

(No Model.)

G. H. F. SCHRADER.  
SCREW STOPPER FOR WATER BAGS, &c.

No. 483,330.

Patented Sept. 27, 1892.

FIG. 1.

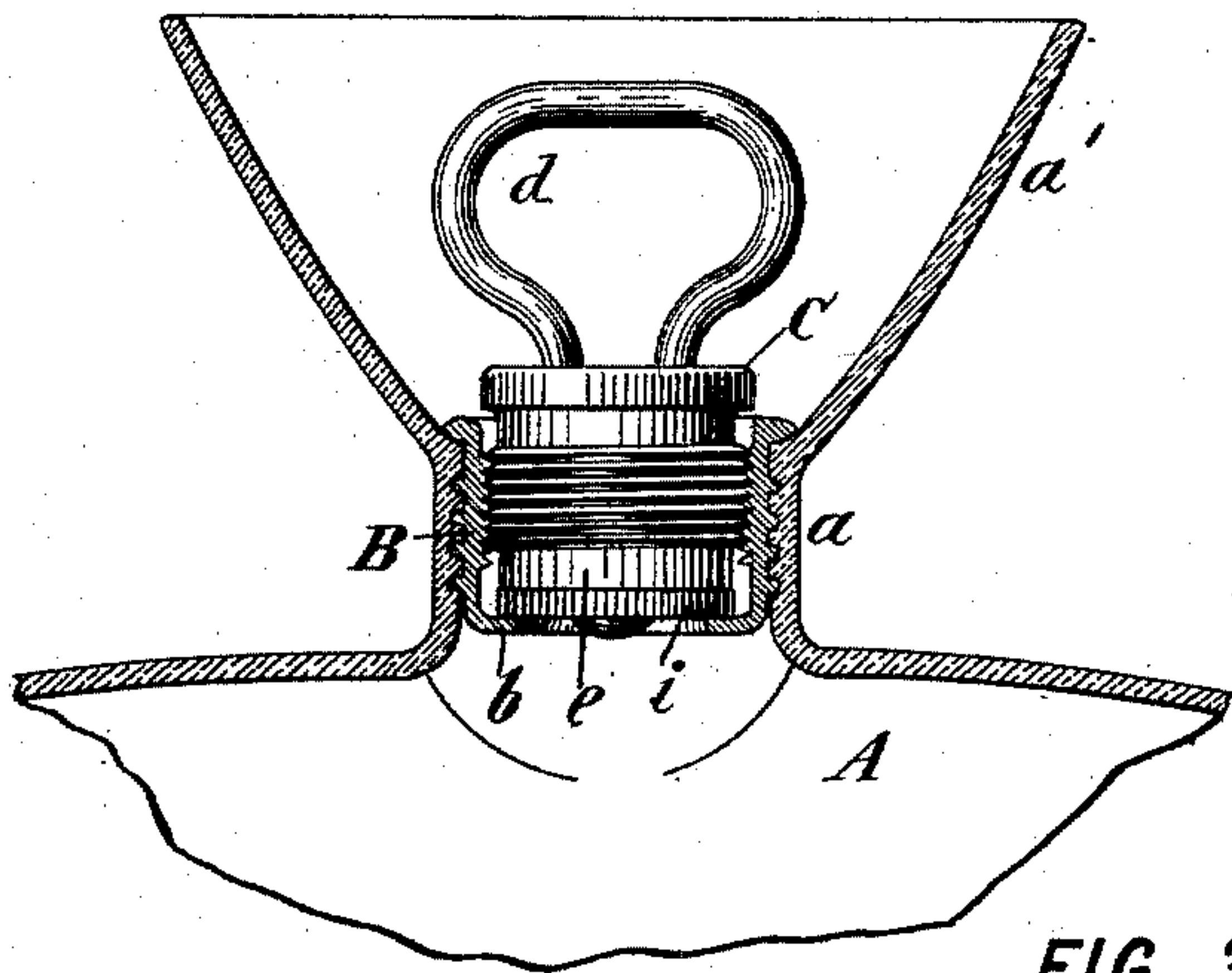


FIG. 2.

