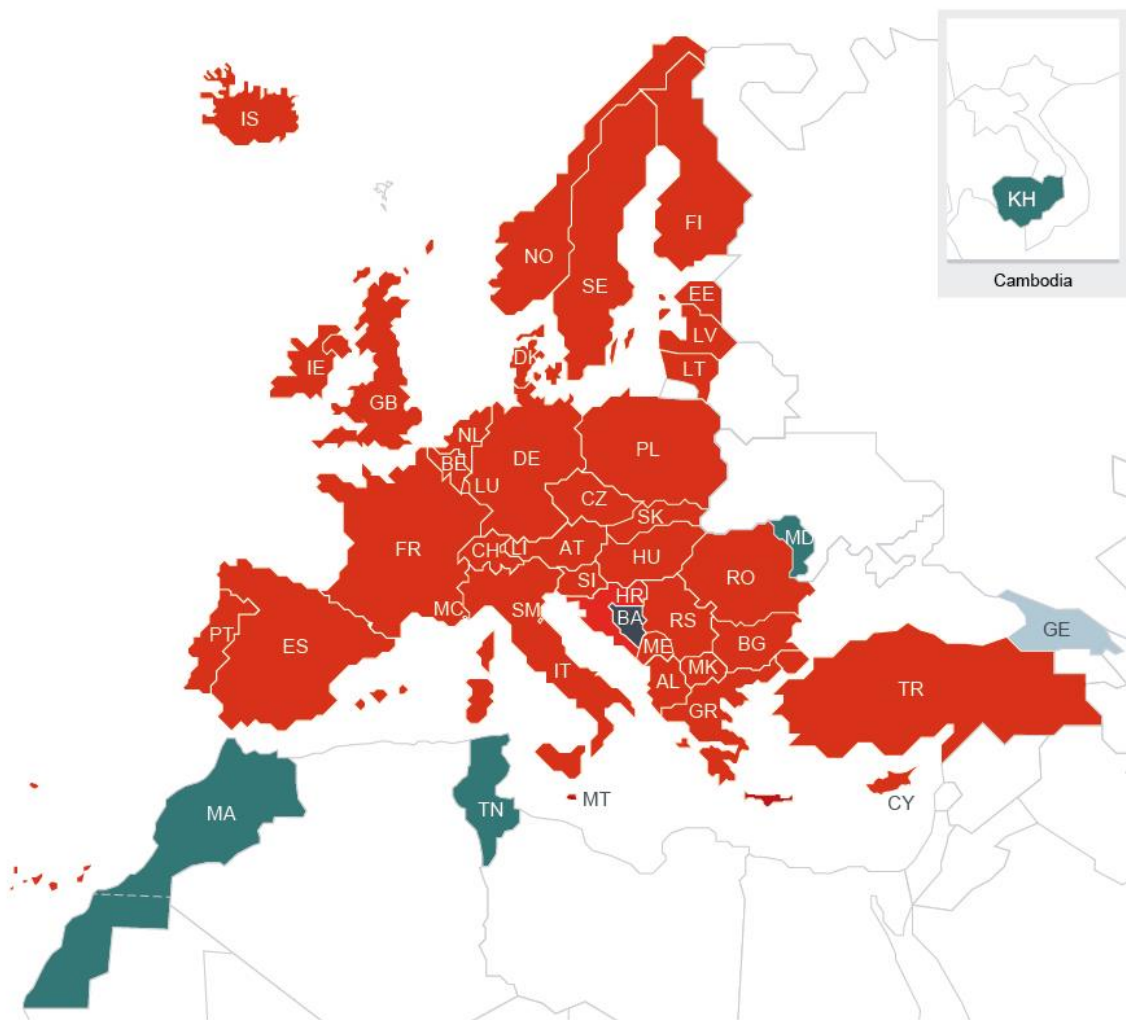
## Annex I

### Overview of the procedure for the grant of a European patent



Schematic overview of the main procedural steps in the EP direct proceedings. For a complete guide to every stage of the grant procedure, please consult the Guidelines for Examination in the EPO.





**Member states of the European Patent Organisation (39)**

AL	Albania	IT	Italy
AT	Austria	LI	Liechtenstein
BE	Belgium	LT	Lithuania
BG	Bulgaria	LU	Luxembourg
CH	Switzerland	LV	Latvia
CY	Cyprus	MC	Monaco
CZ	Czech Republic	ME	Montenegro
DE	Germany	MK	North Macedonia
DK	Denmark	MT	Malta
EE	Estonia	NL	Netherlands
ES	Spain	NO	Norway
FI	Finland	PL	Poland
FR	France	PT	Portugal
GB	United Kingdom	RO	Romania
GR	Greece	RS	Serbia
HR	Croatia	SE	Sweden
HU	Hungary	SI	Slovenia
IE	Ireland	SK	Slovakia
IS	Iceland	SM	San Marino
		TR	Türkiye

**Extension states (1)**

BA Bosnia and Herzegovina

**Validation states (4)**

KH Cambodia  
MA Morocco  
MD Republic of Moldova  
TN Tunisia

**Future validation states (1)**

*Agreement signed but not in force yet*  
GE Georgia

(06.2023)

## Annex II

### Examples of European patent applications

This section contains three sample European patent applications (description, claims, drawings and abstract), one for each of the following technical fields:

- chemistry
- mechanics
- computers

These examples comply with the provisions governing European patent applications. However, because of the need to include explanatory notes, the margins could not be left blank (see point 4.2.005). For the requirements governing disclosure of the invention see points 4.2.001 and 4.2.002. The content of these examples is not necessarily patentable.

**Chemistry**

Art. 78, 83  
R. 42  
*Description of  
invention*

5 METHOD FOR DETERMINING TOLERANCE OF CANCER CELL TO  
EPIDERMAL GROWTH FACTOR RECEPTOR INHIBITOR

*Title of invention  
(designation in  
request for grant  
suffices)*

Technical Field

10 The present invention relates to a method for  
determining tolerance of a cancer cell to an  
epidermal growth factor receptor inhibitor  
(hereinafter will be referred to as "EGFR inhibitor")  
in a human patient suffering from a cancer.

R. 42(1)(a)  
*Technical field to  
which invention  
relates*

15 Background Art

EGFR inhibitors, for example, anti-epidermal growth  
factor receptor antibody drugs (anti-EGFR antibody  
drug) such as cetuximab and panitumumab have been  
20 known as a therapeutic agent for cancer. These EGFR  
inhibitors act in cancer cells to inhibit the  
function of an epidermal growth factor receptor  
(EGFR) which is involved in cancer cell growth.

R. 42(1)(b)  
*Relevant prior art*

25 Meanwhile, it has been known that, in a case where  
cancer cells of a cancer patient have a mutation in  
the KRAS gene, the cancer cells are resistant to the  
EGFR inhibitor, and therefore effects of the EGFR  
inhibitor are reduced. The EGFR inhibitor has side  
30 effects such as skin disorder, and therefore it is  
preferable to administer the EGFR inhibitor only to  
cancer patients for whom high therapeutic efficacy  
may be expected by administration of the EGFR  
inhibitor. As a method for determining whether a

treatment with the EGFR inhibitor is effective or not to the patient, a method for checking the presence or absence of a mutation in the KRAS gene of the cancer cells of the patient has been known.

5

For example, WO2014/148557 discloses a method for predicting sensitivity to EGFR inhibitors, in which, in a case where a nucleic acid derived from a mutant-type KRAS gene or a protein thereof is detected in a blood sample, it is determined that a possibility that a tumour is not sensitive to the EGFR inhibitor is high.

*Assessment of prior art*

10

According to de Roock et al, Lancet Oncology, vol. 12, 2011, p. 594 - 603, BRAF mutation V600E confers resistance of cancer patients to EGFR antibodies.

15

Technical Problem

20

The inventors of the present invention have found that the treatment with the EGFR inhibitor is not effective in some cases even to the cancer patient whose cancer cells have the wild-type KRAS gene.

R. 42  
*Technical problem*

25

The present invention has been made in view of the above problems, and an object of the present invention is to select in advance a cancer patient for whom a treatment with the EGFR. inhibitor is ineffective.

30

## Solution to Problem

*R. 42(1)(c)*  
*Disclosure of*  
*invention*  
*R. 42(1)(c)*  
*Advantageous*  
*effects of invention*

5 The present invention is a method for determining tolerance of a cancer cell to an EGFR inhibitor in a human patient suffering from a cancer, the method comprising a step of determining the presence or absence of a mutation of a 326th amino acid residue of an amino acid sequence of a B-Raf protein (hereinafter referred to as "B-Raf") of the cancer  
10 cell by using a sample containing the cancer cell collected from the human patient, wherein the cancer cell is determined as tolerant to the epidermal growth factor receptor inhibitor, when the mutation of the amino acid residue is present.

15 According to this method, it is possible to determine the tolerance of the cancer cell to the EGFR inhibitor by determining the presence or absence of the mutation of a specific amino acid residue, which  
20 is the 326th amino acid residue, in the amino acid sequence of the B-Raf of the cancer cell, and therefore it is possible to select in advance a cancer patient for whom a treatment with the EGFR inhibitor is ineffective.

25 The above-described EGFR inhibitor may be an anti-epidermal growth factor receptor antibody drug.

The determination of the presence or absence of the  
30 mutation of the amino acid residue described above may include detection of a mutation of a base sequence encoding the 326th amino acid residue of the amino acid sequence of the B-Raf.

The detection of the mutation of the base sequence described above may be performed by DNA sequencing, polymerase chain reaction, allele-specific amplification, hybridization using allele-specific probes, mismatch cleavage analysis, single-strand conformation polymorphism, denaturing gradient gel electrophoresis, or temperature gradient gel electrophoresis.

10 The above-described sample may be a cancer resection tissue specimen, a biopsy specimen, an ascites-infiltrating cancer cell, a circulating cancer cell, serum, or plasma. If these samples are used as a sample, it is possible to select with higher  
15 certainty a cancer patient for whom the treatment with the EGFR inhibitor is ineffective.

The above-described cancer may be a colorectal cancer or a rectal cancer. If the cancer is a colorectal  
20 cancer or a rectal cancer, it is possible to select with higher certainty a cancer patient for whom the treatment with the EGFR inhibitor is ineffective.

The mutation of the amino acid residue described  
25 above may be I326V. If the mutation is I326V, it is possible to select with higher certainty a cancer patient for whom the treatment with the EGFR inhibitor is ineffective.

30 The mutation of the base sequence described above may be c.976A>G. If the mutation is c.976A>G it is possible to select with higher certainty a cancer patient for whom the treatment with the EGFR inhibitor is ineffective.

The above-described cancer cell preferably has a wild-type KRAS gene. With the cancer cell having the wild-type KRAS gene, it is possible to select with  
5 higher certainty a cancer patient for whom the treatment with the EGFR inhibitor is ineffective.

#### Advantageous Effects of Invention

10 According to the present invention, it is possible to select in advance a cancer patient for whom the treatment with the EGFR inhibitor is ineffective. *Advantageous effects of invention*

#### Brief Description of Drawings

15 Fig. 1 is a graph showing results of an example. *R. 42(1)(d)  
Brief description of drawings*

#### 20 Description of Embodiments

Hereinafter, embodiments for carrying out the present invention will be described in detail. However, the present invention is not limited to the following  
25 embodiments. *R. 42(1)(e)  
Description of at least one way of carrying out the invention with reference to drawings*

In one aspect, the present invention is a method for determining tolerance of a cancer cell to an EGFR inhibitor in a human patient suffering from a cancer  
30 (hereinafter referred to as "cancer patient"). The method according to this aspect comprises a step of determining the presence or absence of a mutation of a 326th amino acid residue of an amino acid sequence of a B-Raf of the cancer cell by using a sample



containing the cancer cell collected from the human patient.

5 Examples of cancers for which the method according to the present invention may be used include colorectal cancer, rectal cancer, colon cancer, stomach cancer, liver cancer, thyroid cancer, uterine cancer, kidney cancer, pancreatic cancer, tongue cancer, prostate cancer, lung cancer, skin cancer, ovarian cancer, 10 gallbladder cancer, head and neck cancer, testicular cancer, adrenal cancer, oral cancer, bone and soft tissue tumour, brain tumour, malignant melanoma, osteosarcoma, chondrosarcoma, rhabdomyosarcoma, leiomyosarcoma, leukaemia, malignant lymphoma, and 15 multiple myeloma. Among these, in a case where the cancer is a colorectal cancer or a rectal cancer, it is possible to select with higher certainty a cancer patient for whom a treatment with the EGFR inhibitor is ineffective.

20 The "EGFR inhibitor" in the present description is not particularly limited as long as the EGFR inhibitor is a drug that inhibits expression or activity of the EGFR, and may be any of a low 25 molecular compound targeting the EGFR, such as gefitinib and erlotinib, an anti-EGFR antibody drug, an EGFR antisense oligonucleotide, an aptamer, and the like. The anti-EGFR antibody drug is, for example, an antibody that inhibits binding of 30 epidermal growth factor (EGF) to the EGFR. Examples of the anti-EGFR antibody drug include a monoclonal antibody that recognizes an extracellular domain of the EGFR as an epitope. Specific examples of the anti-EGFR antibody drug include cetuximab and

panitumumab. The EGFR inhibitor may be used alone, or a plurality of EGFR inhibitors may be used in combination.

- 5 The "antibody" in the present description encompasses not only an antibody molecule having two complete light chains and two complete heavy chains, but also an antibody fragment capable of binding to an antigen. Examples of the antibody fragment include
- 10 F(ab')<sub>2</sub>, Fab', Fab, and Fv. The antibody is preferably either a chimeric antibody, a humanized antibody, or a fully human antibody.

- In addition, the method according to the present
- 15 embodiment is effective also in a case of determining the tolerance of the cancer cell to a treatment in which the EGFR inhibitor and other anticancer agent are used in combination. Examples of the treatment in which the EGFR inhibitor and other anticancer agent
- 20 are used in combination include CPT-11 + Panitumumab therapy, IRIS + Panitumumab therapy, FOLFOX (for example, mFOLFOX6) + Panitumumab therapy, FOLFIRI + Panitumumab therapy, CPT-11 + Cetuximab therapy, IRIS + Cetuximab therapy, FOLFOX (for example, mFOLFOX6) +
- 25 Cetuximab therapy, FOLFIRI + Cetuximab therapy, and sLV5FU2 + Cetuximab therapy.

- Examples of the sample containing the cancer cell include a cancer resection tissue specimen, a biopsy
- 30 specimen, an ascites-infiltrating cancer cell, a circulating cancer cell, serum, plasma, blood, faeces, urine, sputum, cerebrospinal fluid, pleural fluid, nipple aspirate fluid, lymph fluid, cell culture liquid, and other tissues and fluids

collected from the patient. From the viewpoint of selecting with higher certainty a cancer patient for whom a treatment with the EGFR inhibitor is ineffective, the sample containing the cancer cell is preferably a cancer resection tissue specimen, a biopsy specimen, an ascites-infiltrating cancer cell, a circulating cancer cell, serum, or plasma, and more preferably a cancer resection tissue specimen or a biopsy specimen. In addition, in a case where the sample containing the cancer cell is the cancer resection tissue specimen or the biopsy specimen, these specimens may be subjected to freezing, alcohol fixation, formalin fixation, paraffin wrapping, or a combination of these treatments.

In the present description, "mutation of the amino acid residue" means that a specific amino acid residue in an amino acid sequence of a protein is substituted with an amino acid residue different from an amino acid residue in a corresponding wild-type amino acid sequence. For example, the 326th amino acid residue of the amino acid sequence of the wild-type B-Raf shown in SEQ ID NO: 1 is isoleucine, and substitution of this amino acid residue with an amino acid residue other than isoleucine is called the mutation.

The mutation of the 326th amino acid residue of the amino acid sequence of the B-Raf may be a mutation in which the isoleucine is substituted with phenylalanine, threonine, aspartic acid, lysine, serine, arginine, methionine, glycine, alanine, valine, or leucine. In a case where the mutation of the amino acid residue is the mutation described

above, it is possible to select with higher certainty a cancer patient for whom a treatment with the EGFR inhibitor is ineffective. Among these, in a case where the mutation is a mutation (I326V) in which the isoleucine has been substituted with valine, it is possible to select with higher certainty a cancer patient for whom a treatment with the EGFR inhibitor is ineffective.

10 The determination of the presence or absence of the mutation of the amino acid residue described above may be performed by known methods. The determination of the presence or absence of the mutation may include, for example, detection of a mutation of a base sequence that encodes the 326th amino acid residue of the amino acid sequence of the B-Raf.

In the present description, "mutation of the base sequence" means that at least a part of the bases in the base sequence is substituted with other base such that the amino acid residue encoded by the base sequence becomes different from an amino acid residue encoded by a corresponding wild-type base sequence (also called as a "missense mutation").

25 The mutation of the base sequence that encodes the 326th amino acid residue of the amino acid sequence of the B-Raf may be a mutation in which the amino acid residue encoded by the base sequence is altered from isoleucine to phenylalanine, threonine, aspartic acid, lysine, serine, arginine, methionine, glycine, alanine, valine, or leucine. In a case where the mutation of the base sequence is the mutation described above, it is possible to select with higher

certainty a cancer patient for whom the treatment with the EGFR inhibitor is ineffective. Among these, in a case where the mutation of the base sequence is a mutation in which the base sequence encoding the isoleucine is mutated to a base sequence encoding valine (c.976A>G), it is possible to select with higher certainty a cancer patient for whom the treatment with the EGFR inhibitor is ineffective.

