
Examiners' Report – Paper A (Electricity/Mechanics)

1. General considerations

The client is a private person and owner of a small coffee shop and has developed a juice-extracting machine of simplified construction and higher yield per time unit as compared with the prior art fruit squeezer of DI.

In the DI fruit squeezer the fruit halves are conveyed to a squeezing means in a rotational movement and then squeezed by a relative translational movement towards a squeezing cone. Due to these combined rotational and translational movements, the machine works discontinuously, thus being slow. It also requires a rather complex construction.

It is clear from the client's letter that his fruit squeezer overcomes these drawbacks by a sort of meshing interaction of a cavity with a protrusion thus ensuring a continuous squeezing operation, and that the client wants to obtain protection for it.

The candidates were therefore expected to follow the client's wishes in their application.

A discrepancy was spotted on page 3, 3rd sentence, but it was not expected of candidates to correct this in their application.

2. Independent claim(s)

2.1 Preferred solutions

Good solutions should clearly set out the fact that the fruit is squeezed by the rotational movement of the protrusion and its meshing interaction with the cavity. This should be expressed in an independent apparatus claim, which could be worded as follows:

"Apparatus for extracting juice from fruit comprising:

- a) a cavity (3) for receiving a piece of fruit to be squeezed,
- b) the cavity (3) being rotatably mounted, and
- c) a protrusion (6) for squeezing the piece of fruit in the cavity (3), characterised in that
- d) the protrusion (6) is rotatably mounted in such a manner that rotation of the protrusion (6) causes it to enter into the cavity (3) to squeeze the piece of fruit contained therein."

Candidates who expressed the first part of feature d) by a synchronization of the movements of the cavity and the protrusion were considered as equally good.

The terms "cavity" and "protrusion" were not treated as being more limiting than the terms "receiving means" and "pressing means".

It was not necessary to include feature b) to obtain full marks.

It was considered that full protection could be obtained by such apparatus claims and that a method claim was not necessary.

2.2 Novelty

Lack of novelty has always been considered to be a serious deficiency and can cause the loss of more than half of the marks available for the independent claim. It was important to carefully analyse the prior art, eg to note that D1 discloses on page 2, paragraph 3 a continuously rotatable cone and then to clearly delimit the independent claim(s) against it.

2.3 Unduly restricted claim

Marks were also lost for unduly restricted independent claims. Examples of major restrictions were that the rotation axis of the cavity is parallel to the rotation axis of the protrusion thus not covering other possible arrangements of the axes, or the mention of a plurality of cavities/protrusions on the respective supporting means. Less serious restrictions were the inclusion of cutting means and/or two respective cylinders/drums arranged symmetrically, the reference to horizontal rotational axes for the cavity and the protrusion (provided that they are not parallel, cf above) or the specification of the shape of the cavities/protrusions. An example of a minor restriction was the form of the supporting means for the cavities/protrusions.

2.4 Clarity

An independent claim based on the mere statement of a problem, a wish or a result to be achieved, eg ...allowing continuous squeezing action..., lost a substantial number of marks.

Lack of clarity was penalised according to its seriousness. Particular consideration was given as to whether the claim clearly indicated that it was the meshing interaction of the protrusion and the cavity that caused the juice extraction. A lack of clarity was also present when features of an apparatus claim were expressed as method features, eg the protrusion/cavity are counter-rotating, the cylinder rotates.

2.5 Formal matters

Formal deficiencies, such as a lack of two-part form (which was clearly appropriate in this case), a clearly incorrect two-part form or no reference signs resulted in a small deduction.

2.6 Other solutions

Any other solution, eg based on the adjustable gap, the transparent hood etc, received considerably fewer marks because it fails to cover all of the client's options.

2.7 Separate applications

A small number of marks were available for a clear indication of the subject-matter of a claim with potential for a separate application, eg the peel ejection, the problem and features thereof being not addressed in DI.

3. **Dependent claims**

Dependent claims should have been directed to the following aspects:

- . cavity/protrusion
 - .. plurality thereof
 - .. number of cavities greater than number of protrusions
 - .. 4 cavities/3 protrusions
- . supporting means for cavities/protrusions, ie cylinder/drum
 - .. axes parallel
 - .. 2 cylinders/2 drums
 - .. cylinder/drum detachably mounted on shafts; different profiles
- . means for achieving synchronisation
 - .. gear drive
 - .. electronic control
- . cutting means
 - .. sliding surface with openings for passage of protrusions
 - .. curved cutting edge, eg concave or W-shaped
- . gap between cavity/protrusion sufficient not to squeeze the peel
 - .. different sets of cylinders/drums
 - .. adjustable shaft distance
- . peel strip off groove/blade
- . transparent hood
- . chute of wires

These aspects should have been **progressively developed and structured** to provide good fallback positions.

4. **Description**

The **relevant disclosure** of the prior art fruit squeezer DI should have been properly acknowledged and discussed.

Candidates were expected to disclose the invention in such terms that the technical problem and its solution can be understood. Normally that requires

an explanation of how the problem derives from the prior art. Marks were deducted when the statement of problem or the solution was not consistent with the independent claim(s).

General statements like "The problem is to improve the known apparatus" or "to avoid the disadvantages of the state of the art" did not receive many marks, unless they were preceded by a discussion of the inconveniences of the DI squeezer.

In view of the "Instructions to Candidates", the candidates are reminded that they should not spend time rewriting and discussing the dependent claims in the description.

EXAMINATION COMMITTEE I

Candidate No.

Paper A (Electricity/Mechanics) 2001 - Schedule of marks

Category	Maximum possible	Marks awarded		Marking by further examiners if any	
		Marker	Marker	Marker	Marker
Independent claims	50				
Dependent claims	35				
Description	15				
Total	100				

Sub-Committee for Electricity/Mechanics agrees onmarks and recommends the following grade to the Examination Board:

☐ **PASS**
(50-100)

☐ **FAIL**
(0-49)
COMPENSABLE FAIL
(45-49, in case the candidate sits the examination for the first time)

Berlin, 29 August 2001

J. Combeau - Chairman of Examination Committee I