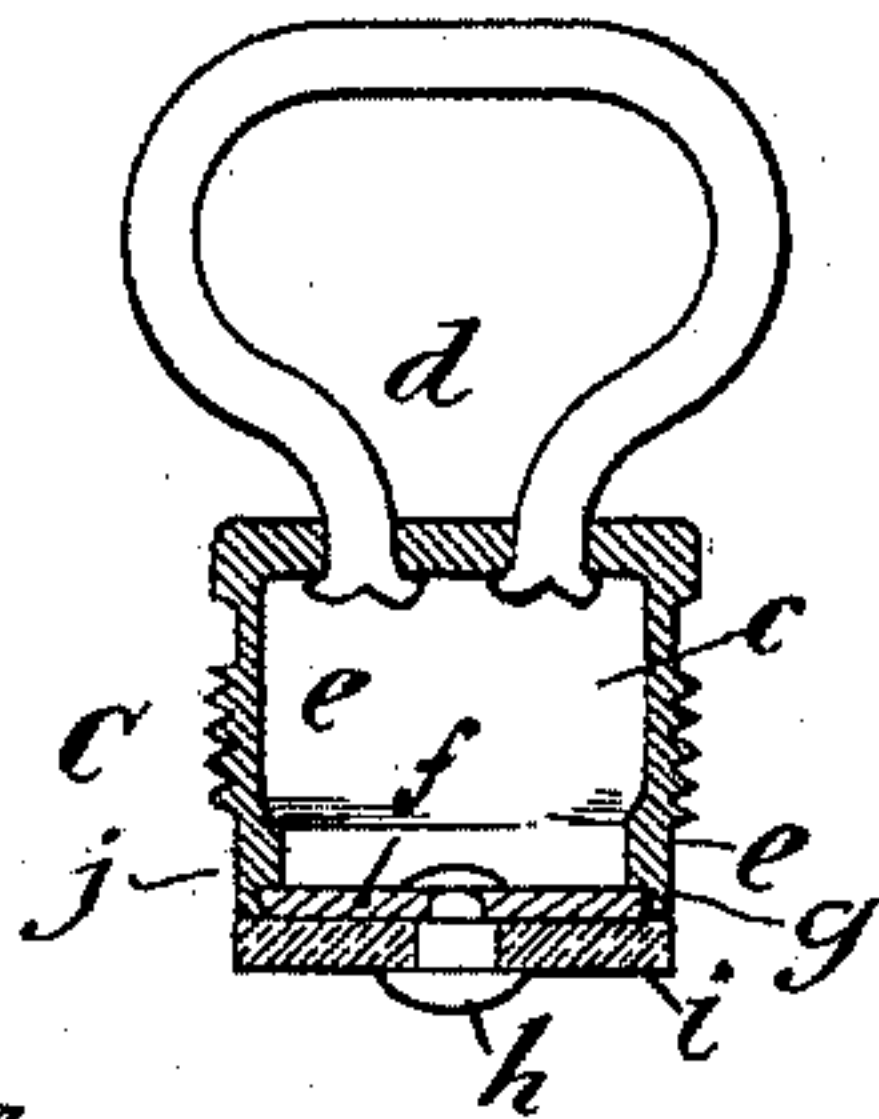


FIG. 4.