10 Detection of the mutation of the base sequence may be performed by known methods. The detection of the mutation of the base sequence may be performed by, for example, DNA sequencing, polymerase chain reaction, allele-specific amplification,

15 hybridization using allele-specific probes, mismatch cleavage analysis, single-strand conformation polymorphism, denaturing gradient gel electrophoresis, or temperature gradient gel electrophoresis. The technique may be used alone, or

20 a plurality of techniques may be used in combination.

When the mutation exists on the 326th amino acid residue of the amino acid sequence of the B-Raf of the cancer cell, it is possible to determine that the cancer cell is tolerant to the EGFR inhibitor.

25

The mechanism between the presence or absence of the mutation of the 326th amino acid residue of the amino acid sequence of the B-Raf of the cancer cell and the tolerance of the cancer cell to the EGFR inhibitor is not certain; however, the inventors of the present invention speculate that the presence or absence of the mutation, and the tolerance of the cancer cell are related to each other at least in the following

30

mechanism. The B-Raf is an activation factor present downstream of the EGFR in an intracellular growth signalling pathway involved in cancer cell growth. The EGFR inhibitor has an effect in which growth signals are inhibited from being transmitted to downstream of the EGFR by inhibiting the function of EGFR, and thus the progression of cancer is suppressed. However, if the mutation exists on the 326th amino acid residue of the amino acid sequence of the B-Raf of the cancer cell, the B-Raf is activated even when the growth signals are not transmitted to downstream of the EGFR due to the EGFR inhibitor, and thus the growth signals are transmitted to downstream of the B-Raf. Therefore, it is considered that, even if the EGFR inhibitor is administered to such a cancer cell, the effect of suppressing the progression of cancer is not exerted, or is unlikely to be exerted.

The present invention may also said to be a method for determining tolerance of the cancer cell to the EGFR inhibitor in a human patient suffering from a cancer, the method including a step of determining the presence or absence of the mutation of the 326th amino acid residue of the amino acid sequence of the B-Raf of the cancer cell by using the sample containing the cancer cell collected from the human patient, wherein the presence of the mutation of the amino acid residue indicate that the cancer cell is tolerant to the anti-EGR antibody drug.

In one embodiment, the cancer cell collected from the cancer patient may have the wild-type KRAS gene. The treatment with the EGFR inhibitor is not effective in

some cases even if the cancer cells of the cancer patient have the wild-type KRAS gene. According to this embodiment, by evaluating the efficacy of the EGFR inhibitor in the cancer patient whose cancer

5 cells have the wild-type KRAS gene, it is possible to avoid unnecessary side effects caused by the EGFR inhibitor. In the present description, a wild-type KRAS gene means a KRAS gene having no mutation that gives cancer cells tolerance to the EGFR inhibitor.

10 The mutation is a gene mutation that causes an alteration in the type of 12th and 13th amino acids of the KRAS protein.

In one embodiment, the cancer patient may be a

15 patient who intends to undergo or has undergone a treatment with medication with the EGFR inhibitor. According to this embodiment, it is possible to avoid performing the treatment with medication with the EGFR inhibitor in a patient having cancer cells

20 tolerant to the EGFR inhibitor, or to reduce a dose of the EGFR inhibitor. Accordingly, the side effects caused by the EGFR inhibitor can be avoided or reduced.

25 In one embodiment, the cancer cell collected from the cancer patient may have a wild-type NRAS gene as well as a wild-type KRAS gene. Generally, a treatment with the EGFR inhibitor is considered to be effective for the cancer patients whose cancer cells have a wild-

30 type NRAS gene as well as wild-type KRAS gene. However, even among such patients, there are patients for whom the treatment with the EGFR inhibitor is ineffective. According to this embodiment, it is possible to discriminate the patients for whom the



treatment with the EGFR inhibitor is ineffective among such cancer patients. In the present description, a wild-type NRAS gene means a NRAS gene having no mutation that gives cancer cells tolerance to the EGFR inhibitor. The mutation, for example, is a gene mutation that causes an alteration in the type of a 12th, 13th, 59th, 61st, 117th, or 146th amino acid of the NRAS protein.

10 In one aspect, the present invention is a method for determining prognosis of cancer, that is a method which involves determining the presence or absence of the mutation of the 326th amino acid residue of the amino acid sequence of the B-Raf of the cancer cell  
15 by using the sample containing the cancer cell collected from the human patient suffering from the cancer, wherein the prognosis is determined as poor, when the mutation of the amino acid residue is present.

20 Hereinbefore, the specific embodiments of the present invention were described in detail, but the present invention is not limited to the above-described embodiments.

25 Examples

Hereinafter, the present invention will be more specifically described based on examples, but the  
30 present invention is not limited to the following examples.

(Detection of Mutation in BRAF Gene)

Patients with a colorectal cancer not having a mutation in codons of the 12th and 13th amino acids of the KRAS protein were treated with a therapy using Panitumumab or Cetuximab (shown in Table 1). A

5 formalin-fixed and paraffin-embedded specimen was prepared from a cancer resection specimen of the patient, and cut into thin sections to prepare two sections with a thickness of 20 µm. A sample obtained by attaching the prepared two sections to a slide  
10 glass was used as a sample for DNA extraction. Separately, a sample obtained by preparing a section with a thickness of 4 µm, and attaching the prepared section to a slide glass was used as a sample for microscopic observation. Samples of 26 patients  
15 (patients A to Z) were prepared, and mutations in the base sequence of the BRAF gene were detected for each patient sample as follows.

[Table 1]

20

25

30

Patient	Therapy	B-Raf mutation	Cancer regression index (%)
A	IRIS + Panitumumab	1326V	115
B	IRIS + Panitumumab	–	34.3
C	IRIS + Panitumumab	–	18.5
D	IRIS + Panitumumab	–	17.8
E	IRIS + Panitumumab	–	11.3
F	IRIS + Panitumumab	D22N	5
G	FOLFIRI + Cetuximab	–	5.1
H	IRIS + Panitumumab CPT - 11 + Cetuximab	–	0.1
I	IRIS + Panitumumab	–	–7.4

	<b>Patient</b>	<b>Therapy</b>	<b>B-Raf mutation</b>	<b>Cancer regression index (%)</b>
5	J	CPT - 11 + Cetuximab	-	-11.6
	K	mFOLFOX6 + Panitumumab	V600E	-11.5
	L	IRIS + Panitumumab	-	-12.5
10	M	mFOLFOX6 + Cetuximab	-	-15.9
	N	IRIS + Panitumumab	-	-19.1
	O	IRIS + Panitumumab mFOLFOX6 + Cetuximab sLV5FU2 + Cetuximab	N581Y	-22.4
15	P	IRIS + Panitumumab	-	-27
	Q	FOLFIRI + Cetuximab	-	-26.6
	R	CPT - 11 + Cetuximab	-	-32.8
20	S	mFOLFOX6 + Panitumumab	-	-33.8
	T	IRIS + Panitumumab	-	-33.7
	U	CPT - 11 + Panitumumab	V600E	-35.7
25	V	CPT - 11 + Panitumumab	-	-36.8
	W	IRIS + Panitumumab	-	-52.8
	X	mFOLFOX6 + Cetuximab	-	-55
30	Y	mFOLFOX6 + Panitumumab	-	-72.3
	Z	IRIS + Panitumumab	-	-72.7

The sample for microscopic observation was stained with haematoxylin and eosin. The sample after the staining was observed with a microscope and a site containing many cancer cells in the section was specified. From the sample for DNA extraction, the site specified in the sample for microscopic observation was scraped with a razor, and DNA was extracted from the scraped site. The DNA extraction was carried out by using BiOstic FFPE Tissue DNA Isolation Kit (trade name).

The BRAF gene was isolated from the DNA of the specimen by using, as a probe, a probe nucleic acid containing a part or all of continuous sequences (100 to 130 bases) in each of 18 exon sequences of the BRAF gene, or containing a complementary sequence thereof. The base sequence of the BRAF gene was analysed by MiSeq sequencer of Illumina, Inc. to detect mutations in the base sequence of the BRAF gene.

For the patient A, the mutation (c.976A>G) that causes the mutation of I326V in the amino acid sequence of the B-Raf was detected in the base sequence of the BRAF gene. For the patients F, K, O, und U, mutations that cause mutations of D22N, V600E, N581Y, and V600E, respectively, were detected in the amino acid sequence of the B-Raf in the base sequence of the BRAF gene. For the other patients, no mutation that causes a mutation in the amino acid sequence of the B-Raf was detected in the base sequence of the BRAF gene.

(Effect of Treatment with Anti-EGFR Antibody Drug)

For the patients A to Z, a cancer regression index (%) was calculated as the following formula:

Cancer regression index (%) = (diameter of primary lesion after treatment + diameter of metastatic lesion after treatment) / (diameter of primary lesion before treatment + diameter of metastatic lesion before treatment) x 100 - 100

The relationship between the presence or absence of the mutation of the BRAF gene, and the effect of the treatment with the anti-EGFR antibody drug in the patients A to Z is shown in Fig. 1 and Tables 1 and 2.

[Table 2]

B-Raf mutation	Number of patients	Average cancer regression index (%)	Standard deviation
1326V	1	115	-
D22N V600E N581Y	4	-16.3	17.3
No mutation	22	-19	28.9

As shown in Fig. 1 and Tables 1 and 2, in the patient A for whom the mutation that causes the mutation in the 326th amino acid residue of the amino acid sequence of the B-Raf was detected in the base sequence of the BRAF gene, the progression of cancer was 10 recognised, and the cancer cells of the

patient A had tolerance to the anti-EGFR antibody drug.

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SEQUENCE LISTING

<110> Denka Company Limited  
Niigata University

<120> A method of determining resistance of cancer cell against  
anti-EGFR antibody drug

<130> FP17-0160-00

<160> 1

<170> PatentIn version 3.5

<210> 1

<211> 766

<212> PRT

<213> Homo sapiens

<400> 1

Met Ala Ala Leu Ser Gly Gly Gly Gly Gly Gly Ala Glu Pro Gly Gln  
1 5 10 15

Ala Leu Phe Asn Gly Asp Met Glu Pro Glu Ala Gly Ala Gly Ala Gly  
20 25 30

Ala Ala Ala Ser Ser Ala Ala Asp Pro Ala Ile Pro Glu Glu Val Trp  
35 40 45

Asn Ile Lys Gln Met Ile Lys Leu Thr Gln Glu His Ile Glu Ala Leu  
50 55 60

Leu Asp Lys Phe Gly Gly Glu His Asn Pro Pro Ser Ile Tyr Leu Glu  
65 70 75 80

Ala Tyr Glu Glu Tyr Thr Ser Lys Leu Asp Ala Leu Gln Gln Arg Glu  
85 90 95

Gln Gln Leu Leu Glu Ser Leu Gly Asn Gly Thr Asp Phe Ser Val Ser  
100 105 110

Ser Ser Ala Ser Met Asp Thr Val Thr Ser Ser Ser Ser Ser Ser Leu  
115 120 125

Ser Val Leu Pro Ser Ser Leu Ser Val Phe Gln Asn Pro Thr Asp Val  
130 135 140

Ala Arg Ser Asn Pro Lys Ser Pro Gln Lys Pro Ile Val Arg Val Phe  
145 150 155 160

Leu Pro Asn Lys Gln Arg Thr Val Val Pro Ala Arg Cys Gly Val Thr  
165 170 175



Val Arg Asp Ser Leu Lys Lys Ala Leu Met Met Arg Gly Leu Ile Pro  
180 185 190

Glu Cys Cys Ala Val Tyr Arg Ile Gln Asp Gly Glu Lys Lys Pro Ile  
195 200 205

5 Gly Trp Asp Thr Asp Ile Ser Trp Leu Thr Gly Glu Glu Leu His Val  
210 215 220

Glu Val Leu Glu Asn Val Pro Leu Thr Thr His Asn Phe Val Arg Lys  
225 230 235 240

10 Thr Phe Phe Thr Leu Ala Phe Cys Asp Phe Cys Arg Lys Leu Leu Phe  
245 250 255

Gln Gly Phe Arg Cys Gln Thr Cys Gly Tyr Lys Phe His Gln Arg Cys  
260 265 270

Ser Thr Glu Val Pro Leu Met Cys Val Asn Tyr Asp Gln Leu Asp Leu  
275 280 285

15 Leu Phe Val Ser Lys Phe Phe Glu His His Pro Ile Pro Gln Glu Glu  
290 295 300

Ala Ser Leu Ala Glu Thr Ala Leu Thr Ser Gly Ser Ser Pro Ser Ala  
305 310 315 320

20 Pro Ala Ser Asp Ser Ile Gly Pro Gln Ile Leu Thr Ser Pro Ser Pro  
325 330 335

Ser Lys Ser Ile Pro Ile Pro Gln Pro Phe Arg Pro Ala Asp Glu Asp  
340 345 350

His Arg Asn Gln Phe Gly Gln Arg Asp Arg Ser Ser Ser Ala Pro Asn  
355 360 365

25 Val His Ile Asn Thr Ile Glu Pro Val Asn Ile Asp Asp Leu Ile Arg  
370 375 380

Asp Gln Gly Phe Arg Gly Asp Gly Gly Ser Thr Thr Gly Leu Ser Ala  
385 390 395 400

30 Thr Pro Pro Ala Ser Leu Pro Gly Ser Leu Thr Asn Val Lys Ala Leu  
405 410 415

Gln Lys Ser Pro Gly Pro Gln Arg Glu Arg Lys Ser Ser Ser Ser Ser

	420		425		430	
	Glu Asp Arg Asn Arg Met Lys Thr Leu Gly Arg Arg Asp Ser Ser Asp					
	435		440		445	
5	Asp Trp Glu Ile Pro Asp Gly Gln Ile Thr Val Gly Gln Arg Ile Gly					
	450		455		460	
	Ser Gly Ser Phe Gly Thr Val Tyr Lys Gly Lys Trp His Gly Asp Val					
	465		470		475	480
	Ala Val Lys Met Leu Asn Val Thr Ala Pro Thr Pro Gln Gln Leu Gln					
		485		490		495
10	Ala Phe Lys Asn Glu Val Gly Val Leu Arg Lys Thr Arg His Val Asn					
		500		505		510
	Ile Leu Leu Phe Met Gly Tyr Ser Thr Lys Pro Gln Leu Ala Ile Val					
		515		520		525
15	Thr Gln Trp Cys Glu Gly Ser Ser Leu Tyr His His Leu His Ile Ile					
		530		535		540
	Glu Thr Lys Phe Glu Met Ile Lys Leu Ile Asp Ile Ala Arg Gln Thr					
	545		550		555	560
	Ala Gln Gly Met Asp Tyr Leu His Ala Lys Ser Ile Ile His Arg Asp					
		565		570		575
20	Leu Lys Ser Asn Asn Ile Phe Leu His Glu Asp Leu Thr Val Lys Ile					
		580		585		590
	Gly Asp Phe Gly Leu Ala Thr Val Lys Ser Arg Trp Ser Gly Ser His					
		595		600		605
25	Gln Phe Glu Gln Leu Ser Gly Ser Ile Leu Trp Met Ala Pro Glu Val					
		610		615		620
	Ile Arg Met Gln Asp Lys Asn Pro Tyr Ser Phe Gln Ser Asp Val Tyr					
	625		630		635	640
	Ala Phe Gly Ile Val Leu Tyr Glu Leu Met Thr Gly Gln Leu Pro Tyr					
		645		650		655
30	Ser Asn Ile Asn Asn Arg Asp Gln Ile Ile Phe Met Val Gly Arg Gly					
		660		665		670

Tyr Leu Ser Pro Asp Leu Ser Lys Val Arg Ser Asn Cys Pro Lys Ala  
675 680 685

Met Lys Arg Leu Met Ala Glu Cys Leu Lys Lys Lys Arg Asp Glu Arg  
690 695 700

5 Pro Leu Phe Pro Gln Ile Leu Ala Ser Ile Glu Leu Leu Ala Arg Ser  
705 710 715 720

Leu Pro Lys Ile His Arg Ser Ala Ser Glu Pro Ser Leu Asn Arg Ala  
725 730 735

Gly Phe Gln Thr Glu Asp Phe Ser Leu Tyr Ala Cys Ala Ser Pro Lys  
740 745 750

10

Thr Pro Ile Gln Ala Gly Gly Tyr Gly Ala Phe Pro Val His  
755 760 765

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## Claims

1. A method for determining tolerance of a cancer  
cell to an epidermal growth factor receptor inhibitor  
5 in a human patient suffering from a cancer, the  
method comprising:

*R. 43(1)(a)*  
*Independent claim*

10 a step of determining the presence or absence of  
a mutation of a 326th amino acid residue of an  
amino acid sequence of a B-Raf protein of the  
cancer cell by using a sample containing the  
cancer cell collected from the human patient,  
wherein the cancer cell is determined as  
tolerant to the epidermal growth factor receptor  
inhibitor, when the mutation of the amino acid  
15 residue is present.

