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(54) **CAPPING APPARATUS FOR BEVERAGE CONTAINER**

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(57) **ABSTRACT**

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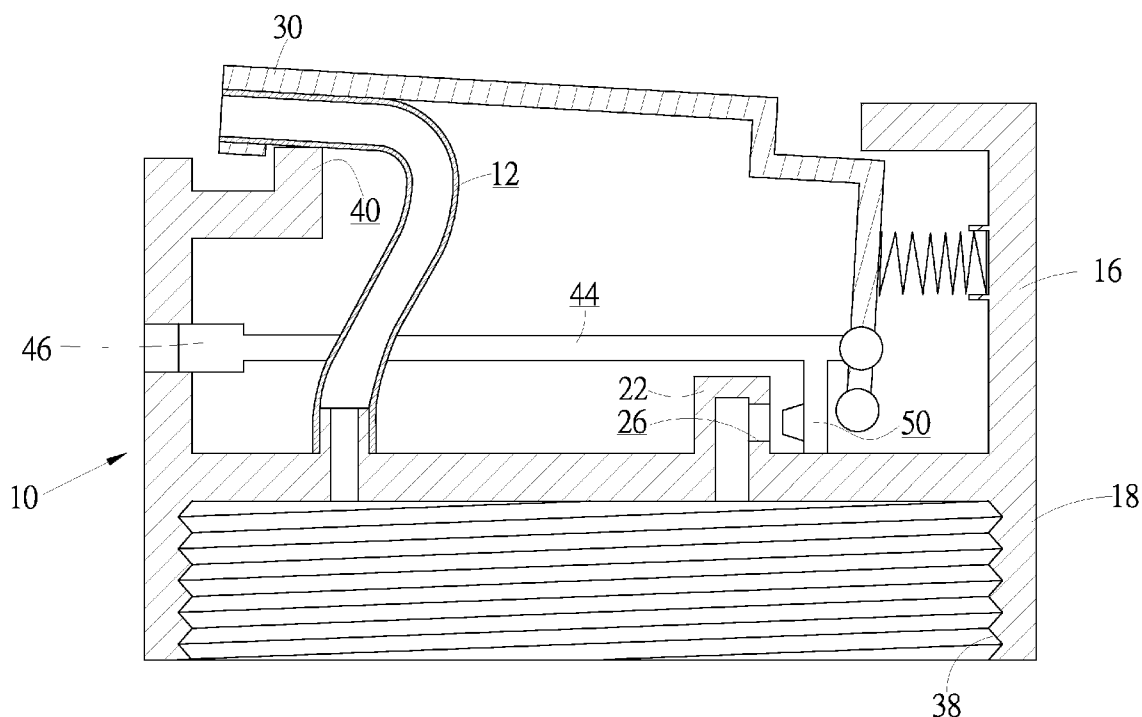
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A capping apparatus includes a cap, a guiding element, an elastic tube and a switch. The cap is made with an aperture. The guiding element is pivotally connected to the cap between a lowered position and a lifted position. The elastic tube is formed with an end inserted in the guiding element and another end connected to the cap so that a space in the elastic tube is in communication with the aperture of the cap. The switch is movably connected to the cap and operable to allow the movement of the guiding element into the lifted position from the lowered position.

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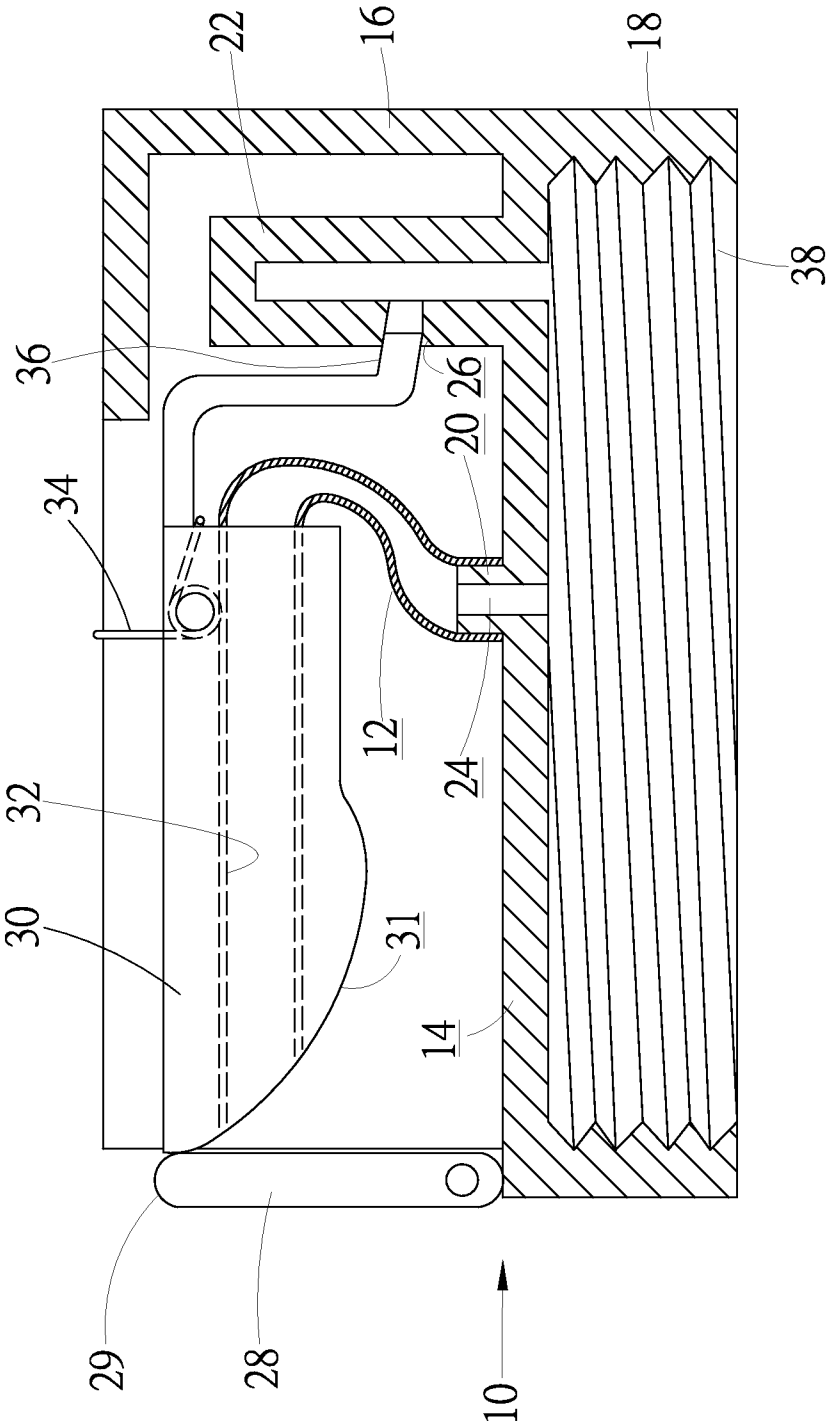


