COVERING MEMBER, METHOD FOR MAKING SAME AND DISPENSING DEVICE USING SAME

Inventors: Gilles Jourdin, Combon (FR); Cedric Mesnil, La Neuville du Bosc (FR)

Correspondence Address: SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W., SUITE 800 WASHINGTON, DC 20037 (US)

Assignee: VALOISSAS, Le Neubourg (FR)

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ABSTRACT

A covering member (1) for mounting on a fastener ring (2), the ring and the covering member co-operating with each other to form a fastener system for fastening a dispenser member (3), such as a pump or a valve, on a receptacle neck (40), the covering member presenting a general configuration that is substantially cylindrical, and comprising a top end (12), a bottom end (11), an outside wall (14), and an inside wall (15) for coming into clamping contact around the ring (2), the inside wall (15), at the bottom end (11), forming a fastener profile (111) that projects inwards, the covering member being characterized in that said profile defines a sharp catch (112) that is directed inwards and upwards, the profile being formed in direct proximity to the bottom end of the covering member so as to be able to engage said covering member under a fastener ring having a bottom end that comes practically into contact with the receptacle.
The present invention relates to a covering member for mounting on a fastener ring, the ring and the covering member co-operating with each other to form a fastener system for fastening a dispenser member, such as a pump or a valve, on the neck of a receptacle. The present invention also relates to a method of manufacturing such a covering member. The present invention also relates to a fluid dispenser comprising a receptacle, a dispenser member (pump or valve), and a fastener system integrating a covering member of the invention. Such fluid dispensers are frequently used in the fields of perfumery, cosmetics, or even pharmacy.

The covering member of the ring may have technical and/or appearance functions. A first technical function of the covering member may be to hold or to block the fastener ring on the neck of the receptacle. The covering member may be used to prevent the ring from deforming outwards, and thus becoming disengaged from the neck of the receptacle. Another function of the covering member may be an appearance function of covering the fastener ring in such a manner as to impart an attractive appearance thereto. The covering member is thus made using materials and shapes that make it possible to impart an attractive appearance thereto. The covering member may be manufactured out of plastics material or out of metal.

Whether the covering member fulfils an appearance function or a technical function, it is important that it is held in stationary manner on the fastener ring. It should not be easy to pull the covering member off the ring. It is therefore necessary for the fastening between the covering member and the ring to be able to withstand traction. In order to improve the hold of the covering member on the ring, it is already known to hem the bottom portion of the covering member by turning it inwards against its inside wall. In other words, the bottom portion is turned in like beginning to turn a sock inside out. The annular edge of the bottom end that initially pointed downwards, then points upwards after being turned in, such that the covering member presents double wall thickness. The annular edge is for coming into engagement under the bottom end of the fastener ring. In this way, it is no longer possible to remove the covering member from the ring. The annular edge fulfils a snap-fastening or catching function by coming into engagement under the bottom end of the fastener ring.

With this hemming technique, it is not possible to turn the covering member in over only a small height. It is necessary for the turned-in portion to present a sufficient height of at least one millimeter. This requires the covering member to extend below the ring by at least one millimeter. However, this is not always possible, particularly when the bottom end of the fastener ring is situated in the proximity of the shoulder of the reservoir. The necks of some reservoirs are short with shoulders that extend practically horizontally, such that the fastener ring comes practically into contact with the shoulder. Consequently, it is not possible to use a covering member that is hemmed in the manner described in the above-mentioned prior-art document due to the fact that the annular edge cannot be engaged under the bottom end of the ring.

An object of the present invention is to remedy that prior-art drawback by defining a covering member that is suitable for fastening onto any kind of fastener ring, even when said fastener ring extends in the proximity of the reservoir with its bottom end.

Another object of the present invention is to make it practically impossible to remove the covering member from the fastener ring.

To achieve these objects, the present invention proposes a covering member for mounting on a fastener ring, the ring and the covering member co-operating with each other to form a fastener system for fastening a dispenser member, such as a pump or a valve, on a receptacle neck, the covering member presenting a general configuration that is substantially cylindrical, and comprising a top end, a bottom end, an outside wall, and an inside wall for coming into clamping contact around the ring, the inside wall, at the bottom end, forming a fastener profile that projects inwards, the covering member being characterized in that the profile is obtained by pushing the bottom end inwards. While the hemmed portion in document EP 1 270 434 defines a ring-shaped annular surface for coming into abutment under the bottom end of the ring, the present invention only deforms the bottom end of the covering member, in such a manner as to form a profile that projects inwards. The profile is thus situated in direct proximity to the bottom end, which is not true of the annular edge of the hemmed portion in the above-mentioned prior-art document. In practice, the fastener profile may be formed a few tenths of a millimeter away from the bottom end of the covering member, such that the covering member may be put into place on a fastener ring having a bottom end that is situated practically in contact with the shoulder of the receptacle.

