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(72) Inventors:
• **Brucart Puig, Ramon**
08206 Sabadell, Barcelona (ES)
• **Bonich Linares, Marta**
08206 Sabadell, Barcelona (ES)

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(74) Representative: **Toro Gordillo, Ignacio Maria**
Viriato, 56
28010 Madrid (ES)

(71) Applicant: **Pulltap's, S.L.**
08205 Sabadell (Barcelona) (ES)

(54) Unit for mopping floors

(57) The wringer on the bucket (1) is activated by a pedal operated lever (3), while the stick holding the absorbent strips (15) has two handles (18, 18a). The wringer consists of a perforated trunco-conical funnel (8), which turns around its vertical axis and which is equipped on its inner surface with two or more helicoidal ribs (14), and turns by means of a tensor cable (7) affixed to the external lever (3) of the pedal (4), which in turn is located in a recess in the rear part of the bucket (1) itself, while the other end of the cable (7) is attached to the lower part of the wringing funnel (8), the latter being equipped at its lowest part with an axial and cylindri-

cal spring (13), in such a way that when the tensor cable (7) is activated the said spring (13) is subjected to torsion, thereby giving rise, on ceasing to activate the tensor cable (7), to a return to the original position and with this, the funnel (8) of the wringer also returns. This rocking movement wrings out the textile strips (15) on the stick by means of the actions of pulling and twisting the helicoidal ribs (14) within the funnel (8). The arm (16) is equipped with a handle (18) at its upper end and a second handle (18a) which may be located at the height most suitable for the user, and which may be fixed at the said height by means of a screw (19) suitable for this purpose.

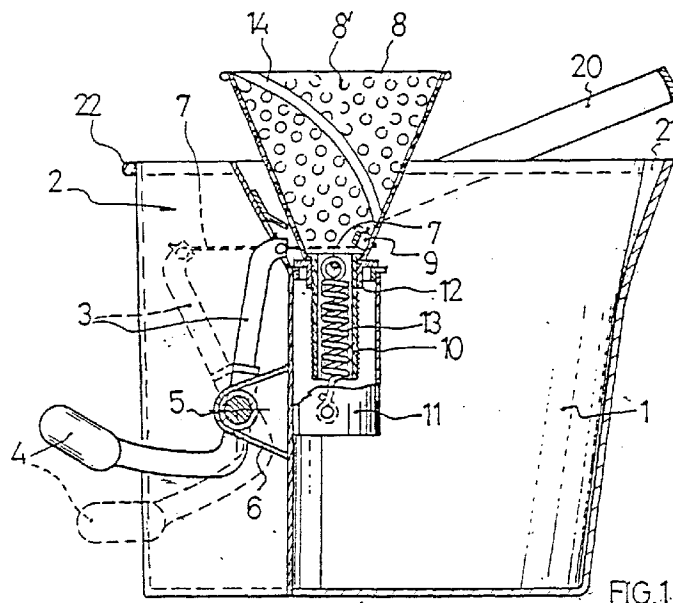


FIG.1.

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Description

[0001] This patent of invention consists of a set of equipment that is specifically designed for usage in the work of mopping floors, and is preferentially domestic in its sphere of application, although it may also be used industrially, and which is essentially characterized in that the novelty which it presents consists of a wringer with a turning mechanical action, activated by a pedal with the wringer being contained within the bucket for the mop, as well as the fact that it also presents in a complementary fashion a perfected stick to hold the absorbent textile strips, in such a way that it makes the same more functional for practical usage.

[0002] The definition itself of the set of equipment known as a "mop", as included in the dictionary produced by the Royal Academy of the Spanish Language, underlines its essential characteristics, as a domestic utensil for cleaning floors without the need to kneel down.

[0003] Thus in sets of equipment for cleaning floors, the stick, which is cylindrical and of a suitable length, is equipped at its bottom end with the known complementary part composed of absorbent textile, and makes it possible to carry out the action of mopping without the user having either to kneel or bend down, as its length makes it possible to slide the end equipped with the said textile part under furniture and other objects. The bucket of the mop itself makes it possible not only to soak the textile part before mopping, but also to wring out the textile part by means of a known conical device.