FIG.1

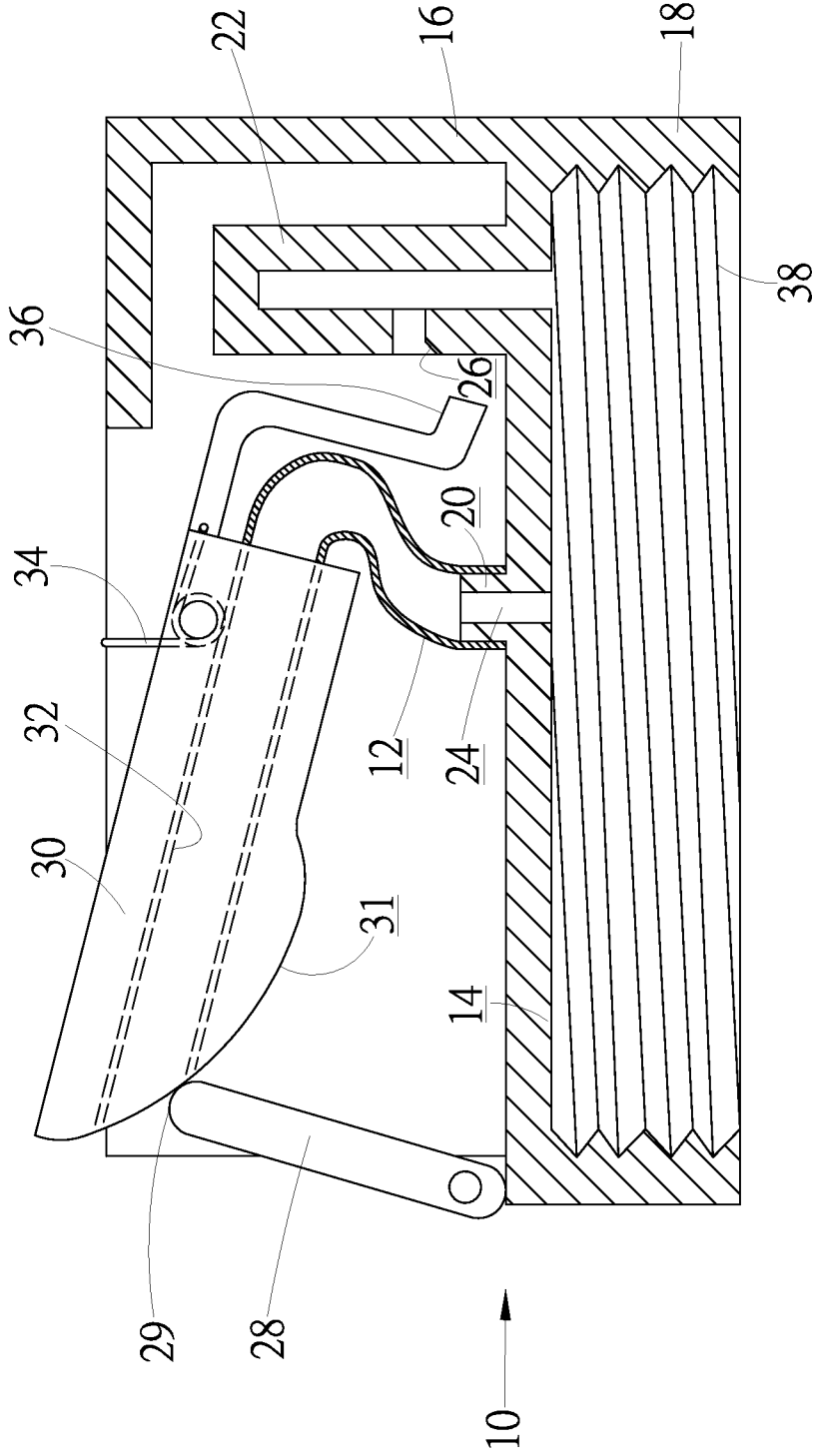


FIG.2

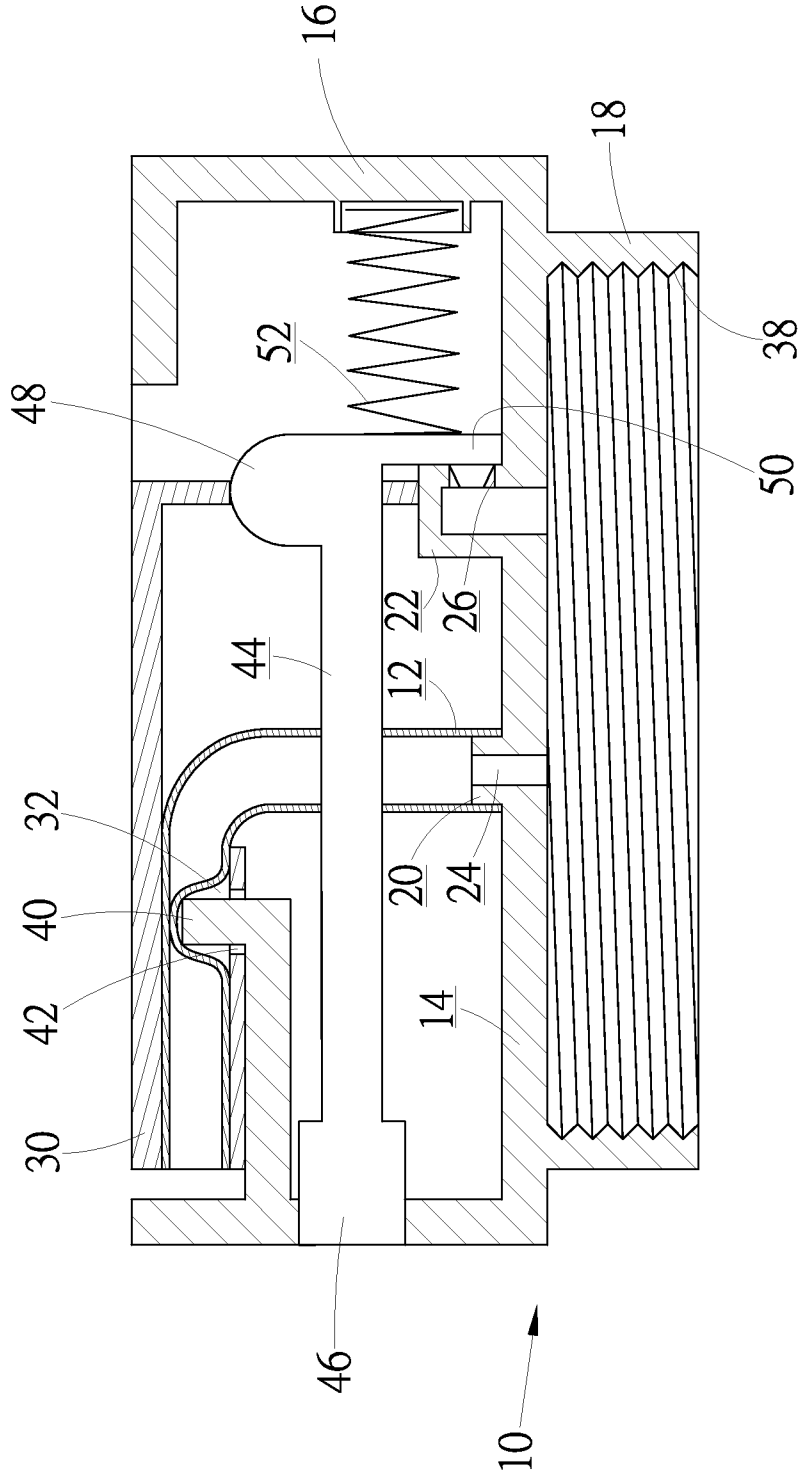


FIG.3

