June 10, 1924. 1,496,949

A. B. SHAW

STOPPER FOR HOT WATER BOTTLES

Filed Nov. 7, 1921

Fig. 1.

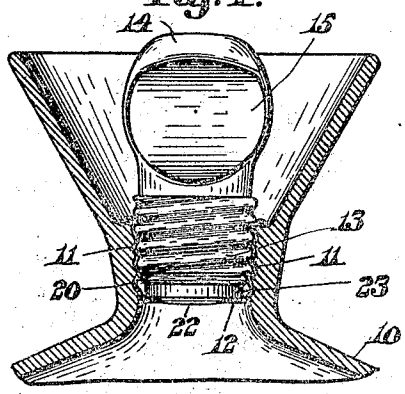



Fig. 3.

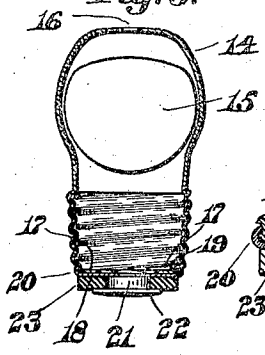



Fig. 6.

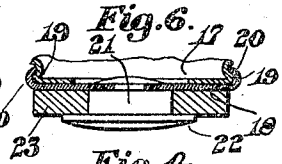



Fig. 2.

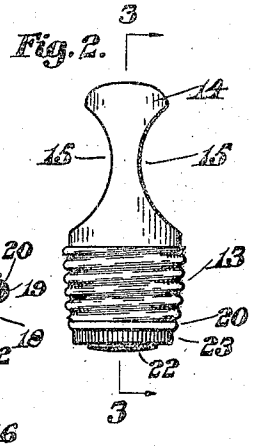



Fig. 4.

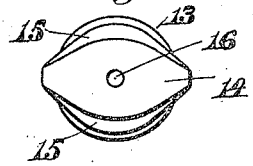
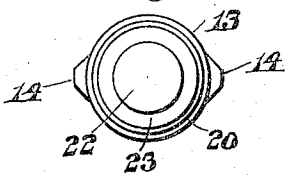



Fig. 5.




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Ai B. Shaw,
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# UNITED STATES PATENT OFFICE.

AI B. SHAW, OF MEDFORD, MASSACHUSETTS.

## STOPPER FOR HOT-WATER BOTTLES.

Application filed November 7, 1921. Serial No. 513,449.

*To all whom it may concern:*

Be it known that I, AI B. SHAW, a citizen of the United States of America, and a resident of Medford, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Stoppers for Hot-Water Bottles, of which the following is a specification.

This invention relates to stoppers for hot water bottles and the like and has for its object the production of a device of the character which will be inexpensive to make, simple in construction and which when properly positioned in the filling opening of the hot water bottle will effectually prevent any leakage from the bottle.

The invention consists of a stopper provided with a washer-carrying disk rotatably mounted upon the inner end of the stopper.

The invention further consists in providing the inner end of the stopper with a bead over which is crimped the edge of a disk supporting a packing washer.

The invention further consists of a hollow stopper having an upward extension formed integral therewith and adapted to be grasped by the hand to rotate said stopper.

The invention further consists in certain novel features of construction and arrangement of parts which will be understood readily by reference to the description of the drawings and to the claims to be hereinafter given.

For the purpose of illustrating the invention, one preferred form thereof is illustrated in the drawings, this form having been found to give satisfactory and reliable results although it is to be understood that the various instrumentalities of which the invention consists can be variously arranged and organized and the invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described except as required by the scope of the appended claims.

Of the drawings:

Figure 1 represents a front elevation of a stopper embodying the principles of the present invention, said stopper being illustrated as applied to a portion of a hot water bottle which is shown in section.

Figure 2 represents a side elevation of said stopper.

Figure 3 represents a vertical section on line 3, 3, on Fig. 2.

Figure 4 represents a plan of the stopper.

Figure 5 represents an inverted plan of the same, and

Figure 6 represents a section of the lower part of the stopper, drawn to an enlarged scale.

Similar characters indicate like parts throughout the several figures of the drawings.

In the drawings, 10 is a portion of the upper end of a hot water bottle having embedded therein a threaded socket 11 provided at the bottom with the inwardly extending flange 12.

A threaded stopper 13 is adapted to be screwed into the socket 11 by means of the handle 14.

In the construction herein shown the threaded body portion 13 of the stopper and the handle portion 14 thereof are formed integral and hollow.

This handle portion 14 is preferably made as shown in the drawings with oppositely disposed concaved portions 15 which afford a good grip for the hand when screwing the stopper into the socket 22 or removing it therefrom.

The stopper may be formed, however, with the handle portion integral with the threaded portion 13 and with said handle provided with flattened or corrugated surfaces without affecting the principles of the present invention.

Preferably the wall of said handle portion 14 is provided with an opening 16 therein through which atmospheric air is adapted to pass into the interior of the stopper to prevent said stopper from becoming overheated by the hot water in the bottle 10.

The lower end of the threaded portion 13 of the stopper has an inwardly extending flange 17 against the under face of which a disk 18 is adapted to bear.

