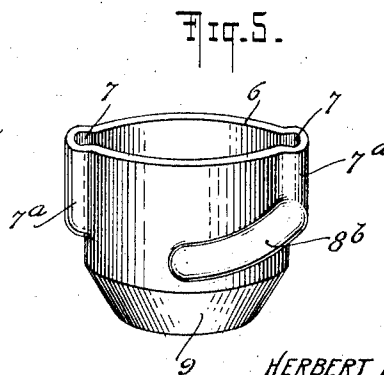
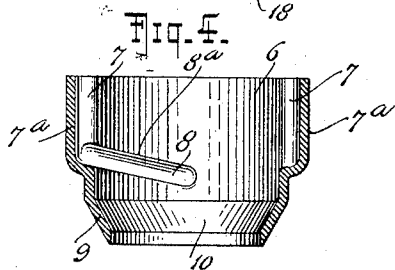
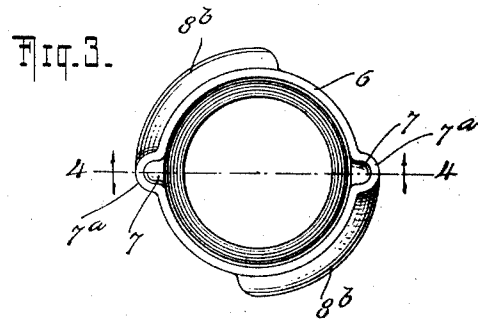
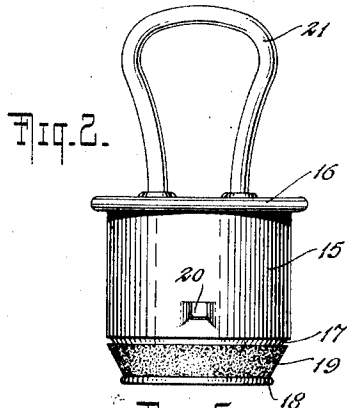
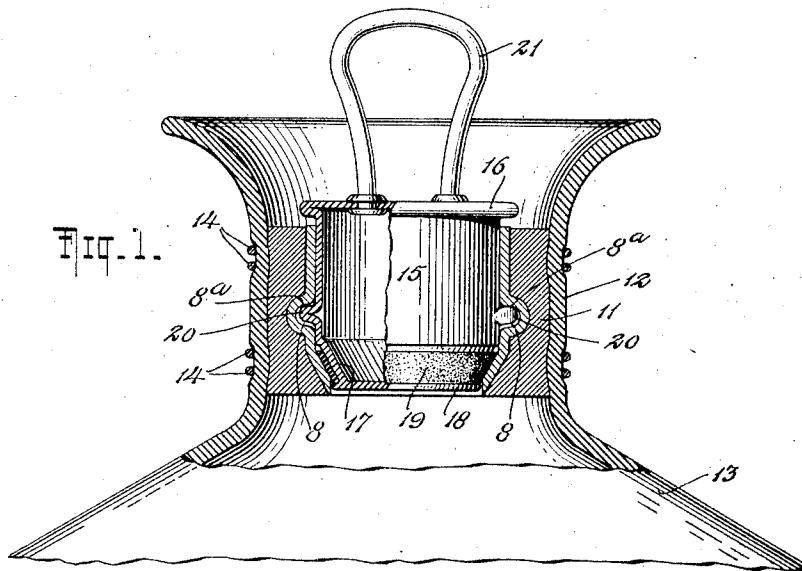


H. E. KAUFMANN.
HOT WATER BOTTLE.
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1,334,378.

Patented Mar. 23, 1920.



WITNESSES

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HERBERT E. KAUFMANN, OF WEST BRIGHTON, NEW YORK.

HOT-WATER BOTTLE.

1,334,378.

Specification of Letters Patent. Patented Mar. 23, 1920.

Application filed October 19, 1916. Serial No. 126,492.

To all whom it may concern:

Be it known that I, HERBERT E. KAUFMANN, a citizen of the United States, and resident of West Brighton, Staten Island, county of Richmond, city and State of New York, have invented certain new and useful Improvements in Hot-Water Bottles, of which the following is a specification.