THE STATE OF THE ART

[0004] The state of the art, in terms of the practical execution of sets of equipment for cleaning floors, and which are commonly known as mops, includes an infinite range of variants, all of which have been developed on the basis of the principles described in detail above in the definition itself, includes models which are extremely simple, in which the wringing out process has to be carried out by means of pressure applied vertically or by twisting, both of which actions are undertaken by the user himself. In all cases the user has to make a major effort, and this often gives rise to back pains suffered by the user.

[0005] The set of equipment for mopping floors which is the subject of this invention presents a series of innovations, in the item of equipment for wringing out which is located within the bucket of the mop as well as in the stick which is handled by users, and which make the work easier to carry out while also eliminating as far as possible the causes of harmful movements and postures which may cause the said painful lesions in users, mainly in the back.

[0006] The part for wringing out is composed of a perforated funnel that is equipped on its inside with two or more helicoidal ribs. This funnel is able to turn around

its vertical axis, this action being brought about by a tensor cable affixed to the end of an exterior pedal. The funnel is located within the bucket of the mop, while the set of equipment including the pedal and its corresponding lever is located within a recess at the back of the bucket itself.

[0007] The mechanism is completed by a cylindrical spring that is coaxial to the funnel and located in such a way that at the moment the tensor cable ceases to act, the said spring, which is twisted during this operation, returns to its initial position, as does the funnel due to this action.

[0008] Thanks to this rocking motion of the wringing funnel, into which the textile part to be wrung out has been placed, and which also contains the helicoidal ribs on the inner surface of the funnel, a pulling and twisting action is brought about which acts on the said textile part, wringing it out completely, as there is no possibility whatsoever of the said textile part slipping over the inner surface of the funnel, as it would if the latter were smooth. This last - mentioned circumstance arises in a majority of the wringers known to date, in which the wringing out process is not carried out totally or quickly, so that users have to repeat the wringing action again and again, with the resulting fatigue and increased risks of back lesions.

[0009] The set of mopping equipment which is the subject of this invention is completed by the arm that is equipped with two handles, one of which may be adjusted in its height, thus making it suitable for use by users of different heights without any difficulty whatsoever, and preventing the need for them to bend over, as well as making it possible to apply pressure for wringing out that is much greater and more effective.

[0010] With the aim of describing in detail the essential characteristics of the different component parts of the set of equipment for mopping floors which is the subject of this invention, a set of drawings is appended to this description in which, as a non - limiting example, a practical execution of the same has been shown.

[0011] In the said drawings,

Figure 1 shows a vertical cross-section of the mop bucket, to show the arrangement of the several component parts of the wringing out mechanism.

Figure 2 shows a horizontal view of the previous figure, in which the funnel of the wringer is shown in partial cross-section to show the devices located under it.

Figure 3 is a vertical view of the mop bucket, although here it is seen from the rear, in which the pedal that activates the wringer is located, and also showing a cut - off view of the bottom part of the stick holding the textile part, located within the wringing funnel.

Figure 4 is a vertical view of the said stick, showing the different parts of which it is composed.

Figure 5 is a detailed view in a somewhat larger

scale of the mechanism for causing the wringer funnel to turn, according to figure 1: and

Figure 6 shows the application of the funnel of the wringer, equipped with the helicoidal ribs which characterize it, applied to a normal mop bucket that is not equipped with any type of mechanism, in a practical variation of the embodiment which is extremely simple.

[0012] According to the different figures, and as has been shown in a suitable manner, the set of equipment for mopping floors, with a mechanical wringer and perfected arm, consists of a bucket (1) that adopts a characteristic shape, as it has in its rear part an inlet area (2), in the form of a large recess, where the lever mechanism (3) is located with its horizontal activating pedal (4) at the lower outer end, which rocks upon an axis (5) and is supported by flaps (6) joined to the inner wall (2a) of the recess (2).

[0013] Figures 1 and 5 show, drawn in sketched lines, the position of the lever (3) when the required pressure has been applied to the lower pedal (4) to carry out the wringing operation.

