

No. 723,741.

PATENTED MAR. 24, 1903.

W. H. SHERMAN.  
BOTTLE STOPPER.

APPLICATION FILED JULY 11, 1902.

NO MODEL.

Fig. 1.

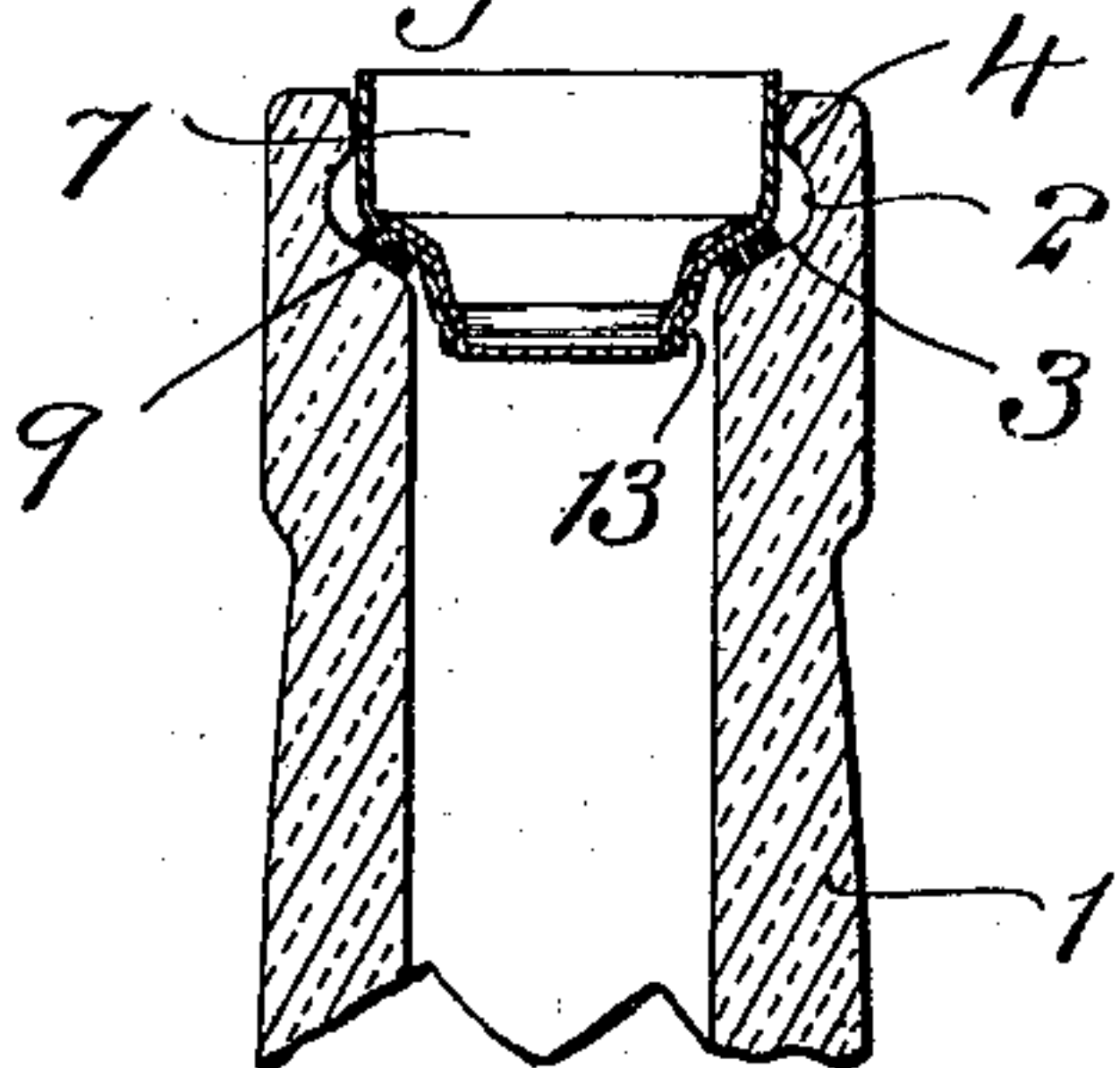


Fig. 2.

