

EUROPEAN QUALIFYING EXAMINATION 2018

Paper C

This paper comprises:

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| * Letter from opponent | 2018/C/EN/1-2 |
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| * Form 2300: Notice of opposition to a European patent | |



Helios Iperione
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Mr Z. Kronion
Mt. Olympus, 12
GREECE

Thrinakia, 1 February 2018

Dear Mr Z. Kronion,

We would like you to file an opposition in the name of our company against the European Patent EP 2 883 515 (Annex 1) granted to ODYSSEUS GmbH.

Please find attached some documents (Annexes 2 to 6) which might be of use to you when drafting the notice of opposition.

Annex 1 claims priority from patent application DE 102013114110. Said priority document and the corresponding European application as filed are identical.

During examination of Annex 1 claim 5 was added.



Annex 6 is an International patent application from ODYSSEUS GmbH.

All requirements pursuant to Rule 159(1) EPC have been fulfilled for Annex 6 except for the payment of the filing fee, which has never been made. The time limits for all legal means of redress have expired.

Yours faithfully,

Helios Iperione

Enclosures:

Annex 1: EP 2 883 515 B1

Annex 2: GR 1 003 623 B

Annex 3: NL 1020255 C

Annex 4: EP 2 105 899 A1

Annex 5: Journal "A Odisseia do campo", PAC Lançamentos, Lisbon (Portugal),
Ed. February 2013, "Modernising Traditional Milking Facilities in Spain"

Annex 6: WO 2014/185937 A1



(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 883 515 B1**

(12)

EUROPEAN PATENT SPECIFICATION

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(51) Int. Cl. : **A01J7/04**

07.06.2017 Bulletin 2017/24

(21) Application number: **14197837.4**

(22) Date of filing: **15.12.2014**

(54) **Cleaning device and method for dairy animals**

Reinigungsvorrichtung und -verfahren für Milchtiere

Dispositif et méthode de nettoyage pour les animaux laitiers

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LT LU LV MC MK MT NL NO PL PT
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(30) Priority:

16.12.2013 DE 102013114110

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(43) Date of publication of application:

17.06.2015 Bulletin 2015/25

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Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid (Art. 99(1) European Patent Convention).



[0001] The present invention concerns a device for soaking and cleaning the teats of a dairy animal (e.g. a cow) outside a milking robot, a method for milking a dairy animal, as well as a soaking fluid.

5 [0002] Dairy animals are used in farms to produce milk for human consumption. One of the most important issues during the milking process is hygiene. Contamination of milk with dirt must be avoided.

10 [0003] This task is particularly challenging because animals tend to rest frequently on the ground. This causes dirt to stick to their teats 1, their udder 2 and their belly 3 (see figure 1). Therefore, the teats 1, or the teats 1 and the udder 2 together, must be carefully cleaned before milking.

[0004] A problem which is typically encountered is that wet dirt such as mud dries on the teat, from which it is particularly difficult to remove. The cleaning process can thus be very time consuming.

15 [0005] The invention solves this problem by soaking the relevant part of the animal to soften the dirt on it. In this context, soaking must be understood as applying a fluid onto the surface of said part.

[0006] The invention as defined by the claims is illustrated by reference to the following figures:

Fig. 1 shows a side view of a cow.

Fig. 2 shows a side view of the device of the invention.

Fig. 3 shows a side view of a cleaning head.

Fig. 4 shows a plan view of a milking area in a farm.



[0007] The device 4 of the invention (see figure 2) incorporates a cleaning head 5 which can move up and down along a mast 9. Soaking means in the form of fluid applicators 6 are arranged inside the cleaning head 5 (see figure 3). Said fluid applicators 6 spray a soaking fluid contained in a reservoir (not shown in the figures) onto the teats of the animal. The soaking fluid softens the dirt, thus making it possible to remove said dirt more easily. Preferably at least two litres of soaking fluid per animal are used in order to ensure an adequate softening of the dirt, taking into consideration that not the whole volume of soaking fluid may reach the teat.

[0008] Some patches of dirt are more difficult to remove, and soaking is not always sufficient. In a preferred embodiment the cleaning head 5 comprises two brushes 7 which are arranged inside said cleaning head. Each brush 7 will gently brush the surface of the teat, or of the teat and the udder, by rotating during application of the soaking fluid, thus ensuring a complete removal of all the dirt.

[0009] However, a second and much more important positive effect of the use of a brush 7 is that the soaking fluid will be spread by the brush in a uniform manner over the teat. This will be achieved independently of the spray pattern provided by the fluid applicators 6, which can get partially clogged during operation. The brush ensures that the whole of the teat is covered by a sufficient amount of soaking fluid. In that way the soaking fluid can properly perform its function.

[0010] A failure in the application of soaking liquid onto the teats of the animal would jeopardize the achievement of reliable hygienic conditions. Therefore, checking means may be provided to verify that a teat has actually been soaked.



[0011] Preferably, said checking means is formed by one or more sensors 8 arranged inside the cleaning head 5. During the movement of the cleaning head 5 downwards
5 along the mast 9, after the soaking, the sensors 8 measure the humidity on the teat. In case the checking means does not sense a given minimum level of humidity, an alarm will be actuated to indicate that soaking was not successful. Any other means for detecting directly or indirectly the presence of the soaking fluid on the teat would also be suitable for that purpose.

10 [0012] Milking robots 10 (see figure 4) are cabins within which cows are milked by a robotic arm fixed inside and to said cabin. Milking robots are one of the most expensive pieces of farm equipment. It should thus be ensured that cows occupy the milking robots only during the period of time which is strictly necessary to milk them.

15 [0013] Cleaning the teats of animals is time-consuming and is usually performed inside the milking robot. In order to maximize the availability of the milking robot, the device 4 of the invention is used outside said milking robot 10. Preferably, the device 4 is provided with the necessary means for reaching the cows outside said milking robot.

20 [0014] The device 4 may be provided with wheels 11 (see figure 2). Each of said wheels 11 is connected to an individual electric motor, each of which can drive the corresponding wheel 11. In operation, the individual electric motors can be separately actuated to change the direction of movement of the device 4.



[0015] In order to render it autonomous, the device 4 may contain navigation means comprising electronic location indicating means. The electronic location indicating means supplies information about the positions of both the device 4 and the animal.

5 Once the positions of the device and of the animal are known, a control unit (not shown in the figures) can give instructions to the electric motors in response to said information in order to guide the device 4 towards the animal.

[0016] The electronic location indicating means may be composed of an on-board microprocessor (not shown in the figures), an antenna 12, electronic ear tags 14 and a
10 plurality of beacon transmitters 15.

[0017] Only milk from animals whose teats have been cleaned can be allowed for human consumption. Since the cleaning takes place outside the milking robot it has to be ensured that clean animals can be recognised as such at the milking robot.

[0018] This can be achieved by marking the clean animal, i.e. associating information
15 to it by appropriate means which reveals that soaking took place. The device 4 may comprise marking means 16. Marking means 16 sprays a colourant on the udder 2 after receiving a confirmation from the checking means that soaking was successful. The colourant is detected afterwards by a camera at the entrance area of the milking robot 10. The door 17 of the milking robot will only open if the colourant is detected.
20 Several colourants can be used for this purpose, as long as they are non-toxic and do not affect the milk.



[0019] The device can be simplified by performing marking with the fluid applicators 6. In this case, a colourant contained in the soaking fluid is applied onto the teats 1 during the soaking step. The soaking fluid is preferably an aqueous solution comprising soap, ethanol and a non-toxic colourant. Colourant concentrations of 0.4 % by volume are sufficient for marking and the colourant thus does not fade too quickly.

[0020] Cleaned dairy animals can get dirty again. Therefore it is important to guide them to milking directly after cleaning. This can be achieved by training the animals to go to the milking robot by using an external stimulation which they associate with going to be milked. This effect is known as conditioning.

[0021] When the method is used for soaking the teats 1, external stimulation is achieved by applying a conditioning composition containing a lower alcohol onto the teats 1 after the soaking. As the teats 1 are a particularly sensitive area, the animals will feel a cooling action due to the evaporation of the lower alcohol.

