

No. 721,477.

PATENTED FEB. 24, 1903.

C. A. TATUM.
STOPPER RETAINER.
APPLICATION FILED OCT. 20, 1902.

NO MODEL.

Fig. 1.

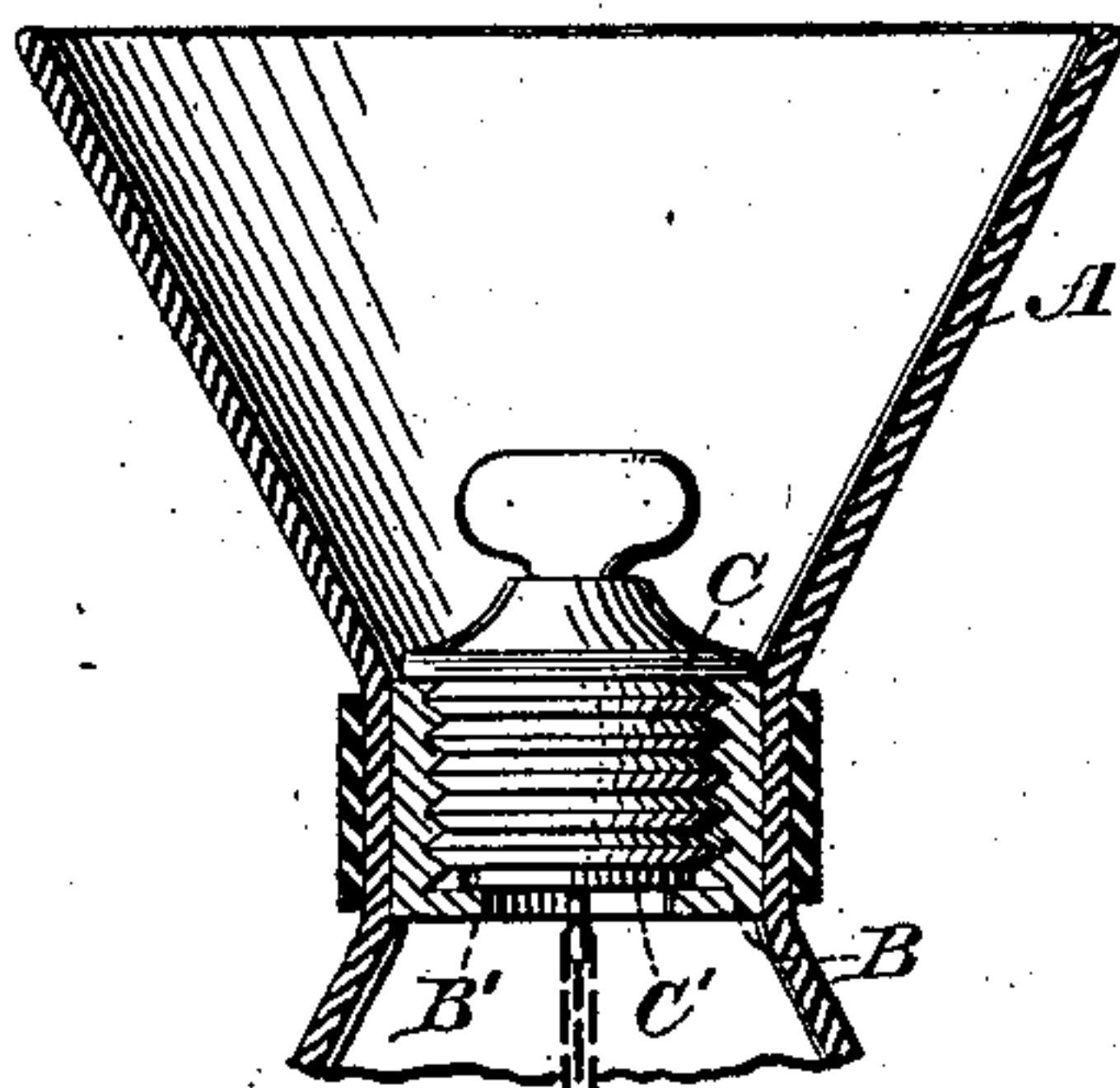


Fig. 2.