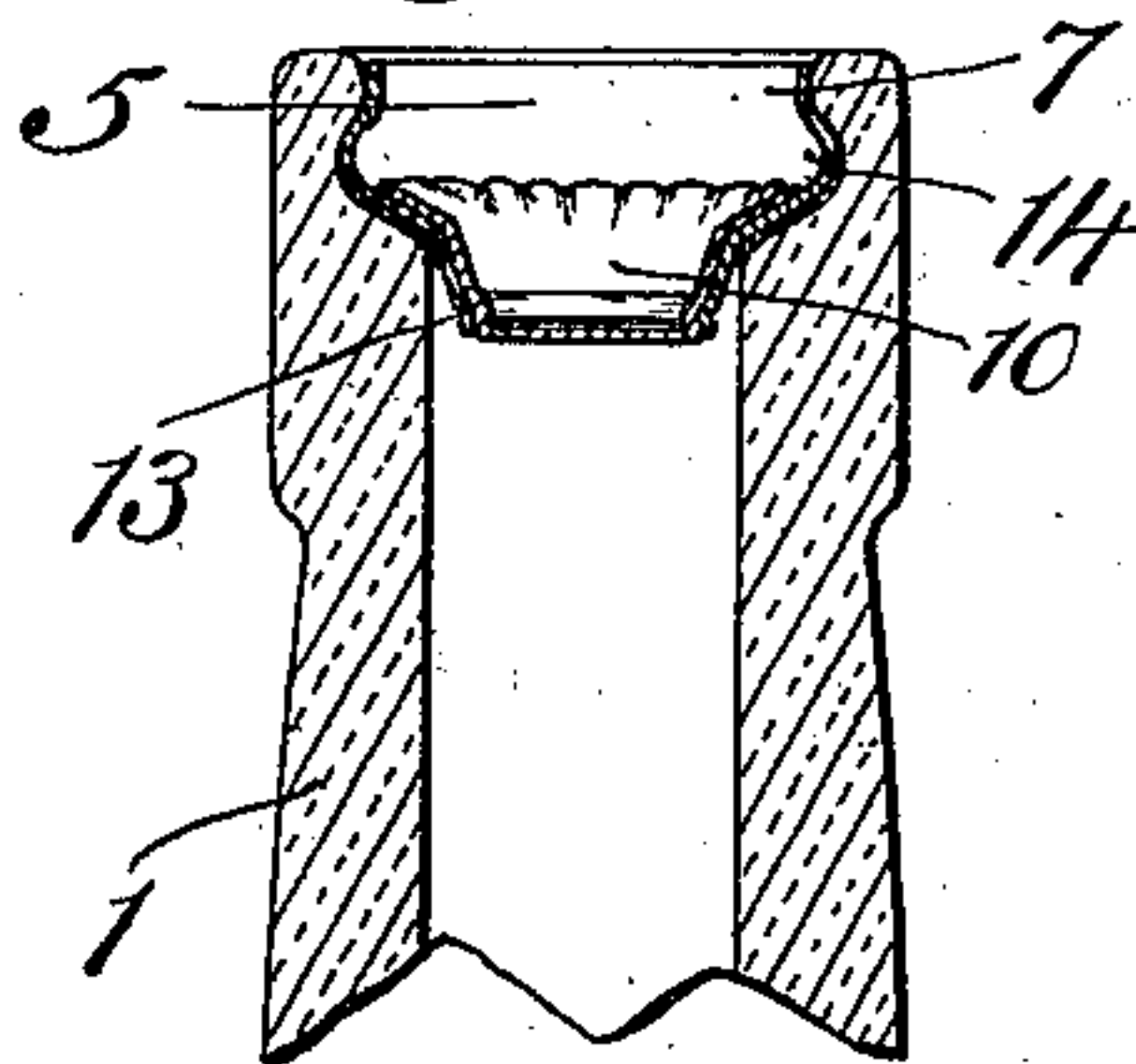


Fig. 3.