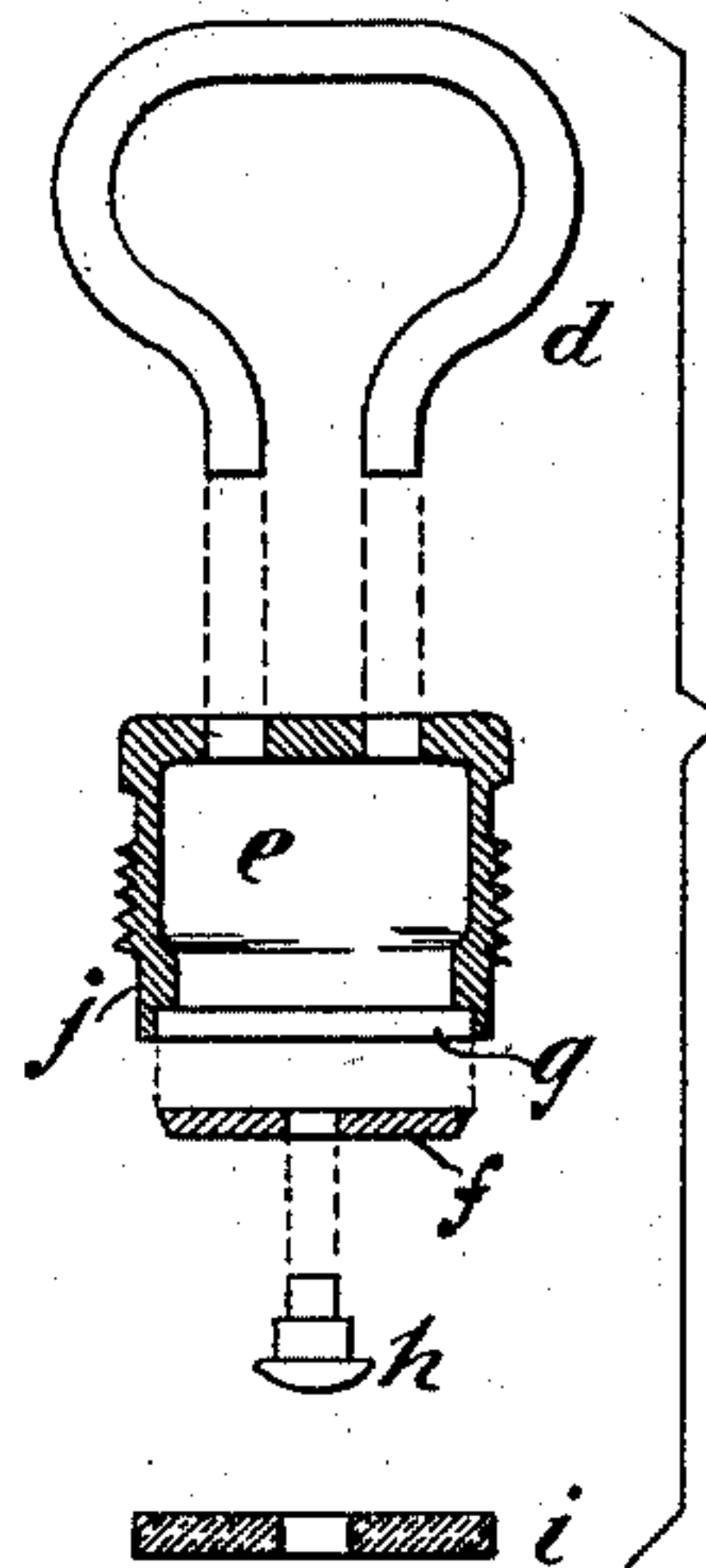


FIG. 3.

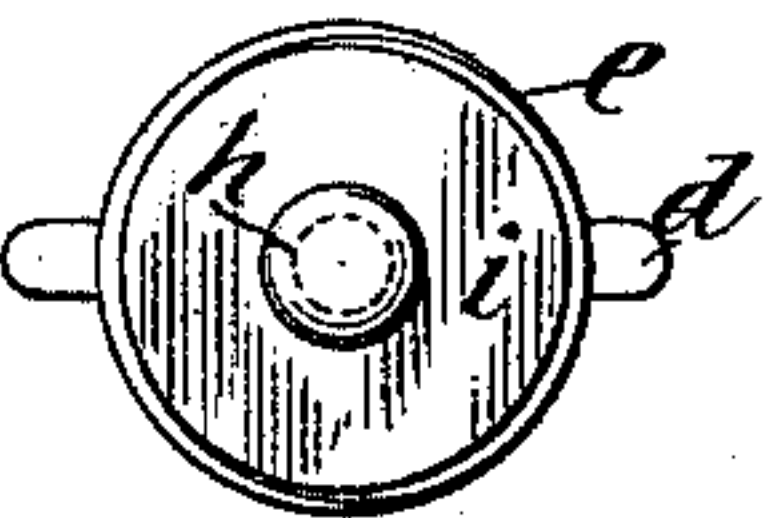


FIG. 5.