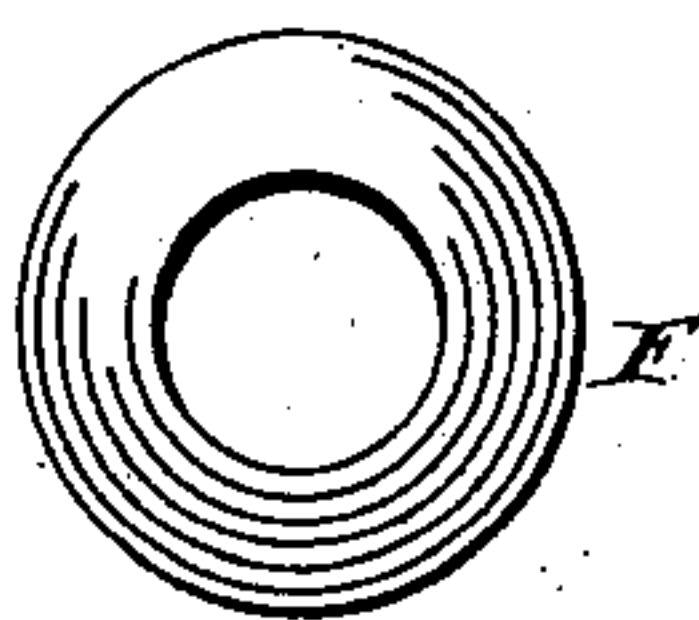


Fig. 3.



Fig. 4.

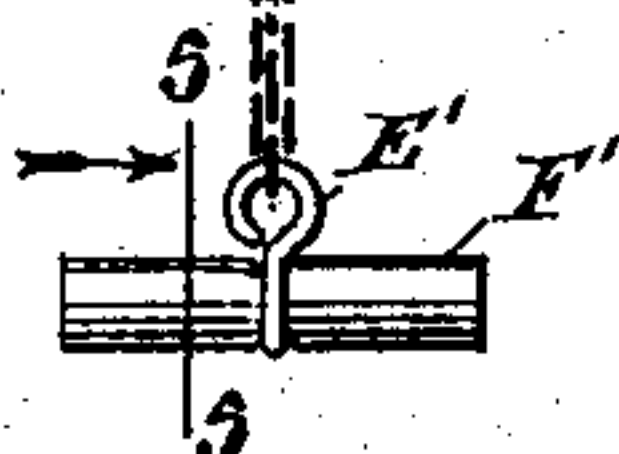
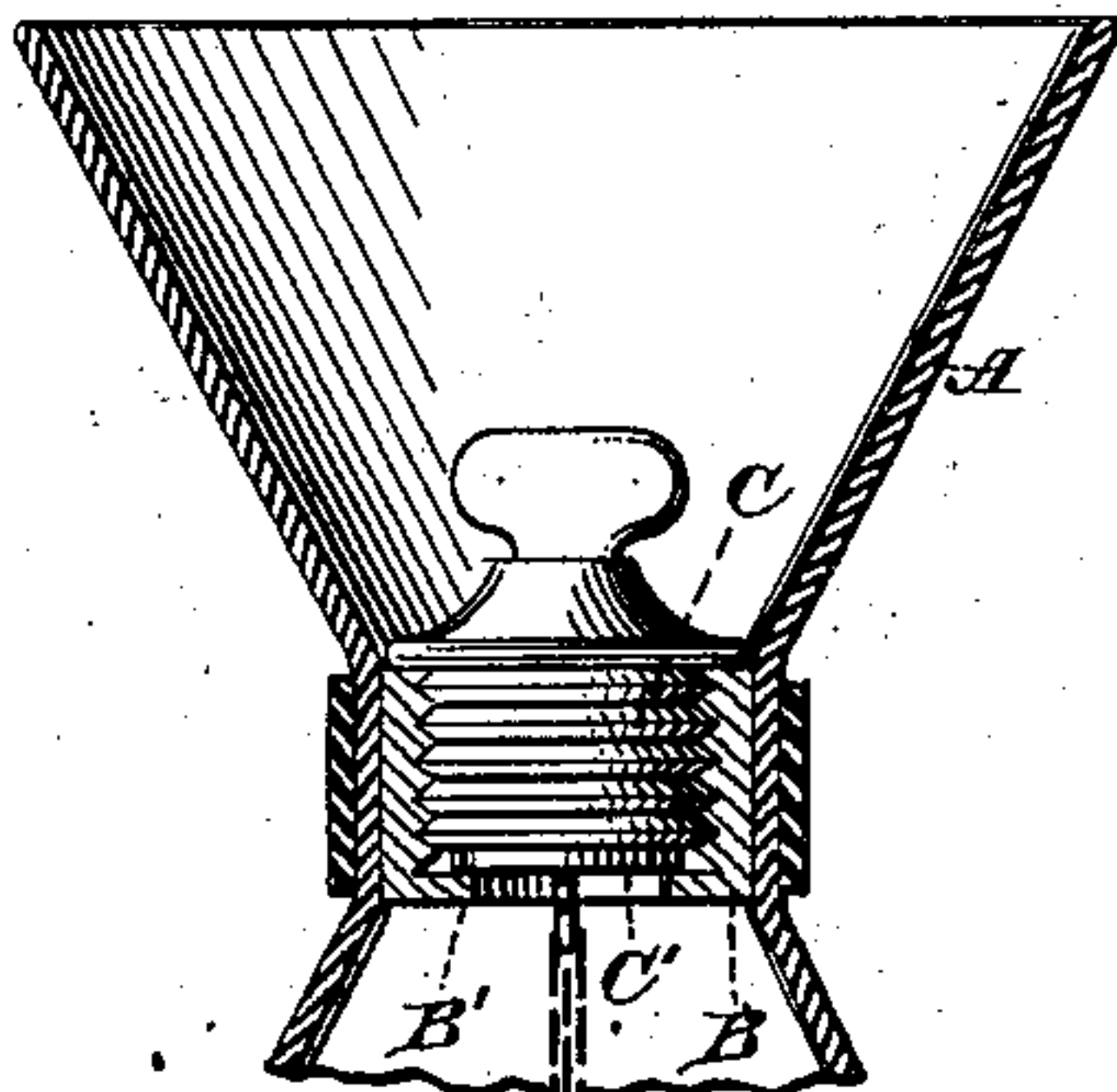
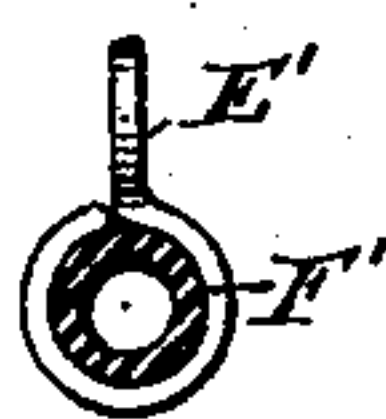