2. The method according to claim 1,  
wherein the epidermal growth factor receptor  
inhibitor is an anti-epidermal growth factor receptor  
20 antibody drug.

*R. 43(3), (4)*  
*Dependent claim*

3. The method according to claim 1 or 2,  
wherein the determination of the presence or absence  
of the mutation of the amino acid residue includes  
25 detection of a mutation of a base sequence encoding  
the 326th amino acid residue of the amino acid  
sequence of the B-Raf protein.

4. The method according to claim 3,  
30 wherein the detection of the mutation of the base  
sequence is performed by DNA sequencing, polymerase  
chain reaction, allele-specific amplification,  
hybridization using allele-specific probes, mismatch  
cleavage analysis, single-strand conformation

polymorphism, denaturing gradient gel electrophoresis, or temperature gradient gel electrophoresis.

5 5. The method according to any one of claims 1 to 4, wherein the sample is a cancer resection tissue specimen, a biopsy specimen, an ascites-infiltrating cancer cell, a circulating cancer cell, serum, or plasma.

10 6. The method according to any one of claims 1 to 5, wherein the cancer is a colorectal cancer or a rectal cancer.

15 7. The method according to any one of claims 1 to 6, wherein the mutation of the amino acid residue is I326V.

20 8. The method according to claim 3 or 4, wherein the mutation of the base sequence is c.976A>G.

25 9. The method according to any one of claims 1 to 8, wherein the cancer cell has a wild-type KRAS gene.

30

30

Abstract

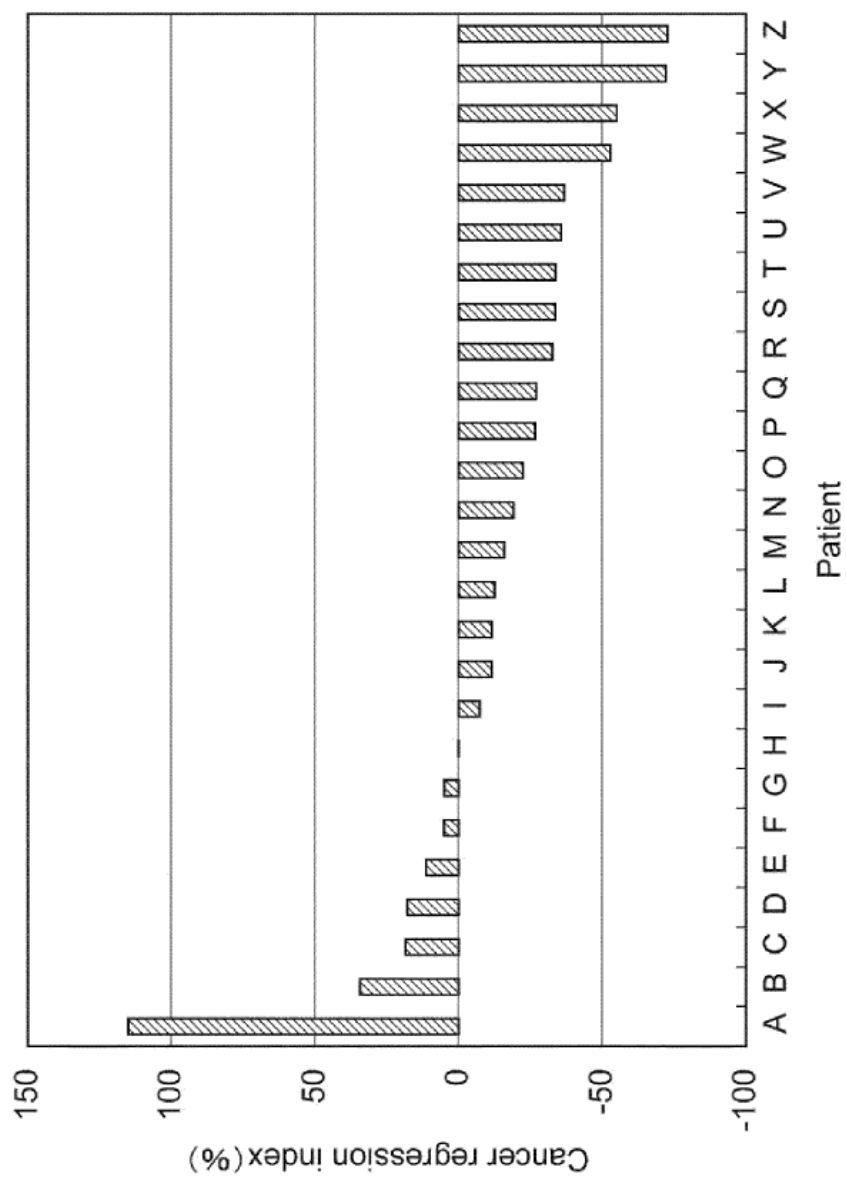
Art. 85

METHOD FOR DETERMINING TOLERANCE OF CANCER CELL TO  
EPIDERMAL GROWTH FACTOR RECEPTOR INHIBITOR

R. 47(1)  
*Title of invention*

The present invention provides a method for determining tolerance of a cancer cell to an EGFR inhibitor in a human patient suffering from a cancer, the method comprising a step of determining the presence or absence of a mutation of a 326th amino acid residue of an amino acid sequence of a B-Raf protein of the cancer cell by using a sample containing the cancer cell collected from the human patient, wherein the cancer cell is determined as tolerant to the epidermal growth factor receptor inhibitor, when the mutation of the amino acid residue is present. According to such a method, it is possible to select in advance a cancer patient for whom a treatment with the EGFR inhibitor is ineffective.

R. 47(2), (3), (5)  
*Content of abstract*



**Fig.1**

**Mechanics**

Art. 78, 83  
R. 42  
*Description of  
invention*

5 Pedalling device for bicycle

*Title of invention  
(designation in  
request for grant  
suffices)*

10 The present invention relates to a pedalling device  
and, more particularly, to a pedalling device for a  
bicycle.

R. 42(1)(a)  
*Technical field to  
which invention  
relates*

15 A conventional pedalling device for a bicycle in  
accordance with the prior art shown in Fig. 10  
comprises a crank 60, two pedals 61, a chainwheel 62,  
and a chain 64. Thus, when the crank 60 is driven by  
the pedals 61, the chainwheel 62 is rotated by the  
crank 60 to drive the chain 64 so as to move the  
bicycle. However, the force arm defined between the  
center of the chainwheel 62 and each of the pedals 61  
20 has a smaller length, so that the rider has to exert  
a larger stepping force on the pedals 61 so as to  
move the bicycle, thereby greatly wasting the rider's  
energy and manual work.

R. 42(1)(b)  
*Indication of  
background art*

25 The objective of the present invention is to provide  
a pedalling device, and more particular a pedalling  
device for a bicycle, wherein the rider can step the  
pedals in an energy-saving manner.

R. 42(1)(c)  
*Technical problem to  
be solved*

30 In accordance with the present invention, there is  
provided a pedalling device, comprising a support  
seat, a rotation shaft rotatably mounted on a first  
end of the support seat, a chainwheel secured on and  
rotated by the rotation shaft, two opposite oneway  
ratchet wheels each mounted on the rotation shaft to

R. 42(1)(c)  
*Disclosure of  
invention*



rotate the rotation shaft, two opposite drive members each having a first end formed with a ratchet socket mounted on a respective ratchet wheel to rotate the respective ratchet wheel in a oneway manner and a  
5 second end formed with on elongate slide track, a crank pivotally mounted on a second end of the support seat, two opposite drive shafts secured on two opposite sides of the crank to rotate the crank, two pedals each rotatably mounted on a respective  
10 drive shaft, and two opposite slide seats each pivotally mounted on a respective drive shaft to move therewith and each slidably mounted in the slide track of a respective drive member.

15 Advantageously, the drive members have a longer force arm between the crank and the chainwheel so as to increase the force moment of the pedalling device, thereby saving the rider's energy and manual work.

20 Further benefits and advantages of the present invention will become apparent after a careful reading of the detailed description with appropriate reference to the accompanying drawings.

25 In the drawings:

*R. 42(1)(d)*  
*Brief description of*  
*drawings*

Fig. 1 is a perspective view of a pedalling device in accordance with the preferred embodiment of the present invention.

30 Fig. 2 is an exploded perspective view of the pedalling device as shown in Fig. 1.

Fig. 3 is a plan view of the pedalling device for a bicycle as shown in Fig. 1.

Fig. 4 is a plan cross-sectional view of the pedalling device as shown in Fig. 1.

Fig. 5 is a plan cross-sectional view of the pedalling device as shown in Fig. 1.

5 Fig. 6 is a plan cross-sectional operational view of the pedalling device as shown in Fig. 1.

Fig. 7 is a locally enlarged view of the pedalling device as shown in Fig. 6.

10 Fig. 8 is a schematic operational view of the pedalling device as shown in Fig. 6.

Fig. 9 is a schematic operational view of the pedalling device as shown in Fig. 7.

15 Fig. 10 is a perspective view of a conventional pedalling device for a bicycle in accordance with the prior art.

Referring to the drawings and initially to Figs. 1-7,  
a pedalling device 20 for a bicycle 10 in accordance  
with the preferred embodiment of the present  
20 invention comprises a support seat 13, a rotation  
shaft 111 rotatably mounted on a first end of the  
support seat 13, a chainwheel 11 secured on and  
rotated by the rotation shaft 111, two opposite  
oneway ratchet wheels 40 each mounted on the rotation  
25 shaft 111 to rotate the rotation shaft 111, two  
opposite drive members 30 each having a first end  
formed with a ratchet socket 31 mounted on a  
respective ratchet wheel 40 to rotate the respective  
ratchet wheel 40 in a oneway manner and a second end  
30 formed with an elongate slide track 35, a crank 12  
pivotally mounted on a second end of the support seat  
13, two opposite drive shafts 141 secured on two  
opposite sides of the crank 12 to rotate the crank  
12, two pedals 14 each rotatably mounted on a

*R. 42(1)(e)  
Description of at  
least one way of  
carrying out the  
invention*

respective drive shaft 141, and two opposite slide seats 50 each pivotally mounted on a respective drive shaft 141 to move therewith and each slidably mounted in the slide track 35 of a respective drive member

5 30.

The rotation shaft 111 has two opposite ends each formed with 5 hexagonal fixing stud 112 and a threaded rod 113.

10

Each of the ratchet wheels 40 includes an inner part 45 formed with a hexagonal fixing hole 42 secured on the fixing stud 112 of the rotation shaft 111 to rotate the rotation shaft 111, an outer part 43

15 rotatably mounted on the inner part 45 and having an outer wall formed with a driven gear 41 and an inner wall formed with a plurality of locking grooves 430, and a plurality of oneway detents 44 each having a first end pivotally mounted on the inner part 45 and  
20 a second end engaged in the respective locking groove 430 of the outer part 43.

The ratchet socket 31 of each of the drive members 30 has an inner wall formed with a drive gear 311

25 meshing with the driven gear 41 of the respective ratchet wheel 40 to rotate the respective ratchet wheel 40. The ratchet socket 31 of each of the drive members 30 is combined with the respective ratchet wheel 40 by two opposite seal rings 32 which are  
30 located at two opposite sides of the ratchet socket 31 of each of the drive members 30 and are fastened by a plurality of rivets 33.

The pedalling device 20 further comprises two washers 37 each mounted on a respective threaded rod 113 of the rotation shaft 111 and each rested on a respective ratchet wheel 40, and two nuts 34 each  
5 screwed onto a respective threaded rod 113 of the rotation shaft 111 and each rested on a respective washer 37.

The second end of the support seat 13 is formed with  
10 a pivot hole 131. The crank 12 is pivotally mounted in the pivot hole 131 of the support seat 13. Each of the two sides of the crank 12 has a distal end formed with a screw bore 121. Each of the two drive shafts 141 has a threaded distal end screwed into the  
15 respective screw bore 121 of the crank 12 to secure each of the drive shafts 141 to the crank 12.

Each of the two slide seats 50 has a first end provided with two first bearings 51 slidably mounted  
20 in the slide track 35 of the respective drive member 30 and a second end provided with a sleeve 52 for mounting two second bearings 53 which are pivotally mounted on the respective drive shaft 141. The first bearings 51 of each of the two slide seats 50 are  
25 limited in the slide track 35 of the respective drive member 30 by an end cap 36 which is mounted on an opened end of the slide track 35 to prevent the first bearings 51 of each of the two slide seats 50 from being detached from the slide track 35 of the  
30 respective drive member 30.

In operation, referring to Figs. 1-9, when the pedals 14 are stepped by the rider, the crank 12 is rotated to move the two slide seats 50 which are moved upward

and downward to drive the drive members 30 to pivot upward and downward as shown in Fig. 6, so that the ratchet socket 31 of each of the drive members 30 is rotated to rotate the respective ratchet wheel 40.

5

As shown in Fig. 7, when one of the drive members 30 is pivoted downward, the respective ratchet wheel 40 is rotated clockwise to rotate the outer part 43. At this time, the oneway detents 44 of each of the  
10 ratchet wheels 40 are engaged in the locking grooves 430 of the outer part 43, so that the inner part 45 is driven and rotated by the outer part 43 to rotate the fixing hole 42 which rotates the fixing stud 112 of the rotation shaft 111 so as to rotate the  
15 rotation shaft 111. Thus, when the ratchet wheel 40 is rotated clockwise, the rotation shaft 111 is rotated to rotate the chainwheel 11 so as to move the bicycle.

On the contrary, when one of the drive members 30 is  
20 pivoted upward as shown in Fig. 8, the respective ratchet wheel 40 is rotated counterclockwise to rotate the outer part 43 as shown in Fig. 9. At this time, the oneway detents 44 of each of the ratchet wheels 40 are disengaged from the locking grooves 430  
25 of the outer part 43, so that the inner part 45 is not rotated by the outer part 43, and the outer part 43 performs an idle rotation. Thus, when the ratchet wheel 40 is rotated counterclockwise, the rotation shaft 111 stops rotating, so that the chainwheel 11  
30 stops rotating.

In such a manner, when one of the drive members 30 is pivoted upward as shown in Fig. 8, the other one of the drive members 30 is pivoted downward as shown in

Fig. 6, so that the chainwheel 11 is rotated successively so as to move the bicycle successively.

Accordingly, the drive members 30 have a longer force arm between the crank 12 and the chainwheel 11 so as to increase the force moment of the pedalling device 20 so that the rider can step the pedals 14 in an energy-saving manner, thereby saving the rider's energy and manual work.

10

Although the invention has been explained in relation to its preferred embodiment(s) as mentioned above, it is to be understood that many other possible modifications and variations can be made without departing from the scope of the present invention. It is, therefore, contemplated that the appended claim or claims will cover such modifications and variations that fall within the true scope of the invention.

20

25

30

Claims

Art. 84  
R. 43

1. A pedalling device, comprising:

a support seat (13);

5 a rotation shaft (111) rotatably mounted on a  
first end of the support seat (13);  
a chainwheel (11) secured on and rotated by the  
rotation shaft (111);

10 two opposite oneway ratchet wheels (40) each  
mounted on the rotation shaft (111) to rotate  
the rotation shaft (111);

two opposite drive members (30) each having a  
first end formed with a ratchet socket (31)  
mounted on a respective ratchet wheel (40) to  
15 rotate the respective ratchet wheel (40) in a  
oneway manner and a second end formed with an  
elongate slide track (35);

a crank (12) pivotally mounted on a second end  
of the support seat (13);

20 two opposite drive shafts (141) secured on two  
opposite sides of the crank (12) to rotate the  
crank (12);

two pedals (14) each rotatably mounted on a  
respective driveshaft (141);

25 two opposite slide seats (50) each pivotally  
mounted on a respective drive shaft (141) to  
move therewith and each slidably mounted in the  
slide track (35) of a respective drive member  
(30).

30

2. The pedalling device in accordance with claim 1,  
wherein:

*R. 43 (3), (4)*  
*Dependent claim*

5 the rotation shaft (111) has two opposite ends  
each formed with hexagonal fixing stud (112) and  
a threaded rod (113);  
each of the ratchet wheels (40) includes an  
inner part (45) formed with a hexagonal fixing  
hole (42) secured on the fixing stud (112) of  
10 the rotation shaft (111) to rotate the rotation  
shaft (111), and an outer part (43) rotatably  
mounted on the inner part (45) and having an  
outer wall formed with a driven gear (41);  
the ratchet socket (31) of each of the drive  
members (30) has an inner wall formed with a  
15 drive gear (311) meshing with the driven gear  
(41) of the respective ratchet wheel (40) to  
rotate the respective ratchet wheel (40).

3. The pedalling device in accordance with claim 2,  
20 further comprising two washers (37) each mounted on a  
respective threaded rod (113) of the rotation shaft  
(111) and each rested on a respective ratchet wheel  
(40), and two nuts (34) each screwed onto a  
respective threaded rod (113) of the rotation shaft  
25 (111) and each rested on a respective washer (37).

4. The pedalling device in accordance with claim 2,  
wherein the ratchet socket (31) of each of the drive  
members (30) is combined with the respective ratchet  
30 wheel (40) by two opposite seal rings (32).

5. The pedalling device in accordance with claim 4,  
wherein the seal rings (32) are located at two  
opposite sides of the ratchet socket (31) of each of



the drive members (30) and are fastened by a plurality of rivets (33).

