Sept. 17, 1940. W. S. FREEMAN 2,215,392

STOPPER FOR CARBOYS, BOTTLES, CANS, AND LIKE CONTAINERS

Filed June 26, 1939

Fig.3.

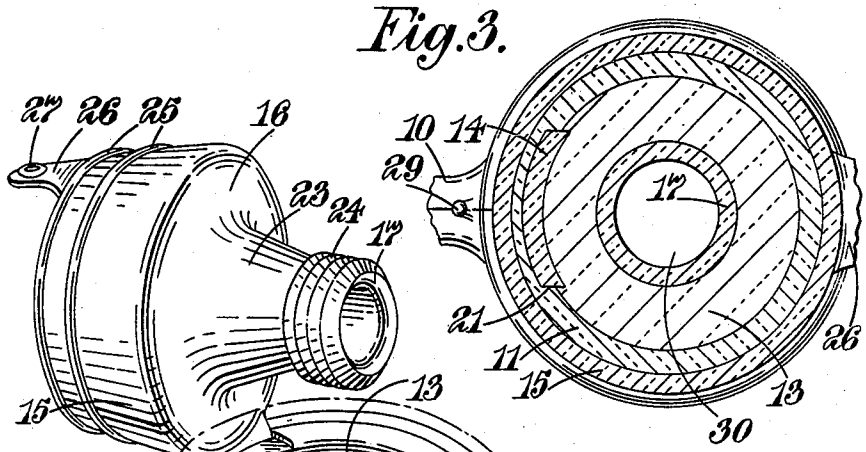


Fig.1.

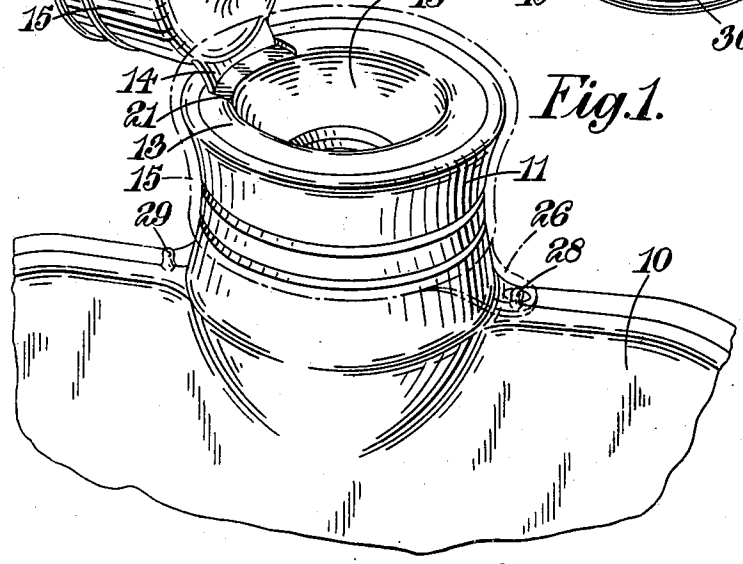
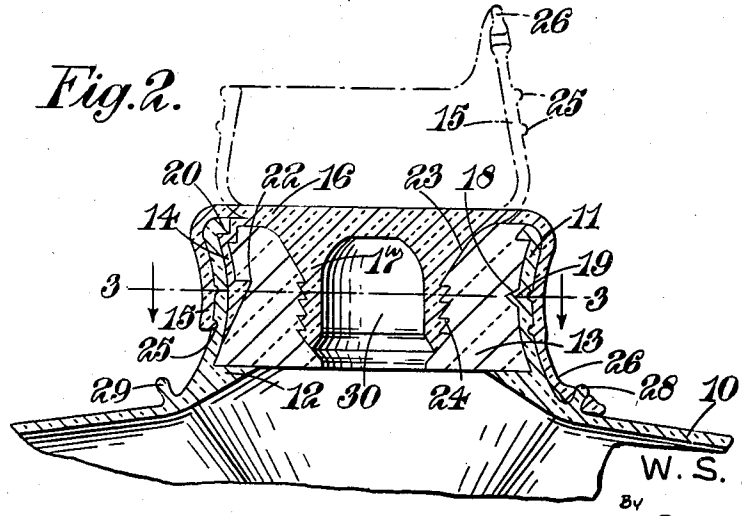


Fig.2.



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STOPPER FOR CARBOYS, BOTTLES, CANS, AND LIKE CONTAINERS

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6 Claims. (Cl. 215—47)

This invention is for improvements in or relating to stoppers for carboys, bottles, cans and like containers and has for one of its objects to provide a construction which will be particularly applicable for use in connection with hot water bottles which have to be adapted to be emptied and refilled when required and which must be perfectly sealed when filled.