Fig. 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES A. TATUM, OF NEW YORK, N. Y., ASSIGNOR TO WHITALL TATUM COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

STOPPER-RETAINER.

SPECIFICATION forming part of Letters Patent No. 721,477, dated February 24, 1903.

Application filed October 29, 1902. Serial No. 129,189. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. TATUM, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Stopper-Retainers, of which the following is a specification.

My invention relates to stopper-retainers—that is, to devices for preventing the accidental separation of a stopper from the bottle or other receptacle in connection with which the stopper is used.

The object of my present invention is to provide a stopper-retainer particularly adapted for use in conjunction with hot-water bottles made of soft material, such as rubber, the improved stopper-retainer being so constructed that it will not be liable to injure the hot-water bottle and that it may be readily removed from the bottle when desired, while an unintentional separation of the stopper from the bottle is prevented.

The accompanying drawings illustrate two forms or examples of my invention, which will now be described in detail, and the novel features of the improvement will then be pointed out in the appended claims.

Figure 1 is an elevation of part of a hot-water bottle with my improved stopper-retainer applied thereto, the bottle being shown in section. Fig. 2 is a face view of the retainer proper. Fig. 3 is an edge view thereof. Fig. 4 is an elevation similar to Fig. 1, showing another form of my invention; and Fig. 5 is a cross-section on line 5 5 of Fig. 4.

The hot-water bottle shown in Figs. 1 and 4 has a flaring mouth A, at the inner portion of which is located a bushing B, having an inwardly-projected flange B' at the bottom. This flange forms a seat for the washer C', arranged at the lower end of the stopper C, which screws into the said bushing B. To the inner end of the stopper is secured, so as to normally extend into the bottle, a connecting member D; preferably flexible, a chain being usually employed, as shown. To the lower or inner end of this connecting member is attached the retainer proper. So far the two constructions shown in the drawings are identical.