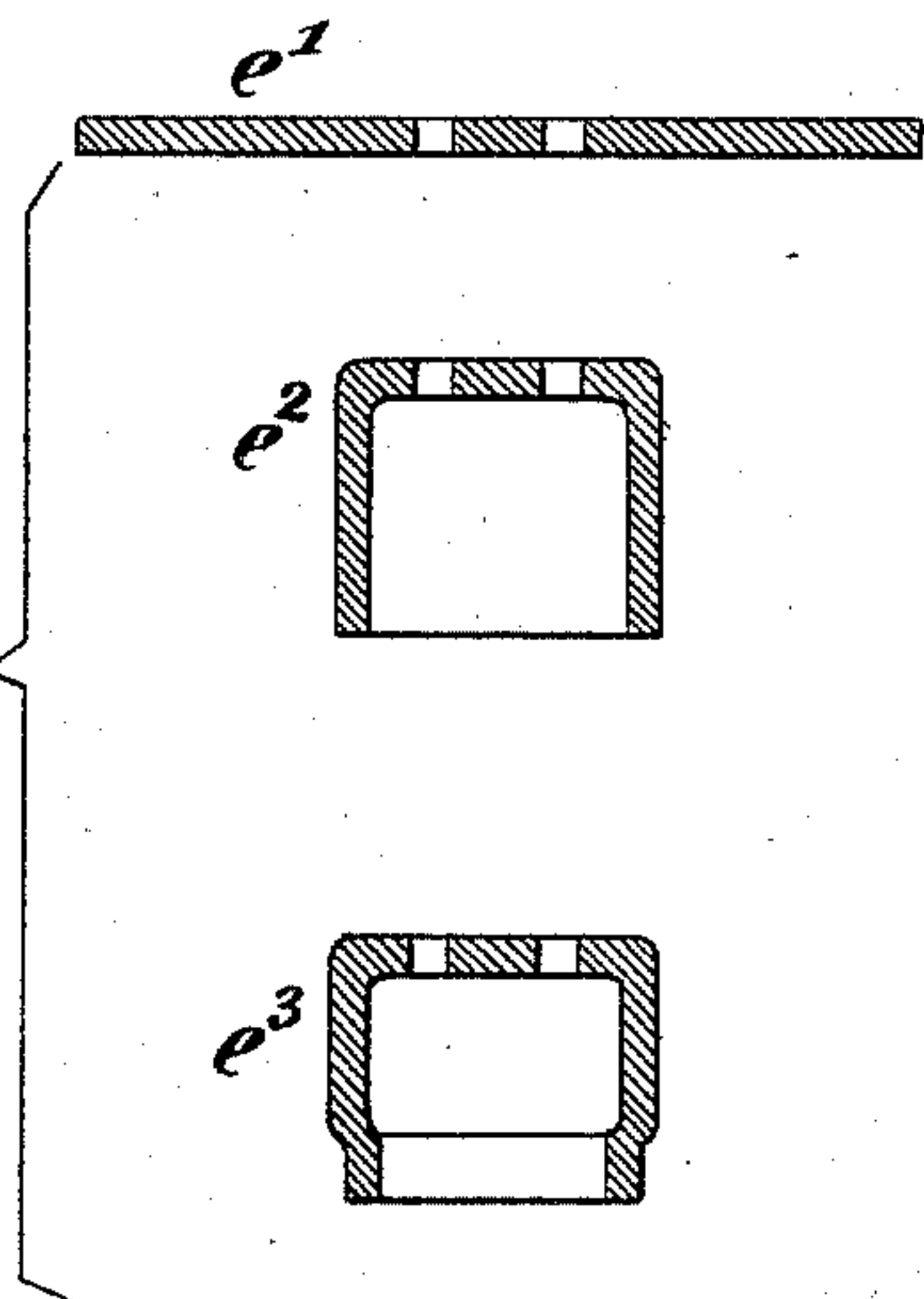


FIG. 6.