[0022] A concentration of 30-45% by volume of lower alcohol in the conditioning composition is particularly suitable for providing the necessary stimulation to the teats. Concentrations below 30% by volume do not provide the necessary effect to be noticed by the animal. A concentration above 45% by volume could cause pain if a small injury is present on the teat, which would generate a different sensation from the cooling.

[0023] The inventor has found out that the use of heated nozzles for applying the soaking fluid reinforces the subsequent conditioning effect provided by the above-mentioned conditioning composition since the drop in temperature of the teats is even greater.



Claims

1. A device (4) for soaking and cleaning the teats of a dairy animal outside a milking
5 robot (10), comprising:
- soaking means (6) for applying a soaking fluid, and
 - at least one rotating brush (7) which is arranged to rotate and simultaneously contact the teats during application of said soaking fluid.
- 10 2. The device according to claim 1, further comprising:
- a reservoir for storing the soaking fluid,
 - wheels (11),
 - electronic location indicating means for supplying information about the positions of both the device (4) and the animal,
 - 15 - an individual electric motor for each wheel (11), and
 - a control unit arranged such that, in response to said information about the positions of both the device (4) and the animal, it actuates said individual electric motors.
3. The device according to claim 1, further comprising:
- 20 - checking means (8) for verifying outside the milking robot (10) that the soaking fluid has actually been applied onto the teats; and
- means to apply at least two litres of soaking fluid per dairy animal per application.
4. A method for milking a dairy animal, said method comprising the following steps in
25 the following order:
- soaking the teats of the animal outside a milking robot (10), wherein at least two litres of a soaking fluid are used per animal,
 - marking the animal outside the milking robot (10),
 - letting the animal enter the milking robot (10), and
 - 30 - milking the animal.



5. The method according to claim 4 further comprising:
- using heated nozzles for applying the soaking fluid, and
 - after soaking, applying a conditioning composition to the teats, or to both the teats
- 5 and the udder, said conditioning composition comprising 30-45% by volume of a lower alcohol.
6. Fluid comprising water, soap, ethanol and a colourant, the colourant concentration being 0.4% by volume.



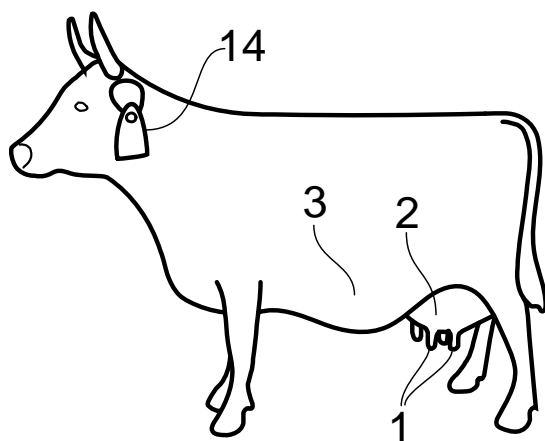


FIG. 1

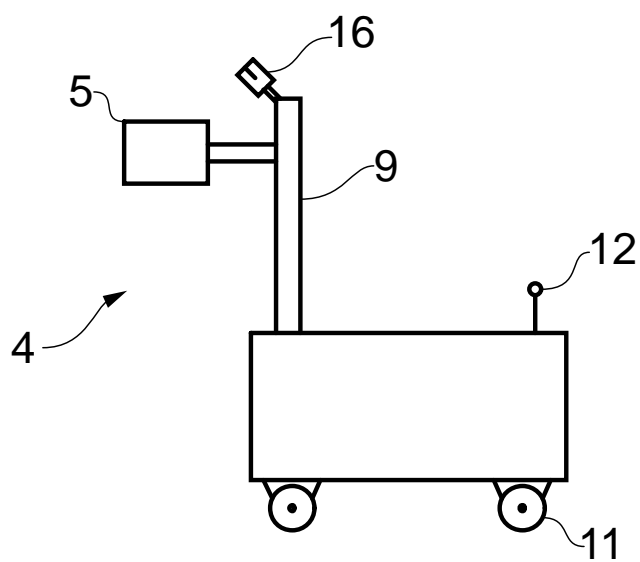


FIG. 2

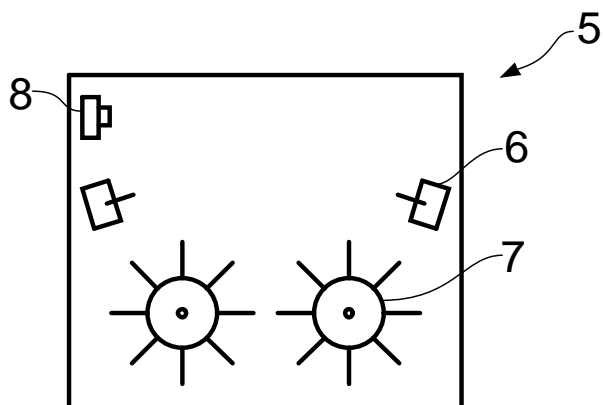


FIG. 3



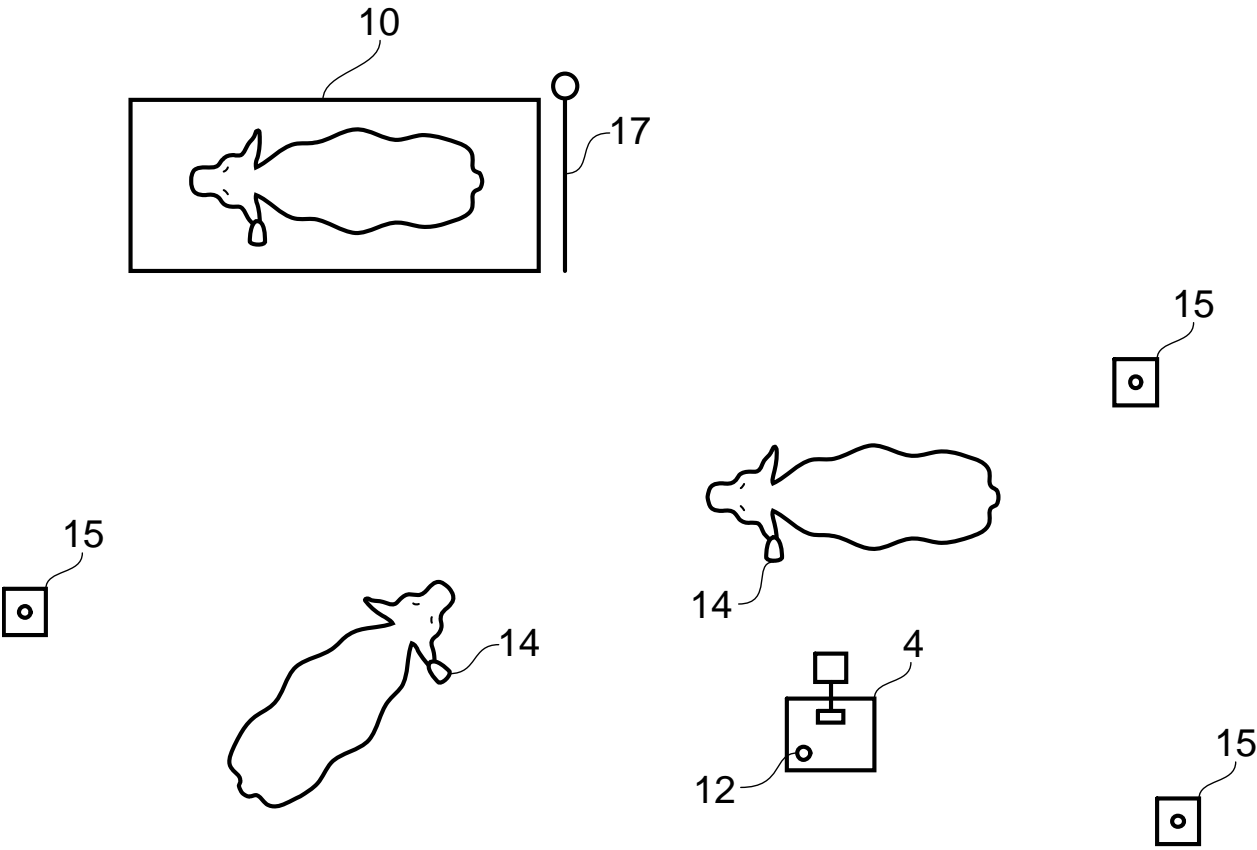


FIG. 4



(19) Hellenic Industrial Property Organisation

(21) Application number: **20000100297**
(11) Publication number: **GR 1 003 623 B**
(22) Date of filing: **10.08.2000**
5 (45) Publication of the patent: **04.07.2001**
(51) Int. Cl.: **A01J7/04**
(71) Proprietor: **Tilemachos Ltd.**
(72) Inventor: **Eumaeus Ctesiopoulos**
(74) Representative: **Kastoras Guestpateras**

10

Portable teat cleaner

15 **[0001]** The invention concerns a portable cleaner for cleaning the teats of a cow before said cow is milked in a milking robot.