[0014] The upper end of the lever (3) is holds a tensor cable (7) which is affixed at its other end to the lower part of the wringing funnel (8) by means of a locked screw.

[0015] This wringing funnel (8), which has a logically trunco-conical shape and a surface provided with numerous orifices (8'), ends in a cylindrical appendage (10) situated inside the support, which is also cylindrical (11) and is situated in the inner part of the bucket (1) and affixed conveniently to the wall (2a) that delimits the rear recess (2). This appendage (10) may turn on an upper washer (12) of the cylindrical support (11) in such a way that when the pedal (4) is pressed, and as a consequence of activating the lever (3), the cable (7) causes the funnel (8) and appendage (10) unit to turn.

[0016] Inside the said appendage there is a cylindrical helicoidal spring (13), affixed by its upper end to the inner side of the appendage (10) and by its lower end to the support itself (11).

[0017] Arranged in this way, when the funnel (8) turns as a result of the cable's (7) traction, the spring (13) twists at the same time, in such a way that as soon as the lever ceases to act, the spring will return to its initial position, causing the funnel (8) to turn in the opposite direction in a rocking movement.

[0018] On the inner surface of the funnel (8) there are two or more helicoidal ribs (14), (in Figure 2, two units are shown), whose essential function and characteristic is to hold the textile part (15) situated at the lower end of the arm (16). This textile part, in the examples illustrated, is represented by a series of identical strips on the usual attachment disc (17), causing it to turn and roll upon them, and allowing it to be adequately wrung out.

[0019] The arrangement in torsion of these helicoidal ribs (14) and their rocking movement make the textile

strips (15) situated at the end of the arm (16) turn as well at the same time and roll up upon themselves thus bringing about a complete wringing.

[0020] The arm (16) has, as indicated, an attachment disc (17) at its lower end with the textile part for absorbing and mopping (15), and it is characterized in that at its upper end it has a handle (18), appropriately fixed, while in its central part it has a second handle (18a), identical to the first, which is fixed by a flat threaded screw (19), capable of being fixed immediately at a desired point on the arm (16), in such a way that the position of this second handle (18a) may be varied at will, according to the user's convenience and height.

[0021] The first handle (18) situated at the upper end of the arm (16) allows the user to hold the said arm comfortably, while the second handle (18a) appropriately situated and fixed at a suitable height, enables the user to exercise the required pressure.

[0022] The unit is completed by the parts already well known such as the bucket, whether this is a mop bucket or not, the folding handle (20) and the frontal spout (21), situated on the upper rim (22) of the bucket itself (1).

[0023] Optionally, a catch (not shown in the drawings) may be provided to maintain the handle (20) at a certain height so that it does not fold down completely, thus avoiding excessive bending of the user's back.

[0024] The operation of the unit is as follows:

[0025] The user, once the handle (18a) has been placed at a suitable height for his stature and fixed with the screw (19) to the arm (16) will carry out the mopping operation having obviously wetted the strips (15) with the water contained in the receptacle or bucket (1). Once the said operation has been carried out, he will introduce the said strips of the mop into the wringer (8).

[0026] Immediately he will activate the lever (4) with his foot, causing the said wringer to turn, as a result of the tension of the cable (7), which, in turn, twists the cylindrical helicoidal spring (13). At the same time as the wringer starts to turn, the helicoidal ribs (14) envelop the strips (15) and squeeze them by twisting, as explained hereinbefore. When pressure ceases to be applied to the pedal (4), the cylindrical helicoidal spring (13) ceases to act and returns to its initial position, upon which the wringer also returns to its original position, so that the said wringer is ready to carry out a fresh wringing action if the user presses the pedal again, and so on.