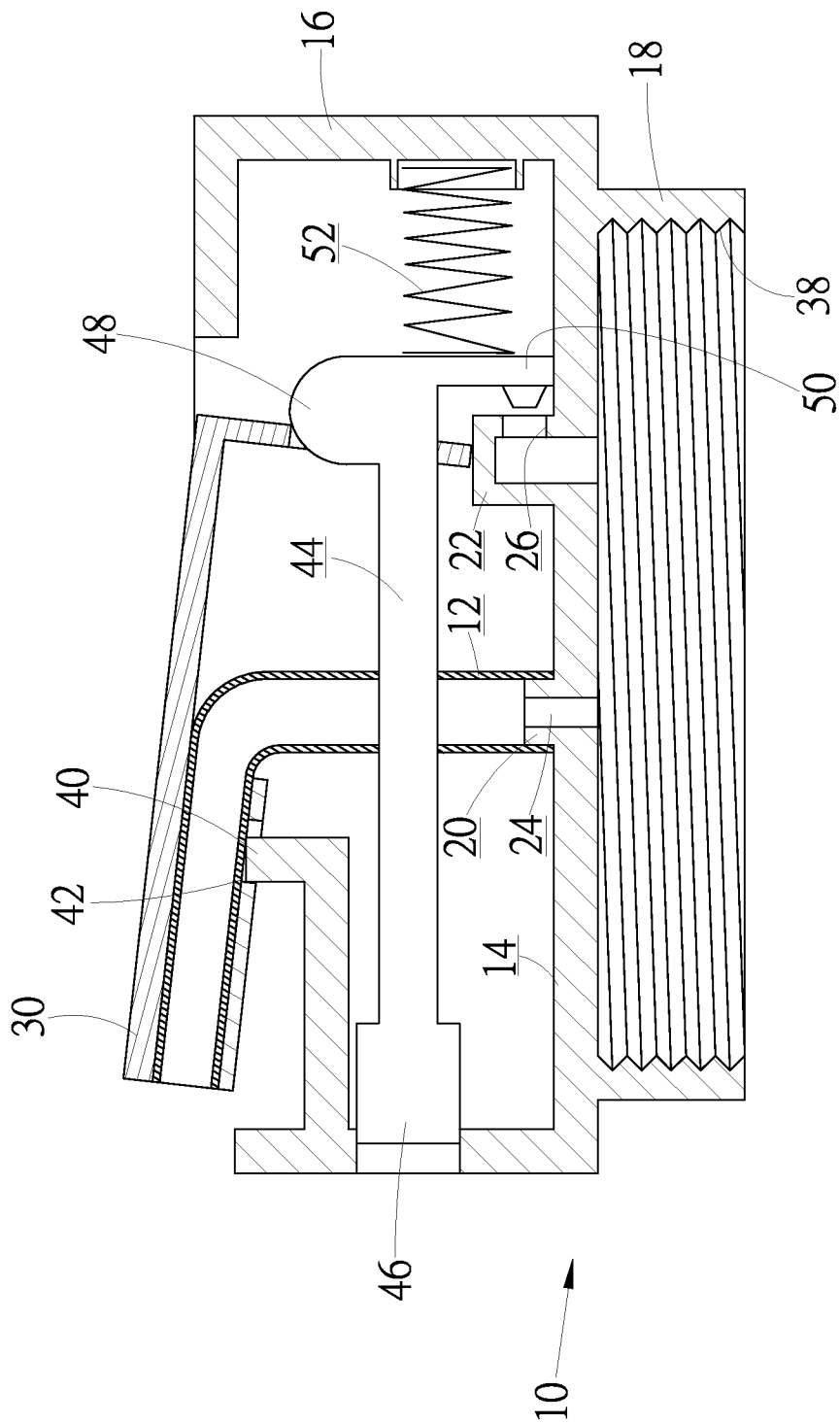


FIG.4

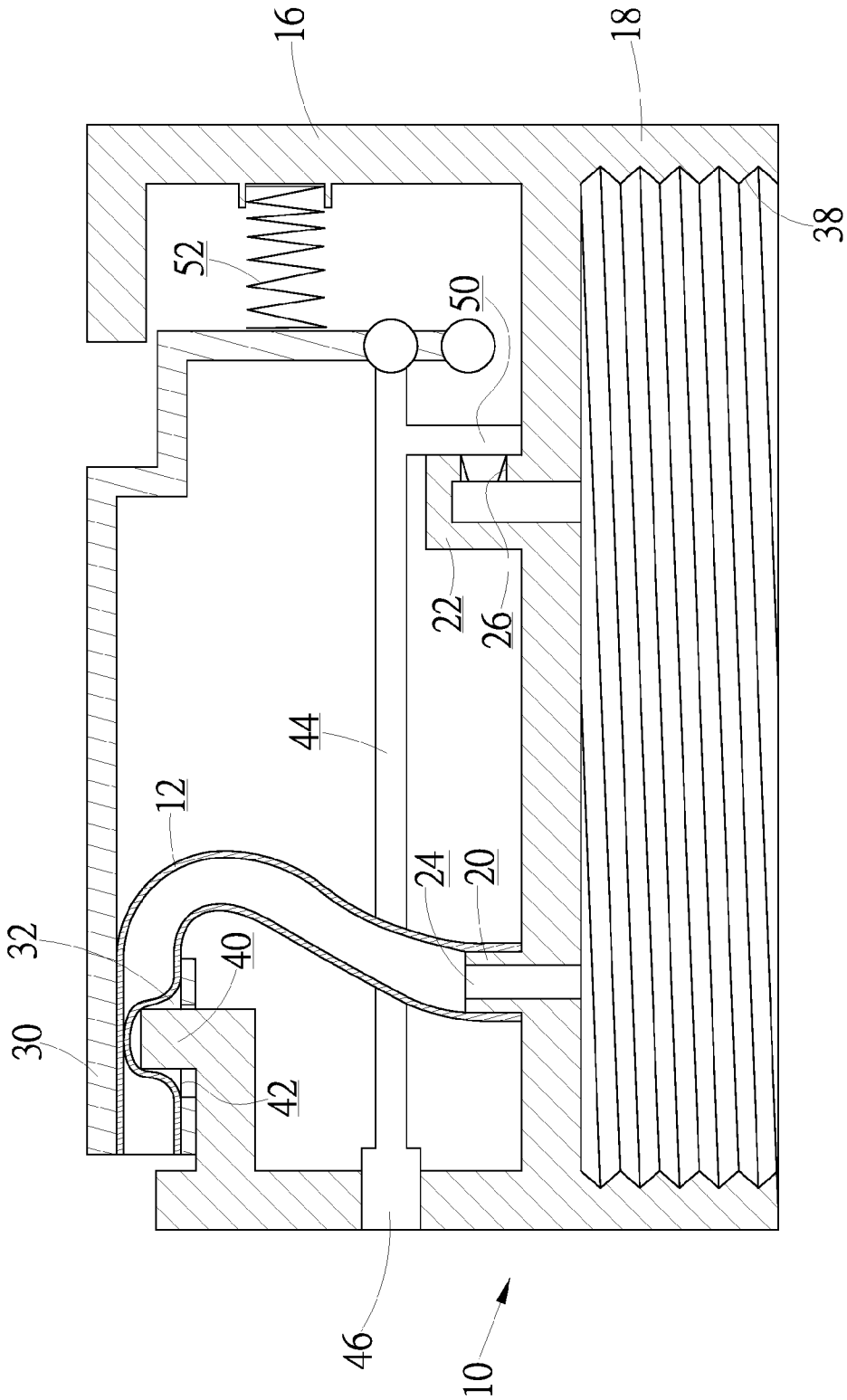


FIG.5

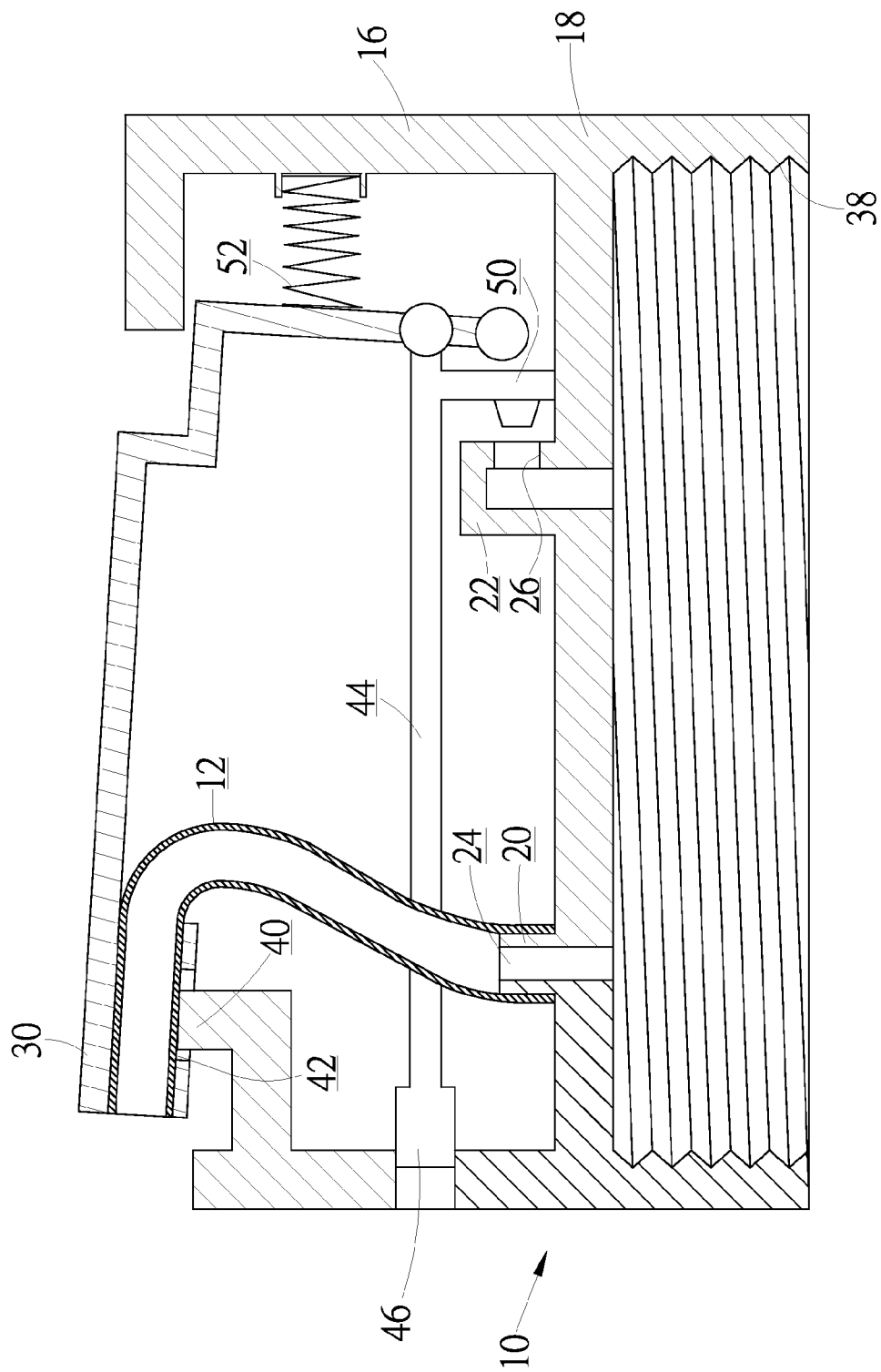