[0002] Milking robots comprise a robot arm which automatically places teat cups in contact with the teats of a cow, where they are attached by suction. Modern milking
20 robots incorporate very advanced technological solutions, such as readers obtaining information from electronic ear tags. However, the cleaning of the teats before attaching the teat cups is still manually carried out by an operator. The cleaning step is slow and cumbersome, and its efficiency largely depends on the skill of the operator. Therefore there is a need to make cleaning easier and faster.

25

[0003] Experience has shown that the application of water alone is not enough to dislodge dirt which is sticking to the teat. The present invention addresses this problem and provides a fast and reliable cleaning of the teats of a cow inside a milking robot before milking takes place.

30

[0004] The present invention relates to a portable cleaner having a cleaning mechanism comprising at least one nozzle 4 and at least one hair roller 5.



[0005] Figure 1 discloses the portable cleaner 1 comprising a plastics casing comprising a handle 2 and a cylindrical opening 3 with a longitudinal axis X for introducing a teat of a cow.

5 [0006] Figure 2 shows a schematic view of the cleaning mechanism arranged within the cylindrical opening 3 of the portable cleaner 1. The cleaning mechanism shown in figure 2 comprises two hair rollers 5 provided above nozzles 4.

10 [0007] The at least one hair roller 5 will rotate as soon as liquid is supplied when trigger 6 is actuated. During use the hair roller 5 contacts the teat. Hair rollers made of a polymer like polyethylene are particularly efficient in removing resistant dirt and ensuring uniform wetting of the animal part concerned. The uniform wetting enables the liquid to perform its function on the whole teat.

15 [0008] The at least one nozzle 4 sprays cold water under pressure in the direction of the teat, thus wetting it completely within a few seconds. Since the temperature of the applied water is much lower than that of the animal, the skin temperature of the teats will be reduced by around 7°C, which reduces the pressure sensation during milking.

20 [0009] A hand-held portable device of this kind should obviously not weigh too much and therefore does not comprise a built-in water tank. Since the minimum volume of water to soften the dirt amounts to at least three litres per cow, the water has to be supplied directly from a water supply of the farm. The portable cleaner comprises a connecting point 7 for receiving a fast coupling from a hose 8 which is connected at its opposite end by means of another fast coupling to said water supply.



[0010] Fast coupling connecting points are standard equipment on a modern farm.

They allow the use of devices such as our portable cleaner at any location of the farm.

However, using a portable cleaner outside the milking robot is less preferred, since cows

5 tend to get dirty again before accessing the milking robot.

[0011] After using the portable cleaner 1 the operator has to check if each teat is clean,

since the nozzles 4 might become clogged by dirt during use. To do so, the operator has

to withdraw the portable cleaner 1 and bend down to see whether the whole surface of

each teat is wet or not. Although this can put some strain on the back of the operator, it

10 is necessary to avoid milk contamination.

[0012] At the end of the working day the portable cleaner must be sterilised to avoid

bacterial growth on the device. In order to distinguish sterilised devices from non-

sterilised devices, a biodegradable colourant can be applied to the plastic casing once

the cleaner has been sterilised. European Blue is a suitable colourant for such a

15 purpose since it fades away within 8 hours when applied to plastics.



Claim:

1. A portable cleaner comprising a plastic casing with a cylindrical opening (3) within which at least one nozzle (4) and at least one hair roller (5) are arranged.



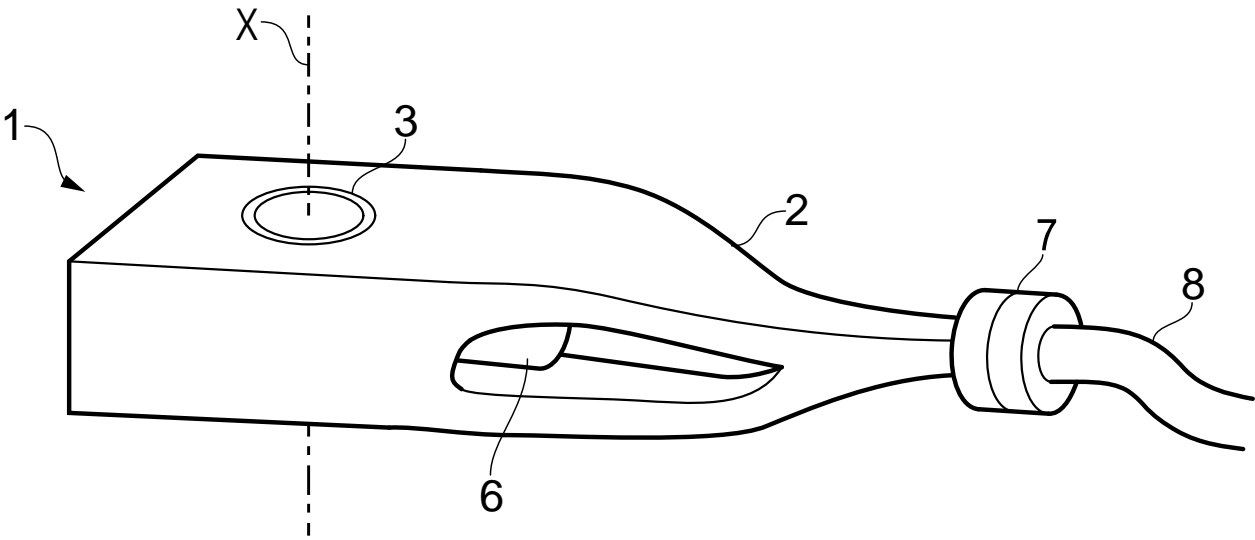


FIG. 1

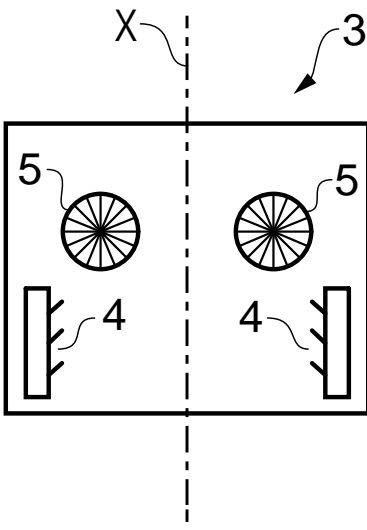
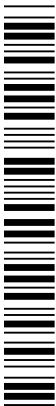


FIG. 2



(19) The Netherlands Patent Office

(21) Application number: **1020255**
(11) Publication number: **NL 1020255 C**
(22) Date of filing: **11.03.2002**
5 (45) Publication of the patent: **04.09.2003**
(51) Int. Cl.: **A01J7/04**
(73) Proprietor: **Hades Livestock Management**
(72) Inventor: **Teiresias Thebanaar**
(74) Representative: **Circe van Aeaea**

10

Mobile cleaner for teats

15 [0001] The use of milking robots in recent years has dramatically increased the automation level of dairy farms. However, some steps of the procedure in dairy farms are still performed manually.

20 [0002] One of those steps which are still performed manually is that of cleaning the teats of a cow to be milked, which is usually carried out by an operator equipped with a piece of cloth and a bucket containing a cleaning solution. This manual cleaning takes place while the cow is inside the milking robot, or on its way towards it.