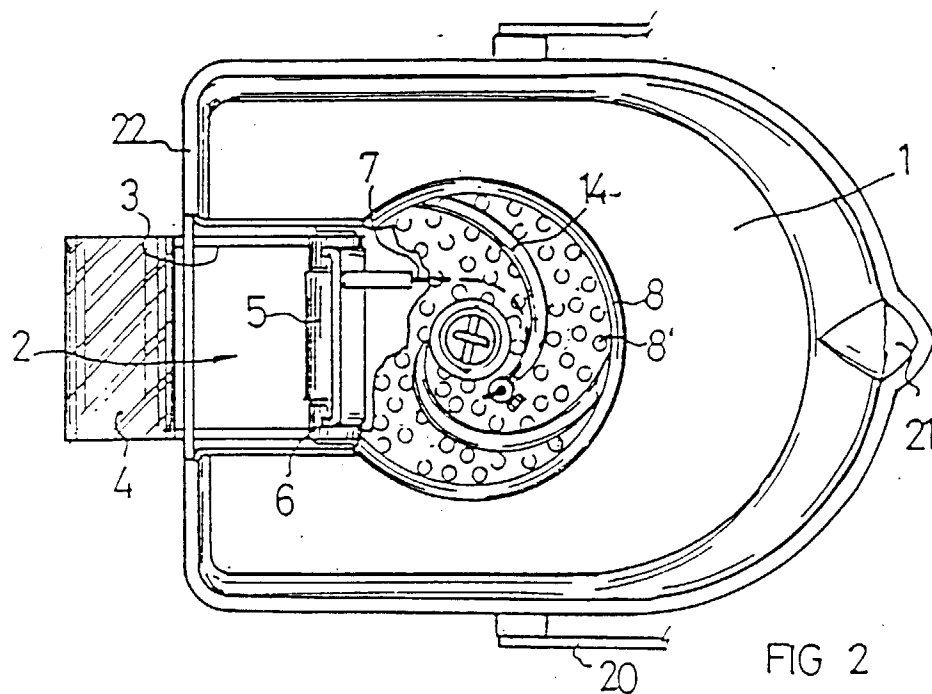
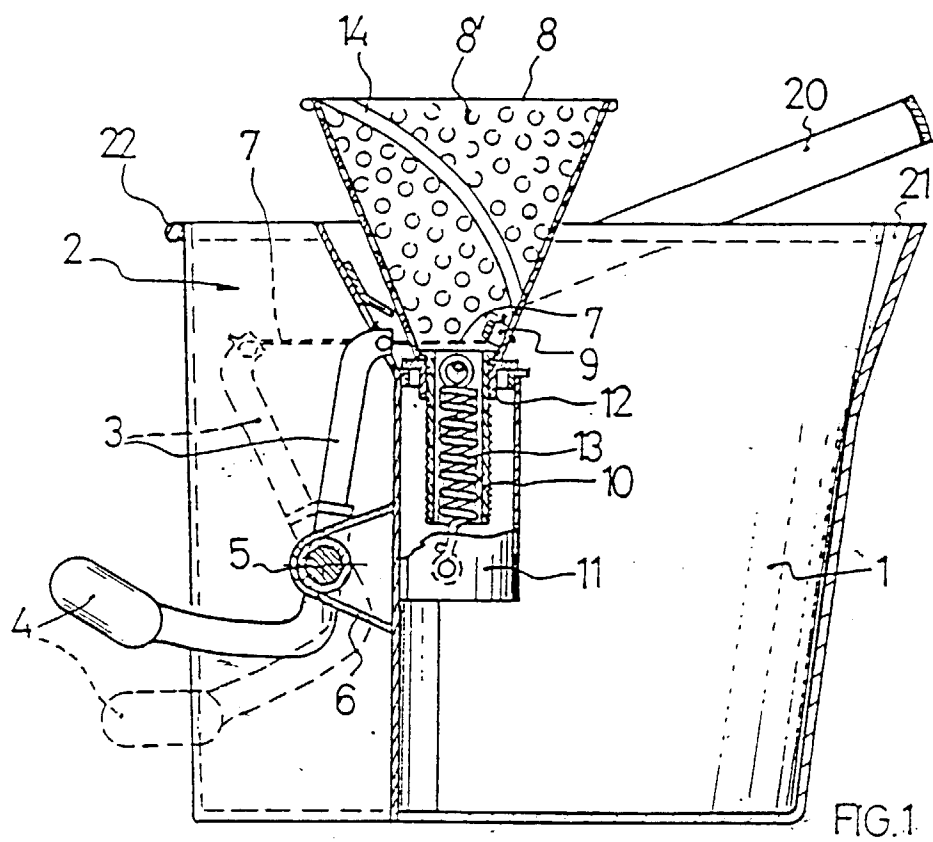
[0027] Therefore, it is a question of repeating the pedal action as many times as desired until the textile strips are fully squeezed.