A principal object of the present invention is to provide a stopper for a container as aforesaid, which stopper comprises a gripping portion to engage tightly the mouth of the container but affording a pouring aperture, a resilient sealing skirt attached to the said gripping portion and of such shape and dimensions as to be adapted to be folded into and out of a position in which it completes the sealing of the mouth of the container, which sealing skirt has an imperforate base to overlie the mouth of the container, and which pouring aperture is afforded between the said base and the gripping portion of the stopper in a position to be overlain by the sealing skirt when the latter is folded into sealing position, and a closing plug for closing the said pouring aperture, which closing plug is carried by the base of the sealing skirt and which sealing skirt includes a part adapted to overlie the said closing plug when the closing plug is in closing position and the sealing skirt is in sealing position. It will be appreciated that the closing plug has to be removed from the pouring aperture when the bottle is to be emptied but it cannot be removed until the sealing skirt has been turned into inoperative position.

In a preferred form of construction the gripping portion of the stopper, which takes the form of a plug to engage tightly the inside of the mouth of the container, is in two separately formed portions which when assembled in operative position extend completely around the inside of the mouth of the container but afford the pouring aperture at or towards the central part of the mouth of the container.

Conveniently one portion of the gripping plug is attached to or formed integral with the base of the sealing skirt, and the other portion of the gripping plug affords a seating surface for the closing plug.

For a more complete understanding of the invention there will now be described, by way of example only and with reference to the accompanying drawing, one constructional form of stopper according to the invention. It is to be understood, however, that the invention is not restricted to the precise constructional details set forth.

In the drawing:

Figure 1 is a perspective view of the mouth and adjacent parts of a rubber hot water bottle showing a stopper according to the present invention applied thereto. The stopper is shown in full lines in open position and in chain lines in closing position;

Figure 2 is a sectional elevation of the parts shown in Figure 1 but with the stopper shown in full lines in closing position, and

Figure 3 is a cross-section on the line 3—3 of Figure 2.

Like reference numerals indicate like parts throughout the drawing.

The body of the hot water bottle is shown at 10 and the neck at 11. At the base of the neck, inside the bottle, there is formed an inwardly-projecting flange or shoulder 12. The gripping portion of the stopper is composed of two separately formed parts 13 and 14. The stopper also comprises a sealing skirt 15 having an imperforate base 16 carrying a closing plug 17.

The part 13 is tubular and engages tightly the inside of the neck 11, and its bore constitutes the pouring aperture of the stopper and is intended to be closed by the plug 17. The part 13 may be permanently secured to the neck 11, say by vulcanizing. The part 13 rests against the flange 12 and the latter serves to prevent it from being displaced inwardly. The part 13 is formed with a circumferential groove 18 which receives a corresponding inwardly-projecting ridge 19 on the neck 11 thus increasing the security of the connection between the parts 11 and 13. Furthermore the neck 11 has its extremity 20 inwardly turned to fit into a corresponding groove in the gripping portion of the stopper.

The part 14 of the stopper is a hinging member and is attached to or formed integral with the base 16. The sealing position of the skirt 15 is shown in full lines in Figure 2. When the stopper is to be withdrawn from operative position, the skirt 15 is first turned into the position shown in chain lines in Figure 2 after which it, with the plug 17, is swung into the position shown in Figure 1, moving about the flexible junction between the part 14 and the base 16. The part 14 lies outside of the part 13 and is received between the latter and the neck 11. The part 14 is arcuate and only extends a part of the way round the inner periphery of the neck 11, and the outer surface of the part 13 is arcuately recessed at 21 to accommodate the part 14 which may con-

veniently be cemented and/or vulcanised in position in the arcuate recess. The abutting faces of the parts 13 and 14 are serrated at 22 to increase the security of the connection. The part 13 is preferably made of harder material than the other parts of the stopper. They may all be made of rubber.

Attached to or formed integral with the base 16 is the aforesaid plug 17 which is conical at its portion 23 adjacent to the extremity of the mouth of the bottle and cylindrical and serrated at its portion 24. The plug 17 is recessed at 30 so that when in closing position, its interior is open to the pressure of the interior of the bottle and such pressure therefore assists to maintain a perfect seal. The bore of the part 13 constitutes a seat for the plug 17 and is correspondingly shaped to form a tight joint.

The skirt 15 is serrated at 25 to interlock with corresponding serrations on the outside of the neck 11 and form a tight joint, and the skirt also has an extension 26 affording a ready finger grip for use in moving the skirt out of sealing position. The extension 26 is perforated at 27 to engage studs 28 and 29 on the bottle, these studs serving respectively to retain the skirt in sealing and open positions.

It is to be understood that the invention is not restricted to the precise constructional details set forth.