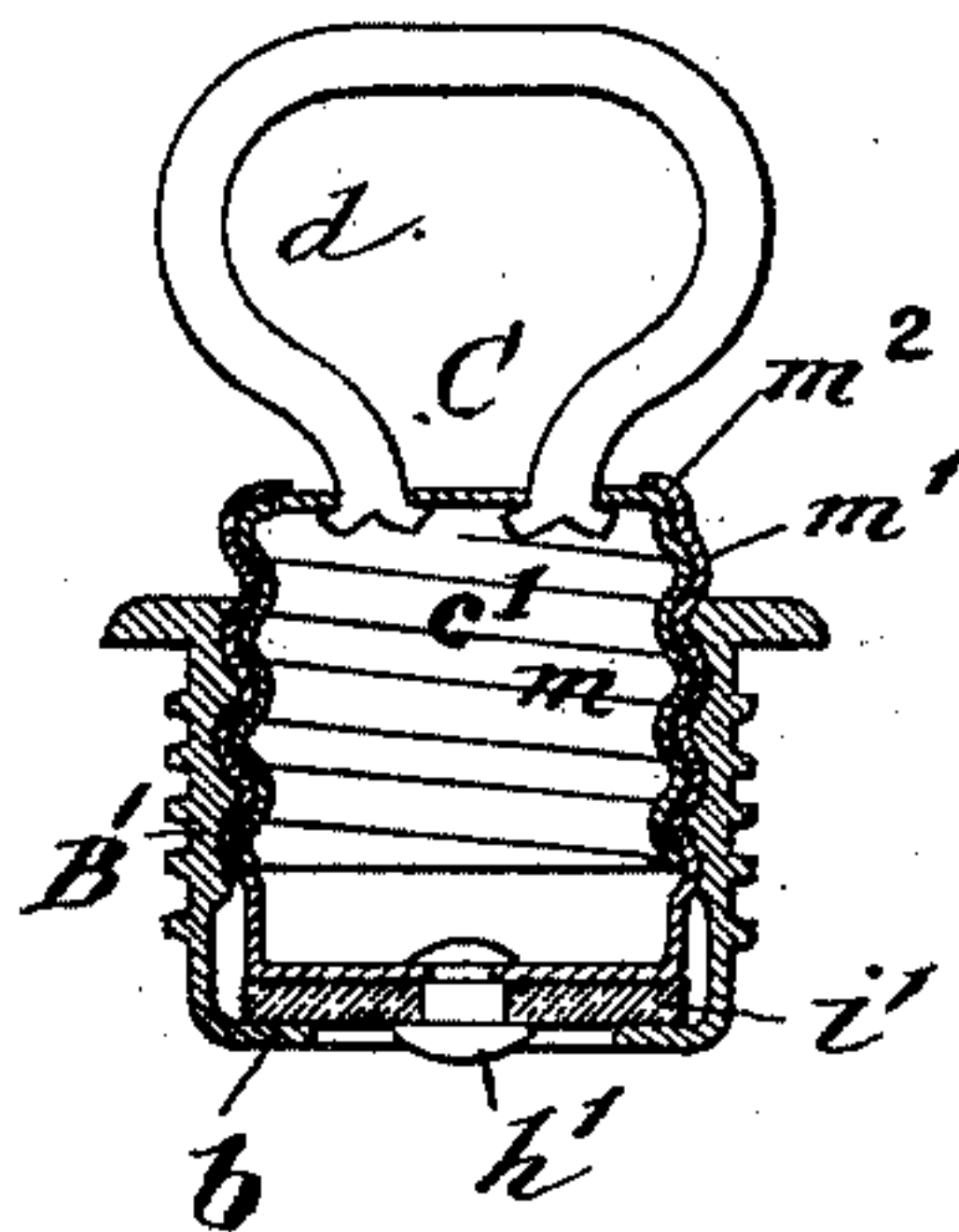


FIG. 7.