FIG.6

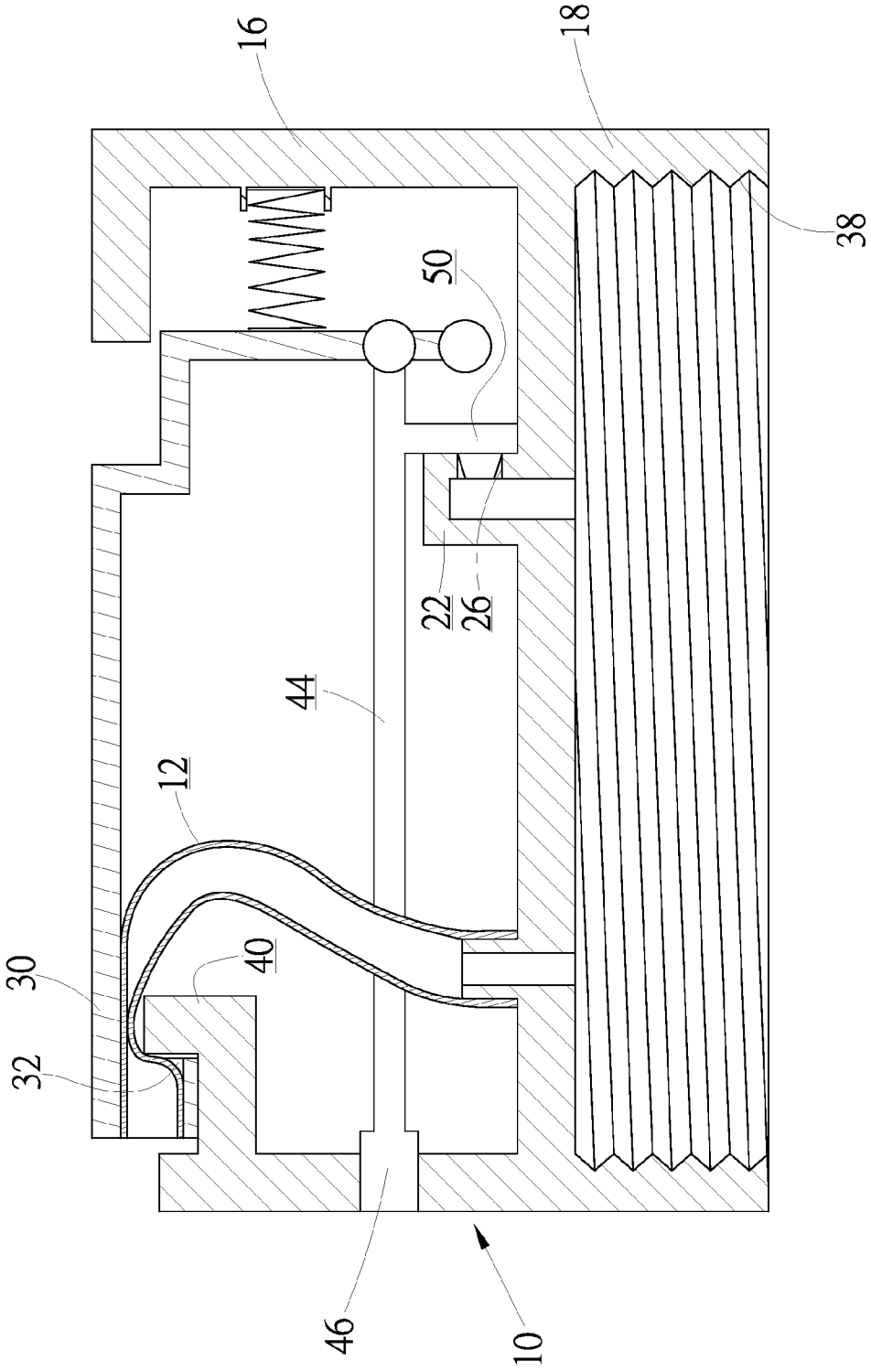


FIG.7



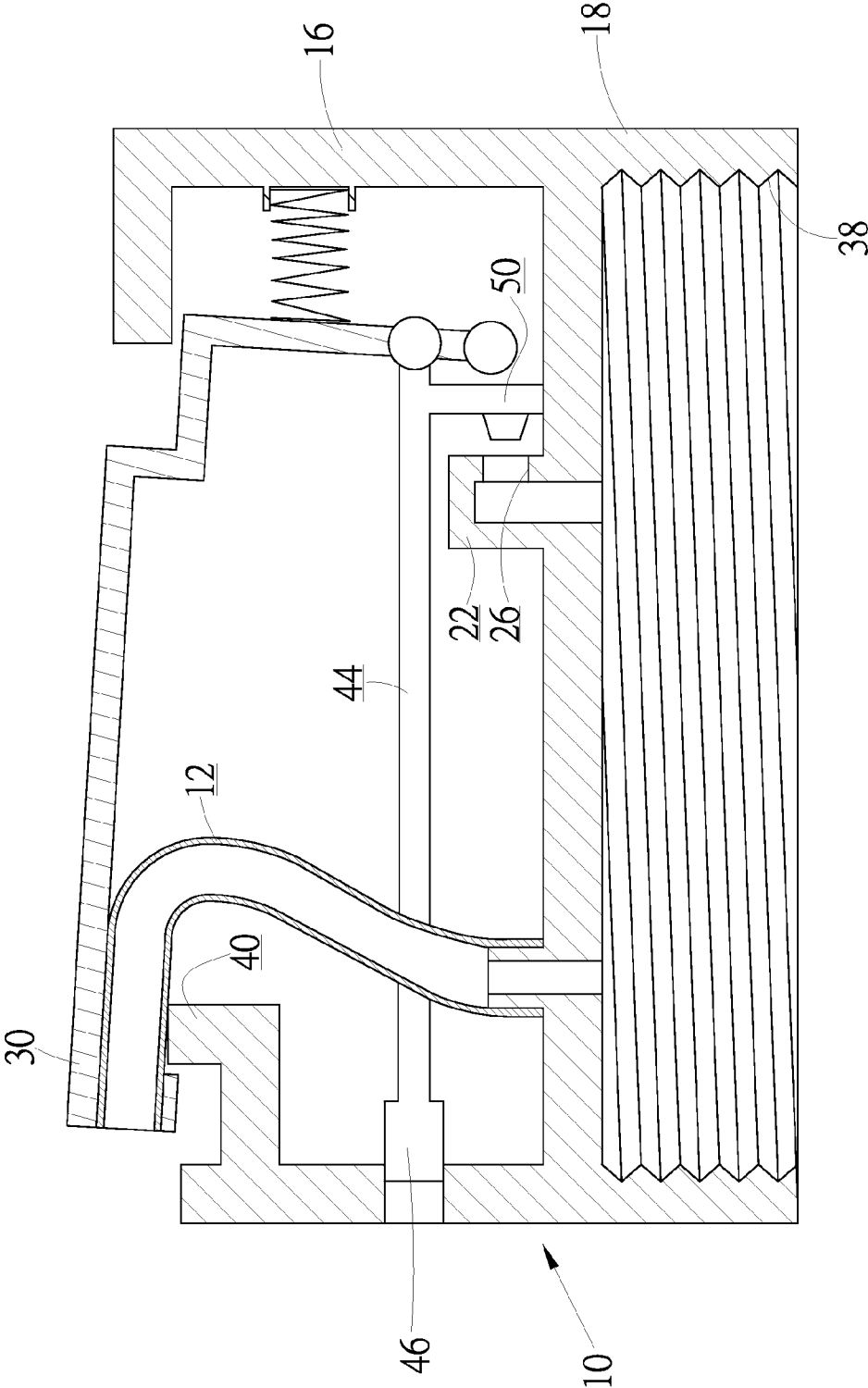


FIG.8

## CAPPING APPARATUS FOR BEVERAGE CONTAINER

### BACKGROUND OF INVENTION

**[0001]** 1. Field of Invention

**[0002]** The present invention relates to a beverage container such as a bottle and a cup and, more particularly, to a capping apparatus for a beverage container.