According to another advantageous characteristic of the invention, the profile defines a catch that is directed inwards and upwards. The catch provides a catching function, coming to bite into the bottom end of the ring when an attempt is made to remove the covering member from the ring. Advantageously, the catch is sharp so as to present an edged catch that further improves the catching effect.

In a practical embodiment, the profile presents a section in the form of a tapering point that is directed inwards and upwards, and that is terminated by the catch. The profile is thus in the form of a cone having a catch that is tapered, or even sharp, and that is directed upwards and inwards in such a manner as to be suitable for easily digging into the fastener ring.

According to another advantageous characteristic of the invention, the bottom end includes a bottom annular edge that is directed downwards, the profile comprising an inner flank that connects the catch to the annular edge, and an outer flank that connects the catch to a groove bottom.

The inside wall advantageously forms a wall section that co-operates with the outer flank to form a groove having a bottom that is formed by the junction of the outer flank and the wall section.

The groove is advantageously directed upwards and inwards starting from its bottom.

The groove preferably presents a width that increases from the bottom. The groove that separates the profile from the wall section enables the plastics material constituting the ring to be received therein by creep, or when an attempt is made to remove the covering member from the ring.

While the annular edge of the hemmed portion in document EP 1 270 434 defines a ring-shaped annular surface for coming into abutment under the bottom end of the ring, the
fastener profile of the present invention defines a catch that provides better fastening by digging into the ring.  

[0015] The present invention also defines a method of manufacturing a covering member, the method comprising the following successive operations:

[0016] a. making a covering member with a bottom end that is inwardly chamfered in such a manner as to form a projecting catch that substantially extends the outside wall; and

[0017] b. pushing the catch inwards in such a manner as to bring it into the proximity of the inside wall.

[0018] The pushing operation is advantageously performed in a plurality of steps using various pusher tools.

[0019] A final tool advantageously calibrates the radial position of the catch.

[0020] In other words, the bottom end of the covering member, that was initially beveled, is folded inwards using appropriate tools, such that the catch of the bevel, that initially pointed downwards, finally points upwards. This implies that the bevel has been folded in half.

[0021] The present invention also defines a fluid dispenser comprising a receptacle, a dispenser member, such as a pump or a valve, and a fastener system for fastening the dispenser member on a fluid reservoir, the fastener system comprising a fastener ring and a covering member according to any preceding claim, the fastener profile being in engagement with the ring.

[0022] The ring advantageously presents a fastener shoulder under which the profile is engaged. The fastener shoulder of the ring may advantageously be formed by the bottom end of the skirt of the ring. However, it is also possible to provide one or more fastener shoulders over the height of the ring.

[0023] The invention is described more fully below with reference to the accompanying drawings which show an embodiment of the invention by way of non-limiting example.

[0024] In the figures:

[0025] FIG. 1 is an exploded view partially in section and partially in plan showing a dispenser device of the invention;

[0026] FIG. 2 is a very greatly enlarged view of a detail A of FIG. 1;

[0027] FIG. 3 is a view similar to the view in FIG. 1 with the covering member being mounted on the fastener ring;

[0028] FIG. 4 is a view similar to the view in FIG. 3 with the dispenser device in its final mounted state on a receptacle neck;

[0029] FIG. 5 is a larger-scale view of a detail B of FIG. 4; and

[0030] FIGS. 6a to 6j show the various steps of manufacturing a covering member by means of a manufacturing method of the invention.

[0031] In the embodiment used to illustrate the present invention, the covering member fulfils both technical and appearance functions. The covering member constitutes a member that is visible from the outside and that consequently imparts an attractive appearance. This is why the covering member is designated in the description below by a term that is frequently used in the fields of perfumery and cosmetics, namely “covering band or hoop”. The term “covering” is particularly suitable, given that the hoop covers the fastener ring, as described below. However, it is also possible to imagine that the covering member fulfils a technical function only and not an appearance function, or vice versa.