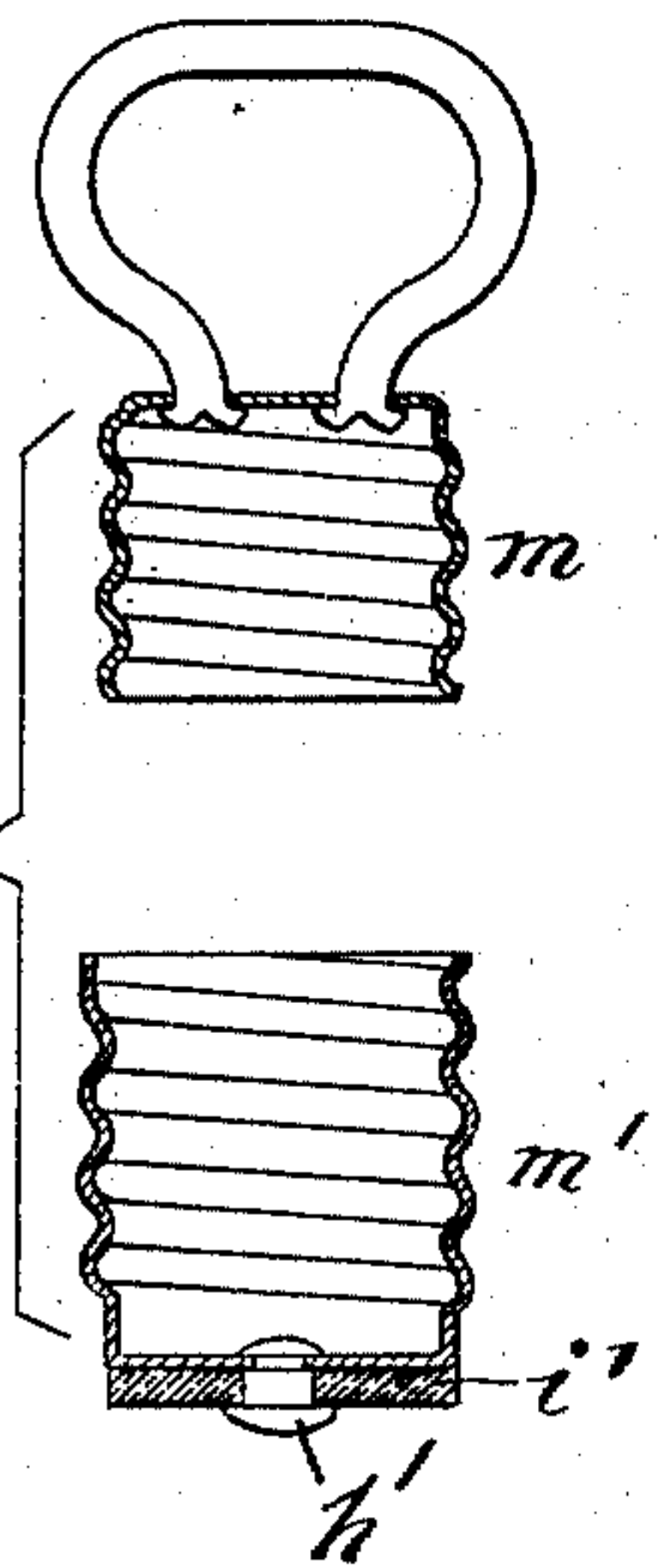
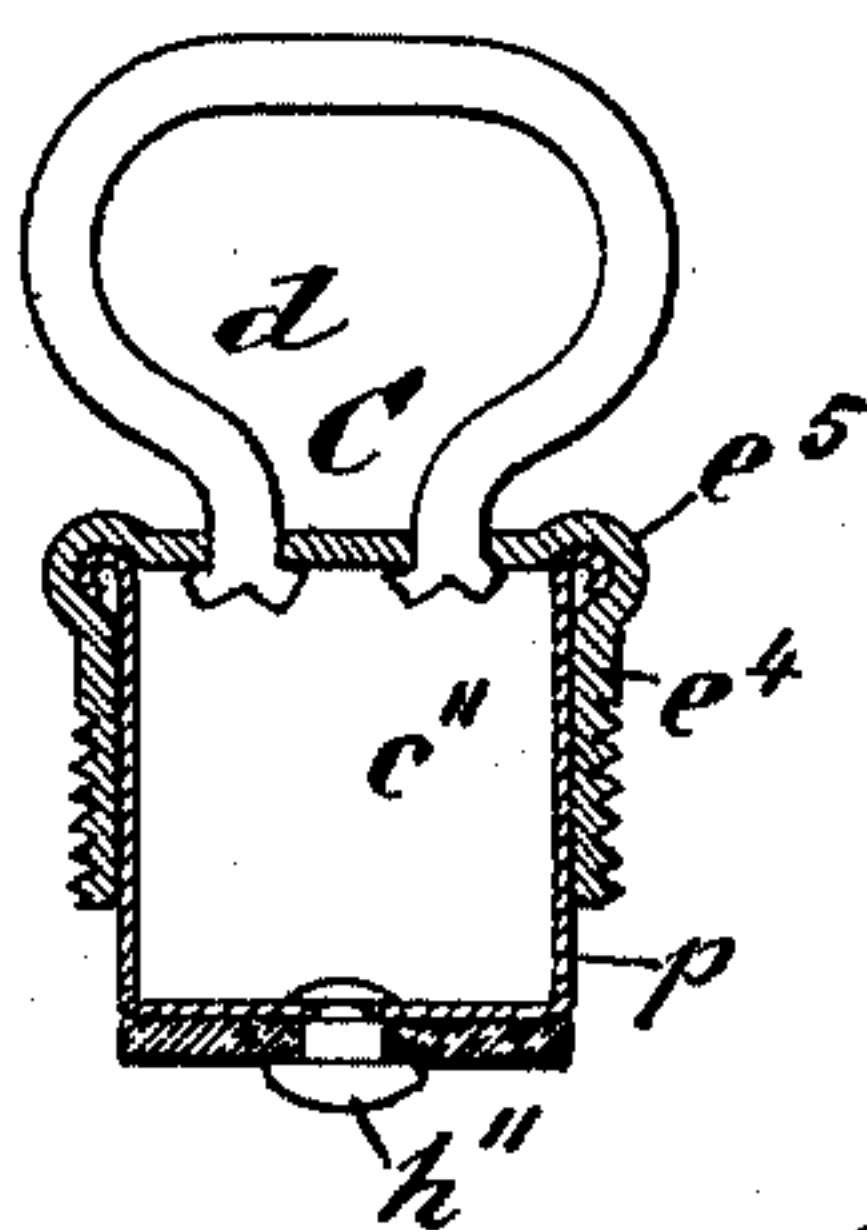


FIG. 8.



WITNESSES:

*John Becker*  
*Fred White*

INVENTOR:

*George H. F. Schrader*

By his Attorneys,

*Arthur C. Zrazen*



# UNITED STATES PATENT OFFICE.

GEORGE H. F. SCHRADER, OF NEW YORK, N. Y.

## SCREW-STOPPER FOR WATER-BAGS, &c.

SPECIFICATION forming part of Letters Patent No. 483,330, dated September 27, 1892.

Application filed February 17, 1892. Serial No. 421,850. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE H. F. SCHRADER, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Screw-Stoppers for Water-Bags, of which the following is a specification.