6. The pedalling device in accordance with claim 1,  
5 wherein the each of the two slide seats (50) has a first end provided with two first bearings (51) slidably mounted in the slide track (35) of the respective drive member (30) and a second end provided with a sleeve (52) for mounting two second  
10 bearings (53) which are pivotally mounted on the respective drive shaft (141).

7. The pedalling device in accordance with claim 6,  
wherein the first bearings (51) of each of the two  
15 slide seats (50) are limited in the slide track (35) of the respective drive member (30) by an end cap (36) which is mounted on an opened end of the slide track (35) to prevent the first bearings (51) of each of the two slide seats (50) from being detached from  
20 the slide track (35) of the respective drive member (30).

8. The pedalling device in accordance with claim 1,  
wherein the second end of the support seat (13) is  
25 formed with a pivot hole (131), and the crank (12) is pivotally mounted in the pivot hole (131) of the support seat (13).

9. The pedalling device in accordance with claim 1,  
30 wherein each of the two sides of the crank (12) has a distal end formed with a screw bore (121), and each of the two drive shafts (141) has a threaded distal end screwed into the respective screw bore (121) of

the crank (12) to secure each of the drive shafts  
(141) to the crank (12).

10. The pedalling device in accordance with claim 1,  
5 wherein the outer part of each of the ratchet wheels  
(40) has an inner wall formed with a plurality of  
locking grooves (430), and each of the ratchet wheels  
(40) further includes a plurality of oneway detents  
(44) each having a first end pivotally mounted on the  
10 inner part and a second end engaged in the respective  
locking groove (430) of the outer part (43).

15

20

25

30

Abstract

Art. 85

Peddalling device for bicycle

R. 47(1)

*Title of invention*

A pedalling device for a bicycle includes a support seat (13), a rotation shaft (111), a chainwheel (11), two opposite oneway ratchet wheels (40), two opposite drive members (30), a crank (12), two opposite drive shafts (141), two pedals (14), and two opposite slide seats (50). Thus, the drive members have a longer force arm between the crank and the chainwheel so as to increase the force moment of the pedalling device so that the rider can step the pedals in an energy-saving manner, thereby saving the rider's energy and manual work.

R. 47(2), (3), (5)

*Content of abstract*

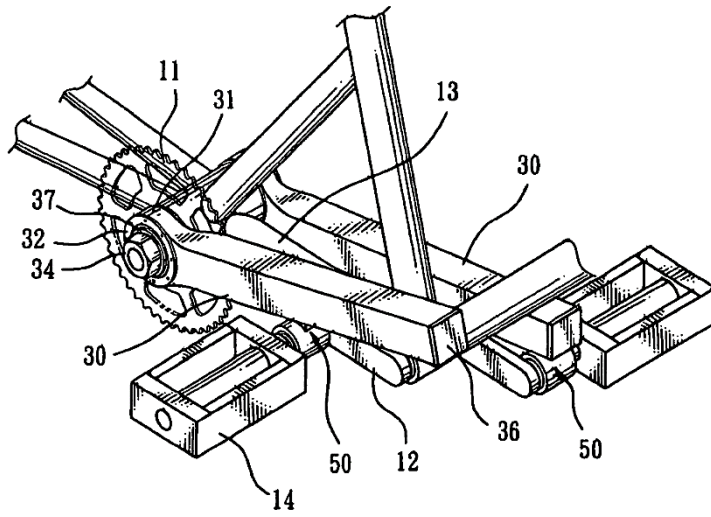


FIG. 1

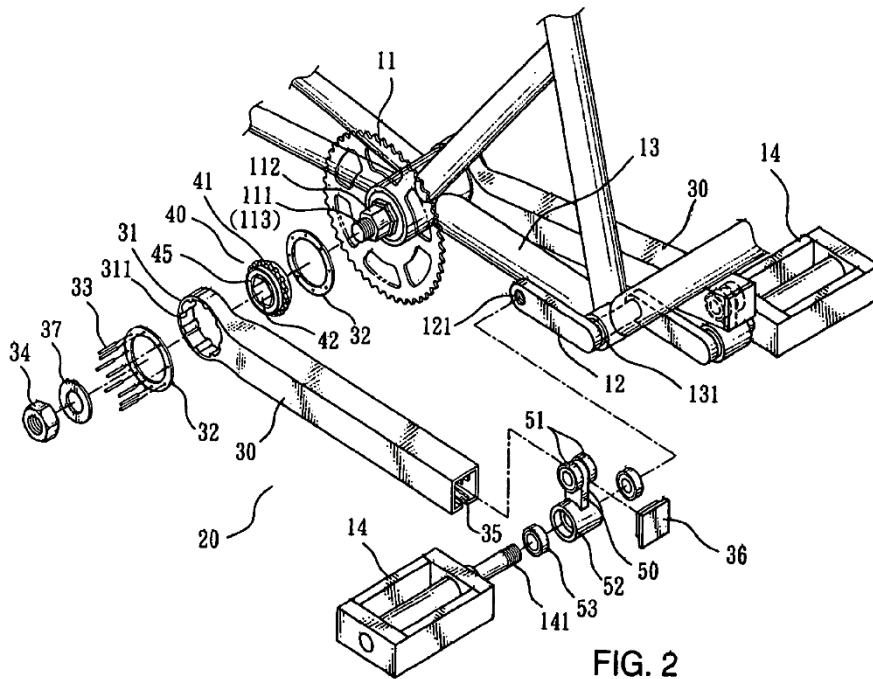


FIG. 2

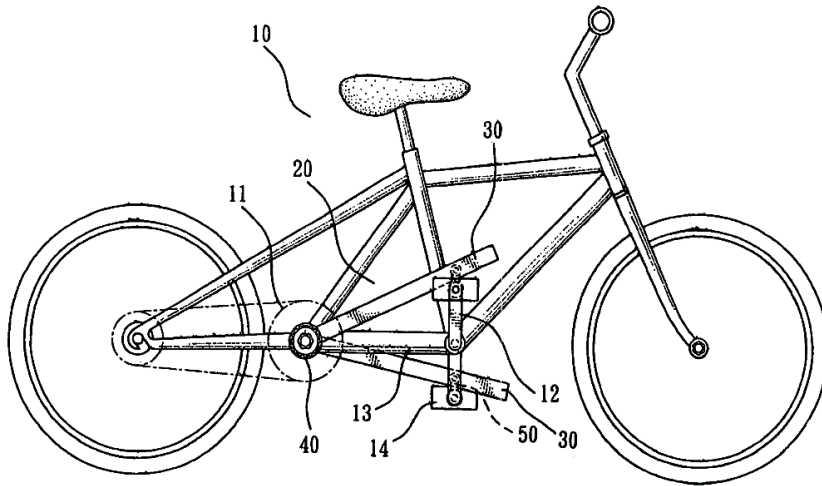


FIG. 3

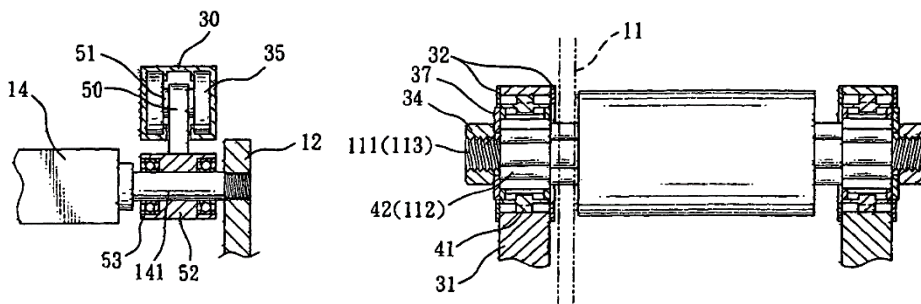


FIG. 4

FIG. 5

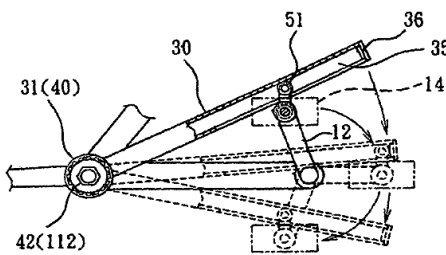


FIG. 6

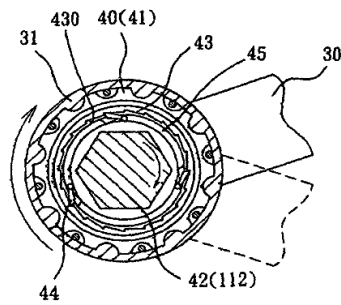


FIG. 7

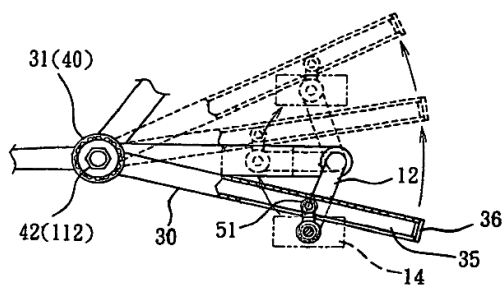


FIG. 8

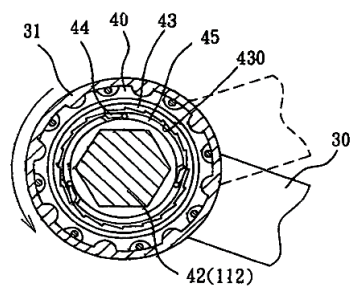


FIG. 9

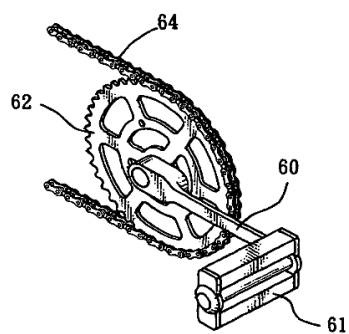


FIG. 10  
PRIOR ART

## Computers

Art. 78, 83  
R. 42  
Description of  
invention

5 Directional touch remote

Title of invention  
(designation in  
request for grant  
suffices)

The present technology is related to remote controls  
and specifically touch device remote controls.

R. 42(1)(a)  
Technical field to  
which invention  
relates

10 INTRODUCTION

As devices become more complex so do the remotes that  
control them. The earliest remotes were effective for  
their simplicity, but as technology progressed they  
15 lacked in the way of functionality. Today it is  
common to find remotes with upwards of fifty buttons,  
each often having multiple functions. Such remotes  
often require close study to learn the function of a  
button and frequently have buttons so small that  
20 accidental commands are too often given.

Buttons are convenient because they provide tactical  
feedback of giving a command and in some cases a  
select few buttons can even have a different feel or  
25 shape to facilitate the ability to operate the remote  
with minimum visual confirmation that the correct  
button is being selected. Even with shapes or  
textures, too often a user's focus is taken off of  
the remotely controlled device and focused on the  
30 remote - an undesirable consequence of a complicated  
interface.

Touch screen remotes attempt to solve some of these problems but can create others. While touch screen remotes are able to display less options on the screen at one time by having the user navigate menus to find the appropriate command, touch screens always have required the user to view the remote. Since touch screens do not have tactile feedback that allows the user to confirm which selection is made, the user must visually confirm the selection, which is undesirable.

Other touch screen remotes are application specific and require two-way communication wherein the remotely controlled device instructs the remote to display a certain graphical user interface. The user must view the remote to make selections because the interface on the controller changes according to the context of the display of the remotely controlled device. Further these remotes have the drawback that they can sometimes operate too slowly for a remote application owing to the back and forth communication between the remote and the remotely controlled device.

Still other touch screen remotes control a cursor displayed on the remotely controlled device. While these remotes can be operated by viewing the remotely controlled device instead of the remote itself, they can require too much user effort to enter a command. The user must undergo the cumbersome steps of navigating a cursor to a menu and selecting the command. This type of interaction is removed from the simple click and control benefits of earlier remotes.



Accordingly, a simple remote that is capable of operation without viewing a display of the remote, and which operates quickly and efficiently while minimizing accidental command inputs is desirable.

*R. 42(1)(c)  
Technical problem to  
be solved*

5

US2008/0284726 describes an apparatus for sensory based media control including a media device having a controller element to receive from a media controller a first instruction to select an object in accordance with a physical handling of the media controller, and a second instruction to control the identified object or perform a search on the object in accordance with touchless finger movements.

10

15

US2008/0059578 relates to a gesture-enabled electronic communication system that informs users of gestures made by other users participating in a communication session. The system captures a three-dimensional movement of a first user from among the

20

multiple users participating in an electronic communication session, wherein the threedimensional movement is determined using at least one image capture device aimed at the first user. The system identifies a three-dimensional object properties

25

stream using the captured movement and then identifies a particular electronic communication gesture representing the three-dimensional object properties stream by comparing the identified three-dimensional object properties stream with multiple

30

electronic communication gesture definitions.

US2007/0152976 discloses a method for rejecting an unintentional palm touch. In at least some embodiments, a touch is detected by a touch-sensitive

surface associated with a display. Characteristics of the touch may be used to generate a set of parameters related to the touch. In an embodiment, firmware is used to determine a reliability value for the touch.

- 5 The reliability value and the location of the touch is provided to a software module. The software module uses the reliability value and an activity context to determine a confidence level of the touch. In an embodiment, the confidence level may include an
- 10 evaluation of changes in the reliability value over time. If the confidence level for the touch is too low, it may be rejected.

- US2004/0218104 relates to a user interface for
- 15 multimedia centers which utilizes handheld inertial-sensing user input devices to select channels and quickly navigate the dense menus of options.
- Extensive use of the high resolution and bandwidth of such user input devices is combined with strategies
- 20 to avoid unintentional inputs and with dense and intuitive interactive graphical displays.

#### SUMMARY

- 25 The invention is defined by the appended independent claims. Additional features and advantages of the concepts disclosed herein are set forth in the description which follows, and in part will be obvious from the description, or may be learned by
- 30 practice of the described technologies. The features and advantages of the concepts may be realized and obtained by means of the instruments and combinations particularly pointed out in the appended claims. These and other features of the described

*R. 42(1)(c)  
Disclosure of  
invention*

technologies will become more fully apparent from the following description and appended claims, or may be learned by the practice of the disclosed concepts as set forth herein.

5

The present disclosure describes methods and arrangements for remotely controlling a device with generic touch screen data by displaying a Graphical User Interface (GUI) comprising a plurality of contexts on a display device for controlling at least some functions of a device. Data characterizing a touch event can be received and interpreted or translated into a list of available commands. These commands can effect an action by the device in response to the touch data as interpreted in view of the context of the GUI.

10

15

20

The present disclosure further includes a computer-readable medium for storing program code effective to cause a device to perform at least the steps of the method discussed above, and throughout this description.

25

In some instances the same touch event can affect the same action in multiple GUI contexts, but in other instances, the same touch can affect different actions in different interface contexts.

30

Any portable electronic device is useful to act as the remote including a cell phone, smart phone, PDA or portable media player.

Likewise any number of devices can be controlled by the remote include a multimedia management program

and a player or a digital video recorder or a television-tuning device such as a television, or cable box.

- 5 Also disclosed is a multiple function device running an application causing the multiple function device to act a remote control. A touch screen device displaying a graphical user interface comprising an unstructured touch sensitive area is provided. The
- 10 touch screen can be configured to receive a variety of inputs in the form of touch gestures in the unstructured touch sensitive area and to interpret the gestures into electronic signals, the unstructured touch sensitive area comprising at least
- 15 a region having no individually selectable features. The device also comprises a processor for receiving the electronic signals from the touch sensitive area and translating the signals into at least position, movement, and durational parameters. Additionally, a
- 20 communications interface is provided for receiving the parameters from the processor and sending the parameters to a device to be remotely controlled for interpretation. The communications interface can use at least a protocol that can be used in a
- 25 substantially unidirectional fashion, to send the parameters to the remotely controlled device, whereby no input confirmation is received on the remote control device.
- 30 In some embodiments a method of remotely controlling an application, selected from a plurality of possible applications on the same or a plurality of different remote devices is disclosed. Data representative of touch inputs can be received into an unstructured

portion of a touch screen interface. The data can be received by a remotely controlled device or device hosting a remotely controlled application and interpreted into a set of available events

5 recognizable by the remotely controlled device or application. Based on a set of available events a GUI associated with a context can be updated. The update can be in response to a selection of an event from the set of available events recognizable by the  
10 remotely controlled application that is selected based on the context associated with the displayed GUI.

#### BRIEF DESCRIPTION OF THE DRAWINGS

15 In order to best describe the manner in which the above-described embodiments are implemented, as well as define other advantages and features of the disclosure, a more particular description is provided

*R. 42(1)(d)  
Brief description of  
drawings*

20 below and is illustrated in the appended drawings. Understanding that these drawings depict only exemplary embodiments of the invention and are not therefore to be considered to be limiting in scope, the examples will be described and explained with  
25 additional specificity and detail through the use of the accompanying drawings in which:

FIG. 1 illustrates an example computing device;

FIG. 2 illustrates an example interface embodiment for a remote control device;

30 FIG. 3 illustrates an example functional diagram system embodiment;

FIG. 4 illustrates an example flow diagram of a focused UI controller function embodiment;

FIG. 5 illustrates an example flow diagram of a focused UI controller function embodiment;

FIG. 6 illustrates an example flow diagram of a focused UI controller function embodiment;

5 FIG. 7 illustrates an example menu graphical user interface embodiment;

FIG. 8 illustrates an example media playback graphical user interface embodiment;

FIG. 9 illustrates an example method embodiment; and

10 FIG. 10 illustrates an example interface embodiment for a remote control device.

#### DETAILED DESCRIPTION

15 Various embodiments of the disclosed methods and arrangements are discussed in detail below. While specific implementations are discussed, it should be understood that this is done for illustration purposes only. A person skilled in the relevant art  
20 will recognize that other components, configurations, and steps may be used without parting from the spirit and scope of the disclosure.

