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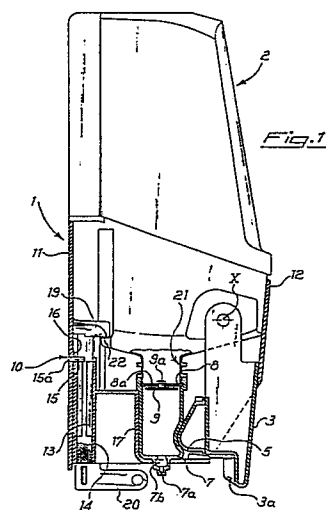
71 Applicant: **QTS S.r.L.**
Via Sismondi, 62
Milano (IT)

72 Inventor: **Niada, Gianandrea**
Via Carlo Poma 4
Milano (IT)

74 Representative: **Adorno, Silvano et al**
c/o SOCIETA' ITALIANA BREVETTI S.p.A. Via Carducci, 8
I-20123 Milano (IT)

54 **Apparatus for dispensing determined quantities of pasty products, particularly in the form of gel.**

57 An apparatus for dispensing products with a density of at least a liquid soap, especially for gel-like hand washing paste, comprises a body (1) to be anchored to a wall for supporting the product container (2) and a handle (3) to be push operated from the outside onto a unidirectional valve (7) for controlling the supply, which is in communication with the downwardly directed outlet (21) of the container (2). The body (1) of the apparatus is suitably arranged at the inside thereof for housing said valve (7) and a coupling element (10) for the container (2), unlockable from the outside only by means of a suitable key (20). Furthermore the container (2) may have its bottom, directed upwards in use, being shaped so as to be coupled to a covering member, possibly utilizable as an ashtray, comprising means for piercing the container.



Description

"APPARATUS FOR DISPENSING DETERMINED QUANTITIES OF PASTY PRODUCTS, PARTICULARLY IN THE FORM OF GEL"

The present invention deals with an apparatus for dispensing determined quantities of pasty products, in particular in the form of gel, especially usable as handwashing paste.

Devices for dispensing liquid soap are known, which are installed in lavatories of public premises and communities of whichever type. Among these latter there are cases in which it is convenient to supply special products for washing the hands, and particularly in mechanic workshops and certain industrial plants where operations are made which cause the personnel to touch dyestuffs, oils, greases, powders, etc. resulting in a heavy soiling, it is preferable to use the so-called "hand-washing pastes". However these pastes, often available in the form of gel, cannot be dispensed without problems by the usual dispensers of liquid soap due to their higher density. Difficulties in determining the single quantities are met, since the dispensed batches should be greater and the density itself of the product prohibits to have a constant supply. There is also the need of frequent maintenance interventions to ensure a continuous flow of the product which may stop easily, still due to its high density.

It is an object of the invention to provide a dispensing apparatus particularly adapted to supply determined quantities, possibly adjustable, of products having density equal to or higher than a usual liquid soap, in particular being in the form of gel.

Another object of the invention is that of providing an apparatus of the above-mentioned type, having a satisfactory autonomy of operation, as it can be used with containers of large capacity, both of the disposable cartridge-type, and such as to be refilled each time, and being solid and of simple operation so as to require only a minimum servicing, if any.

These and further objects of the present invention will be obtained with an apparatus comprising a support body for partially housing a container of a pasty product like a gel, to be anchored to a wall with its rear side, having pivotally mounted at the front side thereof a handle to be gripped for being pushed inwardly of the apparatus, thus pressing with a shaped profile integral thereto against a cylindrical wall of a metering valve for unidirectional supply housed within said body and coupled to the downwardly directed outlet opening of said container, there being also provided means for fastening the container to the apparatus body which are unlockable from the outside by a properly designed key, adapted to rotate a rod-shaped member which is housed within said body and provided with means engaging the latter and said container, the return to the locking position being ensured by spring means integrally formed with said rod-shaped member.

According to a particular feature of the invention the operating handle, which is by the way easily graspable by the users, must be pushed against the supporting wall, thus being possible to exert a stronger force as required by the high density of the

product to be supplied, while avoiding that the apparatus is pulled away as it could occur if such a force were exerted to the opposite direction like usually happens in the known dispensers of liquid soap.

According to another peculiarity of the invention, the thrust of the operating handle through the suitably shaped profile is directed upwards as a consequence of the rotation movement of the handle itself about a pivoting axis at its upper end, thus rendering more efficient the valve action. The valve can also be adjustable according to the various products used, depending upon their density and quantity to be dispensed at each operation.