25 [0003] The current invention seeks to partially automate the cleaning procedure by furnishing a mobile cleaner which can clean the teats of a cow present in a particular milking robot. In order to do so, the mobile cleaner 1 comprises four wheels 2 driven by a central electric motor controlled by a central unit. A single electrical motor is sufficient, which optimises the electricity consumption.



5 [0004] In this way, the mobile cleaner 1 can be displaced along two parallel rails 3 which are arranged perpendicular to and across a number of milking robots 4 and corridors 11 leading to an enclosed area 12 from which cows enter into the milking robots 4. The path of the cows is indicated by the arrows of figure 1.

10 [0005] Whenever a cow reaches a milking robot 4, an operator notifies the central unit that the mobile cleaner 1 must be displaced to the occupied milking robot by actuating its electric motor. The mobile cleaner 1 will ascertain by means of an array of laser sensors 6 that it has reached a position below the teats of the cow. Only once it is there will the mobile cleaner 1 be allowed to stop its electric motor, to raise a platform where a set of electrically heated nozzles 7 is installed in order to approach the teats, and to start projecting a fluid against the teats through said set of electrically heated nozzles 7. Nozzles are commonly used as fluid applicators on farms.

15 [0006] The used fluid will fall onto the mobile cleaner 1, but this is not problematic since laser sensors are insensitive to dirty fluid, in contrast to conventional optical or heat sensors.

20 [0007] Cows show a tendency to stop for a while at the end of the corridors 11 between the milking robots 4 when walking towards the enclosed area 12. This seems to be caused by the presence of other cows in the milking robots 4 and the enclosed area 12. If the operator notices such behaviour, he can manually order the mobile cleaner to proceed to that position between the milking robots 4 and there to project the fluid against the teats in order to save time later on in the milking robot 4. However, it should be ensured that the cow moves immediately afterwards into the milking robot 4 in order to avoid that the teats get dirty again.



[0008] The fluid for cleaning the teats is contained in a large reservoir with a capacity of around 50 litres mounted within the mobile cleaner 1. The fluid is applied by the electrically heated nozzles 7 at the normal body temperature of the cow (38.5°C) in order to prevent discomfort to the animal. The cleaning fluid is a water based soap solution comprising Disolvia, a cleaning agent which has proven particularly efficient for removing mud. Disolvia is essential to avoid corrosion of the heated nozzles.

[0009] Since Disolvia is known to cause degradation of polymers, it is important to avoid using polymers in the structure of the mobile cleaner.

[0010] In order to ensure that teats have been cleaned before milking, the milking robot comprises a set of cameras 8 which are adapted to distinguish a wet teat portion from a dry one while the cow is standing inside the milking robot. Said cameras provide input signals for an image processing device 9 in the milking robot, which ascertains whether the cleaning step was successful. Operation of the cameras is only reliable within the milking robot due to the precise position of the cow.

[0011] Once the image processing device 9 has confirmed that cleaning was successful, i.e. that the teats are completely wet, it sends a signal to the central unit of the adjacent mobile cleaner 1. The central unit then actuates a small sub-module 10 capable of recording information concerning the clean status of the cow on its usual electronic ear tag. This information is of importance to keep record of the compliance of milking with the quality requirements of food processing.

[0012] However, if experience shows that cleaning is reliable in the vast majority of cases, image processing device 9 and cameras 8 are not necessary, simplifying the milking robot 4 substantially. In this case, the information concerning cleaning would be recorded in the electronic ear tag by means of the on-board sub-module 10 as soon as the nozzles 7 finish projecting fluid.



Claim:

1. A teat cleaning system comprising two rails (3) crossing a plurality of milking robots (4), and a mobile cleaner (1) which can be displaced along the rails (3) to
5 clean the teats of an animal located inside a milking robot (4).