This invention provides an improved construction of screw-stopper adapted for closing the mouths of india-rubber water bags or bottles and for other analogous uses. Screw-stoppers for this purpose as heretofore constructed have consisted, usually, of a cap or inverted cup with a handle or loop of bent wire fixed to its top and screw-threaded exteriorly to screw into a thimble fixed in the neck of a bottle or screw-threaded interiorly to screw upon the upwardly-protruding portion of a thimble. The packing to make a tight joint has consisted of a ring of india-rubber either set into the thimble or placed within the hollow cap when the latter has been externally threaded.

My invention provides an improved construction of externally-threaded stopper. Instead of forming the stopper as an inverted cup and leaving its bottom open I form the stopper with an inverted cup having a handle at top and a hollow body portion constructed, preferably, by applying a disk of metal or other suitable material to close the bottom of the cup and uniting it thereto by a suitable joint. To the middle of this disk or bottom is fixed a stud having an overhanging head, and on this stud is placed an india-rubber packing-disk, which serves to make a tight joint with the thimble when the stopper is screwed in and has the advantage over the rings heretofore used that it cannot come out or be lost.

Figure 1 of the accompanying drawings is a fragmentary section of the upper or neck portion of an india-rubber hot-water bag, showing the stopper in place. Fig. 2 is a transverse section of the stopper. Fig. 3 is an under side view or inverted plan thereof. Fig. 4 is a sectional view showing the parts of the stopper before they are put together. Fig. 5 shown in section the process of manufacturing the cup of the stopper. Fig. 6 is a sectional view showing a modified construction of stopper screwed into its thimble.

Fig. 7 is a section showing all the parts of the stopper shown in Fig. 6 before being put together. Fig. 8 is a sectional view of a further modified construction of stopper.

In Fig. 1 let A designate a hot-water bag or bottle of any usual construction, having a neck *a* and the usual funnel-shaped mouth or guard *a'*. In the neck *a* is cemented a thimble B, as usual, this thimble being internally screw-threaded and having an internal flange *b* at the bottom.

C is the stopper, which has an external screw-thread screwing into the internal screw-thread in the thimble. The stopper is preferably constructed, as shown in Fig. 2, with a hollow body portion *c* and a handle *d*, made of bent wire, with its ends thrust through holes in the body of the stopper and spread and riveted down therein to tightly attach it to the body. The body is constructed of a cup *e* (shown best in Fig. 4) and a bottom disk *f*, inserted in the grooved or rabbeted edge *g* of the cup, which edge is swaged or turned down, so as to make a tight joint, as shown in Fig. 2. A stud *h* is tightly secured by riveting to the center of the disk *f* and before this disk is applied to the cup. The handle *d* is also riveted fast to the cup before the bottom disk is applied thereto. The other parts being thus put together, a rubber disk *i* is attached to the bottom of the stopper by springing it over the overhanging head of the stud *h*. This disk is preferably of a diameter equal to that of the bottom portion of the body of the stopper, so that it covers the joint between the parts *e* and *f*. When the stopper is screwed into the thimble, this disk is clamped tightly between the bottom of the body of the stopper and the internal flange *b*, so that it forms a water-tight joint, preventing the passage of water from the bag out between the body *c* of the stopper and the flange *b*. At the same time it serves to pack the joint between the cup *e* and disk *f*, so that even if this joint were not so tightly made as to be water-tight it would be impossible for water to enter it. It is obviously desirable to prevent any admission of water into the hollow of the body of the stopper, as if water were to enter here it would be liable to leak out around the riveted ends of the handle *d*. Heretofore it has been necessary to carefully solder



around these riveted ends in order to make the cap water-tight, as the interior of the cap was in communication with the water in the bottle; but by my invention this troublesome and annoying soldering operation is rendered unnecessary, since the water is not permitted to enter the cup or body of the stopper.

The top of the stopper is preferably formed from plate-brass by the operation of drawing in the manner shown in Fig. 5. A disk is first formed, as shown at  $e^1$ , and this is then drawn into cup shape in a drawing-press, as shown at  $e^2$ . This cup is then driven into a die to contract its lower end, as shown at  $e^3$ . Thereupon it is put into a lathe and turned down to the shape shown in Fig. 4, cutting screw-threads upon its exterior and leaving the lower portion thereof denuded of threads to serve as a guide to assist in introducing the stopper into the thimble and in starting the screw-threads aright. This method of construction, however, is not essential to my invention, as the cup may be formed in many other ways.

Internal stoppers, or those having external screw-threads which screw into a thimble, are greatly to be preferred to those in the form of a cap which screws upon the upwardly-protruding end of a thimble, for the reason that with the latter construction of thimble part of the water poured into the funnel  $a'$  fails to run into the bag, but remains around the thimble, and also because this construction makes the metal portions at the mouth of the bag of nearly twice the length as when an internal stopper is employed.