I claim:

1. For use with a carboy, bottle, can or like container, the combination of a gripping portion adapted to tightly engage the mouth of the container and provided with a pouring aperture, a resilient sealing cap attached to said gripping portion and adapted to be folded into and out of a position in which it completely seals the mouth of the container, said sealing cap having an imperforate base overlying the mouth of the container and said pouring aperture when the cap is in sealing position, and a skirt portion adapted to grip and form a seal with the exterior of the container mouth when pulled downwardly about said mouth, and a closing plug for closing the said pouring aperture, which closing plug is attached to the base of the sealing cap.

2. For use with a carboy, bottle, can or like container, the combination of a gripping plug adapted to tightly engage the inside of the mouth of the container and provided with a pouring aperture, which gripping plug is in two separately formed portions adapted, when assembled in operative position, to extend completely around the inside of the mouth of the container, a resilient sealing cap attached to said gripping plug and adapted to be folded into and out of a position in which it completely seals the mouth of the container, said sealing cup having an imperforate base overlying the mouth of the container and said pouring aperture when the cap is in sealing position, and a skirt portion adapted to grip and form a seal with the exterior of the container mouth when pulled downwardly about said mouth, and a closing plug for closing the said pouring aperture, which closing plug is attached to the base of the sealing cap.

3. For use with a carboy, bottle, can or like container, the combination of a gripping plug adapted to tightly engage the inside of the mouth of the container and provided with a pouring aperture, which gripping plug is in two separately formed portions adapted, when assembled in operative position, to extend completely around the inside of the mouth of the container, a resilient sealing cap attached to one of said portions of the gripping plug, the other of which portions forms a seating, which sealing cap is adapted to be folded into and out of a position in which it completely seals the mouth of the container and which sealing cap has an imperforate base overlying the mouth of the container and said pouring aperture when the cap is in sealing postion, and a skirt portion adapted to grip and form a seal with the exterior of the container mouth when pulled downwardly about said mouth, and a closing plug for closing the pouring aperture, which closing plug is attached to the base of the sealing cap and engages said seating when in closing position.

4. For use with a carboy, bottle, can or like container, the combination of a gripping plug adapted to tightly engage the inside of the mouth of the container and provided with a pouring aperture, which gripping plug is in two separately formed portions adapted, when assembled in operative position, to extend completely around the inside of the mouth of the container, a resilient sealing cap attached to one of said portions of the gripping plug, the other of which portions forms a seating which is conical at its portion adjacent to the extremity of the mouth of the container and cylindrical at its portion which is situated further inside the container, which sealing cap is adapted to be folded into and out of a position in which it completely seals the mouth of the container and which sealing cap has an imperforate base overlying the mouth of the container and said pouring aperture when the cap is in sealing position, and a skirt portion adapted to grip and form a seal with the exterior of the container mouth when pulled downwardly about said mouth, and a closing plug for closing the pouring aperture, which closing plug is attached to the base of the sealing cap and has conical and cylindrical surfaces to engage respectively with the conical and cylindrical portions of said seating when in closing position.

5. For use with a carboy, bottle, can or like container, the combination of a gripping plug including two separately formed portions whereof one is tubular and tightly engages the inside of the mouth of the container and affords a pouring aperture substantially at the central part of the mouth of the container and the other portion is a hinging member which lies outside the tubular member and also engages tightly the mouth of the container, a resilient sealing cap adapted to be folded into and out of a position in which it completely seals the mouth of the container and having an imperforate base overlying the mouth of the container and said pouring aperture when the cap is in sealing position, which base is attached to said hinging member so as to be permitted to turn about the latter when the pouring aperture is opened, and a skirt portion adapted to grip and form a seal with the exterior of the container mouth when pulled downwardly about said mouth, and a closing plug for closing the said pouring aperture, which closing plug is attached to the base of the sealing cap.

6. For use with a carboy, bottle, can or like container, the combination of a gripping plug including two separately formed portions whereof one is tubular and tightly engages the inside of the mouth of the container and affords a pouring aperture substantially at the central part of the mouth of the container and the other portion is a hinging member which lies outside the tubular member and also engages tightly the mouth

of the container but only extends a part of the way round the inner periphery of the mouth of the container, the outer surface of the tubular member being recessed to accommodate the hinging member, a resilient sealing cap adapted to be folded into and out of a position in which it completely seals the mouth of the container and having an imperforate base overlying the mouth of the container and said pouring aperture when the cap is in sealing position, which base is attached to said hinging member so as to be permitted to turn about the latter when the pouring aperture is opened, and a skirt portion adapted to grip and form a seal with the exterior of the container mouth when pulled downwardly about said mouth, and a closing plug for closing the said pouring aperture, which closing plug is attached to the base of the sealing cap.

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