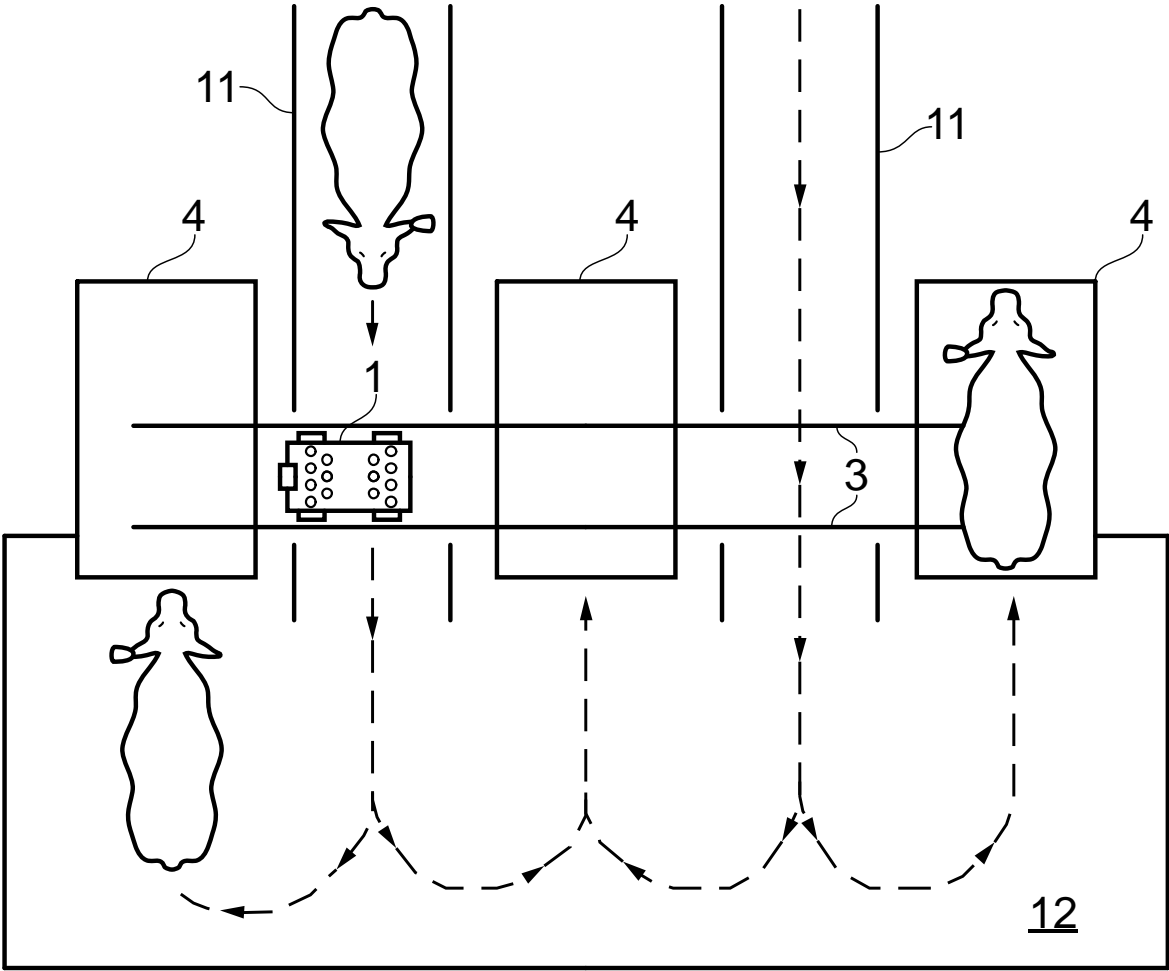


FIG. 1

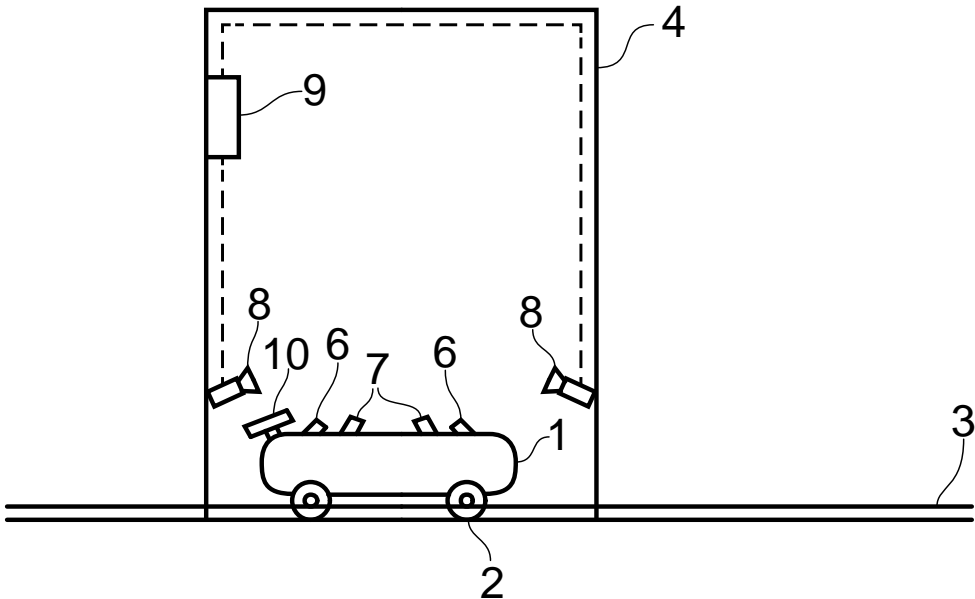


FIG. 2



(19) European Patent Office

(12) European Patent Application

(21) Application number: **08153434.0**

(11) Publication number: **EP 2 105 899 A1**

5 (22) Date of filing: **27.03.2008**

(43) Date of publication: **30.09.2009 Bulletin 2009/40**

(51) Int. Cl.: **A61D7/00**

(73) Applicant: **Philétios L'Ithaquien**

(72) Inventor: **Pénélope Patiente**

10 (74) Representative: **Aède de la Phéacie**

Mobile treatment device using a soaking solution

15 **[0001]** One of the major problems concerning dairy animals such as cows is the presence of infections of the teats of the animal, which seriously compromise the health of the animal and pose a public health risk. Teats must be cleaned and disinfected.

20 **[0002]** Early detection of infections is of utmost importance when addressing the problem, and therefore the present invention seeks to provide means for removing sources of infection from the animals as early as possible, such that said infections cannot be passed into the milk. A key point for early detection is the constant supervision of the animals, but that would normally require to collect the animals at a place where they can all be inspected.

25 **[0003]** As dairy animals usually spend most of their time in quite large areas within which they can walk freely it is difficult to check their teats on a regular basis. Animals go regularly to the milking robot. If an infection is discovered at the milking robot it is too late to carry out a disinfection before milking, and the milk has to be discarded.



[0004] The invention allows to reach the animals wherever they can be found, in order to inspect them, and if necessary to treat them for an infection by soaking the teats with an aqueous solution of disinfectant. The mobile treatment device of the invention
5 comprises four wheels 1, each of them driven by an electric motor which is controlled by an on-board computer 2, as shown in figure 1.

[0005] The on-board computer 2 will receive information from a navigation antenna 3 (e.g. GPS, Galileo) on the mobile treatment device, and also from corresponding navigation antennae carried by cows in the ear tags or collars. Once the position data of
10 the cows and of the mobile treatment device are known to the on-board computer, the latter sends the corresponding instructions to each respective electric motor. Said individual instructions for each motor allow to steer the mobile treatment device on the fields in order to reach the teat region of a particular cow to be inspected.

[0006] The inspection of the animal is done by means of an infrared sensor 4 arranged
15 on a rotatable head 5 at the height of the teats of an adult cow. Once in position, the infrared sensor 4 will measure the temperature of the teats and, if it is at an abnormally high level, the on-board computer 2 will conclude that an infection is present and treatment is necessary.

[0007] The treatment is carried out by spraying with the help of a nozzle 6 mounted on
20 the same rotatable head 5 an aqueous solution of disinfectant, preferably ethanol at a concentration of 15% by volume combined with 0.7% by volume of the disinfectant Kilemol, which is the minimum concentration necessary to clean the bacteria from the skin of the teats.

[0008] Even if the application of disinfectant would clean the teats to a certain extent,
25 readiness for milking would only be achieved after further cleaning in the milking robot.



[0009] It is important to regularly service the nozzle 6, since any small obstruction could entail that some parts of the infected area are not reached by the aqueous solution, thus not providing a uniform layer of said solution. This would reduce the effectiveness of the treatment.

[0010] On the other hand, since the reading of the infrared sensor 4 is the key to detect an infection, the surface of the teats must be as free as possible of any dust which could alter the temperature reading of that part of the animal.

[0011] An ultrasonic cleaner 7 is provided on the opposite side of the rotatable head 5 of the device to clean the surface of the teats before the infrared sensor 4 reads the temperature. The waves generated by the ultrasonic cleaner 7 are outside the hearing range of cows and humans. They cause the dust particles to resonate and dislodge from the surface of the teats.

[0012] The infrared sensor 4 can also be used as a means for checking the correct application of disinfectant on the skin of the teats. In order to do so, the infrared sensor 4 measures again the temperature on the surface of the teats once disinfectant has been applied. As disinfectant will cause a drop in temperature of some degrees, the detection of such temperature variation will confirm that disinfectant has been correctly applied. Otherwise an alarm signal will be sent to an operator.

[0013] Sometimes infections can be so extensive that local application of a disinfectant is insufficient to solve the problem. If the infrared sensor 4 detects such an infection, the appropriate measure is to send the cow to the veterinary area of the farm. This can be done in an automated way by conditioning the cow to go there when it receives a particular stimulus.



5 [0014] The stimulus can be provided by spraying through the nozzle 6 a small amount of an aqueous solution of 20-40% by volume of ethanol from a separate reservoir, much smaller than the 1 litre reservoir for the aqueous solution of disinfectant. The use of such a solution provokes a slight refreshing feeling on the teats that can be used to train the cow to go to a predetermined place.

10 [0015] Cows might not be able to differentiate between this feeling and the stronger cooling effect of the disinfectant solution containing ethanol and Kilemol, which causes a drop in temperature of 6 degrees or more. An alternative stimulus is the use of a mild irritant substance causing a completely different feeling on the teats of the animal. The same training could be used to guide cows to a different place on the farm, e.g. a feeding area, since the separate reservoir is detachable and can be used independently.

15 [0016] The on-board computer 2 controls the operation of the rotatable head 5 and of all the elements mounted on it according to the disclosed method of operation. Further elements, e.g. sensors, could be incorporated in the device and controlled by the on-board computer 2 given the large capacity of the batteries which are used to power the mobile treatment device.

Claim:

- 20 1. A mobile device comprising an infrared sensor (4), an ultrasonic cleaner (7) and a nozzle (6) for spraying a disinfectant solution, further comprising an on-board computer (2) which receives signals from the infrared sensor (4) in order to activate accordingly the ultrasonic cleaner (7) and the nozzle (6).