*R. 42(1)(e)  
Description of at  
least one way of  
carrying out the  
invention*

With reference to FIG. 1, a general-purpose computing  
25 device 100 which can be portable or stationary is shown.

The general-purpose computing device can be suitable for carrying out the described embodiments or in some embodiments two or more general-purpose computing  
30 devices can communicate with each other to carry out the embodiments described below. The general purpose computing device 100 is shown including a processing unit (CPU) 120 and a system bus 110 that couples various system components including the system memory

such as read only memory (ROM) 140 and random access memory (RAM) 150 to the processing unit 120. Other system memory 130 may be available for use as well. It can be appreciated that the system may operate on  
5 a computing device with more than one CPU 120 or on a group or cluster of computing devices networked together to provide greater processing capability. The system bus 110 may be any of several types of bus structures including a memory bus or memory  
10 controller, a peripheral bus, and a local bus using any of a variety of bus architectures. A basic input/output (BIOS) stored in ROM 140 or the like, may provide the basic routine that helps to transfer information between elements within the computing  
15 device 100, such as during start-up. The computing device 100 further includes storage devices such as a hard disk drive 160, a magnetic disk drive, an optical disk drive, tape drive or the like. The storage device 160 is connected to the system bus 110  
20 by a drive interface. The drives and the associated computer readable media provide nonvolatile storage of computer readable instructions, data structures, program modules and other data for the computing device 100. In one aspect, a hardware module that  
25 performs a particular function includes the software component stored in a tangible computer-readable medium in connection with the necessary hardware components, such as the CPU, bus, display, and so forth, to carry out the function. The basic  
30 components are known to those of skill in the art and appropriate variations are contemplated depending on the type of device, such as whether the device is a small, handheld computing device, a desktop computer, or a large computer server.

Although the exemplary environment described herein employs a hard disk, it should be appreciated by those skilled in the art that other types of computer  
5 readable media which can store data that is accessible by a computer, such as magnetic cassettes, flash memory cards, digital versatile disks, cartridges, random access memories (RAMs), read only memory (ROM) may also be used in the exemplary  
10 operating environment.

To enable user interaction with the computing device 100, an input device 190 represents any number of input mechanisms, such as a microphone for speech, a  
15 touch-sensitive screen for gesture or graphical input, keyboard, mouse, motion input, speech and so forth. The device output 170 can also be one or more of a number of output mechanisms known to those of skill in the art. For example, video output or audio  
20 output devices which can be connected to or can include displays or speakers are common. Additionally, the video output and audio output devices can also include specialized processors for enhanced performance of these specialized functions.  
25 In some instances, multimodal systems enable a user to provide multiple types of input to communicate with the computing device 100. The communications interface 180 generally governs and manages the user input and system output. There is no restriction on  
30 the disclosed methods and devices operating on any particular hardware arrangement and therefore the basic features may easily be substituted for improved hardware or firmware arrangements as they are developed.



For clarity of explanation, the illustrative system embodiment is presented as comprising individual functional blocks (including functional blocks  
5 labeled as a "processor"). The functions these blocks represent may be provided through the use of either shared or dedicated hardware, including, but not limited to, hardware capable of executing software. For example the functions of one or more processors  
10 presented in FIG. 1 may be provided by a single shared processor or multiple processors. (Use of the term "processor" should not be construed to refer exclusively to hardware capable of executing software.) Illustrative embodiments may comprise  
15 microprocessor and/or digital signal processor (DSP) hardware, read-only memory (ROM) for storing software performing the operations discussed below, and random access memory (RAM) for storing results. Very large scale integration (VLSI) hardware embodiments, as  
20 well as custom VLSI circuitry in combination with a general purpose DSP circuit, may also be provided.

The logical operations of the various embodiments can be implemented as: (1) a sequence of computer  
25 implemented steps, operations, or procedures running on a programmable circuit within a general use computer, (2) a sequence of computer implemented steps, operations, or procedures running on a specific-use programmable circuit; and/or (3)  
30 interconnected machine modules or program engines within the programmable circuits.

The present system and method is particularly useful for remotely controlling a device having one or more

menus via a remote touch interface having at least an unstructured primary input area. A user can provide inputs to a touch interface without needing to view the interface and yet still achieve the desired

5 response from the remotely controlled device. The primary input area of the touch interface may or may not have a background display, such as on a typical touch screen, but the primary input area of the touch interface should be unstructured. In other words, in  
10 preferred embodiments, the primary input area of the touch interface should not have independently selectable items, buttons, icons or anything of the like. Since the touch interface is unstructured, the user does not have to identify any selectable  
15 buttons. Instead the user can input a gesture into the interface and watch the device respond. In some embodiments, the system does not provide any other visual confirmation.

20 FIG. 2 illustrates an example remote embodiment. A remote 200 is shown running an application or other software routine providing the interface. While in the displayed embodiment, remote 200 is shown having a touch screen interface 202, the interface could be  
25 any touch sensitive interface, such as, for example, a capacitive sensing touch pad. Further, the remote device itself can be a dedicated remote device or a portable electronic device having other functions such as a smart phone or portable music playing  
30 device or a PDA.

The touch sensitive interface 202 comprises a primary touch sensitive area 204, which can receive the majority of the user touch inputs. In the displayed

embodiment, the touch sensitive interface also comprises other touch sensitive areas including a menu area 206, a navigation bar 207, a tab bar 208, and a status bar 209.

5

The primary touch sensitive area 204 is an unstructured area, having no individually selectable items such as buttons or icons. Further, since area 204 is unstructured, there are no selectable items to  
10 select or avoid and therefore the primary touch sensitive area is especially conducive to providing input to the remote without needing to view the remote itself. Instead a user can view the remotely controlled device for feedback.

15

Starting with the navigation bar 207, two independently selectable buttons are displayed. Back button 226, shown here labeled "Settings" because in this example illustration a user can return to the  
20 settings menu, can be selected to return the user to the previous screen. The button's label can change to display the name of the screen that the user will be returned to if the button is selected. Button 224 acts as a forward button, but in most cases takes the  
25 user to a "Now Playing Screen" (abbreviated as NP) which is present when the remotely controlled device is playing audio or video. It should be appreciated here and throughout the document that that while many of the buttons in the remote interface as indicated  
30 as having a specific name, the labeling is not intended to be limiting.

The entire menu area 206 is a touch sensitive area which records inputs to return to the previous menu

by receiving taps in the menu area, or to return to the top-level-menu by receiving and detecting a press and hold action. In the illustrated embodiment two other buttons are present. Keyboard button 222 and  
5 information button 220 can be displayed when they are needed and not displayed when they are not needed. For example, when a keyboard is present on the user interface of the remotely controlled device, the keyboard button 222 can appear. Selecting the  
10 keyboard button 222 can cause a keyboard to appear on the remote interface for easier typing into the remotely controlled device's interface. Similarly, information button 220 can be displayed when an item is displayed on the remotely controlled device's  
15 interface for which information is available.

Buttons 220 and 222 are located near the outer edges of the menu area 206 and of the screen 202 in general. Locating buttons 220 and 222 in the corner  
20 of the interface helps avoid accidental selections, as it is expected that a user would rarely hit one of the corners of the device accidentally.

In some embodiments, the remote device 200 can be a  
25 mobile phone, smart phone, portable multimedia player, PDA or other portable computing device capable of a diverse set of functions. In these embodiments a tab bar 208 can be useful to navigate between other functions on the remote device. The tab  
30 bar 208 can be a structured touch sensitive area with selectable buttons for this purpose. For example button 218 can instruct the remote device 200 to switch to the albums menu, or button 216, the artists menu, button 212, a search screen. Button 210 can

provide additional options. Remote button 214 can return the remote device back to the remote interface.

5 In some embodiments one or all of areas 206, 207, 208, and 209 may not be present as part of the remote interfaces. In some other embodiments area 206, 207, 208, and 209 can ignore inputs in various contexts so as to avoid accidental selection. For example, when  
10 the remote device is held in a substantially horizontal fashion, all individually selectable inputs can be made unselectable, and in complimentary fashion, when the device is held at a substantially vertical angle, the individually selectable inputs  
15 can be active to be selected.

In some embodiments, one method to prevent accidental selection requires a selection action to both start and end within the individually selectable area. For  
20 example, to activate the menu area, the touch must start and end within the menu area 206. If a touch were to either begin or end outside of the menu area but in the primary touch sensitive area 204, then the input can be considered to be an input of the type  
25 usually given and detected in the primary touch sensitive area 204.

As illustrated in FIG. 3 touch device 200 receives touch events from the user as they are input using a  
30 Responder Touch Events Module 250 which passes the touch events to a Touch Event Handler 252. Touch Event Handler 252 interprets the touch events received by the Responder Touch Events Module 250 to identify information about the touch event. For

example Touch Event Handler can identify the pixel location of the touch start, the pixel of the touch end, and identify touch movement. It also interprets the duration of the touch event. The Touch Event

5 Handler 252 can interpret whether the touch event resulted in a menu input, a selection action, context menu input or top menu input. This information is formatted into packets and encrypted by the Touch Packer Encryption and Formatter module 254 and sent  
10 by the TCP Client 256 to the remotely controlled device 300.

While FIG. 3 illustrates a TCP Client 256 for transferring data from the remote 200 to the remotely  
15 controlled device 300, any protocol can be used to send data from device 200 to 300. However, in this embodiment TCP is discussed for speed benefits. TCP can be configured work in a substantially unidirectional fashion without requiring handshakes  
20 or other unnecessary communication that can increase latency in the transmission of data from the remote to the remotely controlled device. It will be appreciated that whatever technology, whether a direct device-to-device connection or over a local  
25 area network is chosen, it should allow relatively fast and reliable delivery of the information sent by the touch device 200.

Additionally, for purposes of speedy transmission of  
30 commands from the touch device 200 to the remotely controlled device 300 the amount of data sent should be kept to minimum. In some embodiments the amount of data transferred comprises around 20 bytes up to about 50 bytes per packet. While it can be

appreciated that the touch interface of the touch device 200 is a versatile instrument and is capable of recording and interpreting data into more complex instructions for the remote device, complexity is not  
5 beneficial. Instead simple information is recorded and transmitted by touch device 200.

In the remote context it is important that the commands from the remote 200 are transmitted and  
10 received by the remotely controlled device 300 quickly. Therefore, in embodiment illustrated FIG. 3, the remote sends largely generic touch device data and leaves the interpretation of the data to the remotely controlled device 300. For example, TCP  
15 server 302 receives the TCP data transmission from a TCP client 256 and the data is decrypted with module 304.

The generic touch data, (touch start, move, end,  
20 time/ velocity) can be interpreted by an interpreter such as Touch Event Interpreter 306 that interprets the generic touch event data into events that can be understood and used by the remotely controlled device 300. In this example, the information such as touch  
25 start, move and end that was recorded by the remote 200 can be interpreted into events, left, right, up, down, swipe left, swipe right, swipe up, swipe down or interpreted in a generic way as touch start, move or end.

30 Also illustrated is an Event Handler 308, which can receive inputs and pass them onto a controller for a graphical user interface. As illustrated, the Event Handler 308 can receive events originating from a

standard remote control 330 that have been received and interpreted by the Human Interface Event Manager 310, and can also receive events that originate from the touch device 200 that have been interpreted by  
5 the Touch Event Interpreter 306.

One or more UI controllers control each graphical user interface of the remotely controlled device. As illustrated in FIG. 3, the UI controller is labeled  
10 as a Focused UI controller 312 because it represents the UI controller that is associated with the GUI that is currently being displayed by the remotely controlled device. While there can be many UI controllers, the focused UI controller is the  
15 controller that is associated with the GUI screen currently displayed.

The focused UI controller 312 receives events from the event handler 308. The focused UI controller 312  
20 receives all of the possible inputs and reacts to whichever input the focused UI controller is configured to accept.

FIGS. 4-6 illustrate how different focused UI  
25 controllers handle the same set of touch events. At 340 a user enters a gesture that begins at an arbitrary point X on the touch interface and ends a point X-10, which is left of X and the touch gesture has some velocity. The touch input is received,  
30 processed, and sent to the remotely controlled device as described above. At the remotely controlled device, the touch event interpreter 346 receives the data descriptive of the touch input and can interpret the data into events 342 that can be recognized by



the remotely controlled device. In this example, the touch event interpreter outputs a swipe left event and a left event.

5 The event handler 348 passes the left event and swipe left event to the UI controller that is currently "in focus." A UI controller is said to be "in focus" when it is controlling at least a portion of the currently displayed user interface screen. The focused UI  
10 controller receives the events from the event handler 348. In FIGs. 4-6, three different focused UI controllers exist. A movie menu focused UI controller 315, a slide show focused UI controller 317, and a media playback focused UI controller 319. In FIG. 4,  
15 the movie menu focused UI controller 315 receives the touch events 342 from the event handler 348 and recognizes the left swipe event at 344 and causes the UI to appear to scroll through the selections and ease out of the scroll operation at 350. In FIG. 5,  
20 the slide show focused controller 317 is the active controller and it recognizes the left event at 352, which results in the user interface returning to the previous slide in the slide show at 354. In FIG. 6, the media playback focused UI controller 319 is the  
25 active controller and it recognizes the swipe left event at 356, which results in the user interface returning to the previous slide in the slide show at 358. Together FIGs. 4-6 illustrate how the same touch input can be recognized as several different events  
30 and the focused UI controllers choose from the events to cause an action in the user interface.

While in the examples illustrated in FIGs. 4-6, the focused UI controllers only recognized one of the two

input events, it can be possible that the focused UI controller can recognize multiple events as being tied to actions. For example, the movie menu controller could have recognized both the swipe event and the left event, but in such cases, the focused UI controller can be configured to choose one event over the other if multiple events are recognized.

At this point it is informative to compare how the currently described technology works in comparison to a standard remote 330 in FIG. 3. One way to conceptualize the remote 200 is as a universal remote that can output the same data regardless of the device it is communicating with. It is a remote that has an unstructured interface and therefore any gesture or command can be input. In contrast, remote 330 is specific to the remotely controlled device. For the purposes of this discussion, the remote is a simple remote having only a menu button, up, down, left and right. The remotely controlled device is configured to accept inputs from remote 330 and each input is tied to a function in the remotely controlled device. Even a traditional universal remote is programmed to work in the same matter as remote 330 outputting commands that are specific to the remotely controlled device.

Inputs from the touch device 200 are received by the touch event interpreter 306 which can interpret the touch data into touch events that can potentially be used by the remote device. The event handler 308 forwards the events to the focused UI controller 312. An input from the standard remote 330 can be received by the human interface device event manager 310 and

interpreted into an event that can be used by the touch device. Just as with the events received from the touch device 200, the event handler 308 can forward the command from the standard remote 330 to  
5 the focused UI controller 312.

In some embodiments the focused UI controller 312 can be configured to accept additional inputs beyond that which is possible using the standard remote 330. In  
10 such embodiments, the focused UI controller 312 can choose from among the inputs that it wants to accept. In these embodiments the focused UI controlled 312 is configured to make this choice. For example the focused UI controller 312 can be informed that it is  
15 receiving events from the touch device 200 and consider those commands more preferable than the simplistic inputs, such as a left event, given by the standard remote 330. In such a case, if the focused UI controller 312 were to receive events from the  
20 touch device 200 it would need to choose from the simple event or the higher-level event, such as a swipe, since both are represented. The focused UI controller 312 can learn that the data is from the touch device 200 and choose to a fast forward a movie  
25 based on the swipe input as opposed to skipping a movie chapter based on a left event.

Just as the focused UI controller 312 can be configured to accept different commands based on  
30 which device is receiving the commands it can also interpret the commands based on the context of the interface that is currently displayed. As mentioned above, each focused UI controller is specific to a different context. There can be many more UI

controllers each responsible for their own function. Since each UI controller is responsible for a different part of the UI or different screen having a different context, each focused UI controller can  
5 perform different functions given the same input.

As discussed above, a user can provide a variety of inputs into the primary touch sensitive area 204, but the result of the inputs can vary depending on the  
10 context in which the input is given. The focused UI controller that is specific to a particular GUI can be programmed to interpret inputs based on elements or characteristics of its context. For example in the case of a remote controlling a multimedia application  
15 running on a remote device, there can be at least a menu context (FIG. 7) and a media playback context (FIG. 8) each having their own focused UI controller governing their behavior. While controlling an multimedia application remotely is discussed as one  
20 exemplary embodiment, many other devices can be controlled according to the concepts discussed herein including, but not limited to, televisions, cable boxes, digital video records, digital disc players (DVD, CD, HD-DVD, blu ray etc.).