[0032] Reference is made below to the figures in order to describe in detail a non-limiting embodiment of a covering hoop of the invention. The hoop is designated overall by the numerical reference 1. The hoop can be made of plastics material, or preferably of metal. It presents a general configuration that is substantially cylindrical with a hollow inside. More precisely, the hoop comprises a cylinder 10 that is substantially cylindrical and that includes a bottom end 11 and a top end that extends inwards in the form of an inwardly-directed rim 12. The edge of the inwardly-directed rim 12 defines an opening 13 that extends through the cylinder 10. The cylinder 10 includes a visible outside wall 14 and an inside wall 15.

[0033] As can be seen more particularly in FIG. 2, the inside wall 15, at the bottom end 11, forms a fastener profile 111 that projects inwards. In this embodiment, the fastener profile 111 points inwards and upwards, and is terminated by a catch 112 that can advantageously be sharp or edged. The profile 111 presents a pointed section that is terminated by the catch 112. At its base, the profile 111 is connected to the bottom end of the hoop. More precisely, the profile 111 defines an inner flank 113 that is substantially straight, and that connects the catch 112 to the annular edge 114 that forms the bottom end zone of the hoop. The profile 111 also forms an outer flank 115 that is substantially straight, and that connects the catch 112 to the groove bottom 117. Both the flank 113 and the flank 115 are directed inwards and upwards, and they converge towards each other so as to join at the catch 112.

As a result, the inner flank 113 forms an entry chamfer that makes it easier to engage the hoop on the ring, as described below. The outer flank 115 is thus separated from the inside wall 15 by a groove 116 having a width that increases from its bottom 117. The face of the groove facing the flank 115 is formed by a section 151 of the wall 15. This wall section 151 also extends inwards and upwards from the bottom 117.

[0034] The bottom portion of the hoop thus presents a hook-shaped or barbed configuration, with the profile 111 being detached or separated from the remainder of the hoop by the groove 116. The inward and upward direction of the profile 111 further promotes the fastening or catching capacity of the profile.

[0035] In an advantageous manufacturing technique, the profile 111 can be made by pushing back material, in particular when the hoop is made of metal. In order to illustrate a non-limiting method of manufacturing a covering hoop of the invention by pushing back, reference is made below to FIGS. 6a to 6j that show various successive manufacturing steps. Initially, the hoop 1 is made with a bottom end 11a that forms an annular inner chamfer or bevel. In cross-section, as shown in FIG. 6a, the chamfer forms a projecting or sharp catch 112a that constitutes the bottom end of the hoop before the pushing operation. In this embodiment, the catch 112a extends downwards exactly in line with the outside wall 14 of the hoop. The chamfer or bevel is formed between the catch 112a and the inside wall 15 of the hoop, forming a sloping wall 115a. The wall 115a presents a frustoconical shape. It is possible to form a hoop with such a bevel or chamfer using any known technique, by removing or deforming material. The hoop can also be molded into this shape. Starting from the hoop with the chamfer or bevel, a first pusher tool 5 is used that presents a pusher surface 51 that extends in sloping manner relative to its axis of displacement, that is represented by the arrow visible in FIG. 6a. By raising the pusher tool 5 towards the hoop, the curved pusher surface 51 deforms the bottom end 11a of the hoop by moving the catch 112a inwards by plastic deformation. The work of the pusher tool 5 results in a hoop as shown
in FIG. 6b. The bottom end 11b thus presents a kind of point that is folded inwards. The end of the point is formed by a catch 112b that comes from moving the catch 112a inwards. The wall 115a has been folded in such a manner as to form a fold 117b. With this hoop, a second pusher tool 6 is used that presents a plane pusher surface 61. By moving this tool in the direction of the arrow shown in FIG. 6b, the bottom end 11b of the hoop is deformed again, moving the catch 112b even further inwards. After the work of the tool 6, the bottom end 11c of the hoop is as shown in FIG. 6c. A catch 112c now points radially inwards. The catch 112c comes from inwardly deforming the catch 112b visible in FIG. 6b. The fold 117b visible in FIG. 6b is even more marked, and now forms a slightly tighter fold 117c. The bottom edge of the hoop is now annular and flat. A final pusher tool 7 is then used that presents a pusher zone that is constituted by a plurality of surfaces that are oriented differently. A first pusher surface 71 extends in plane manner like the surface 61 of the tool 6. A second surface 72 extends inwards and upwards in sloping manner, and is extended by a third surface 73 that is vertical. By raising the tool 7 against the bottom end 11c of the hoop, the catch 112c is again deformed, now inwards, and the fold 117c is even more marked. When the tool 7 has completed its work, the bottom end 11 of the hoop is as shown in FIG. 6d. It corresponds to the bottom end in FIG. 2. The first pusher surface 71 accurately defines the annular edge 114, whereas the sloping pusher surface 72 accurately defines the flank 113 of the profile 111. The third pusher surface 73 makes it possible to calibrate accurately the inside diameter of the catch 112. The fold 117c in FIG. 6c is thus transformed into a groove bottom 117.