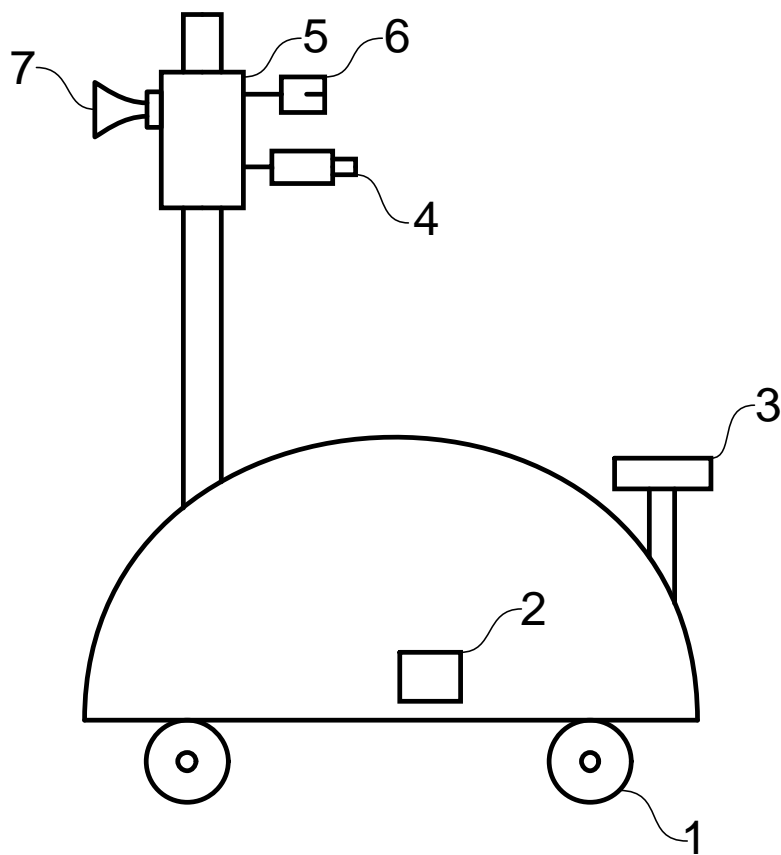


FIG. 1



Journal “A Odisseia do campo”, PAC Lançamentos, Lisbon (Portugal),
Ed. February 2013, “Modernising Traditional Milking Facilities in Spain”.

It is a common need for farmers of traditional milking facilities to modernise in order to stay at a reasonable level of profitability. Our magazine recently learned of an experiment in Galicia, North-West Spain, which might be of interest for our readers. Mrs Lampetia Pazos, the owner of the farm, explained to us the basics of her project.

The modernisation of the farm began with the incorporation of a milking robot 1, which for logistical reasons had to be placed on the west side of a river 9 which divides her fields. The milking robot 1 comprises a typical robot arm 8 and a vertically movable integrated cleaner 2, in which two hair rollers 10 with polymer bristles are installed to clean the teats of the cow inside the milking robot 1 by rotation. The hair rollers 10 can remove all the dirt present on the skin, even if dirt is sticking to the teats. Hair rollers are a well known soft kind of brush.

An important feature is the presence of a paint roller 3 before the railings 11 which lead to the entrance of the milking robot 1. Said paint roller 3 descends and applies a green stripe on the back of the cow before it enters the milking robot 1. The green stripe is applied using a colourant composition. The aqueous colourant composition comprises a green colourant and 24-44% by volume of a lower alcohol such as ethanol or isopropanol. The green stripe gradually fades out after application.

By means of this visual indication, Mrs Pazos can identify the cows which were prompted to go to the milking robot in the previous hours - since cows do not spontaneously go to the milking robot -, and identify cows which should be prompted to go to the milking robot as soon as possible. In this way cows can be checked, and prompted to go to the milking robot when needed. The check is carried out at a place where a salt block 4 is located, since cows regularly go there during the day to lick it.



When a cow wants to reach the salt block 4, it must cross a first barrier 5 and wait for a second barrier 6 to open, and vice-versa when leaving. When this happens, a camera sends an image of the back of the cow to an app on the mobile phone of Mrs Pazos, who can assess if the cow has been recently prompted to go to the milking robot or not. If it needs milking urgently, Mrs Pazos only has to activate an option in her app to order a spray 7 to be actuated.

The spray 7 projects a very small amount of powder comprising soap and an irritant agent towards the teat of the cow, which causes a particular feeling in this sensitive region. Surprisingly, it is easy to teach a cow that said feeling must be followed by immediate milking: it only needs operators to guide the cow to the milking robot 1 a few times after it was sprayed. The cow continues to repeat this behaviour afterwards.

Mrs Pazos was surprised by this behaviour since she expected that the feeling on the teats would disappear while the cow crosses the flowing river 9, which is deep enough to reach almost half way up the belly of the animal, taking away any substance on the skin. However she realised that the cows still move directly to the milking robot 1, where the hair rollers 10 remove any remaining dirt on the wet teats without needing an additional application of a fluid.

The installation of the typical fast-couplings for water supply at the usual locations around the periphery of Mrs Pazos' farm completes the modernisation. The river upstream of the farm is so clean that it is used as a source of water for all purposes in the farm, including human consumption.



