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(54) **Safety arrangement for fluid dispenser**

(57) The present invention is related to a device comprising a body (1,2) and a rotatable portion (3) arranged in connection to said body, characterized in that said device further comprises a safety arrangement (4), comprising a safety portion (9) arranged in connection to said rotatable portion (3), and a blocking means (8) arranged in connection with the body, for blocking a rotational movement of said safety portion (9), and consequently of said rotatable portion (3) and wherein the safety portion (9) is arranged to be releasable from said blocked position by a tilting movement of said safety portion (9). In the preferred embodiment, said device is a spraying device, and said rotatable portion (3) is the spray head of said spraying device.

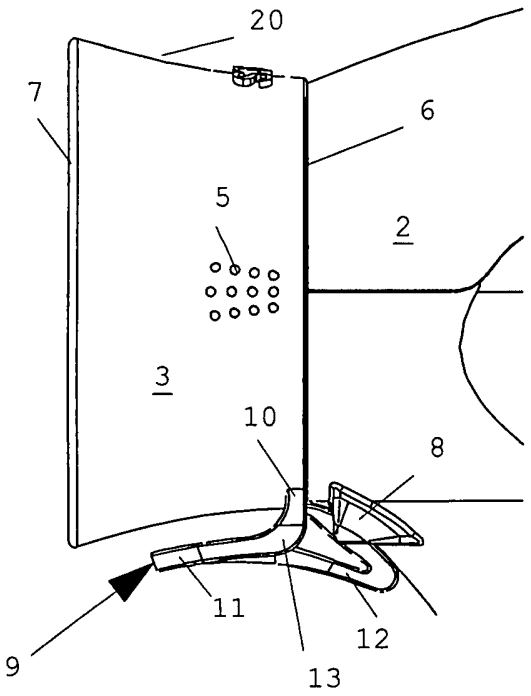

FIG.2a

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Description

Field of the Invention

[0001] The present invention is related to safety arrangements for devices comprising a rotatable portion. In particular, the invention is related to sprayers, in particular sprayers for distributing pesticides and the like.

State of the Art

[0002] Sprayers of the type described above are known in the art. It is equally known to produce such sprayers with a rotatable spray head, which can thus be turned into a closed and an open position. Especially when hazardous liquids are contained within these sprayers, there is a risk of accidents due to insufficient safety arrangements on these rotatable spray heads. In particular in the area of child safety provisions, existing spray heads of this type, as well as other rotatable portions in other types of devices, are open to improvement.

Aims of the Invention

[0003] The present invention aims to provide a device, equipped with a rotatable portion, and provided with a safety arrangement. In particular, the invention aims to provide a spraying device.

Summary of the Invention

[0004] The invention is related to devices as disclosed in the appended claims. It concerns a device comprising a body and a rotatable portion arranged in connection to said body, characterized in that said device further comprises a safety arrangement, comprising a safety portion arranged in connection to said rotatable portion, and a blocking means arranged in connection with the body, for blocking a rotational movement of said safety portion in the 'safe' position of the arrangement, and consequently of said rotatable portion. The safety portion is arranged to be releasable from said blocked position by a tilting movement of said safety portion.

[0005] According to the preferred embodiment, the blocking means comprises a pair of protrusions, with a space in between said protrusions, and wherein said safety portion comprises a frontal lip portion and a rear lip portion, arranged so that said rear lip portion is secured in the space between said protrusions in the safe condition of the arrangement, and further arranged so that said rear lip portion is released from said space by a tilting movement of the safety portion, said movement being actuated by pushing the frontal lip portion towards the side surface of the rotatable body. The safety portion is preferably made from an elastic material.

[0006] The preferred embodiment of this device is a spraying device whereing the rotatable portion is the rotatable spray head. The invention is related to the rotatable portion as such, provided with a safety arrangement according to the invention, and to the spray head as such, provided with said safety arrangement. The invention is equally related to a spray head provided with a wall surrounding the spray mouth of said spray head.

Brief Description of the Drawings

[0007] Fig. 1 is representing a side view of the frontal part of a spraying device according to the invention.

[0008] Fig. 2 provides a detail 2-D view of the safety arrangement according to the invention, and of its operation.

[0009] Fig. 3 provides a detail 3-D view of the safety arrangement and of its operation.

Detailed Description of a preferred embodiment the Invention

[0010] Figure 1 shows the front part of a spraying device, comprising a sprayer body, which may consist of a bottle portion 1, and a top portion 2, in which top portion a pumping arrangement is preferably provided. A sprayer of this type may further comprise a trigger/spring arrangement for actuating the pump, or a battery-operated trigger arrangement. The pump and trigger arrangement of the sprayer can be produced according to a prior art design. The characteristic element of the invention is the safety arrangement 4 with which the spraying device is provided.