According to a further characteristic of the invention, when the container of the product to be supplied is of the disposable type, i.e. a cartridge without filling holes, to be wasted upon use, the dispensing is made easier and the cartridge is prevented from crushing by piercing the latter on the upwardly directed bottom, by means of an element being also a part of the present invention which at the same time acts both as a protection of the pierced holes and as a cartridge cover, possibly having additional own functions, both aesthetically finishing the apparatus at its upper zone, and of utility e.g. by assuming the shape of an ashtray.

Additional objects, advantages and characteristics of the dispensing apparatus according to the invention will clearly result from the following detailed description of a preferred embodiment thereof, given by way of a non-limiting example with reference to the annexed drawings in which:

FIGURE 1 shows a longitudinal section view of the apparatus according to the invention along a plane parallel to one of the side walls of the apparatus;

FIGURE 2 shows a top plan view of the device for locking the container to the apparatus body; and

FIGURES 3 and 3a show a side view of the bottom portion of the container, being directed upwards in the position of use in the apparatus of the invention, coupled with a piercing, protecting and covering element also having the function of an ashtray, and respectively a top plan view of this element.

Referring to the drawings, and in particular to Fig. 1, the apparatus of the invention is outerly characterized by a body 1 for supporting and partially housing a container 2 of the product to be dispensed, preferably moulded in a durable plastic material and securable to a wall with its rear side 11 in any known manner. The container 2 may have whichever outer shape, provided that it can be adapted to the body 1 within which the container is housed at the bottom, with the portion corresponding to the outlet opening 21 directed downwards. It could be in particular of the disposable type, i.e. formed of a cartridge to be wasted upon use, or an

actual tank to be re-filled with a feed hole at its top.

Near the front wall 12 of body 1 there is pivotally mounted on the side walls thereof (not shown in the drawing) an operating lever 3 which is therefore rotatable about a horizontal axis X. The lever 3, which is resistant and of such a size to present a wide contact area, as it may be large almost like the front wall 12, is advantageously shaped with a handle 3a at its lower portion in order to render easier the gripping by the users during the pull action. The thrust is transmitted through a properly shaped profile 5, integrally formed with the rear side of lever 3, to a metering valve for unidirectional supply 7.

The valve 7 is of the generally known type, formed of a cylindrical portion of rubber or the like, housed in a suitably shaped seat 17 which is integral with the body 1 and provided with a lower delivery hole or slot 7a. According to the present invention the metering means of the valve has been modified, as it is formed of a rigid disc 8 sealingly inserted in an upper seat of the valve 7 and provided with openings such as circular holes 8a for passing therethrough the product from the container 2. A second disc 9 without holes is coaxially mounted under the disc 8 by means of a central pin with riveted head 9a. The disc 9 is movable with respect to the disc 8, as it is generally known, in consequence of the deformation by crushing of the cylindrical wall of valve 7. When disc 9 at its upraised position is pressed against disc 8, the holes 8a are completely closed and therefore the passage of gel into the inner space of valve 7 is stopped, this passage being on the contrary helped through pumping action by the downward movement of disc 9 from the previous position of closure which gives rise to a vacuum zone under the outlet opening 21 of the container. The quantity of product supplied at each operation of the control lever 3 is determined by the total cross-section area of holes 8a and by the stroke of the shutter disc 9 with respect to the disc 8, being however also function of the density of the product. Therefore, being constant the quantity of the product to be dispensed, possible variations of density of the product will be balanced through a simple operation on the valve 7 without the need of replacing the same. In fact it will be possible to replace the disc 8 only by another having holes of different cross-section, and/or to adjust the stroke of disc 9 by taking an action at the point where the pin head 9a is riveted, which is formed e.g. of thermo-plastic material.

It should be also appreciated that the lever 3 and thereby also the pushing profile 5 during the operation covers a path shaped as an arc of circle having its centre on axis X, such as to cause a crushing of the cylindrical wall of valve 7 which is not only radial, but has an upwardly directed component being adapted to enhance the maximum delivery of product, thus rendering more efficient the valve action as far as possible. It will also be understood that the outlet opening 7a may be simply formed as a nozzle slot, but preferably also a ball valve could be provided, embedded within the hollow end portion 7b in order to improve both the supply and the sealing, thus avoiding dripping when the apparatus is at rest. This can be simply obtained through

insertion of a spherical body, slightly forced, within the hollow space 7b, by keeping the said body upraised from the outlet 7a not to obstruct the same, such as by means of radial ribs extending from the inner wall of the cavity 7b itself.