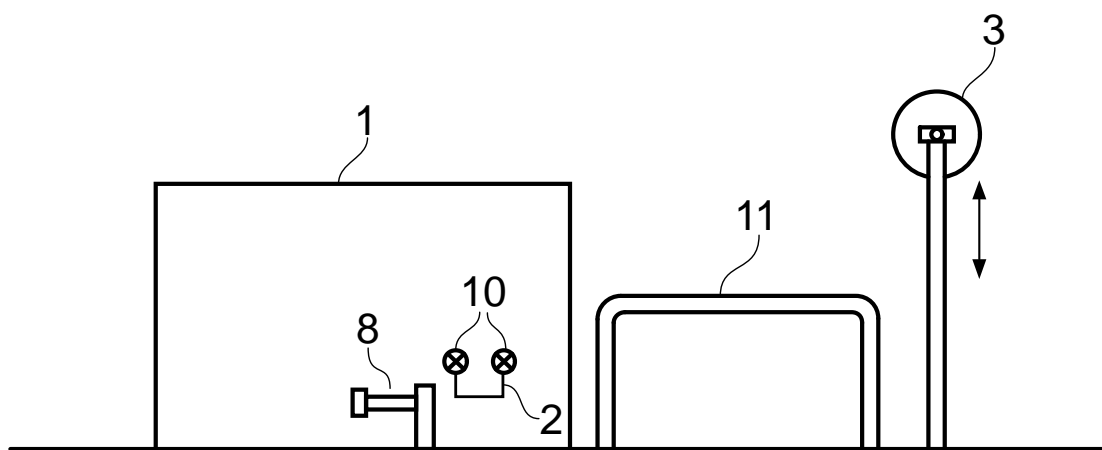


FIG. 1

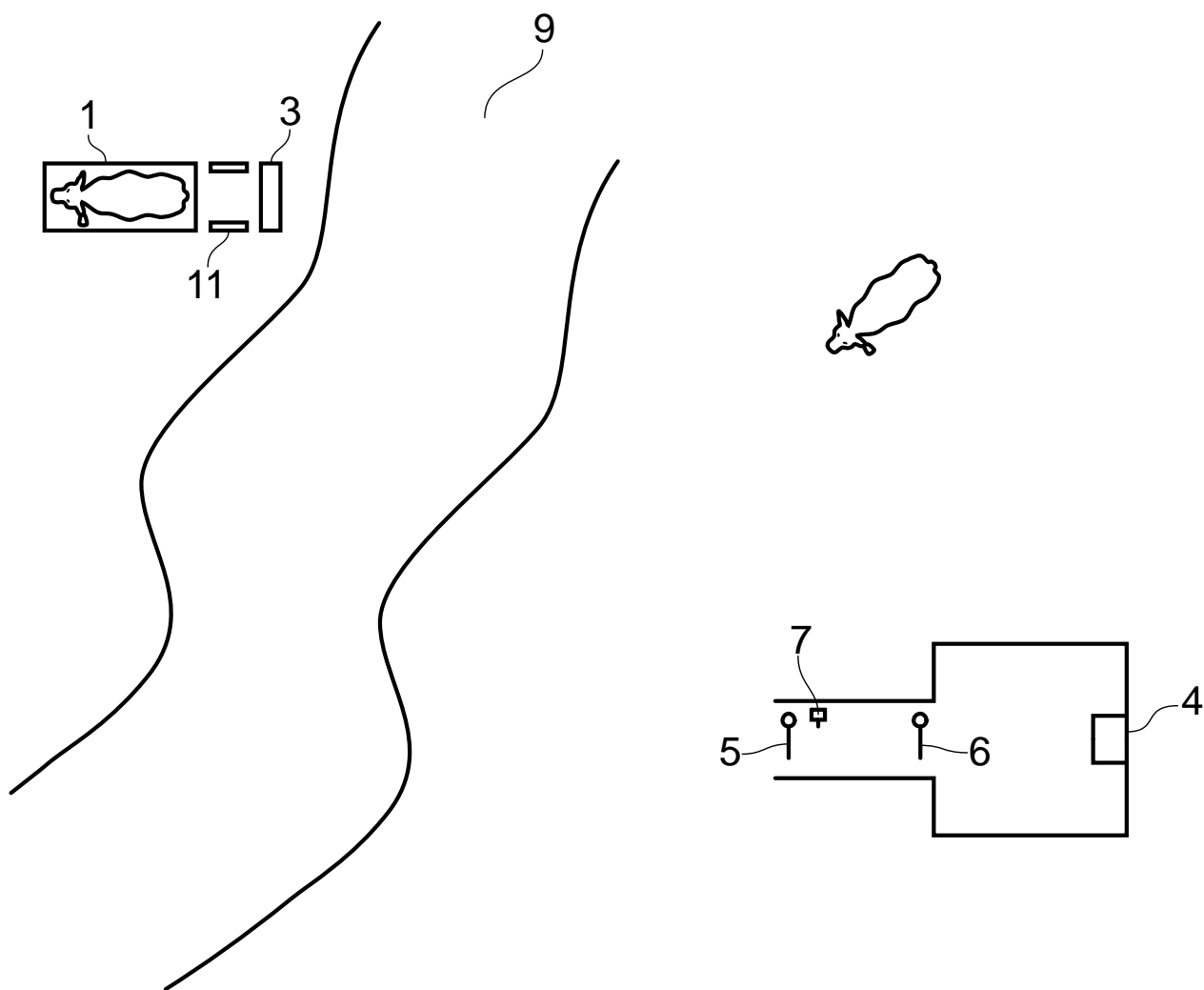


FIG. 2



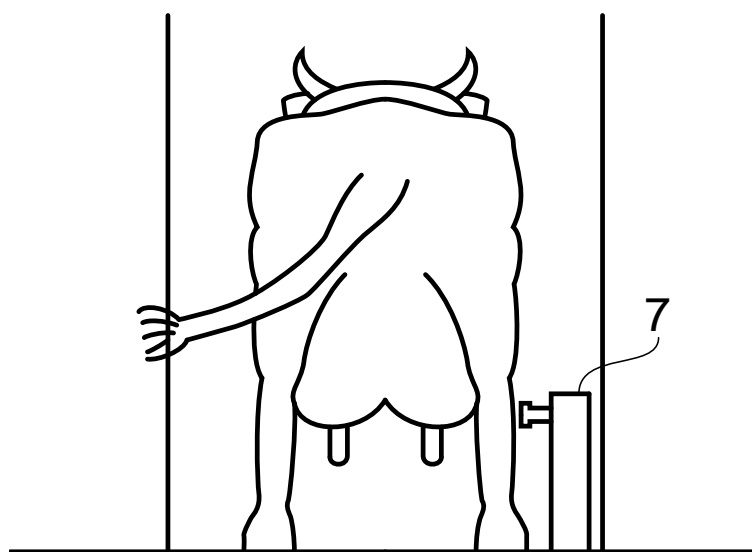


FIG. 3



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 10 (71) Applicant: **ODYSSEUS GmbH**
 (72) Inventors: **Euriloco von Leucades**
 (74) Agents: **O. Nobody**
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NO PL PT RO RS SE SI SK SM TR)

A cleaning solution

20 **[0001]** Hygiene regulations in dairy farms are becoming more and more restrictive in order to ensure safety of final consumers of dairy products. The teats have to be clean for milking, which is usually ensured by application of a cleaning solution compatible with human consumption.

25 **[0002]** Said application has been gradually automated by means of devices which can be used once the cow is inside a milking robot. However, automatic cleaning may fail, resulting in polluted milk being mixed with the rest of the daily production.

30 **[0003]** In order to detect such failure, the present invention proposes adding a colourant called European Blue to a cleaning solution, which can be composed of a water-based solution of soap and ethanol.



[0004] When this cleaning solution is applied by means of nozzles 1 within a cleaning head 2, as shown in figure 1, the teats are coloured in a way which can afterwards be detected by a camera at the exit of the milking robot. If the camera detects the colour, the milk can be transferred from a temporary container to the main storage tank. Otherwise it will not be used for human consumption.

[0005] In order to ensure a complete spreading of the cleaning solution on the teats, two rotating hair rollers 3 are also provided in the cleaning head 2.

[0006] The colourant European Blue is not harmful for human consumption, and at concentrations of 0.2-0.4% by volume (preferably 0.4% by volume) remains on the teats during milking. It fades away on its own a few hours after cleaning.

Claim:

1. A cleaning solution consisting of a water-based solution comprising soap, ethanol, and European Blue at a concentration of 0.2-0.4% by volume.



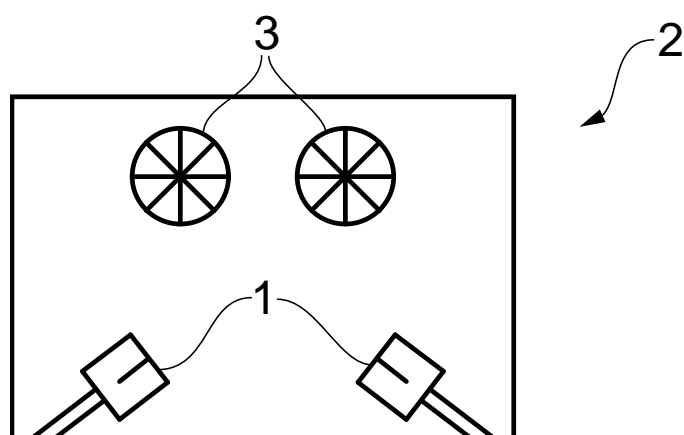


FIG. 1



Notes to the notice of opposition (EPO Form 2300)

Although the opposition form is not mandatory for the purpose of filing a notice of opposition, it specifies all the information required for such a notice to be admissible and hence facilitates the formulation and processing of the opposition. In stating and explaining the grounds for opposition, the opponent is free to comment as he wishes.

Explanatory notes to the various sections:

I. Patent opposed

Under **Patent No.** the number of the European patent against which opposition is filed (Rule 76(2)(b) EPC) must be given.

If known, the **application number and the date on which the Patent Bulletin mentions the grant** (Art. 97(3) EPC) should also be given. The latter makes it easier to monitor compliance with the opposition period.

The **title of the invention** must be given (Rule 76(2)(b) EPC); it should be indicated **as shown on the cover page of the printed patent specification** under item 54.

II. Proprietor of the patent

Where there are **several** patent proprietors, it is sufficient for the proprietor first named in the patent specification (under item 73) to be given.

III. Opponent

The **name, address and nationality** of the opponent and the **state** in which his residence or principal place of business is located must be given, in accordance with Rule 41(2)(c) EPC (Rule 76(2)(a) EPC). If the identity of the opponent has not been established by expiry of the opposition period, such deficiency can no longer be remedied (decision of the Technical Board of Appeal T 25/85, OJ EPO 1986, 81). An opponent may give an address for correspondence (see OJ EPO 2014, A99).

IV. Authorisation

If the opponent has appointed a **representative**, his name and the address of his place of business must be given, in accordance with Rule 41(2)(c) EPC (Rule 76(2)(d) EPC). If **several** professional representatives are appointed, only one representative to whom notification is to be made should be named. Any further representatives must be named in an annex (please put a cross in the appropriate box). In the case of an association of representatives, only the name and address of the association must be entered (see Rule 143(1)(h)).

An opponent who has neither a residence nor his principal place of business within the territory of one of the EPC contracting states must be represented and act through his representative (Art. 133(2) EPC). Professional representation before the EPO may only be undertaken by professional representatives (Art. 134(1) EPC) or legal practitioners entitled to act as professional representatives (Art. 134(8) EPC).

Natural or legal persons having their residence or principal place of business within the territory of one of the EPC Contracting States may also be represented in opposition proceedings by an **employee**, who must, however, be authorised (Art. 133(3), first sentence, EPC). In this case notification will be made to the opponent (not the employee) unless a professional representative has also been authorised.