[0011] Figures 2a,b,c show the spray head in more detail. It is a rotatable spray head, movable from a 'closed' to an 'open' position, thereby respectively blocking or allowing the passage of liquid through the head. Protruding elements such as bulbs 5 or the like may be present on the side of the head, to indicate the type of spray action obtained by a particular position of the head. Other protrusions may be present to facilitate the grip on the spray head. The spray head comprises a bottom section 6, arranged in contact with the sprayer's top part 2, and a frontal secion 7. The spray head shown in the figure has side wall 20 surrounding the actual spray mouth (better visible on figure 3). The user is thereby prevented from touching the spray mouth directly when he is rotating the spray head. The side wall thus offers additional safety against contact with hazardous liquids. The invention is also related to a spray head with such a side wall and to a spraying device equipped with such a spray head (without the safety arrangement).

[0012] The safety arrangement comprises a blocking means in the form of two protruding portions 8, which are attached to the top portion 2 of the sprayer, in the vicinity of the bottom section 6 of the spray head, preferably at the lowest point of that section, as shown in the drawing. Preferably, these protruding elements 8 are of the same material as the spayer's top part. In the preferred embodiment, these protrusions are uniform with the sprayer's top part, i.e. formed as one single part with this

top part of the sprayer.

[0013] As a further element of the safety arrangement, the spray head 3 is equipped with a safety portion 9 attached to the spray head near the head's bottom section 6 in attachment point 10. The safety portion 9 comprises a frontal lip portion 11, and a rear lip portion 12. Figure 2a shows the arrangement in the closed (safe) condition. From the attachment point 10, the frontal lip portion 11 extends away from the spray head in an essentially perpendicular direction, is subsequently bent at point 13, and continues to extend at a distance from the spray head's side surface. Preferably, the frontal lip portion 11 extends in an essentially parallel direction to the spray head. The rear lip portion 12 is attached to the frontal lip portion 11 at the latter portion's backside (facing away from the spray head), and extends towards the opposite part of the spray head's bottom section 6. As seen in figure 2, this rear lip portion 12 is secured between the protrusions 8, thereby blocking the rotation of the spray head 3.

[0014] As shown in figure 2b, the release of the safety arrangement is actuated by pushing the frontal lip portion 11 towards the spray head's side surface, thereby tilting the safety portion 9, whereby the rear lip portion 12 is lifted out of the space between the protrusions 8, and rotation of the spray head is possible.

[0015] Figure 3 provides a 3-D view of the above described operation. Fig. 3a shows the locked (safe) position, and fig. 3b the unlocked position, obtained by pressing the frontal lip portion 11 and rotating the spray head in the direction of the arrow.

[0016] The frontal and rear lip portion preferably form one uniform element 9, produced from a suitable material, preferably polypropylene. According to the preferred embodiment, an elastic material is used, exhibiting the right elastic properties. These properties, in conjuction with the manner of connecting the safety portion in point 10, must be such that a sufficiently high pressure is required in order to release the safety, so that this operation cannot be actuated by small children. Upon release of the safety, the elasticity must be such that the safety portion quickly returns to its original position. The protrusions 8 preferably have a sloping shape with the larger height near the space in which the safety portion 9 is secured in the safe position. In this way, the spray head may be rotated towards the safe position, and the elastic safety portion 9 will automatically click into the space between the protrusions 8, without requiring the user to manually lift up the rear lip portion.

[0017] Alternatively, a non-elastic material may be used, in which case the safety portion 9 will not automatically return to its original position, but must be manually pushed back to said position. In this case, the attachment at point 10 must be executed in a suitable way, allowing the tilting movement of the safety portion 9, by applying a sufficiently high pressure on the frontal lip.

[0018] Alternatives to the above described preferred embodiment and which fall within the scope of the appended claims, are defined by other specific shapes or orientations of the frontal and rear lip portion, and/or of the protrusions 8. Alternatively to the protrusions 8, a hole or groove may be provided in the surface of the sprayer body, and the safety portion may be secured in that hole or groove. The invention is not only related to spraying devices, but to any device wherein a rotatable portion is arranged in connection with the body of the device.

[0019] It is clear that this arrangement provides an effective safety which is easily released by adult users, but impossible to open by small children.

Claims

1. A device comprising a body (1,2) and a rotatable portion (3) arranged in connection to said body, **characterized in that** said device further comprises a safety arrangement (4), comprising a safety portion (9) arranged in connection to said rotatable portion (3), and a blocking means (8) arranged in connection with the body, for blocking a rotational movement of said safety portion (9), and consequently of said rotatable portion (3) and wherein the safety portion (9) is arranged to be releasable from said blocked position by a tilting movement of said safety portion (9).