**[0003]** 2. Related Prior Art

**[0004]** There are various capping apparatuses for bottles or cups. A type of the capping apparatuses includes a ring and a cover pivotally connected to the ring. The ring is adapted for connection to a bottle or a cup via threads. The cover can be pivoted between a lowered position and a lifted position. In the lifted position, the capping apparatus allows a user to drink beverage from the bottle or the cup via the ring. The beverage however may rush into the user's throat and hence choke the user.

**[0005]** Therefore, the present invention is intended to obviate or at least alleviate the problems encountered in prior art.

### SUMMARY OF INVENTION

**[0006]** It is the primary objective of the present invention to provide a beverage container with a capping apparatus that enables a user to drink from the cup smoothly.

**[0007]** To achieve the foregoing objective, the capping apparatus includes a cap, a guiding element, an elastic tube and a switch. The cap includes an aperture. The guiding element is pivotally connected to the cap between a lowered position and a lifted position. The elastic tube is formed with an end connected to the guiding element and another end in communication with the aperture. The switch is movably connected to the cap and operable to allow the guiding element to move between the lifted position and the lowered position.

**[0008]** Other objectives, advantages and features of the present invention will be apparent from the following description referring to the attached drawings.

### BRIEF DESCRIPTION OF DRAWINGS

**[0009]** The present invention will be described via detailed illustration of four embodiments referring to the drawings wherein:

**[0010]** FIG. 1 is a cross-sectional view of a capping apparatus according to the first embodiment of the present invention;

**[0011]** FIG. 2 is a cross-sectional view of the capping apparatus in another position than shown in FIG. 1;

**[0012]** FIG. 3 is a cross-sectional view of a capping apparatus according to the second embodiment of the present invention;

**[0013]** FIG. 4 is a cross-sectional view of the capping apparatus in another position than shown in FIG. 3;

**[0014]** FIG. 5 is a cross-sectional view of a capping apparatus according to the third embodiment of the present invention;

**[0015]** FIG. 6 is a cross-sectional view of the capping apparatus in another position than shown in FIG. 5;

**[0016]** FIG. 7 is a cross-sectional view of a capping apparatus according to the fourth embodiment of the present invention; and

**[0017]** FIG. 8 is a cross-sectional view of the capping apparatus in another position than shown in FIG. 7.

### DETAILED DESCRIPTION OF EMBODIMENTS

**[0018]** Referring to FIGS. 1 and 2, there is a capping apparatus according to a first embodiment of the present invention. The capping apparatus includes a cap 10 and an elastic tube 12. The cap 10 includes a disc 14, an upper rim 16 and a lower rim 18.

**[0019]** The upper rim 16 extends from an upper face of the disc 14. The lower rim 18 extends from a lower face of the disc 14.

**[0020]** The disc 14 includes a tubular stem 20 and a convex portion 22, both extending from the upper face of the disc 14. The tubular stem 20 includes an aperture 24 through which a space above the disc 14 is in communication of liquid with a space below the disc 14. The convex portion 22 is made with a vent 26 via which the space above the disc 14 is in communication of air with the space below the disc 14.

**[0021]** The upper rim 16 includes a cutout (not numbered) made in a portion thereof far from the convex portion 22. A switch 28 is located in the cutout. A switch 28 is connected to the upper rim 16 so that the switch 28 can be pivoted between a vertical position and a tilted position. The switch 28 is normally located in the vertical position. The switch 28 includes a rounded upper end 29.

**[0022]** A guiding element 30 is connected to the upper rim 16 so that the guiding element 30 can be pivoted between a lowered position and a lifted position. The guiding element 30 is biased into the lowered position by a torque spring 34. The guiding element 30 is formed with an arched lower face 31 in contact with the switch 28. The guiding element 30 is located between the convex portion 22 and the switch 28. The guiding element 30 is made with a channel 32.

**[0023]** An end of the elastic tube 12 is located around and connected to the tubular stem 20. Another end of the elastic tube 12 is inserted in the channel 32. The elastic tube 12 can be pivoted between a lowered position and a lifted position together with the guiding element 30.

**[0024]** A blocking element 36 extends from the guiding element 30. The blocking element 36 is a plug made with a tip corresponding to the vent 26.

**[0025]** The lower rim 18 includes a thread 38 extending on an internal face thereof. The thread 38 is used for engagement with a thread formed on a cup (not shown). Thus, the capping apparatus is connected to the cup.

**[0026]** Referring to FIG. 1, the guiding element 30 is biased into the lowered position by the torque spring 34. The switch 28 is located in the vertical position. The tip of the blocking element 36 is inserted in and blocks the vent 26 so that air cannot enter the cup via the vent 26. A vacuum would be produced in the cup if liquid should go out of the cup via the aperture 24 because the aperture 24, which is small, would be blocked by the liquid and not allow air to go through it. Such vacuum stops the liquid from leaving the cup.

**[0027]** Referring to FIG. 2, the switch 28 is pivoted into the tilted position. The rounded upper end 29 of the switch 28 smoothly slides on the arched lower face 31 of the guiding element 30 so that the switch 28 pushes and hence pivots the guiding element 30 upwards into the lifted position. The tip of the blocking element 36 is moved out of the vent 26 to allow air to enter the cup via the vent 26. No vacuum is produced in the cup when the liquid goes out of the cup via the aperture 24 because air is allowed to enter the cup via the vent 26. There is no vacuum to stop the liquid from leaving the cup.