The lower end of the threaded portion 13 of the stopper is also provided with a peripheral bead 19 over which the edge 20 of the disk 18 is crimped.

By means of this construction the disk 18 is held in position upon the threaded portion 13 of the stopper and cannot be accidentally displaced therefrom while at the same time the edge 20 is crimped at the bead

19 in such a manner as to permit said disk to be freely rotated about the axis of the stopper 13.

The disk 18 has riveted thereto a projecting stud 21, the lower end of which is provided with a peripheral flange 22.

Between the flange 22 and the disk 18 is interposed a resilient washer 23 which is adapted to be forced into contact with the flange 12 and effectually close the inlet opening of the water bottle 10 and prevent any leakage therefrom.

When the stopper is being inserted into the socket 11, the washer 23 upon coming into contact with the flange 12 will remain stationary while the stopper continues to be rotated to compress the washer.

Heretofore in stoppers of this character, the washer is usually rotated with the stopper and soon becomes worn and useless.

As shown in the drawings the diameter of the washer is slightly less than the diameter of the crimped disk 18, 20 and said crimped disk 18, 20 has a diameter slightly less than the interior diameter of the threaded socket 11.

When the stopper is being turned in the socket 11 no action on the washer 23 takes place until said washer comes into contact with the annular flange of said socket 11.

When this contact between the washer and the flange 12 occurs the friction between the two will prevent further rotation of the washer 23 about its axis relatively to the flange 12 but the stopper 13 may continue to be rotated in the socket 11 thereby compressing the washer 23 against the flange 12 and making a perfectly tight fit through which no water can escape.

The washer is positioned upon the stud 21 by being stretched over the head 22 of said stud, said washer having sufficient resiliency to permit of such stretching.

Inasmuch as the disk 18 is interposed between the washer 23 and the bottom flange 17 of the stopper 13, the flange 17 will rotate in contact with the upper face of the disk 18 which is of metal and therefore not easily injured.

If this disk 18 were not interposed between the washer 23 and the bottom 17 of the stopper 13, the turning of the stopper while its bottom was contacting with the washer, would cause considerable injury to said washer.

With the construction herein shown and described this objection is wholly overcome as the bottom of the stopper cannot come into contact with the washer 23 when said washer has been brought into contact with its seat on the flange 12 and consequently the washer cannot be injured by the stopper rubbing in contact therewith.

In the stoppers now in general use, the packing disk is secured permanently to the stopper and when the stopper is rotated and the packing disk is in contact with its seat, the rubbing contact is liable to injure and soon destroy the packing disk and as there is no ready means of renewing this packing disk, the entire stopper is useless and an entirely new stopper must be provided.

In the present construction, should the washer become damaged sufficiently to make it useless, the damaged washer may be quickly removed and a new washer substituted therefor.

This simple construction of stopper is most effective in use for it makes the hot water bottle positively non-leakable at its filling opening and the life of the stopper is greatly prolonged.

Moreover, it provides a means whereby a new packing disk or washer may be placed quickly upon the stopper thus making it unnecessary to throw away the body of the stopper.

Another objection to the stoppers in general use is that when the washer or packing disk secured to the stopper, comes into contact with the flange of the socket there will be so much friction between the washer and the flange that it will be extremely difficult to turn the stopper and yet this stopper must be turned in order to compress the washer sufficiently to prevent leakage.

This objection is entirely overcome in the present invention as the metal end of the stopper turns freely while in contact with the disk 18.

It is believed that the operation and many advantages of the invention will be understood without further description.

Having thus described my invention, I claim:

1. A bottle stopper having a helical thread and provided at the bottom with a peripheral bead terminating at its lower end in an inwardly-extending flat flange; a disk the edge of which is crimped over said bead and rotatable relatively to said flange; and a resilient washer clamped to said disk.

2. A bottle stopper having a helical thread and provided at its lower end with an inwardly extending flange and a peripheral bead above said flange, a disk bearing against said flange with its edge crimped over said bead and freely revoluble about the axis of said stopper, a headed member having a reduced shank extending through and riveted to said disk, and a resilient washer surrounding said member between its head and said disk.

3. A threaded stopper having a peripheral bead at its lower end, said bead having a diameter less than the threaded portion of the stopper; a disk with its edge crimped over said bead and freely rotatable about the axis of said stopper; a headed cylindrical member having a reduced shank

extending through and riveted to said disk; and a resilient washer between said disk and the head of said member, and restrained from movement relatively to said disk.

4. A threaded stopper having an annular projection at its lower end, a disk having its edge crimped over said annular projection and freely rotatable about the axis of said stopper, a cylindrical member having at one end a reduced shank extending through said disk and riveted thereto, and at its opposite end a head having a wide flat face, and a resilient washer between said disk and the flat face of said head and surrounding the cylindrical body portion of said member.

Signed by me at 746 Old South Bldg., Boston, Mass., this 31st day of October, 1921.

AI B. SHAW.

Witnesses:
WALTER E. LOMBARD,
NATHAN C. LOMBARD.