To avoid delaying the proceedings, any authorisation which has to be filed should if possible be enclosed with the opposition. Under Rule 152(1) EPC in conjunction with the decision of the President of the EPO dated 12 July 2007, listed professional representatives identifying themselves as such normally no longer need to file signed authorisations (cf. Special edition No. 3, OJ EPO 2007, L.1.). These are, however, required from legal practitioners and employees who are not professional representatives and are acting for the opponent under Articles 134(8) and 133(3), first sentence, EPC respectively. If they do not file an authorisation, the EPO will ask them to do so within a specified period. Failure to comply will result in any procedural steps performed by the practitioner or employee being deemed not to have been taken (Rule 152(6) EPC) – which means that the notice of opposition will be considered not to have been filed.

V. Statement of the extent to which the patent is opposed

The notice of opposition must contain a statement of the extent to which the European patent is opposed (Rule 76(2)(c) EPC). If the opposition is not filed against the patent as a whole (place a cross in the appropriate box), the number(s) of the claims (as in the patent specification) which the opponent considers to be affected by one or more of the grounds for opposition must be given.

VI. Grounds for opposition

The alleged grounds for opposition (Art. 100 EPC) must be indicated by a cross in the appropriate box(es).

Under the heading of non-patentability (Art. 100(a) EPC) the most frequently cited grounds for opposition



are lack of novelty and lack of inventive step, for which separate boxes are provided. The form otherwise gives the opponent ample scope for indicating other possible grounds for opposition. Under the heading "other grounds" the following Articles may be cited in the box provided: 52(1) and 57; 52(2); 53(a); 53(b); 53(c) EPC.

A full list of grounds for opposition is given in Article 100 EPC. The following in particular are not admissible grounds: lack of unity of invention (Art. 82 EPC), lack of clarity in the claims (Art. 84 EPC) and prior national rights (Art. 139(2) EPC).

For general information on grounds for opposition see Guidelines for Examination in the EPO, D-III, 5.

VII. Facts and arguments presented in support of the opposition

The notice of opposition must contain an indication of the facts and evidence presented in support of the opposition (Rule 76(2)(c) EPC) and, where documents are cited, an indication of the relevant part(s) (Guidelines D-IV, 1.2.2.1).

The facts, with the relevant arguments and evidence, in support of the opposition must be presented on a separate sheet enclosed as an annex to the Form (indicated by a pre-printed cross in the box).

The fact that the evidence is listed separately in Section IX does not anticipate the presentation of facts, evidence and arguments but merely makes for greater clarity and simplifies processing of the dossier. Section IX of the Form (Evidence presented) may of course always be referred to in this presentation.

Where documents are cited in shortened form, the rules set out in the Guidelines B-X, 9.1 should be followed.

VIII. Other requests

This section may be used for example to request oral proceedings or a file inspection.

IX. Evidence

Published documents cited as evidence (e.g. patent specifications) must be entered under "Publications" in the spaces provided – preferably in order of importance. They should be cited in the manner described in Guidelines B-X, 9.1.

Opponents should also indicate the parts of the document on which the opposition is based (this information has to be given anyway in the statement of facts and arguments – see notes to Section VII above).

Other evidence (e.g. witnesses, affidavits, company brochures, test or expert reports) must be cited under "Other evidence" (for public prior use: place, time, nature – see Guidelines G-IV, 7.2; D-IV, 1.2.2.1(v);

for witnesses: first name and last name, full address, relationship to opponent, etc.). If there is not enough room, the evidence can simply be listed, with an indication of where in the statement of grounds the relevant particulars appear (e.g. "Witness ..., page 5").

Documents cited by a party to opposition proceedings must be filed (including publications already cited in the European patent specification) with the notice of opposition or other written submission. This will avoid an invitation from the EPO for subsequent filing thereof. If they are neither enclosed nor filed in due time on invitation, the EPO may ignore any arguments based on them (Rule 83 EPC).

X. Payment of opposition fee

The opposition fee must be paid within the opposition period. Notice of opposition is not deemed to have been filed until the opposition fee has been paid (Art. 99(1) EPC). With regard to what constitutes the date to be considered as the date on which payment is made, see Article 7 of the Rules relating to Fees and the guidance on payment methods in the Official Journal.

XI. List of documents enclosed

Please indicate which documents are enclosed by crossing the relevant box.

XII. Signature

If the opponent is a legal person and the notice of opposition is not signed by the representative, it must be signed:

- (a) either by a person entitled to sign under the law or the opponent's statute, articles of association or the like, with an **indication of the capacity of the person doing so**, e.g. Geschäftsführer, Prokurist, Handlungsbevollmächtigter; chairman, director, company secretary; directeur, fondé de pouvoir (Art. 133(1) EPC), in which case no authorisation need be filed;
- (b) or by another employee of the opponent, provided the latter's principal place of business is in a contracting state (Art. 133(3), first sentence; Rule 152(1) EPC), in which case an authorisation must be filed.



Notice of opposition to a European patent

I. Patent opposed

Patent No.

Application No.

Date of mention of the grant in the European Patent
Bulletin (Art. 97(3), Art. 99(1) EPC)

Title of the invention

II. Proprietor of the patent

first named in the patent specification

Opponent's or representative's reference
(max. 15 keystrokes)

III. Opponent

Name

Address

Address for correspondence

State of residence or of principal place of business

Nationality

Telephone/Fax

<input type="text"/>	<input type="text"/>
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Multiple opponents
(see additional sheet)

☐

IV. Authorisation

1. Representative

(name only one representative or name of association
of representatives to whom notification is to be made)

Opponent's reference



Address of place of business

Telephone/Fax

Additional representative(s)
on additional sheet/see authorisation

☐

2. Name(s) of employee(s) of the opponent
authorised to act in these opposition
proceedings under Art. 133(3) EPC

Authorisation(s) to 1./2. not considered necessary

☐

has/have been registered
under No.

☐

is/are enclosed

☐

V. Opposition is filed against

• the patent as a whole

☐

• claim(s) No(s).

VI. Grounds for opposition:

Opposition is based on the following grounds:

(a) the subject-matter of the European patent opposed
is not patentable (Art. 100(a) EPC) because:

• it is not new (Art. 52(1); Art. 54 EPC)

☐

• it does not involve an inventive step (Art. 52(1);
Art. 56 EPC)

☐

• patentability is excluded on other grounds,
i.e. Article

☐

(b) the patent opposed does not disclose the invention
in a manner sufficiently clear and complete for it
to be carried out by a person skilled in the art
(Art. 100(b) EPC; see Art. 83 EPC).

☐

(c) the subject-matter of the patent opposed extends be-
yond the content of the application/of the earlier appli-
cation as filed (Art. 100(c) EPC, see Art. 123(2) EPC).

☐

VII. Facts (Rule 76(2)(c) EPC)

presented in support of the opposition are submitted
herewith on a separate sheet (annex 1)

☒

VIII. Other requests:

Opponent's reference



IX. Evidence presented

Evidence ☐ is enclosed
☐ will be filed at a later date

A. Publications:

1	
Particular relevance (page, column, line, fig.):	
2	
Particular relevance (page, column, line, fig.):	
3	
Particular relevance (page, column, line, fig.):	
4	
Particular relevance (page, column, line, fig.):	
5	
Particular relevance (page, column, line, fig.):	
6	
Particular relevance (page, column, line, fig.):	

Continued on additional sheet ☐

B. Other evidence

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Continued on additional sheet ☐

Opponent's reference



X. Payment of the opposition fee is made

- as indicated in the enclosed voucher for payment of fees and costs (EPO Form 1010) ☐
- via EPO Online Services ☐

XI. List of documents

Enclosure No.

- 0 Form for notice of opposition ☒
- 1 Facts (see VII.) ☒
- 2 Copies of documents presented as evidence (see IX.)
 - a Publications ☐
 - b Other documents ☐
- 3 Signed authorisation(s) (see IV.) ☐
- 4 Voucher for payment of fees and costs (see X.) ☐
- 5 Additional sheet(s) ☐
- 6 Other ☐

Number
of sheets

Please specify here:

XII. Signature of opponent or representative

Place

Date

Signature

Name (block capitals)

In case of legal persons, signatory's position
within company

Opponent's reference