2. The device according to claim 1, wherein said blocking means comprises a pair of protrusions (8), with a space in between said protrusions, and wherein said safety portion (9) comprises a frontal lip portion (11) and a rear lip portion (12), arranged so that - in the locked (safe) condition of the arrangement - said rear lip portion (12) is secured in the space between said protrusions, and further arranged so that said rear lip portion (12) is releasable from said space by a tilting movement of the safety portion (9), said movement being actuated by pushing the frontal lip portion (11) towards the side surface of the rotatable portion (3).

3. The device according to claim 1 or 2, wherein said safety portion (9) is produced from an elastic material.

4. The device according to claim 3, wherein said safety portion (9) is produced from polypropylene.

5. The device according to claim 2, wherein said protrusions have a sloping shape.

6. A device according to any one of claims 1 to 5, wherein said device is a spraying device, and said rotatable portion is the spray head (3) arranged in connection with said spraying device.

7. A rotatable portion (3) to be arranged in rotatable

connection to the body of a device, said rotatable portion being provided with a safety portion (9), as described in any of the preceding claims 1 to 5.

8. A rotatable portion according to claim 7, wherein said rotatable portion is a rotatable spray head (3).

9. A spray head provided with a spray mouth, and **characterized in that** said head further comprises a side wall (20) surrounding said spray mouth.

10. The spray head (3) according to claim 9, wherein said spray head further comprises a safety portion (9), as described in any one of claims 1 to 5.