As to the safety, in order to prevent a possible removal of the container 2, there is provided a fastening means 10 substantially formed as a rod-shaped member 13 housed in a sleeve 14 integral with the body 1, so as to be able to only rotate therein about its own longitudinal axis and to slide vertically. The vertical movement, parallel to the axis of member 13 is however usually prevented by the engagement of a protruding cam 15 thereof, preferably having a half-ring pattern as better seen in Fig. 2, in a slot 15a formed on the rear wall 11 of body 1 and upperly defined by a detent 16 extending into the inside of the apparatus. At the upper end of the rod 13 the latter is integrally formed with a tooth or pawl 19 directed to a side opposite to the cam 15, that is towards the front portion of the apparatus, as it is arranged to fit into a suitably shaped cavity provided in the lower portion of the container 2 and having a lower shoulder 22.

At the position shown in Fig. 1 the fastening means is located so as to prevent possible non-authorized operations on the container, because the rod 13 of a plastic material resistant to mechanical pull, renders in practice the container 2 integral with the rear wall 11 of the body 1, while whichever longitudinal movement of rod 13 is forbidden by engagement of the cam 15 with the detent 16.

To allow that the container 2 is made free of the fastening means 10 it is necessary that the shoulder 22 is no longer engaged by the pawl 19, what is possible only upon rotation of all the rod 13. This can occur only by means of a suitable key 20, available to authorized persons, which engages in any known manner the lower end of rod 13 by entering the sleeve 14 from below. It will be appreciated that preferably said sleeve extends itself for all the length of the rod, to avoid that portions accessible from the outside may be engaged for rotation by whichever tool such as pliers and the like.

With particular reference to Fig. 2, wherein the key 20 and the half-ring cam 15 have been shown by a continuous line at the lock position of Fig. 1 and by broken lines at the disengagement position with the cam 15 being no longer abutting against the detent 16, it may be observed that the rod 13 is advantageously integral with a resilient tongue 18, preferably L-shaped, ensuring the return of the locking means 10 to the initial position when key 20 is released or pulled out. In fact, during rotation of key 20 in the direction of arrow F for unlocking, the tongue 18 bends as shown in phantom while it is elastically loaded to return to the initial configuration as soon as the external action ceases, thus causing the rod member 13 integral therewith to return to the initial position shown by a continuous line, which corresponds to the engagement between elements 15, 16, as well as between pawl 19 and shoulder 22. The tongue 18 can be advantageously formed by integrally moulding with rod 13 and pieces 15, 19 in the same plastic material thereof which ensures,

within certain limits, the required flexibility, owing to its reduced thickness and great length. Still with reference to Fig. 2 it is seen that at the upper end of sleeve 14 there is provided a first catch 24 to prevent rod 13 from rotating in a direction opposite to arrow F by abutment with an end of the half-ring cam 15, as well as a second catch 24a for avoiding an excessive rotation of key 20 and consequently of rod 13, which could bring to permanent buckling of tongue 18, so as not to ensure any longer the return to the initial locking position.

Referring to Figs. 3, 3a an additional member is shown which, although optional, is a part of the invention. It was stated above that the container 2 may be provided not only as a re-fillable tank, but also as a disposable cartridge to be wasted upon use and, as such, does not have holes in its bottom portion which takes the upper position in use. In order to prevent that the vacuum, which is unavoidably generated in the container 2, may prejudice the uniformity of supply and however cause a deformation of said container, holes will have to be formed on the top thereof. Advantageously according to the invention this can be accomplished by an auxiliary member 30 to be applied to the container, e.g. by causing two lateral guide tabs 31 thereof to slide in associate seats 32 formed at the upper part of the cartridge 2, toward the rear side. The member 30 will further comprise at least one pointed nail 33 arranged to enter the cartridge back side by piercing the same at the end of forward sliding of member 30 guided by the tabs 31 in the respective seats 32. Therefore, upon application of the member 30 from the back forward, once the container 2 has been mounted to the apparatus and fastened as described above, said member 30 cannot be removed but when replacing the empty container cartridge 2. Its function is of covering the holes and protecting the same from a possible misuse, such as the introduction of foreign bodies. Such a member may also have advantageously an aesthetic function of finishing and improving the aspect of cartridge 2, at its upper portion, in addition to some utility related to the particular shape it can take. For example it could be advantageously shaped as an ashtray, with a central hollow 34 and at least two grooves 35, 35' on the edge to lay thereon the cigarette of one or more smoking users who in the meantime are washing their hands near the apparatus 1, obviously positioned beside at least one wash-basin.