[0036] The above-described method of manufacture by pushing back uses three different pusher tools 5, 6, and 7. However, it is possible to perform the pushing operation using some other number of pusher tools, e.g. one, two, or even more than three. In addition, the bevel or chamfer of the initial hoop can also be formed with different shapes. It can even be provided that the wall 115a is not straight at the start. It is also possible to imagine that the catch 112a is replaced by a small plane zone. The pushing back technique is preferred, but other techniques can be used. An advantageous characteristic results from the fact that the fastener profile 111 is formed in the proximity of the annular edge 114, namely less than a millimeter from the annular edge 114, and preferably just a few tenths of a millimeter from the edge 114. This is not true of the hemming technique in document EP 1 270 434. In the present invention, this is possible since only the bottom end of the hoop is deformed, and not an entire portion of the hoop, as in the above-mentioned document. As a result of initially starting from a chamfered or beveled end, it is easier to deform the bottom end.

[0037] The covering hoop 1 is for co-operating with a fastener ring 2 that presents a configuration that is entirely conventional for the fields of perfumery and cosmetics. The ring 2 is preferably made of plastics material. The fastener ring 2 includes a skirt 20 that defines tabs 21 that are separated by vertical longitudinal slots 22. Each tab 21 internally forms fastener heads 23 that project inwards. The tabs 21 are separated by slots 22 in such a manner as to impart a certain deformation capacity to the tabs that is necessary for engaging the ring on the neck. The skirt 20 is connected at its top end to a plate 24 that extends inwards, forming a snap-fastener housing 25 having a function that is explained below. In addition, the ring 2 includes a guide wall 26 that advantageously extends upwards in alignment with the skirt 20.

[0038] A dispenser member 3, specifically a pump, is engaged in the snap-fastener housing 25 of the ring 2. The pump 3 comprises a body 31 defining at its bottom end an inlet 32, and at its top end a collar 33 that is engaged by snap-fastening inside the housing 25. The pump 3 also includes an actuation rod 34 that is displaceable downwards and upwards inside the body 3. The actuation rod 34 projects out from the body and receives an actuator head 35 that, in this embodiment, is in the form of a pushbutton. Thus, by pressing on the pushbutton 35, the actuator rod 34 is moved inside the body 31, thereby dispensing a dose of fluid. This pump is entirely conventional in the fields of pharmacy or cosmetics.

[0039] As mentioned above, the ring 2 is for fastening the pump 3 on a receptacle that, in this embodiment, is designated by the numerical reference 4. The receptacle, that is shown only in part, includes a neck 40 that defines an opening putting the inside of the receptacle into communication with the outside. The neck 40 defines an annular top end edge 41 and an outer peripheral shoulder 42. The fastener ring 2 co-operates with the neck by engaging fastener heads 23 under the shoulder 42. In order to achieve sealing, a neck gasket 27 is compressed between the top edge 41, and the plate 24 of the ring 2. In order to arrive under the shoulder 42, the heads 23 must firstly pass over the shoulder 42. This is possible due to the fact that the tabs 21 can deform radially outwards so as to pass over the shoulder 42. Once past the shoulder, the heads 23 can become housed, at least in part, under the shoulder 42. In entirely conventional manner, the covering hoop 1 is mounted on the fastener ring 2 so as to block the tabs 21 around the neck 40. To do this, the inside wall 15 of the covering hoop comes into clamping contact with the outside wall of the ring that, in this embodiment, is formed by the skirt 20 and the guide wall 26.