25 Returning to the example of a multimedia application running on a remote device - in a menu context, a user can potentially browse media, by title, artist, media type, playlists, album name, genre (it should  
30 be understood that some of these categories for browsing media are more or less applicable to different media types such as movies or songs). In FIG. 7, a user can browse the menu interface by movie titles arranged in a list. In the menu context

various inputs can be entered into the primary touch sensitive area to navigate the menu and make a selection. For example, and as shown in the table below, a user can swipe the interface in a desired direction, which can result in a scroll operation. As is known in the art, the speed of the gesture and the scrolling operation can be related. For example, a faster swipe gesture can result in a faster scroll operation and/or longer scroll duration.

Additionally the primary touch sensitive area can also receive tap gestures, which can select an item. Further, dragging a user's finger across the primary touch sensitive area 204 can move a selected or highlighted item.

TABLE 1

Menu Navigation Context	
Touch Action	Result
Single digit drag in the desired direction	Move selection
Single digit swipe in the desired direction	Scroll selection and ease out
Single digit tap in main selection area	Select item

Many of the same actions can result in different outcomes or actions performed on or by the remotely controlled device in other contexts. For example, and as seen in the chart below, some of the same actions described above cause different results in the media playback context which is illustrated in FIG. 8. A single digit tap in the primary touch sensitive area can cause a media file to play or pause in the playback context as opposed to a selection in the

menu context. Similarly, a drag action can result in a shuttle transport operation of shuttle 367. Swipes right and left can result in a fast forward right and left respectively as opposed to the scroll operation in the menu context. An upward swipe can cause an information display 365 to cycle through various information that a media player might have available to show. A downward swipe can show a chapter selection menu.

TABLE 2

Media Playback Context	
Touch Action	Result
Single digit tap in the selection area	Toggle Play/Pause
Single digit drag left/right	Shuttle transport to left/right
Swipe digit swipe left	Skip backwards 10 seconds
Swipe digit swipe right	Skip forwards 10 seconds
Swipe digit swipe up	Cycle Info Display
Swipe digit swipe down	Show Chapter selection Menu

Other inputs do not need to vary by context. For example, a tap in the menu area 206 returns to the previous menu screen. Holding a finger in the menu area returns to the top menu. Also some inputs into the primary touch sensitive area 204 will always result in the same action - a two-digit press and hold in the primary touch sensitive area 204 will return to the menu for the context that the device is currently displaying.

TABLE 3

Any Context	
Touch Action	Result
Single digit tap in menu area	Menu
Single digit Press & hold in menu area	Top Menu
Two digit press & hold in main selection area	Context Menu

5

10

In addition to the various touch inputs described above many more inputs are also possible. Nothing in the above discussion should be seen as limiting the available touch inputs or gestures that can be used with the described technology. For example, in

15

additional to the one or two finger inputs described above, three or four finger inputs are also contemplated. Additionally, more complex gestures such as separating two or more fingers and providing inputs relative to each finger can also be useful.

20

Such gestures are already known in the art such as rotating one finger around the other to rotate an onscreen image, or moving two fingers away from each other or towards each other can result in a zoom out or in operation. Many others are considered within

25

the level of skill in the art.

Furthermore, while the term digit is referred to above and throughout the specification it is also not meant to be limiting. While in some embodiments a digit refers to a finger of a human hand, in some  
embodiments digit can refer to anything that is capable of being sensed by a capacitive device. In some embodiments, digit can also refer to a stylus or

30

other object for inputting into a display-input device.

After the focused UI controller accepts an input it  
5 affects the UI of the remotely controlled device. In  
many cases this may be the first feedback that the  
user will receive that the proper command was given.  
Such a feedback loop increases the responsiveness of  
the system and allows the remote interface to be less  
10 complicated. However, in other embodiments, other  
types of feedback can be supplied. For example,  
audible feedback can be supplied to the user so she  
can at least know a command was issued. Alternatively  
the remote can vibrate or provide any other desirable  
15 type of feedback. The feedback can also be command  
specific, a different sound or vibration for each  
command is possible.

In some embodiments, the remotely controlled device  
20 may not have an event interpreter. In these  
embodiments, the remote would send the data  
representative of touch inputs to the remotely  
controlled device and the focused UI controller can  
be configured to interpret the data.

25 In some embodiments it can be useful to allow the  
remote to learn about changing menus or displays of  
the remote device. In such embodiments, a separate  
communications channel can be opened, for example  
30 using a hypertext transfer protocol for transferring  
information between the devices. To maintain remote  
performance most communications can be single  
direction communications for faster speed, but  
bidirectional communications can be used when needed.



For example, even though most of the communications from the remote to the remotely controlled device are transferred using TCP, HTTP or DAAP can be used to inform the remote of special cases such as when

5 additional information is available or that a keyboard is being displayed on the remotely controlled device. In such instances, a keyboard for example can be displayed on the remote and inputs into the keyboard can be transferred using the HTTP  
10 protocol. Similarly, when information such as that shown in FIG. 8 is available, and information button can be displayed on the remote to bring up information window 365.

15 FIG. 9 illustrates the method for controlling the remote device. In step 418, a remote application provides an unstructured touch sensitive area for receiving touch inputs from a user. The touch inputs are received and interpreted into at least touch  
20 start, touch end, move and duration data in step 422. The data is formatted and sent to the remotely controlled device in step 424.

In step 426, the remotely controlled device  
25 interprets the received data with knowledge of the context of the screen that is currently being displayed by the remotely controlled device. Depending on the inputs received and the context of the current display, the remotely controlled device  
30 interprets the data received from the remote and accepts the command in step 428 which causes the remotely controlled device to perform the command and display the result in step 430.

It will be appreciated that while the above description uses a media playback device with associated software, the technology is equally applicable to other remotely controlled devices such  
5 as televisions, DVR, DVD players, Bluray, cable boxes etc. For example, either the remotely controlled device can be programmed to accept and interpret generic touch screen interface data and respond to those inputs. Alternatively, the remote itself can be  
10 provided with instructions on how to communicate with almost any remotely controlled device. As long as either the remote or the remotely controlled device can interpret the touch data based on the context of what is currently being displayed or caused to be  
15 displayed by the remote device, the principles of the described technology can apply.

In some embodiments less or more touch sensitive areas are possible. However, additional touch  
20 sensitive areas having structured interfaces increase the possibility of accidental commands being input into the remote. The best interfaces provide an overall user experience wherein the user does not need to look at the remote to make a selection in  
25 most instances. However, it will be appreciated that if the user is not looking at the remote, in a touch environment wherein the entire device feels similar to the user, accidental inputs are possible and may even become likely if too many individually  
30 selectable items are available.

Several methods can be used to prevent accidental inputs. One of which, as described above, uses an accelerometer device to determine the devices

orientation and based on that orientation determine what type of command the user is trying to enter. If the device is horizontal the user is probably not looking at the device and gestures are likely  
5 intended to control the remotely controlled device. However, if the device is more vertical, or angled so that the user can view the screen, the user is probably viewing the screen and inputs are more likely into the structured interface buttons. Another  
10 alternative is illustrated in FIG. 5 wherein the remote device 500 is rotated in a landscape orientation. In this orientation, the entire interface is unstructured and only the primary selection area 502 and the menu selection area 504  
15 are present. This embodiment would eliminate accidental inputs by removing the structured portion of the interface when the user desired to only use the unstructured interface to enter touch gestures to control the remotely controlled device. When the  
20 device is rotated into the portrait orientation a structured interface can become available. Still yet another way to reduce unwanted inputs is to turn the display portion of the touch screen completely off regardless of the orientation of the device. In these  
25 embodiments only unstructured input into the primary selection area and menu area would be available. If the user wanted one of the structured options the screen could be turned back on by some actuation mechanism like a hardware button, shaking the device,  
30 or a touch gesture.

Additionally, and as described above, accidental inputs can be avoided by configuring the touch interface to accept any input that drifts into or out

of a structured input as a input into the unstructured interface. In this way, only deliberate selections are registered.

5 Embodiments within the scope of the present invention may also include computer-readable media for carrying or having computer-executable instructions or data structures stored thereon. Such computer-readable media can be any available media that can be accessed  
10 by a general purpose or special purpose computer. By way of example, and not limitation, such tangible computer-readable media can comprise RAM, ROM, EEPROM, CD-ROM or other optical disk storage, magnetic disk storage or other magnetic storage  
15 devices, or any other medium which can be used to carry or store desired program code means in the form of computer-executable instructions or data structures. When information is transferred or provided over a network or another communications  
20 connection (either hardwired, wireless, or combination thereof) to a computer, the computer properly views the connection as a computer-readable medium. Thus, any such connection is properly termed a computer-readable medium. Combinations of the above  
25 should also be included within the scope of the tangible computer-readable media.

Computer-executable instructions include, for example, instructions and data which cause a general  
30 purpose computer, special purpose computer, or special purpose processing device to perform a certain function or group of functions. Computer-executable instructions also include program modules that are executed by computers in standalone or

network environments. Generally, program modules include routines, programs, objects, components, and data structures that perform particular tasks or implement particular abstract data types. Computer  
5 executable instructions, associated data structures, and program modules represent examples of the program code means for executing steps of the methods disclosed herein. The particular sequence of such executable instructions or associated data structures  
10 represent examples of corresponding acts for implementing the functions described in such steps.

Those of skill in the art will appreciate that other embodiments of the invention may be practiced in  
15 network computing environments with many types of computer system configurations, including personal computers, hand-held devices, multi-processor systems, microprocessor-based or programmable consumer electronics, network PCs, minicomputers,  
20 mainframe computers, and the like. Embodiments may also be practiced in distributed computing environments where tasks are performed by local and remote processing devices that are linked (either by hardwired links, wireless links, or by a combination  
25 thereof) through a communications network. In a distributed computing environment, program modules may be located in both local and remote memory storage devices.

30 Communication at various stages of the described system can be performed through a local area network, a token ring network, the Internet, a corporate intranet, 802.11 series wireless signals, fiber-optic network, radio or microwave transmission, etc.

Although the underlying communication technology may change, the fundamental principles described herein are still applicable.

5 The various embodiments described above are provided by way of illustration only and should not be construed to limit the invention. For example, the principles herein may be applied to any remotely controlled device. Further, those of skill in the art  
10 will recognize that communication between the remote the remotely controlled device need not be limited to communication over a local area network but can include communication over infrared channels, Bluetooth or any other suitable communication  
15 interface. Those skilled in the art will readily recognize various modifications and changes that may be made to the present invention without following the example embodiments and applications illustrated and described herein, and without departing from the  
20 scope of the present disclosure.

25

30

Claims

Art. 84  
R. 43

1. A **method** for remotely controlling a device (300),  
comprising:

*R. 43(1)(a)*  
*Prior art portion of*  
*independent claim*  
*wherever appropriate*

5

receiving touch input data at a **remotely controlled**  
**device** (300) from a **remote controller** (200)

comprising a touch screen (202) and a processing  
unit, the touch input data comprising information

10

including positional, movement and durational input  
parameters, wherein the touch input data can be  
interpreted by the remotely controlled device (300)

as one of a plurality of potential commands in a  
first context of a graphical user interface (GUI) of

15

the remotely controlled device (300) and as another  
of the plurality of potential commands in a second  
context of the GUI, interpreting the touch input data  
in combination with a current context of the GUI to  
determine an appropriate command for the current

20

context of the GUI; and

updating the GUI in response to the appropriate  
command, *characterised in that* the method further  
comprises sending from the remotely controlled device  
(300) information via a bidirectional communication

25

protocol to the remote controller (200) informing the  
remote controller to display a keyboard on the touch  
screen, at least partially in response to the  
information received via the bidirectional  
communication protocol.

30

2. A **system** comprising:

**a remote controller** (200) comprising:

a touch screen (202) configured to receive touch

5 input,

a processing unit for receiving the electronic signals from the touch screen and translating the signals into touch input data, and

a communication interface configured for:

10 sending the touch input data to a remotely controlled device (300), the data including at least positional, movement and durational input parameters, and

receiving information from the remotely controlled

15 device (300) via a bidirectional communication protocol informing the remote controller to display a keyboard, wherein the remote controller is configured to display a keyboard on the touch screen, at least partially in response to the information received via  
20 the bidirectional communication protocol,

**a remotely controlled device** (300) configured to present a graphical user interface (GUI) in a plurality of contexts,

the remotely controlled device comprising:

25 a display for displaying a graphical user interface (GUI),

a communication interface configured for:

receiving the touch input data, wherein the touch input data can be interpreted by the remotely

30 controlled device (300) as one of a plurality of potential commands in a first context of a graphical user interface (GUI) of the remotely controlled device (300) and as another of the plurality of



potential commands in a second context of the GUI,  
and  
a processing unit configured for interpreting the  
touch input data in combination with a current  
5 context of the GUI to determine an appropriate  
command for the current context, and updating the GUI  
in response to the appropriate command,  
characterized in that  
the communication interface is further configured  
10 for:  
sending information via a bidirectional communication  
protocol informing the remote controller to display a  
keyboard on the touch screen at least partially in  
response to the information received via the  
15 bidirectional communication protocol.

3. A **device** configured with an application causing  
the device to function as a **remote controller** (200)  
for a remotely controlled device, comprising:

20 a touch screen (202) configured to receive touch  
input,  
a processing unit for receiving the electronic  
signals from the touch screen and translating the  
signals into touch input data, and  
25 a communication interface configured for:  
sending the touch input data to a remotely controlled  
device (300), the data including at least positional,  
movement and durational input parameters, wherein the  
touch input data can be interpreted by the remotely  
30 controlled device (300) as one of a plurality of  
potential commands in a first context of a graphical  
user interface (GUI) of the remotely controlled  
device (300) and as another of the plurality of  
potential commands in a second context of the GUI,

wherein the remotely controlled device is configured for interpreting the touch input data in combination with a current context of the GUI to determine an appropriate command for the current context, and

5 updating the GUI in response to the appropriate command,

*characterized in that*

the communication interface is further configured for:

10 receiving information from the remotely controlled device (300) via a bidirectional communication protocol informing the remote controller to display a keyboard on the touch screen, at least partially in response to the information received via the  
15 bidirectional communication protocol.

4. A **device** configured with an application causing the device to function as a **remotely controlled device** (300) being controlled by a remote controller

20 (200), comprising:

a display for displaying a graphical user interface (GUI),

a communication interface configured for:

receiving touch input data from a remote controller

25 (200), the data including at least positional, movement and durational input parameters, wherein the touch input data can be interpreted by the remotely controlled device (300) as one of a plurality of potential commands in a first context of a graphical  
30 user interface (GUI) of the remotely controlled device (300) and as another of the plurality of potential commands in a second context of the GUI, a processing unit configured for interpreting the touch input data in combination with a current

context of the GUI to determine an appropriate command for the current context, and updating the GUI in response to the appropriate command,  
*characterized in that*

5 the communication interface is further configured for:

sending information via a bidirectional communication protocol informing the remote controller to display a keyboard on the touch screen, at least partially in

10 response to the information received via the bidirectional communication protocol.

5. A **computer program product** comprising instructions which, when the program is executed by the system of  
15 claim 2, to carry out the method of claim 1.

6. A **computer program product** comprising instructions which, when the program is executed by a computing device comprising a touch screen, a processing unit  
20 for receiving electronic signals from the touch screen and a communication interface,  
cause the computing device to function as a **remote controller** (200) for a remotely controlled device, in that the instructions cause the computing device  
25 to:

translate the touch input signal from the touch screen into touch input data,

send the touch input data to a remotely controlled device (300), the data including at least positional,

30 movement and durational input parameters, wherein the touch input data can be interpreted by the remotely controlled device (300) as one of a plurality of potential commands in a first context of a graphical user interface (GUI) of the remotely controlled

device (300) and as another of the plurality of potential commands in a second context of the GUI, wherein the remotely controlled device is configured for interpreting the touch input data in combination  
5 with a current context of the GUI to determine an appropriate command for the current context, and updating the GUI in response to the appropriate command,  
*characterized in that* the instructions further cause  
10 the computing device to:  
receive information from the remotely controlled device (300) via a bidirectional communication protocol informing the remote controller to display a keyboard on the touch screen, at least partially in  
15 response to the information received via the bidirectional communication protocol.

7. A **computer program product** comprising instructions which, when the program is executed by a computing  
20 device comprising a display, a processing unit and a communication interface,  
cause the device to function as a **remotely controlled device** (300) being controlled by a remote controller (200),  
25 in that the instructions cause the computing device to:  
display a graphical user interface (GUI),  
receive touch input data from a remote controller (200), the data including at least positional,  
30 movement and durational input parameters, wherein the touch input data can be interpreted by the remotely controlled device (300) as one of a plurality of potential commands in a first context of a graphical user interface (GUI) of the remotely controlled

device (300) and as another of the plurality of potential commands in a second context of the GUI, interpret the touch input data in combination with a current context of the GUI to determine an

5 appropriate command for the current context, and update the GUI in response to the appropriate command,

*characterized in that* the instructions further cause the computing device to:

10 send information via a bidirectional communication protocol informing the remote controller to display a keyboard on the touch screen, at least partially in response to the information received via the bidirectional communication protocol.