FIG. 1

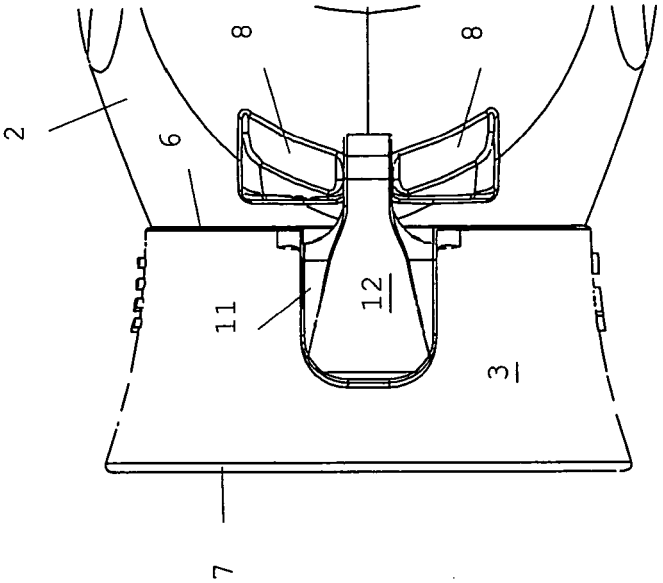

FIG. 2c

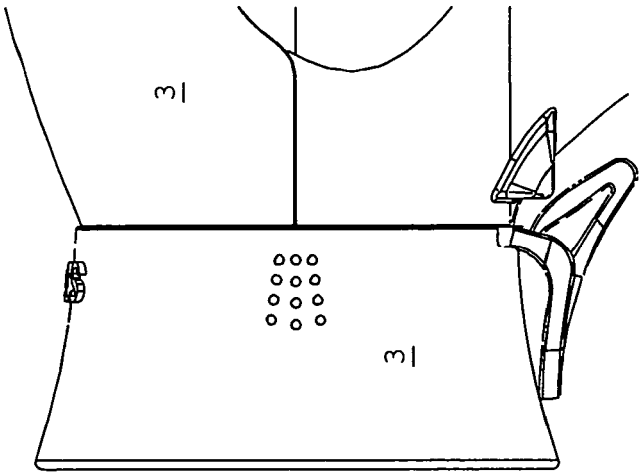

FIG. 2b

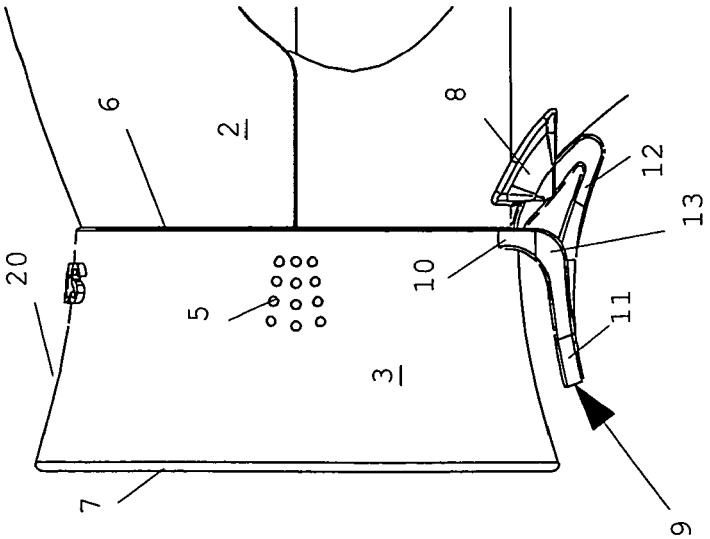

FIG.2a

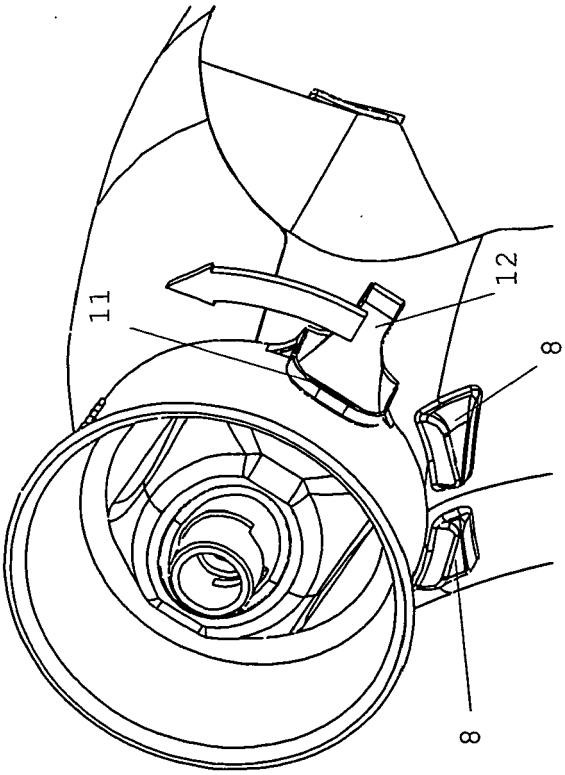

FIG. 3b

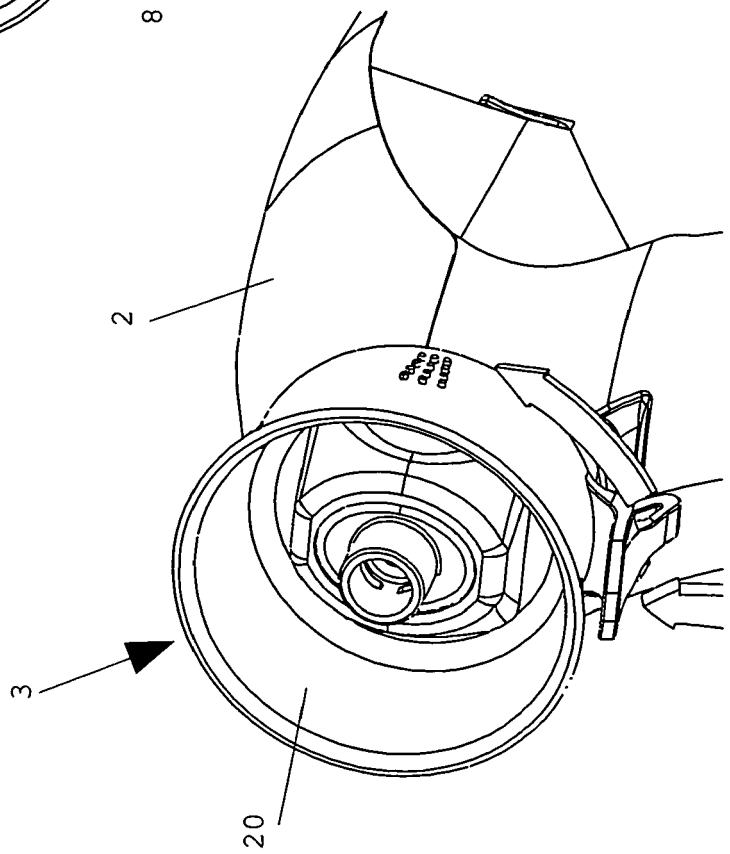

FIG. 3a

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EUROPEAN SEARCH REPORT

Application Number
EP 06 44 7056

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 5 848 733 A (FOSTER ET AL) 15 December 1998 (1998-12-15) * column 2, line 45 - column 4, line 11 * * figure 1 * -----	1,2,6-10	INV. B05B11/00
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TECHNICAL FIELDS SEARCHED (IPC)

B05B
B65B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	1 August 2006	Gineste, B

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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