[0040] In FIG. 1, the hoop 1 is not yet engaged on the fastener ring. In FIG. 3, the hoop 1 is engaged on the ring, but only at the guide wall 26, the skirt 20 still being uncovered. The fastener profile 111 makes it possible to fasten the hoop 1 effectively on the ring 2 in this intermediate position that can be a pre-assembled position. The pre-assembled unit formed by the pump 3, the ring 2, and the hoop 1 can be delivered in this state to the person responsible for filling the reservoir and for fastening said unit on the neck of the reservoir. The catching function of the profile 111 ensures that the hoop can no longer be removed from the ring 2. This guarantee is not possible with the hemmed hoop in the prior-art document.

[0041] In FIG. 4, the fastener ring is in engagement with the neck 40, and the hoop 1 completely surrounds the ring 2, even at the skirt. With reference to FIG. 5, it is possible, in particular, to see that the bottom end 201 of the skirt 20 is situated at a very short distance from the shoulder 43 of the receptacle 4. However, the fastener profile 111 of the hoop can be engaged or snap-fastened under the bottom end 201, given that the profile 111 is formed in direct proximity to the bottom annular edge 114 of the hoop. It suffices that the bottom end 201 of the ring is separated from the shoulder 43 by a few tenths of a millimeter so as to enable the profile 111 to be engaged under the ring. This is not possible with the turned-up hoop in the above-mentioned prior-art document. Holding the hoop on the ring is ensured, in part, by friction between the inside wall 15 of the hoop and the outside wall of the ring at the skirt and at the guide wall 26. However, it is not possible to remove the
hoop from the ring due to the fact that the fastener profile 111 is in engagement on a ring fastener shoulder that, in this embodiment, is formed by the bottom end 201 of the skirt. The shape of the fastener profile 111 enables it to dig into the material constituting the ring when an attempt is made to remove the hoop from the ring. The more the hoop is pulled, the more the material constituting the ring penetrates into the groove 116.

[0042] A principle of the present invention is to make a fastener profile that is as close as possible to the bottom end of the hoop so as to be capable of engaging on any kind of ring, even one that is situated at a very short distance from the shoulder of the receptacle.

1. A covering member for mounting on a fastener ring, the ring and the covering member co-operating with each other to form a fastener system for fastening a dispenser member, such as a pump or a valve, on a receptacle neck, the covering member presenting a general configuration that is substantially cylindrical, and comprising a top end, a bottom end, an outside wall, and an inside wall for coming into clamping contact around the ring, the inside wall, at the bottom end, forming a fastener profile that projects inwards, the covering member being characterized in that said profile defines a sharp catch that is directed inwards and upwards, the profile being formed in direct proximity to the bottom end of the covering member so as to be able to engage said covering member under a fastener ring having a bottom end that comes practically into contact with the receptacle.

2. A covering member according to claim 1, in which the profile presents a section in the form of a tapering point that is directed inwards and upwards and that is terminated by the catch.

3. A covering member according to claim 1, the bottom end includes a bottom annular edge that is directed downwards, the profile comprising an inner flank that connects the catch to the annular edge, and an outer flank that connects the catch to a groove bottom.

4. A covering member according to claim 3, in which the inside wall forms a wall section that co-operates with the outer flank to form a groove having a bottom that is formed by the junction of the outer flank and the wall section.

5. A covering member according to claim 4, in which the groove is directed upwards and inwards starting from its bottom.

6. A covering member according to claim 4, in which the groove presents a width that increases from the bottom.

7. A method of manufacturing a covering member according to claim 1, the method comprising the following successive operations:

   a. making a covering member with a bottom end that is inwardly chamfered in such a manner as to form a projecting catch that substantially extends the outside wall; and

   b. pushing the projecting catch inwards in such a manner as to bring it into the proximity of the inside wall.

8. A method of manufacturing a covering member according to claim 7, in which the pushing operation is performed in a plurality of steps using various pusher tools.

9. A method of manufacturing a covering member according to claim 7, in which a final tool calibrates the radial position of the catch.

10. A fluid dispenser comprising a receptacle, a dispenser member, such as a pump or a valve, and a fastener system for fastening the dispenser member on a fluid reservoir, the fastener system comprising a fastener ring and a covering member according to claim 1, the fastener profile being in engagement with the ring.

11. A fluid dispenser device according to claim 10, in which the ring presents a fastener shoulder under which the profile is engaged.

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