It will be clear that the above-described and illustrated apparatus with reference to a "hand-washing" gel or paste can be obviously employed also with a usual liquid soap, possibly modifying the supply valve as previously indicated, while maintaining yet most of its advantage of simplicity, handiness and safety of use.

Claims

1. An apparatus for dispensing determined quantities of pasty products in the form of gel,

having a density at least equal to a liquid soap, comprising a support body (1) for partially housing a container (2) of said product, to be anchored to a wall with its rear side (11), characterized by the fact of comprising, pivotally mounted at the front side (12) thereof, a handle lever (3) to be gripped for being pushed inwardly of the apparatus, thus pressing with a shaped profile (5) integral thereto against a cylindrical wall of a metering valve (7) for unidirectional supply housed within said body (1) and coupled to the downwardly directed outlet opening (21) of said container (2), there being also provided means for fastening the container to the apparatus body (1), which are unlockable from the outside by a specially designed key (20), adapted to rotate a rod-shaped member (13) which is housed in a seat (14) formed within said body (1) and provided with means engaging the latter and said container (2), the return to the locking position being provided by spring means (18) integrally formed with said rod-shaped member (13).

2. An apparatus according to claim 1, characterized in that said fastening means (10) comprises a half-ring shaped cam (15) protruding from said rod (13) and adapted to engage, along an arc of about 180°, a corresponding slot (15a) formed in said rear wall (11) of the body (1), upperly defined by a detent (16), as well as a pawl means (19) directed to a side opposite to said cam (15) towards the front side (12) of the apparatus, being adapted to fit into a correspondingly shaped cavity in the container (2), against a shoulder surface (22) defining said cavity at its lower portion.

3. An apparatus according to claim 2, characterized in that said spring means (18) is a L-shaped tongue 18 adapted to cause said rod (13) and said elements (15, 19) to return to the locking position upon being loaded as a consequence of a rotation of said rod (13) to a predetermined position through operation of said key (20) fitted in a lower portion of said rod, suitably shaped for engagement with said key (20).

4. An apparatus according to claim 3, characterized in that said seat (14) for the rod (13) substantially comprises a cylindrical sleeve (14) within which the rod can only rotate and longitudinally slide, apart from engagement of the cam means (15) with the slot (15a) and against the detent (16), said sleeve (14) extending at least along the whole length of rod (13) and being formed at its upper portion with at least one catch (24) to prevent the rod (13) from freely rotating to the direction opposite to the loading direction of said tongue (18), and a second catch (24a) to prevent the rod (13) from an excessive rotation, beyond the disengagement of said means (10) for avoiding a permanent bending of said elastic tongue (18).

5. An apparatus according to claim 1, characterized in that said valve (7) has a disc (8) sealingly fitted at the top of its cylindrical wall, in

correspondence with the connection with the outlet opening (21) of said container (2), said disc (8) having a number of through holes (8a) uniformly distributed thereon, as well as a disc (9) freely mounted thereunder on central pin having a riveted head (9a) and capable of carrying out a stroke of adjustable length between a lower limit stop at which said head (9a) is resting on said disc (8) and an upper limit stop at which the disc (9) sealingly shuts said holes (8a) thus closing the product flow therethrough.

6. An apparatus according to claim 1, characterized in that said operating lever (3) is hinged to the body (1) along an axis (X) of rotation shifted forward with respect to said valve (7), whereby the engagement of said pusher profile (5) with the valve (7) wall has also a component directed upwards from below, not only radial.

7. An apparatus according to claim 6, characterized in that said handle lever (3) is shaped with a graspable lower portion (3a).

8. An apparatus according to one or more of the preceding claims, in which the container (2) is of the disposable cartridge type, characterized by the fact of further comprising a member (30) to be applied upperly to the container by means of two lateral tabs (31) slidable in associate retaining seats (32), said member (30) being provided at its rear side with at least a pointed element (33) for piercing the container (2).

9. An apparatus according to claim 8, characterized in that said covering, protecting and piercing member (30) has also the shape and the functions of an ashtray.