In the form of my invention illustrated by

Figs. 1, 2, and 3 the retainer proper consists of an endless ring F, preferably flat, this ring being made of a soft elastic material, such as soft rubber. The diameter of the ring in its normal circular form, as shown, is larger than that of the opening surrounded by the flange B'. Thus an accidental entire separation of the stopper from the bottle is prevented, since the ring F cannot pass through the opening at the bottom of the bushing B unless a strong upward pull is intentionally exerted on the connecting member D. In this case the ring F will be deformed into an elongated substantially elliptical shape, and will thus be forced or squeezed through the bushing B. To insert the retainer-ring F into the bottle, it is sufficient to push it in by means of a rod or tool applied against the lower ring portion. The attachment of the ring F to the chain or other connecting member D may be made by means of an eye or hook E, which is engaged with the chain and which also forms a clamp embracing and holding the retainer-ring. Making the ring of soft material not only facilitates its passage through the bushing B, but presents the further advantage that such a ring will not injure the bottle by contact with it, as a ring made of hard material is liable to do. It will be understood that the ring which forms the retainer is not permanently deformed by inserting it into the bottle. Neither is it permanently deformed when it is removed from the bottle by a strong pull. The retainer therefore always remains in a serviceable condition. It is therefore an important feature of my invention that the ring should consist of a material which is sufficiently rigid to prevent an accidental withdrawal of the retainer from the bottle, yet elastic enough to admit of the insertion and also of the withdrawal of the retainer without permanently deforming it. If the ring were made of stiff material, even if such material were elastic, it might be possible to force the ring into the bottle by means substantially as hereinbefore referred to. It would, however, be very difficult, if not impossible, to withdraw such a ring by exerting an upward pull, on account of the great resistance which it would oppose to such movement. When, however, a pliable retainer is employed, as in

my invention, great advantages are secured as to the facility of inserting and removing the retainer, as will be obvious. Furthermore, a retainer made of stiff and hard material will always be liable to injure the soft rubber of which the bottle consists, while a soft retainer, such as is used by me, avoids this defect.

In the construction represented in Figs. 4 and 5 the retainer proper is made of a piece of soft-rubber tubing F', which is attached to the end of the chain D by means of an eye or clamp E' of the same character as the clamp E of Fig. 1. This piece of rubber tubing has two free ends instead of forming a ring; but, like the ring F of Figs. 1, 2, and 3, it extends so far to each side of the chain D that the retainer cannot pass through the bushing B unless it is forced therethrough—that is to say, the length of the retainer F' is greater than the diameter of the opening in the bushing, or, in other words, the radius of said opening is smaller than the distance to which the retainer extends laterally from the chain or connecting member D. The advantages of this second construction are the same as those set forth with reference to Figs. 1, 2, and 3.

Various modifications may be made without departing from the nature of my invention.

I claim and desire to secure by Letters Patent—

1. The combination with a receptacle having an opening, of a stopper, a connecting member extending from the stopper into the receptacle, and a stopper-retainer made of pliable elastic material and secured to the inner end of said connecting member, and extending therefrom laterally a distance greater than the radius of said opening, to prevent the accidental withdrawal of the retainer, and the accidental separation of the stopper from the receptacle.

2. The combination with a receptacle having an opening, of a stopper, a stopper-retainer made of pliable elastic material and exceeding the size of said opening, and a

member connecting said retainer with the stopper.

3. A stopper having a connecting member attached thereto, and a stopper-retainer made of a soft elastic material and secured to the free portion of the connecting member.

4. A stopper having a connecting member attached thereto, a clamp secured to the free portion of said member, and a stopper-retainer held by said clamp and made of pliable elastic material.

5. A stopper having a connecting member attached thereto, and a stopper-retainer consisting of a ring of pliable elastic material secured to the free portion of said connecting member.

6. The combination of a stopper, a connecting member attached thereto, a clamp secured to the free portion of said member, a stopper-retainer held by said clamp and made of pliable elastic material, and projecting laterally from the said clamp, and a receptacle having an opening for the passage of the retainer and connecting member, the radius of said opening being smaller than the distance to which the retainer projects laterally from the clamp.

7. The combination of a stopper, a connecting member attached thereto, an endless pliable elastic ring secured to the free portion of said connecting member, and a receptacle provided with an opening for the passage of said ring and connecting member, the diameter of said opening being smaller than that of the ring.

8. The combination with a receptacle having an opening, of a stopper, and a stopper-retainer exceeding the size of said opening, said stopper-retainer being made in the shape of an endless ring and of a pliable elastic material, so that it may be readily pushed into the receptacle and also removed therefrom when desired, without becoming permanently deformed.

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Witnesses:

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