**[0028]** Referring to FIGS. 3 and 4, there is a capping apparatus according to a second embodiment of the present inven-

tion. The second embodiment is identical to the first embodiment except several things. Firstly, there is a pressing element 40 extending from the upper rim 16. The pressing element 40 is made with a tip. Secondly, the guiding element 30 is made with an aperture 42 in communication with the channel 32. Secondly, a switch 44 is used instead of the switch 28. The switch 44 is movable between two positions. The switch 44 is an elongated element that includes a button 46 formed at an end thereof and a hunch 48 formed at an opposite end thereof. The hunch 48 includes a peak. Thirdly, a blocking element 50 is used instead of the blocking element 36. The blocking element 50 is a tab instead of a plug. The blocking element 50 extends from the hunch 48. Fourthly, a compression spring 52 is used instead of the torque spring 34. The compression spring 52 is compressed between the upper rim 16 and the hunch 48 or the blocking element 50.

[0029] Referring to FIG. 3, the switch 44 is biased into the first position by the compression spring 52. The guiding element 30 is kept in the lowered position by the peak of the hunch 48. The elastic tube 12 is pressed and hence blocked by the tip of the pressing element 40, which is inserted into the channel 32 through the aperture 42. The vent 26 is blocked by the blocking element 50. The liquid is prevented from leaving the cup.

[0030] Referring to FIG. 4, the button 46 is pushed to move the switch 44 into the second position. The compression spring 52 is further loaded. The peak of the hunch 48 is moved from the guiding element 30 to allow the elastic tube 12 to extend to move the guiding element 30 into the lifted position. Because of the inherent elasticity, the elastic tube 12 stretches and moves itself from the tip of the pushing element 40, i.e., the elastic tube 12 is not blocked. The blocking element 50 is moved from the convex portion 22. That is, the vent 26 is not blocked by the blocking element 50. The liquid is allowed to go out of the cup.

[0031] Referring to FIGS. 5 and 6, there is a capping apparatus according to a third embodiment of the present invention. The third embodiment is identical to the second embodiment except several things. Firstly, the switch 44 is pivotally connected to the guiding element 30. Secondly, the compression spring 52 is compressed between the upper rim 16 and the guiding element 30 instead of the switch 44. The guiding element 30 is directly biased into the lowered position by the compression spring 52. Hence, there is no need for any hunch on the switch 44.

[0032] Referring to FIG. 5, the guiding element 30 is directly biased into the lowered position by the compression spring 52. The switch 44 is biased into the first position by the guiding element 30. The elastic tube 12 is pressed and thus blocked by the tip of the pushing element 40, which is inserted into the channel 32 via the aperture 42. The vent 26 is blocked by the blocking element 50. The liquid is prevented from leaving the cup.

[0033] Referring to FIG. 6, the button 46 is pushed to move the switch 44 into the second position. The compression spring 52 is further loaded. The guiding element 30 is pivoted into the lifted position by the switch 44. The elastic tube 12 is moved from the tip of the pushing element 40. That is, the elastic tube 12 is not blocked. The blocking element 50 is moved from the convex portion 22. That is, the vent 26 is not blocked by the blocking element 50. The liquid is allowed to go out of the cup.

[0034] Referring to FIGS. 7 and 8, there is a capping apparatus according to a fourth embodiment of the present inven-

tion. The fourth embodiment is identical to the third embodiment except that the pressing element 40 is in contact with elastic tube 12 without having to extend through any aperture made in the guiding element 30.

[0035] The present invention has been described via the detailed illustration of the embodiments. Those skilled in the art can derive variations from the embodiments without departing from the scope of the present invention. Therefore, the embodiments shall not limit the scope of the present invention defined in the claims.

1. A capping apparatus comprising:
  - a cap including an aperture therein;
  - a guiding element pivotally connected to the cap between a lowered position and a lifted position;
  - an elastic tube comprising an end connected to the guiding element and another end in communication with the aperture; and
  - a switch movably connected to the cap and operable to allow the guiding element to move between the lifted position and the lowered position.
2. The capping apparatus according to claim 1, wherein the cap further comprises a vent.
3. The capping apparatus according to claim 2, including a blocking element for blocking the vent when the guiding element is in the lowered position.
4. The capping apparatus according to claim 3, wherein the blocking element and the guiding element are made in one piece.
5. The capping apparatus according to claim 1, wherein the guiding element includes an arched face, wherein the switch includes an end that slides on the arched face of the guiding element to move the guiding element into the lifted position from the lowered position.
6. The capping apparatus according to claim 1, including a spring that forces the guiding element into the lowered position.
7. The capping apparatus according to claim 6, wherein the spring is a torque spring including an end connected to the cap and another end connected to the guiding element.
8. The capping apparatus according to claim 1, wherein the switch is pivotally connected to the cap.
9. The capping apparatus according to claim 1, wherein the switch is rectilinearly movable connected to the cap.
10. The capping apparatus according to claim 9, wherein the switch includes a button operable to move the switch from a first position into a second position, wherein the guiding element is in the lowered position as the switch is in the first position, wherein the guiding element is in the lifted position as the switch is in the second position.
11. The capping apparatus according to claim 10, including a spring compressed between the switch and the cap.
12. The capping apparatus according to claim 11, wherein the switch includes a hunch in contact with the guiding element.
13. The capping apparatus according to claim 12, wherein the elastic tube stretches into the lifted position due to inherent elasticity.
14. The capping apparatus according to claim 10, including a spring compressed between the guiding element and the cap.
15. The capping apparatus according to claim 9, wherein the switch is pivotally connected to the guiding element.

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