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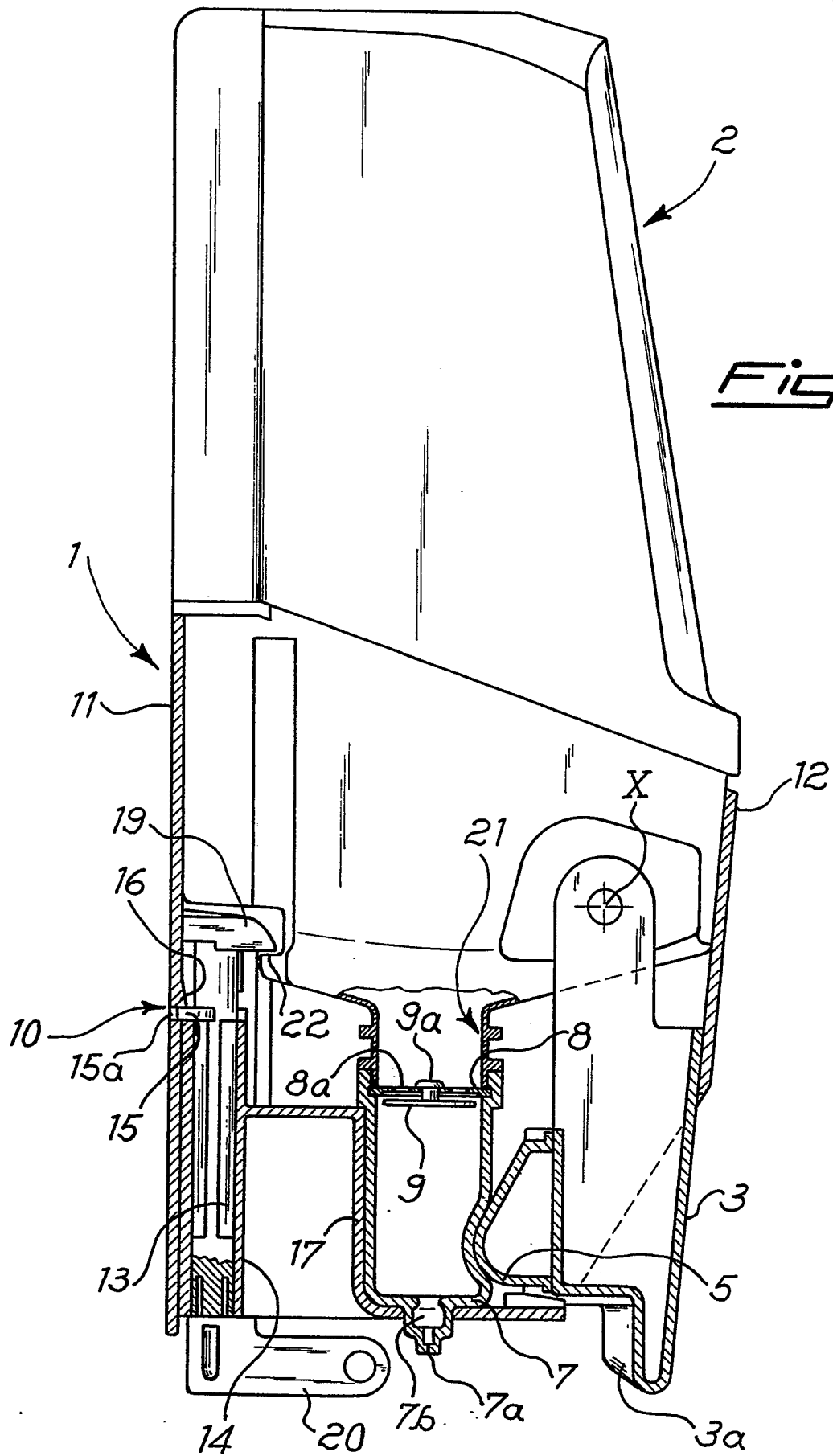
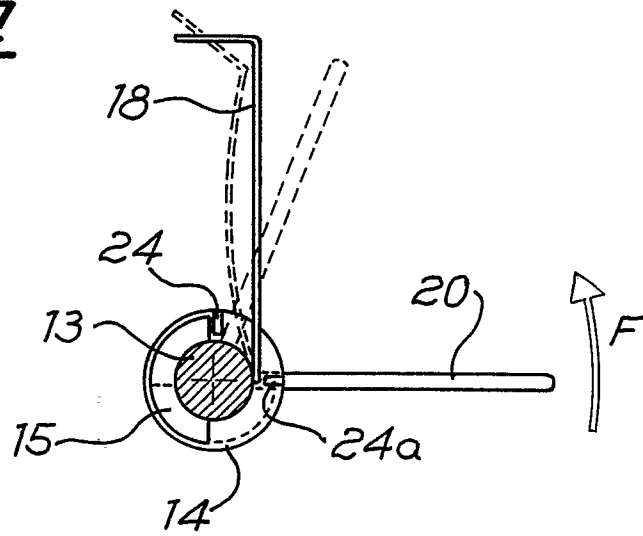
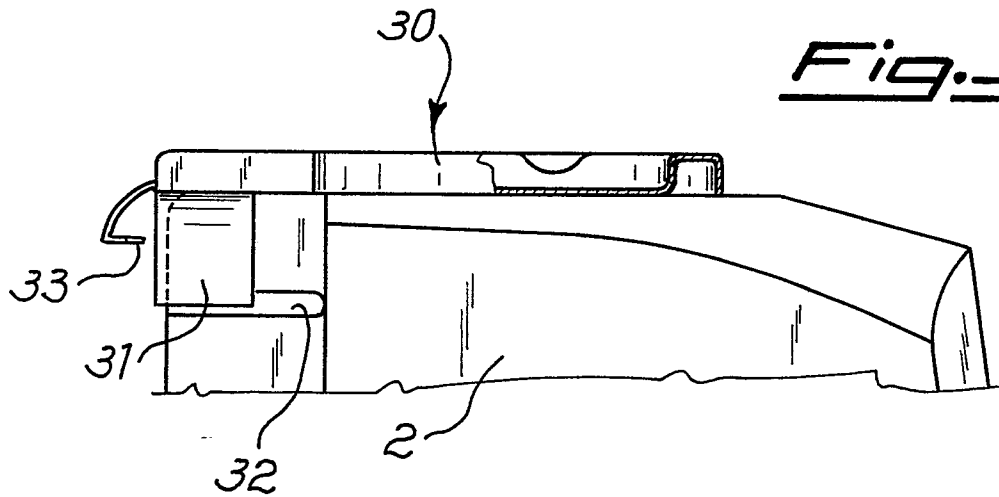
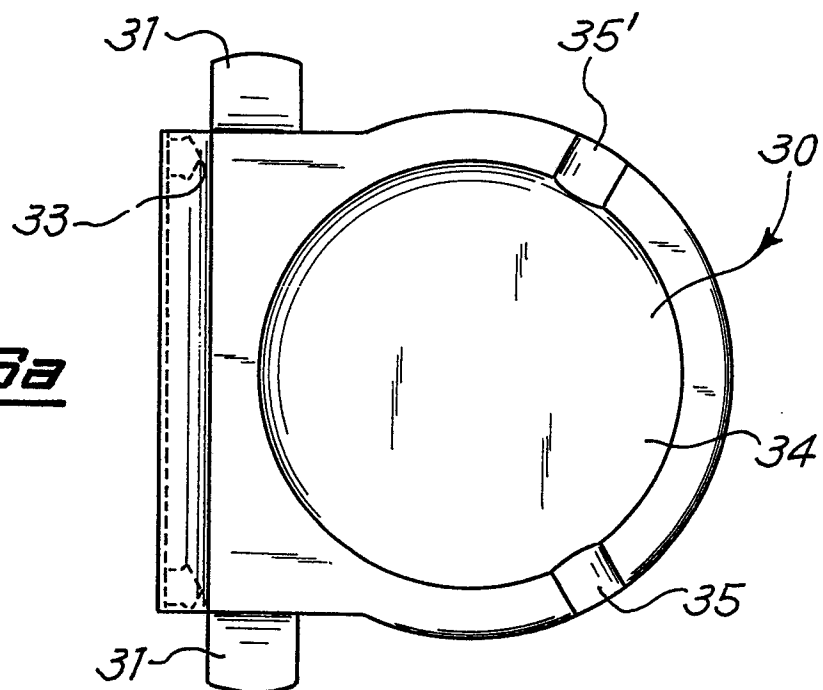


Fig. 2Fig. 3Fig. 3a



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
A	FR-A-2 016 862 (A. MANDTHANN) * Page 6, lines 13-22; figures 1,2 * ---	1	A 47 K 3/12
A	US-A-1 647 245 (MORRILL) * Page 8, lines 49-76; figure 1 * ---	1	
A	FR-A-2 144 652 (ZYMA S.A.) * Page 1, line 36 - page 2, line 27; figure 1 * -----	5	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			A 47 K
Place of search THE HAGUE		Date of completion of the search 15-09-1988	Examiner PORWOLL H. P.
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