[0028] Finally, there is a variation of the embodiment represented in figure 6, which consists of a simplified application of a perfected funnel (8b), provided with helicoidal ribs (14) for wringing, on a normal mop bucket (1a), attached by means of an adjustable support (23) affixed to the funnel (8b) itself. This embodiment allows the essential advantages of the invention to be exploited as regards the action of the said helicoidal ribs (14) to ensure that the textile strips (15) are wrung.

[0029] Having adequately described the object and characteristics of the mop unit that is the subject of the present invention, it should be stated that any change in shapes and dimensions and in appearance and external decoration, as well as the quality and type of the materials used in its execution, do not in any way alter the essential nature of the unit that is summarized in the following claims.

Claims

1. A unit for mopping floors, with a mechanical wringer and a perfected arm, characterized in that it has a wringing part situated inside the bucket itself, comprising a perforated funnel of a generally trunco-conical shape, with its inner side provided with two or more helicoidal ribs and ending at its lower part in a coaxial cylindrical appendage located inside the cylindrical support that the said bucket has in its rear wall; the said appendage is supported on a guiding washer that allows the funnel to turn axially together with a lower appendage. 5
2. A unit for mopping floors, as claimed in the foregoing claim, characterized in that it is provided with a lever mechanism activated from outside by a pedal and situated on the outside of the bucket, specifically in an inlet area, in the form of a recess, from the rear part of which a tensor cable is attached to the upper end of the lever. This tensor cable is, in turn, affixed at the other end to the inside of the wringing funnel in such a way that when the lever is activated the funnel will turn upon its axis. 10 15 20 25 30 35
3. A unit for mopping floors, as claimed in claim 2, characterized in that it has, inside the cylindrical appendage of the wringing funnel, a cylindrical helicoidal spring attached at its lower end to the cylindrical support, whose spring undergoes a determinate torsion when the wringing funnel turns, in such a way that, when the lever ceases to be activated, the spring returns, by reaction, to its initial position and, at the same time, the wringing funnel executes a reverse turn. 40 45
4. A unit for mopping floors, as claimed in claim 1, characterized essentially in that the helicoidal ribs face each other in a helicoid arrangement, the said helicoidal ribs being situated on the inner side of the trunco-conical wringing funnel, and these ribs giving a high degree of roughness to the inside of the funnel, so that any textile item introduced there and duly squeezed will be impelled by the turning movement of the funnel itself, undergoing a torsion that will give rise to its immediate wringing, which will be repeated as many times as the pedal of the receptacle is acted upon. 50 55
5. A unit for mopping floors, as claimed in the foregoing claims, characterized in that the arm bearing the textile strips for mopping has identical handles, the first of which is situated at the upper end and the other in the middle area, the latter being able to be fixed in a suitable position to allow the user to carry out the wringing action comfortably.
6. A unit for mopping floors, as claimed in the foregoing claims, characterized in that in a simplified version the external pedal may be eliminated and the unit manually activated by repeatedly turning the arm bearing the textile strips, which may also be wrung very easily by the torsion produced by the helicoidal ribs.