Internal stoppers for water-bottles as heretofore made have been subject to the objections of the use of an india-rubber ring for packing, which could not be permanently attached to either the thimble or the stopper, and which was consequently liable to be misplaced and lost, and also of the difficulty of making a tight joint where the ends of the handle are inserted, it being necessary to employ the greatest care in soldering and carefully test each stopper after soldering to insure its being tight. My present invention overcomes these difficulties and enables the advantages of an internal stopper to be fully realized. The construction of the means for closing the open lower end of the inverted cup to complete the hollow body of the stopper may be therefore varied without departing from my invention. Figs. 6 and 7 show a stopper made of two cup-shaped parts of sheet metal, having rolled threads and screwed the one into the other to the bottoms of their threads, the upper one being the inverted cup, to which is riveted the handle, and the lower one the disk closing the lower open end of the cup and carrying the stud to join the disk to the inverted cup. The outer cup or disk has its ends swaged down upon the inner or inverted cup. As here shown, the upper cup  $m$  is screwed into the lower one  $m'$  to form the body (lettered  $c'$ ) and the upper end

$m^2$  of the outer cup is turned down upon the upper cup to hold the two solidly together. The stud, here lettered  $h'$ , is applied to the bottom of the lower cup. The construction of the thimble  $B'$  is not changed, except that the screw-threads upon its interior are made of sinuous outline to conform to the roll of the metal threads on the stopper.

Fig. 8 shows a modification wherein the body  $c''$  is formed of two cups, the inverted cup being the upper and outer one  $e^4$ , to which the handle is attached, being provided with outwardly-rounded corners  $e^5$ , and the lower cup  $p$ , of thinner sheet metal, serving as the disk on which the stud  $h''$  is fixed, is forced into the upper cup, so that its edge shall be deflected by the rounded corners  $e^5$  and caused to curve outwardly therein in the act of forcing the two together, whereby the two cups are firmly connected to form the body.

I claim as my invention the following-defined novel features, substantially as hereinbefore specified, namely:

1. A screw-stopper for water-bottles, having a hollow body formed as an inverted cup having a handle at its top and having its bottom closed by a disk united to the edges of the cup, said disk formed with a central stud for holding the packing-disk, and a washer sprung over said stud and lying against said disk and extending over the face of the latter and the lower edge of said cup, substantially as and for the purpose set forth.
2. A screw-stopper for water-bottles, having a hollow body formed as an inverted cup and its bottom closed by a disk having its periphery united to the edges of the cup by swaging them together to form a water-tight joint.
3. A screw-stopper for water-bottles, having a hollow body formed as an inverted cup and its bottom closed by a disk having its periphery united to the edges of the cup by swaging them together and a packing-disk fastened to the bottom of the disk and overlying the swaged joint to prevent leakage thereinto.
4. A screw-stopper for water-bottles, consisting of an inverted hollow cup having a handle at top, externally screw-threaded, and having an annular lower edge constructed with a rabbet, in combination with a disk carrying a stud seating against and closing the open end of said cup, engaging the rabbet thereof and secured thereto, and a perforated washer adapted to be sprung over said stud and lie against said disk.
5. A screw-stopper for water-bottles, consisting of an inverted hollow cup having a handle at top, externally screw-threaded, and having an annular lower edge constructed with a rabbet, in combination with a substantially-flat disk having a stud riveted to its center and constructed with a beveled outer edge fitting within the rabbet of said cup, closing the open end thereof, and adapted when the edge of said cup is turned against the beveled edge of said disk to be thereby secured to said cup to form a hollow body, and a washer



sprung over said stud and lying against said disk and the lower edge of said cup, whereby said washer overlies and protects the joint between said cup and disk.

- 5 6. A screw-stopper for water-bottles, consisting of a sheet-metal cup E, externally screw-threaded, having a lower cylindrical portion *j*, constituting a guide for introducing the stopper into its thimble, and an annular groove *g*  
10 on the inner wall of its lower edge, in combination with the disk *f*, carrying headed stud *h*, fitting within said annular groove and held therein by the overturned lower edge of the cup, and washer *i*, sprung over said stud *h* of

said disk, extending over the face of the latter and of substantially-uniform diameter with the cylindrical portion *j* of said cup, whereby the joint between said cup and disk is sealed and protected by said washer, substantially as and for the purpose set forth. 15 20

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

GEORGE H. F. SCHRADER.

Witnesses:

GEORGE H. FRASER,  
CHARLES K. FRASER.