My invention relates to water bottles of the type commonly known as hot water bottles and has for its object to provide an improved and simplified neck construction whereby the efficiency and life of the bottle is increased to a maximum extent. My improvement further contemplates the provision of an improved and simplified stopper construction whereby the removable stopper may be readily and efficiently locked in operative position and whereby the bottle neck may be effectively sealed. My invention will be fully described hereinafter and the features of novelty will be pointed out in the appended claims.

In the accompanying drawings which illustrate an example of my improvement, Figure 1 is an elevation of a portion of a hot water bottle with my improvement embodied therein, the neck of the bottle and other parts being shown in section; Fig. 2 is an elevation of my improved stopper; Fig. 3 is a plan view of a sleeve forming part of my improvement; Fig. 4 is a section thereof on the line 4-4 of Fig. 3 and Fig. 5 is a perspective view of said sleeve.

As shown in the drawings my improvement includes a sleeve 6 of metal or similar material provided with interior recesses 7 extending lengthwise of the sleeve and preferably located thereon at diametrically opposite points, the upper open ends of said recesses being located at the upper end of the sleeve 6 as shown in Fig. 5. The said recesses 7 at their lower ends communicate with interior channels 8 which extend circumferentially of the sleeve 6 and incline downwardly from the lower ends of the recesses 7 as shown in Figs. 4 and 5. The inclination of the channels 8 is continuous throughout their entire length and begins at the lower end of each recess 7 and extends without interruption to the lower end of each channel 8, thus providing a continuous cam surface 8^a in each channel the purpose of which will appear more clearly hereinafter. The recesses 7 and the channels 8 are formed by pressing or otherwise extending

the sleeve material outwardly so that in its finished condition said sleeve 6 is provided with exterior projections 7^a extending lengthwise thereof and with exterior projections 8^b extending in registry with the channels 8. At its lower end the sleeve 6 converges inwardly as indicated at 9 to form a seat 10 as shown in Figs. 1 and 4.

The sleeve 6 in its operative position is located within a collar 11 of rubber or the like, the latter being preferably vulcanized directly upon the sleeve 6 so as to fit snugly all parts of the outer surface thereof. When constructed in the described manner the said collar 11 will be firmly and efficiently combined with the sleeve 6 and will be held against rotative movement relatively thereto by means of the exterior projections 7^a which, as will be readily apparent, act in the nature of keys or splines. Movement of the collar relative to the sleeve in an upward direction is prevented by the inwardly converging surface 9 and the circumferential projections 8^b and is also resisted by the lower ends of the projections 7^a, while a relative movement of the collar in a downward direction is resisted by the projections 8^b. The collar and sleeve are thus effectively combined in the form of a unit and are efficiently protected against strains in any direction while at the same time the method of connecting the two elements is extremely simple and easily carried out and avoids the necessity for any extraneous fastening devices.

The collar 11 is of an outer diameter adapted to fit within the neck 12 of the bottle 13, the latter being constructed in any customary or well known way, and is secured in position in said neck 12 in any suitable manner as by means of cords or wires 14 applied exteriorly as shown in Fig. 1.

My improved stopper in its preferred form comprises a hollow shell 15 of metal or other suitable material provided with a top 16 and having its lower end converging inwardly as indicated at 17 and terminating in a bottom which projects beyond the surface 17 to form an annular flange 18. The inclination of the surface 17 corresponds to that of the seat 10, a packing ring 19 of suitable material being located upon said surface 17 and being held thereon against displacement by the flange 18. The stopper further includes lugs 20 which extend out-

wardly from the shell 15 in radial directions and which are preferably located at diametrically opposite points and in any case occupy positions on the shell corresponding to the positions of the vertical recesses 7 on the sleeve 6. The lugs 20 are also preferably formed by pressing or otherwise extending the shell material outwardly as shown in Fig. 1, it being understood that this is only an example and that said lugs may be otherwise constructed if desired. A handle 21, preferably in the form of a loop is provided for facilitating the manipulation of the stopper and is secured thereto in any suitable manner, for instance by being riveted to the top 16 as shown in Fig. 1.