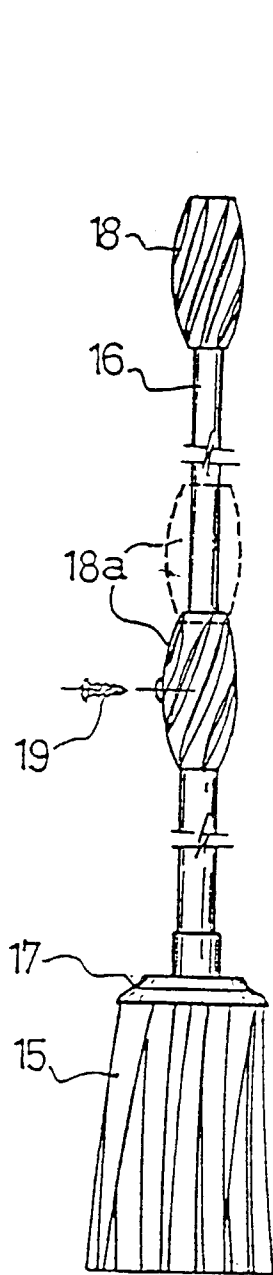


FIG. 4

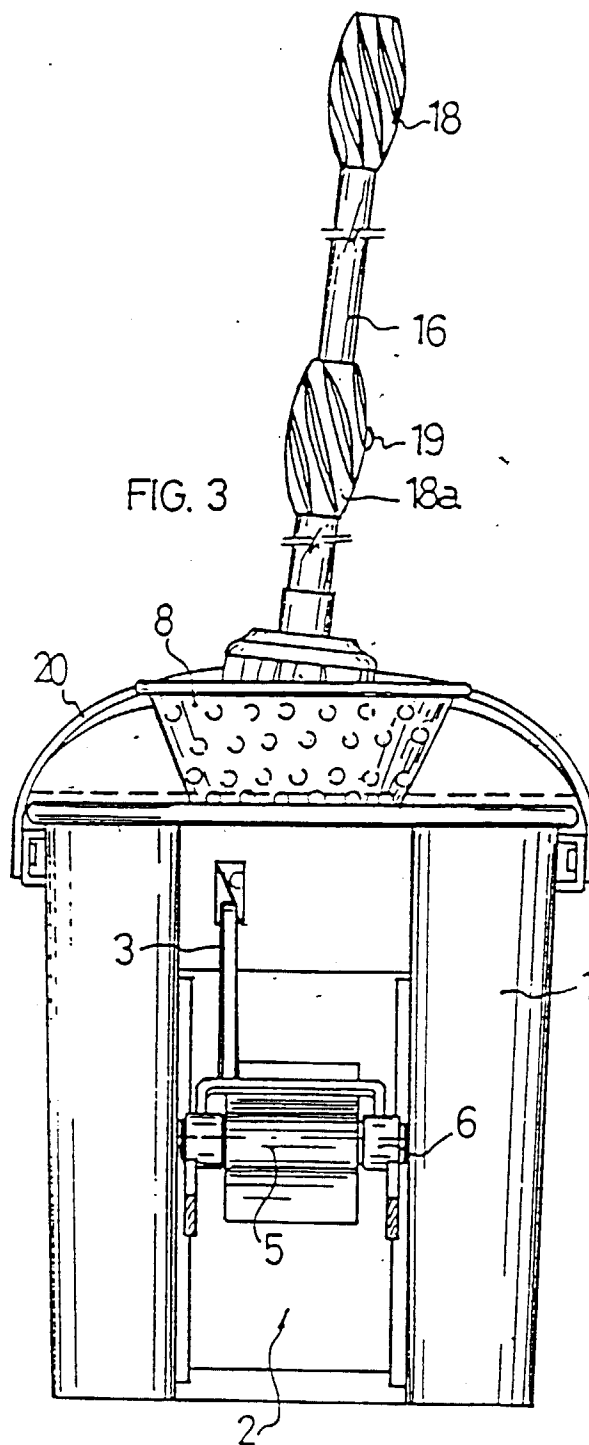
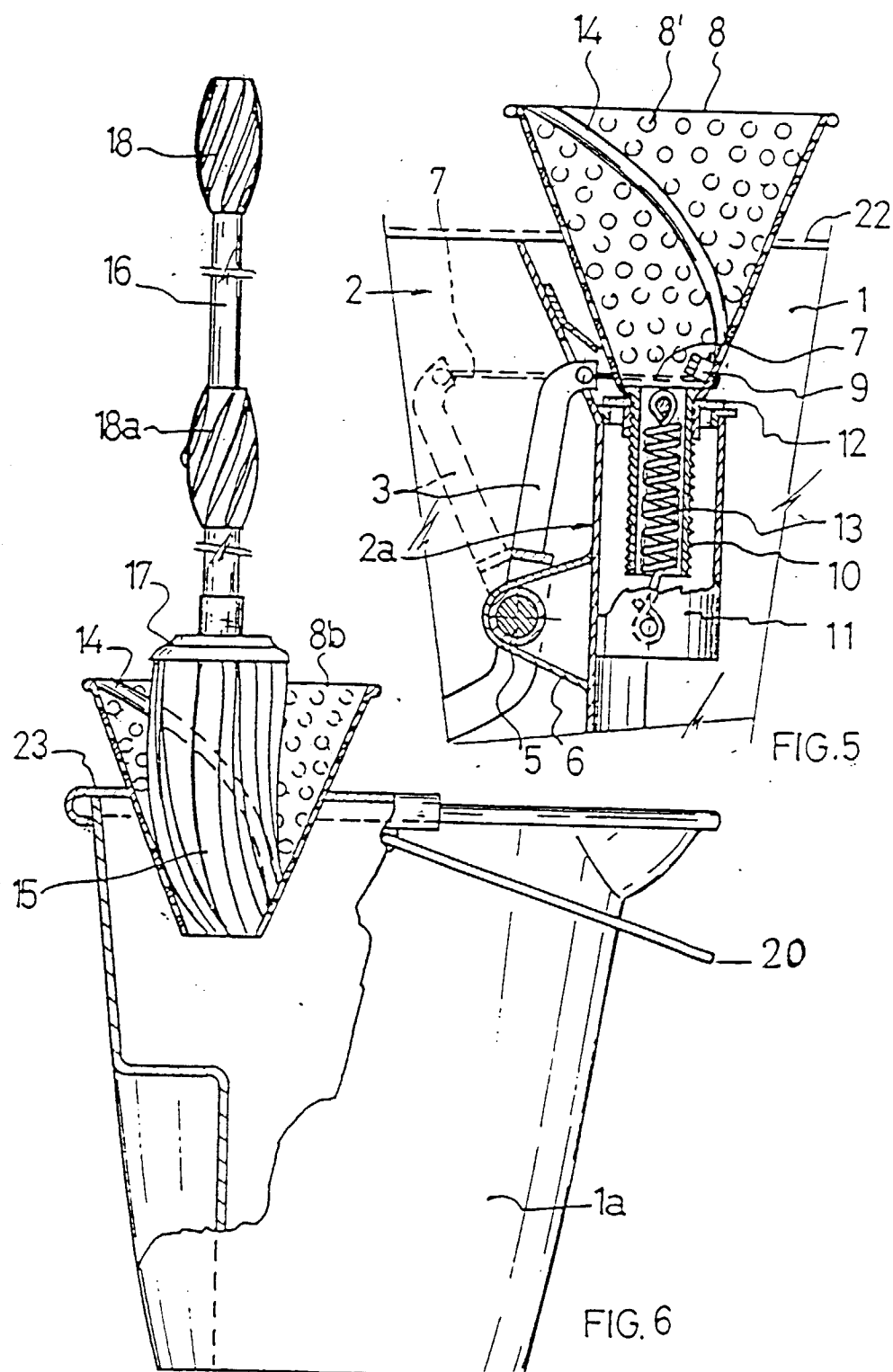


FIG. 3





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EUROPEAN SEARCH REPORT

Application Number
EP 98 50 0180

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Y	US 3 406 422 A (J. J. NICHOLS) 22 October 1968 * column 1, line 24 - line 30 * * column 2, lines 1-30, 42-55 * * claims 1,2; figures *	4	
Y	WO 92 14394 A (G. AMIR) 3 September 1992 * page 4, line 26 - line 29 * * claim 2; figures 1,2 *	5	

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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 11 November 1998	Examiner Bourseau, A-M
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03/82 (P04-001)



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EUROPEAN SEARCH REPORT

Application Number
EP 98 50 0180

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THE HAGUE		11 November 1998	Bourseau, A-M
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