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30

Abstract

Art. 85

Directional touch remote

R. 47(1)

*Title of invention*

The present system and method is particularly useful for remotely controlling a device having one or more menus via a remote touch interface having at least an unstructured primary input area. A user can provide inputs to a touch interface without needing to view the interface and yet still achieve the desired response from the remotely controlled device. The primary input area of the touch interface may or may not have a background display, such as on a touch screen, but the primary input area of the touch interface should be unstructured and should not have independently selectable items, buttons, icons or anything of the like. Since the touch interface is unstructured, the user does not have to identify any selectable buttons. Instead the user can input a gesture into the interface and watch the remotely controlled device respond. The system does not provide any other visual confirmation.

R. 47(2), (3), (5)

*Content of abstract*

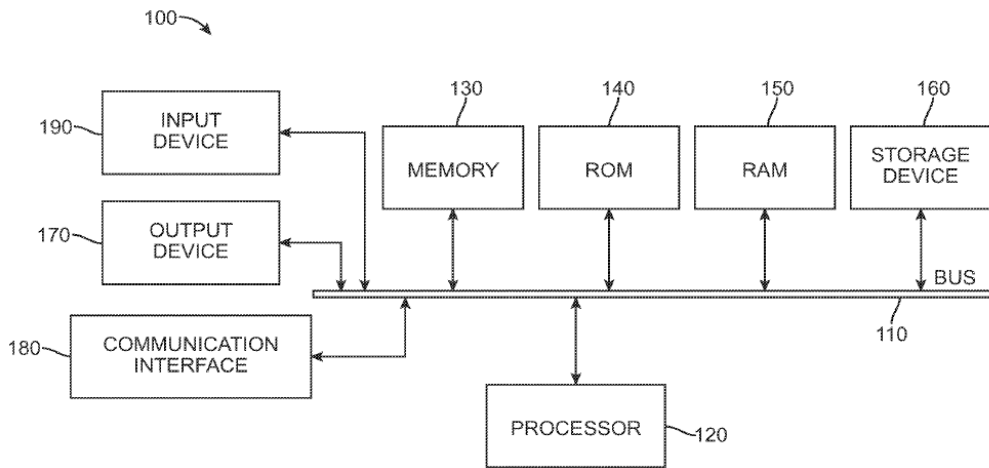


FIG. 1

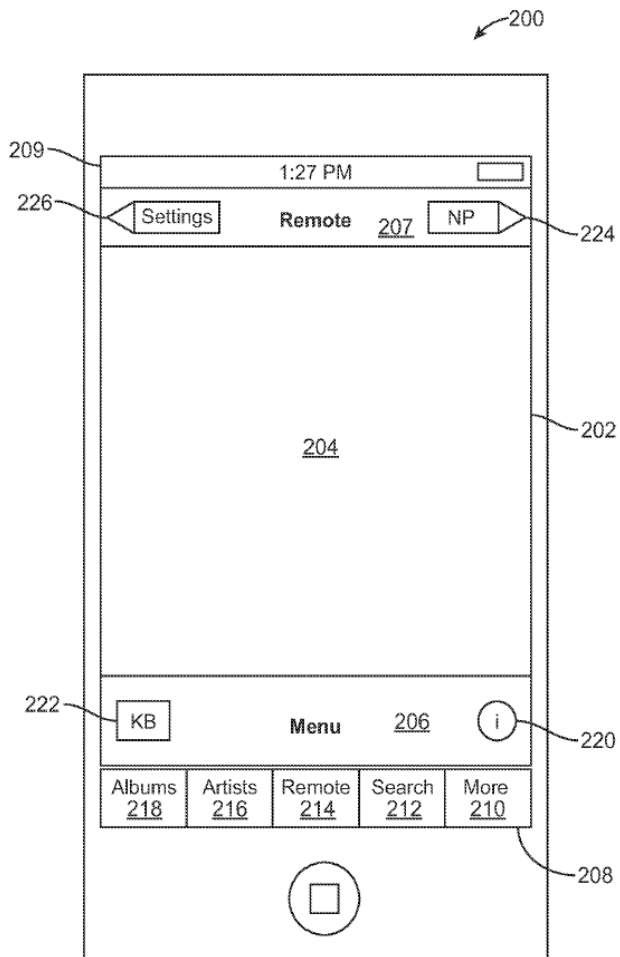


FIG. 2

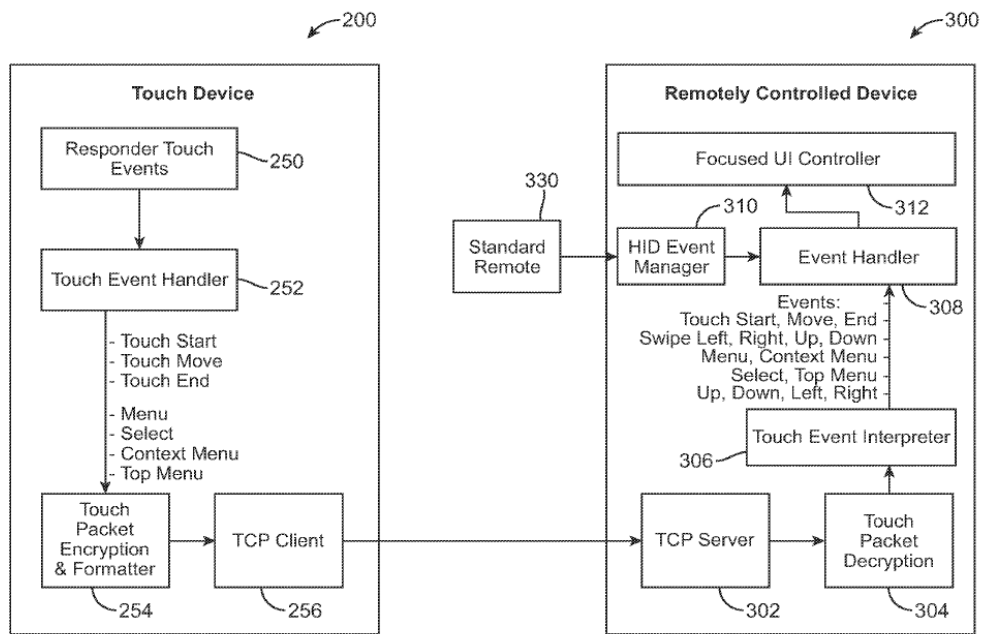


FIG. 3

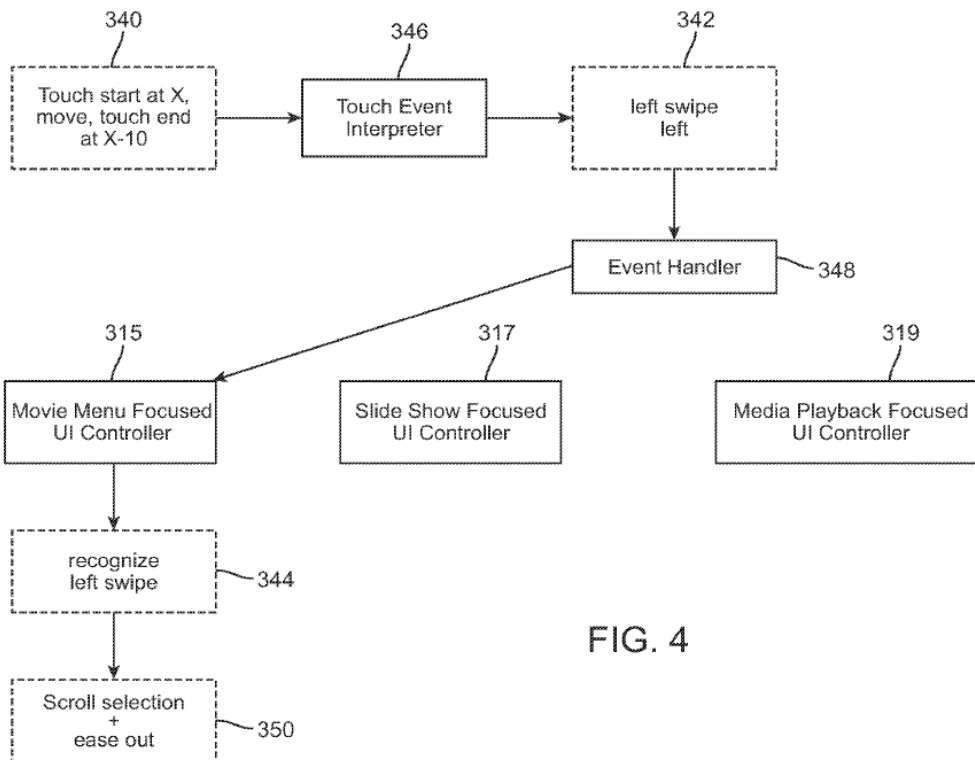


FIG. 4



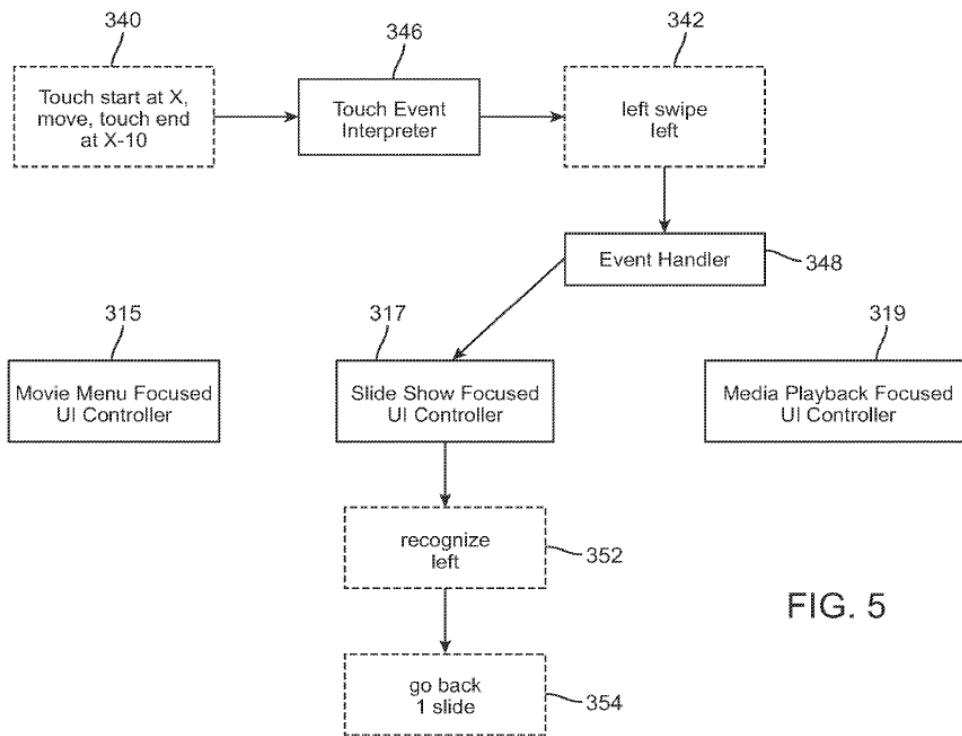


FIG. 5

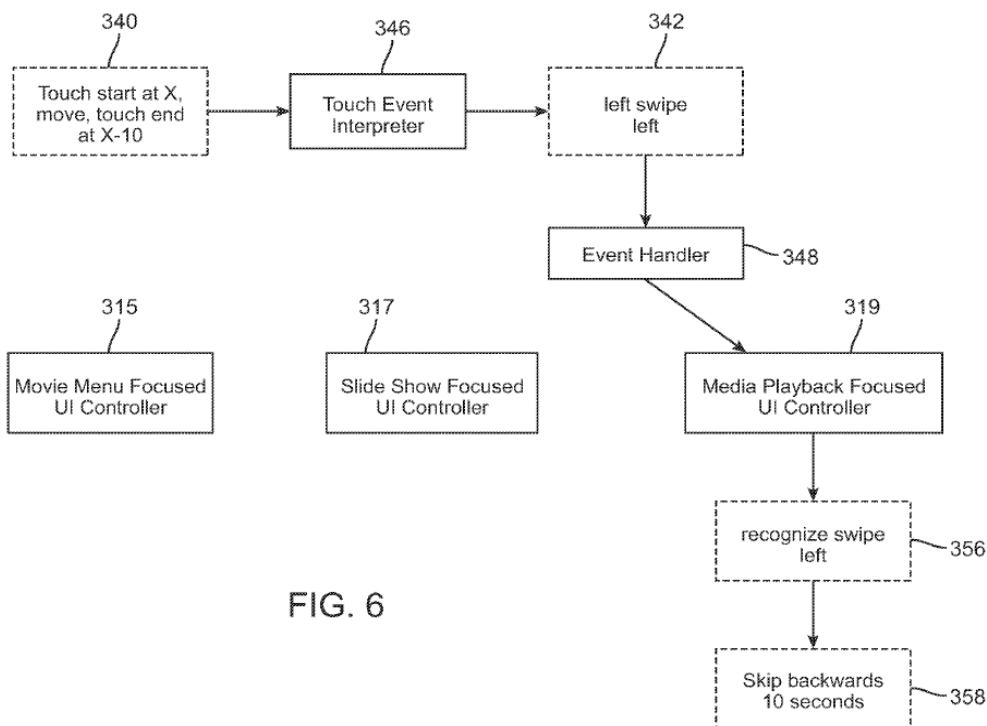


FIG. 6

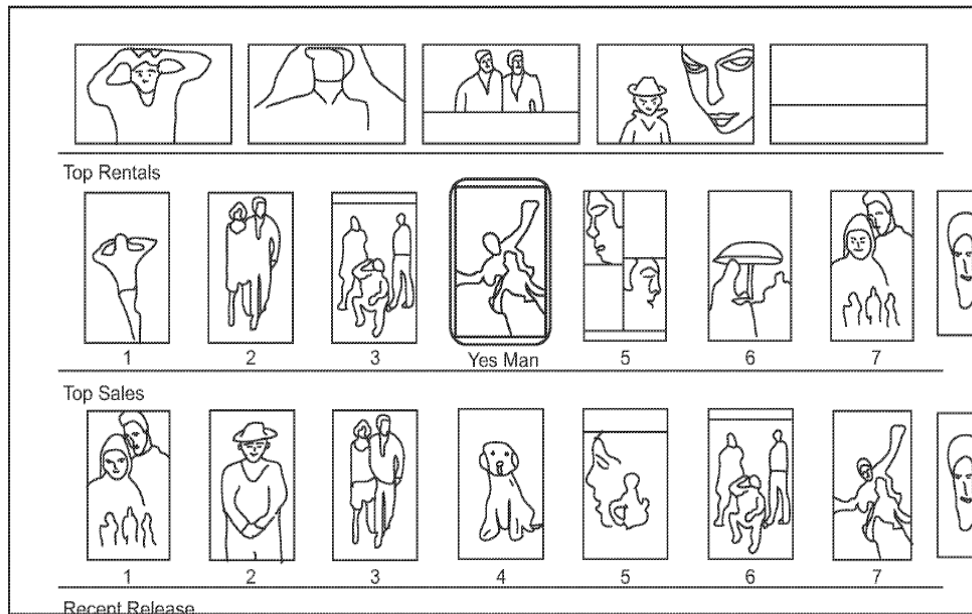


FIG. 7

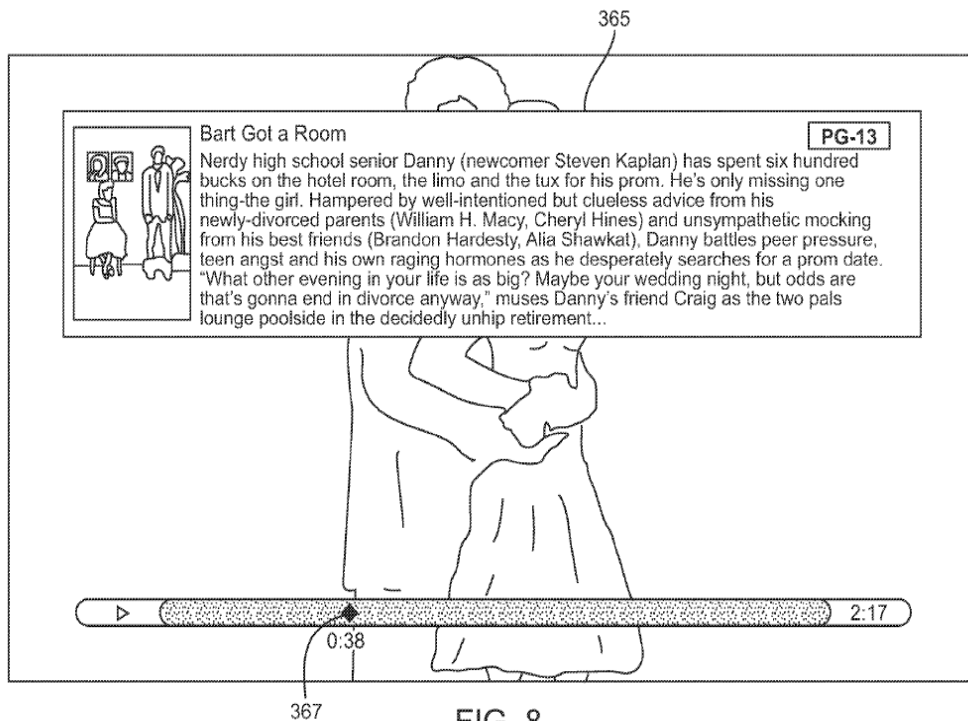


FIG. 8

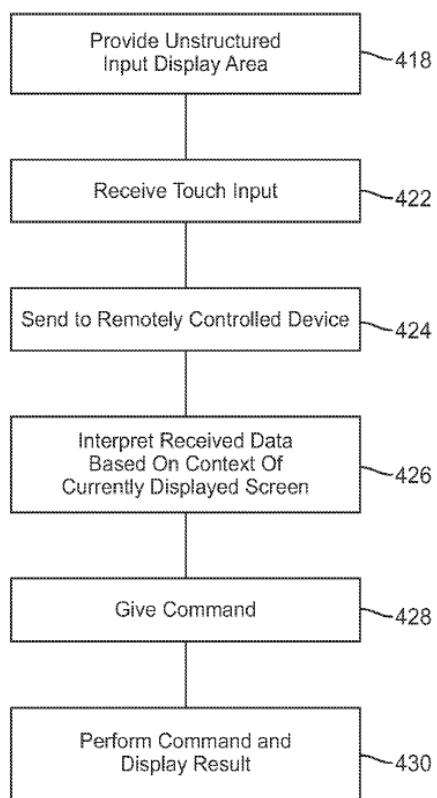


FIG. 9

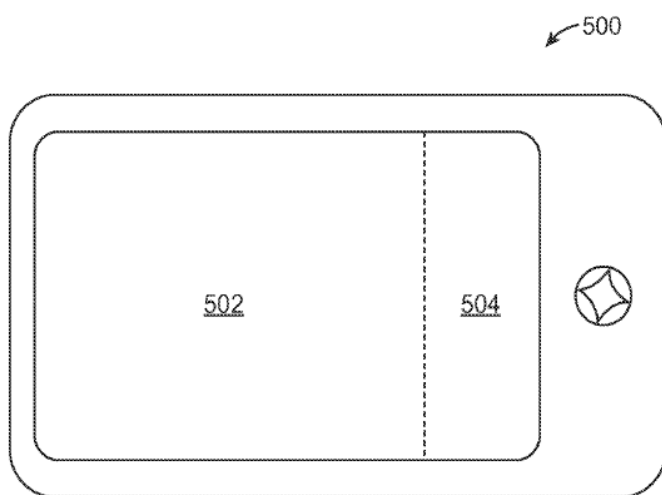


FIG. 10



## Annex III

### Authorities with which European patent applications may be filed

#### I. European Patent Office

##### (a) *Online*

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Online Filing  
([epo.org/applying/online-services/online-filing](http://epo.org/applying/online-services/online-filing))

Online Filing 2.0  
([epo.org/applying/online-services/online-filing-20.html](http://epo.org/applying/online-services/online-filing-20.html))

Web-Form Filing  
([epo.org/applying/online-services/web-form-filing](http://epo.org/applying/online-services/web-form-filing))

##### (b) *Munich*

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Bob-van-Bentham-Platz 1  
80469 Munich  
Germany  
Tel.: +49 (0)89 2399-0

European Patent Office  
Bayerstrasse 34  
(entrance via Zollstrasse 3)  
80335 Munich  
Germany  
Tel.: +49 (0)89 2399-0

Postal address:  
European Patent Office  
80298 Munich  
Germany

##### (c) *The Hague*

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European Patent Office  
Branch at The Hague  
Patentlaan 2  
2288 EE Rijswijk  
Netherlands  
Tel.: +31 (0)70 340-2040

Postal address:  
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European Patent Office  
Gitschiner Strasse 97  
10969 Berlin  
Germany  
Tel.: +49 (0)30 25901-0

Postal address:  
European Patent Office  
10958 Berlin  
Germany

## II. National authorities

For a summary of the contracting states' chief national provisions governing compulsory and optional filing of patent applications with central industrial property offices and other competent authorities, see Table II in **National law relating to the EPC** (see [point 2.1.004](#)). This table also contains the addresses of the central industrial property offices (see [epo.org/law-practice/legal-texts/html/natlaw/en/ii/index.htm](http://epo.org/law-practice/legal-texts/html/natlaw/en/ii/index.htm)).

Note: European divisional applications must always be filed with the EPO (see [point 5.8.001 ff](#)).

## Annex IV

### Time limits

#### Charts showing time limits to be met by applicants

The EPC provides for three types of time limit:

1. Time limits computed from the actual or deemed date of filing or the date of priority
2. Time limits of a duration laid down in the EPC which are computed from an event other than the date of filing or priority
3. Time limits laid down by the EPO in the course of the grant procedure

The EPO reminds applicants of all time limits of types 2 and 3 above, apart from those for further processing (see [point 5.10.007](#)) and re-establishment of rights (see [points 5.10.008-5.10.010](#)).

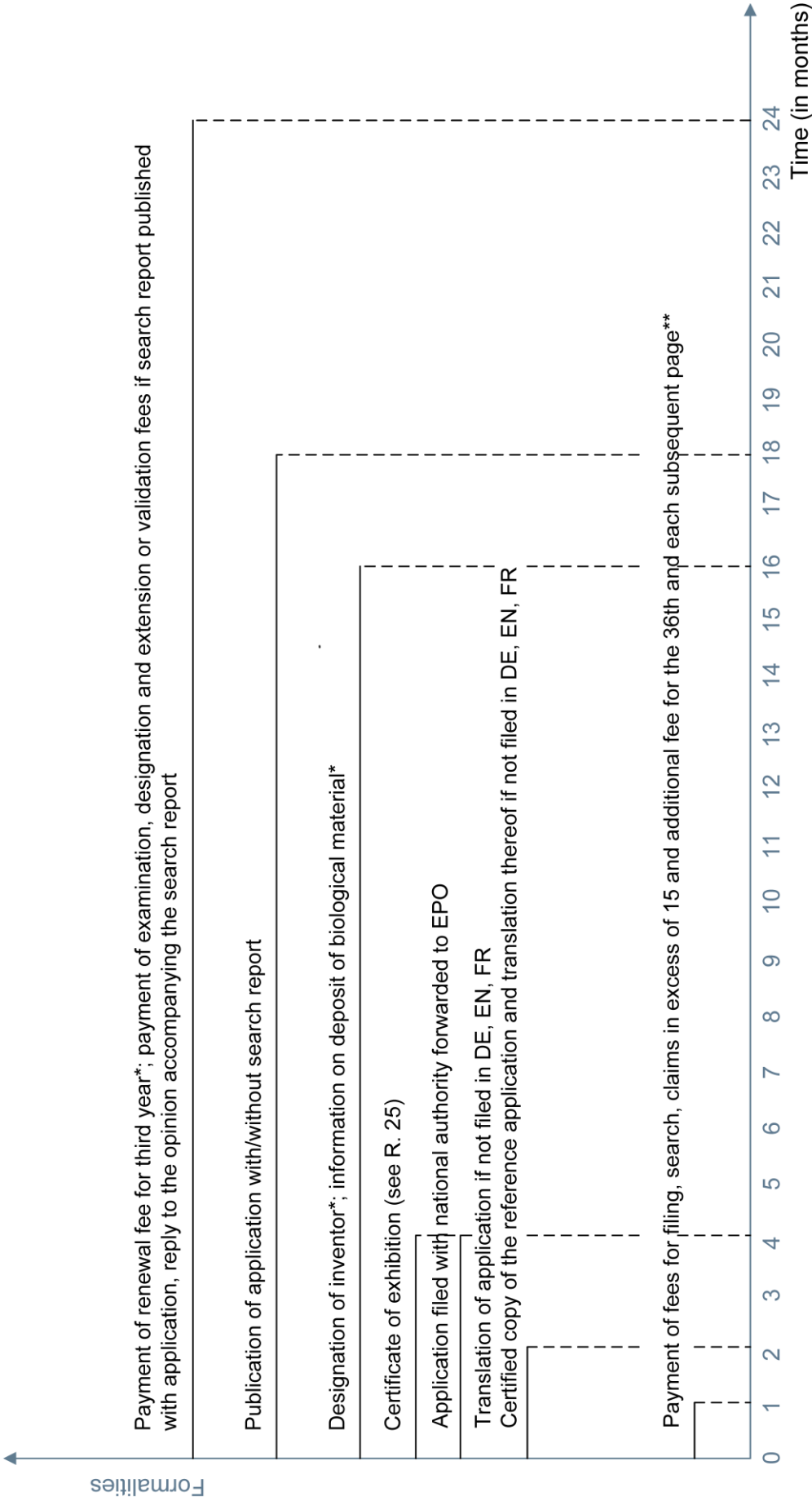
The charts below are particularly designed to help applicants keep track of time limits of type 1.

**Chart A** relates to a European patent application which is a first filing.

**Chart B** relates to a European patent application which claims the priority of an earlier application and is assumed to have been filed ten months after the earlier application.

The charts do not take into account the special time limits which apply to European divisional applications and new European patent applications filed in accordance with [Article 61\(1\)\(b\)](#) (see [Rules 16\(2\)](#), [51\(6\)](#) and [60\(2\)](#)).

**Chart A** Important time limits laid down in the EPC where **no priority** is claimed in the European patent application

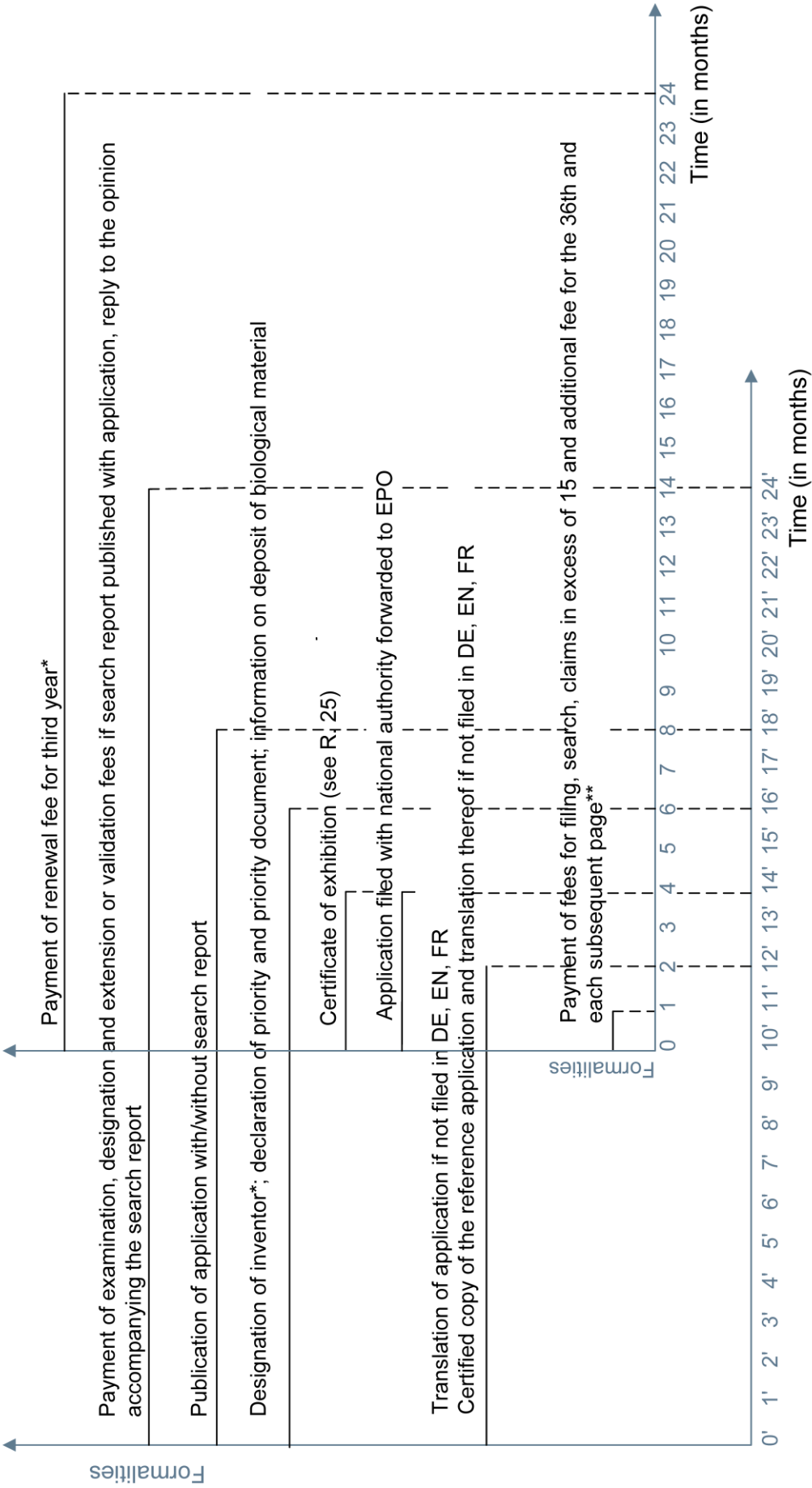


0 Filing of European patent application  