In combining the stopper with the bottle, the lugs 20 are brought into registry with the open upper ends of the vertical recesses 7 after which the stopper is inserted into the sleeve 6, the lugs 20 moving lengthwise of said recesses 7 during this operation. The length of the recesses 7, and the proportions and location of the other elements with respect to each other is such, that the packing ring 19 will be seated upon the seat 10 at the time the lugs 20 have been fully inserted into the recesses 7 and are located in registry with the upper ends of the circumferential channels 8. If the stopper is now rotated about its axis through the medium of the handle 21, the said lugs 20 will move into the channels 8 and beneath the cam surfaces 8^a thereof, whereby, through the coöperation of said lugs 20 and the downwardly inclined cam surface 8^a the stopper will be moved downwardly and the packing ring 19 will be firmly pressed upon the seat 10 thus sealing the bottle. Owing to the dimensioning and locating of the parts in the described manner the rotation of the stopper necessary to firmly press the packing ring upon the seat 10 is relatively small and the arc described by said stopper is correspondingly small. In the same way the movement of the stopper in the reverse direction to release same is also very small so that the securing of the stopper in its sealing position and the releasing of said stopper may be efficiently accomplished in a minimum of time and with a minimum of effort.

At the same time by making the cam surfaces 8^a continuous throughout the length of the channels 8 all parts of said surfaces are or any given part thereof is effective to produce a downward pressure upon the lugs 20 so that as the parts become worn through use, the packing ring 19 may still be firmly pressed upon the seat 10 by simply increasing the rotation of the stopper correspondingly. An effective seal is thus possible with the stopper at all stages of its life regardless of any changes which may have occurred through wear or from use. It will be

noted that the width of the channels 8 is somewhat greater than the width of the lugs 20 so that even after said ring has become somewhat worn it is still possible to seat the ring 19 upon the seat 10 by inserting the stopper into the sleeve 6 and before the stopper has been rotated to lock it in position.

The channels 8 are so inclined and the lugs 20 are so constructed that any upward pressure on the stopper, for instance by the contents of the bottle or by vapors generated therein, will have no effect to loosen said stopper. The frictional engagement of the ring 19 with the seat 10 will also resist any unintentional movement of the stopper toward its unlocked position. By locating the packing ring 19 at the lower end of the stopper and by having the seat 10 at the inner end of the sleeve 6 it is impossible for any part of the contents of the bottle to reach the channels 8 and the lugs 20 when the stopper is in position in the bottle. With this arrangement the possibility of the lugs 20 becoming rusted or otherwise fixed in said channels is absolutely overcome, so that the stopper is at all times readily removable when it is desired to empty or fill the bottle.

The construction in all of its parts is extremely simple and thus cheap to manufacture and at the same time provides a maximum of efficiency. The parts are also readily combined with each other and with the bottle and reduce the danger of disarrangement to a minimum and increase the life of the bottle to a maximum degree.

Various changes in the specific arrangement and construction shown and described may be made within the scope of the claims without departing from the spirit of my invention.

I claim:—

1. In a hot water bottle, the combination of a body having a flexible neck, a separate collar of rubber located in said neck, means whereby said collar is secured in position in said neck, a rigid sleeve extending into said collar, external projections on said sleeve extending transversely into said collar whereby said sleeve is held against rotative and axial movement relatively to said collar, said projections extending vertically and circumferentially downward and terminating at intermediate points of the circumference of said sleeve, and forming internal vertical recesses and continuing downwardly inclined circumferential channels having their free ends closed, a stopper arranged to be inserted into said sleeve and rotated therein to seal the bottle, and lugs on said stopper adapted to pass downwardly in said vertical recesses and into said circumferential recesses to lock said stopper against removal.

2. In a hot water bottle having a neck, a

sleeve in said neck having its inner end portion converging inwardly to form a seat, said sleeve being provided with a pair of vertical recesses and a pair of continuing downwardly inclined circumferential channels, a stopper adapted to be inserted into said sleeve and rotated therein, an inwardly inclined packing ring at the lower end of said stopper arranged to engage said seat to seal the bottle, and a pair of lugs upon said stopper adapted to pass lengthwise through said vertical recesses and into said circumferential channels to lock said stopper against removal, the length of said vertical recesses being such as to engage the packing ring with said seat before said lugs enter said circumferential channels whereby said lugs and circumferential channels cooperate to force said packing ring into engagement with said seat as said stopper is rotated.

In testimony whereof I have hereunto set my hand.

HERBERT E. KAUFMANN.