\* Time limit computed from date of filing, possibly later than date on which application was actually received (see Art. 80, R. 55 and 56)  
\*\* If claims filed with application



**Chart B**

Important time limits laid down in the EPC  
where **priority is claimed** in the European patent application



0 Filing of European patent application

0' Filing of earlier application

\* Time limit computed from date of filing, possibly later than date on which application was actually received (see Art. 80, R. 55 and 56)

\*\* If claims filed with application



## Annex V

### Fees

#### I. Fees provided for in the EPC

The guidance for the payment of fees published periodically in the Official Journal enables you to find out at any time which rules relating to fees are currently applicable and whether any information given in this Guide has changed since it was published. You are advised to check the latest information on fee payment, which is available on the EPO website at [epo.org/applying/fees/payment](https://epo.org/applying/fees/payment).

*OJ EPO 2023, A34*

#### II. Further information on fees

Further information on fees, such as the schedule of fees and expenses of the EPO and the bank account of the European Patent Organisation for payments in euros, is also published on the EPO website ([epo.org](https://epo.org)).

#### III. Arrangements for deposit accounts

The Arrangements for deposit accounts (ADA) and their annexes are published as a supplementary publication of the EPO's Official Journal. They contain detailed information on the opening, debiting and replenishing of deposit accounts, as well as the automatic debiting of fees. You are advised to check the Official Journal for updates and amendments.

*GL A-X, 4.2, 4.3*  
*Supplementary*  
*publication 3, OJ*  
*EPO 2022*



## Annex VI

### Patent information services

#### File inspection and communication of information from files

1. The files relating to published European patent applications and patents can be inspected online via the European Patent Register at [epo.org/searching-for-patents/legal/register](http://epo.org/searching-for-patents/legal/register).  
*Art. 128(4)  
R. 145  
GL A-XI*  
  
Paper copies of files are available in exceptional cases only, subject to submission of a duly substantiated request. *GL A-XI, 2.2*

#### European Patent Register and European Patent Bulletin

2. The European Patent Register offers users both bibliographic and procedural data on European patents and patent applications. *Art. 127  
R. 143*  
  
The procedural data includes information from the date of publication to the grant of the patent, plus any data concerning opposition and appeal proceedings, as well as post-grant information.  
  
Access to the European Patent Register is free of charge.
3. Data from the European Patent Register is published weekly in the European Patent Bulletin, where the bibliographic data relating to published European patent applications and granted European patents is arranged according to a number of reference criteria, including:  
  - the International Patent Classification
  - the European publication number
  - the name of the applicant/proprietor  
The European Patent Bulletin is available online at [epo.org/searching-for-patents/legal/bulletin](http://epo.org/searching-for-patents/legal/bulletin). *Art. 129(a)*

#### Patent documents

4. The EPO also publishes:  
  - European patent applications (A documents)
  - European patent specifications (B documents)  
Published documents are available online via the European Publication Server at [epo.org/searching-for-patents/technical/publication-server](http://epo.org/searching-for-patents/technical/publication-server). *Art. 93, 98, 103  
GL A-VI, 1.4*  
  
Information on other EPO data products can be found at [epo.org/searching-for-patents/data](http://epo.org/searching-for-patents/data).

## Official Journal and Guidelines for Examination

5. Two of the EPO's other major publications are:

Art. 129(b)  
Art. 10(2)(a)

- the Official Journal (OJ EPO), which contains the decisions of the Administrative Council, the decisions of the President of the EPO, notices from the EPO, information about fees and costs, and selected decisions of the boards of appeal
- the Guidelines for Examination in the European Patent Office

These publications are available online at [epo.org/law-practice/legal-texts](http://epo.org/law-practice/legal-texts).

## Further information

Further information about the European Patent Office and the procedures involved in applying for a European patent is available on the EPO website at [epo.org](http://epo.org):

- information about applying for a patent at [epo.org/applying/basics](http://epo.org/applying/basics)
- patent search at [worldwide.espacenet.com](http://worldwide.espacenet.com)
- European Patent Register at [register.epo.org](http://register.epo.org)
- online filing services at [epo.org/applying/online-services](http://epo.org/applying/online-services)
- job vacancies at [jobs.epo.org](http://jobs.epo.org)
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- [instagram.com/europeanpatentoffice](https://instagram.com/europeanpatentoffice)