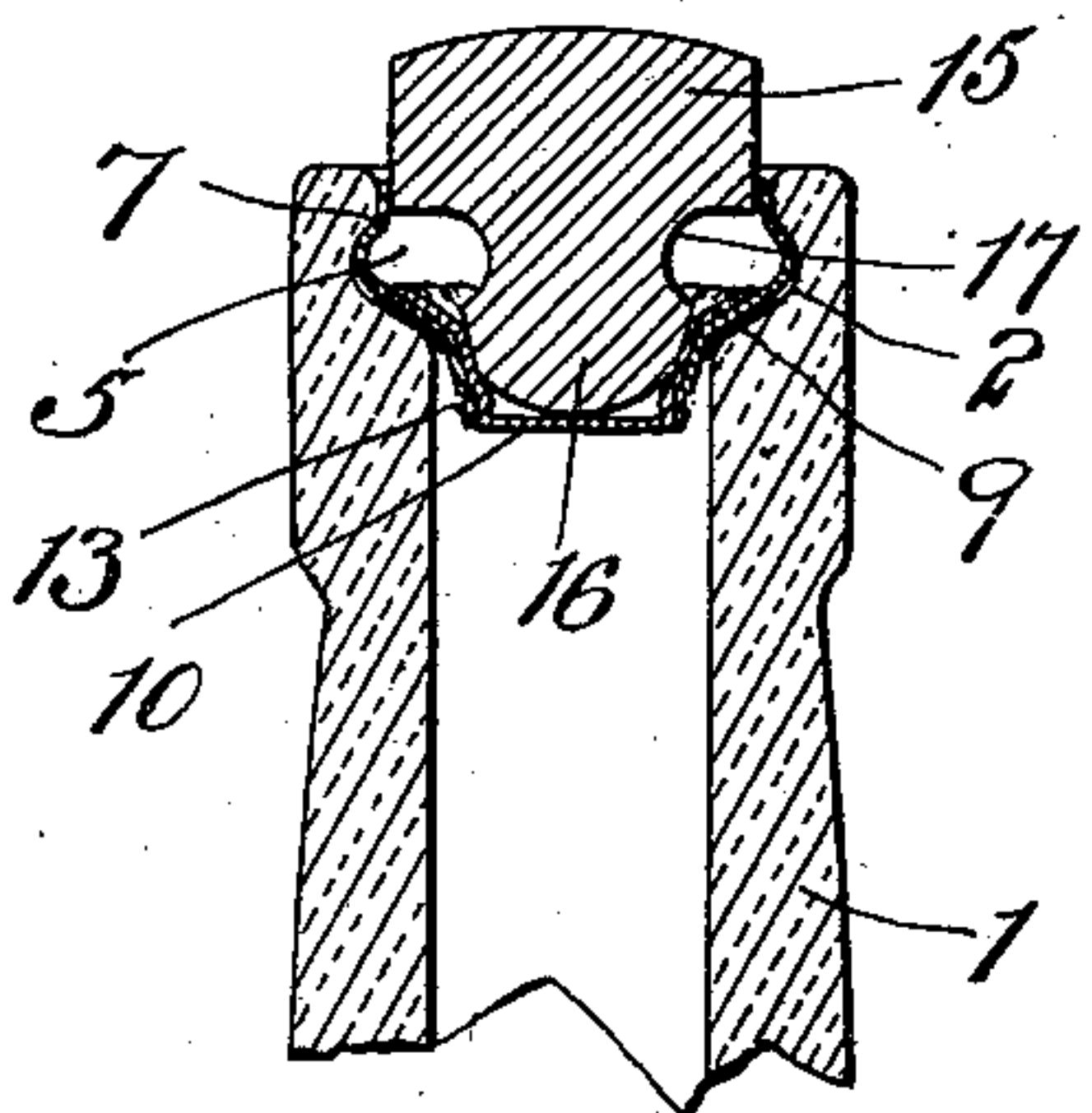


Fig. 4.

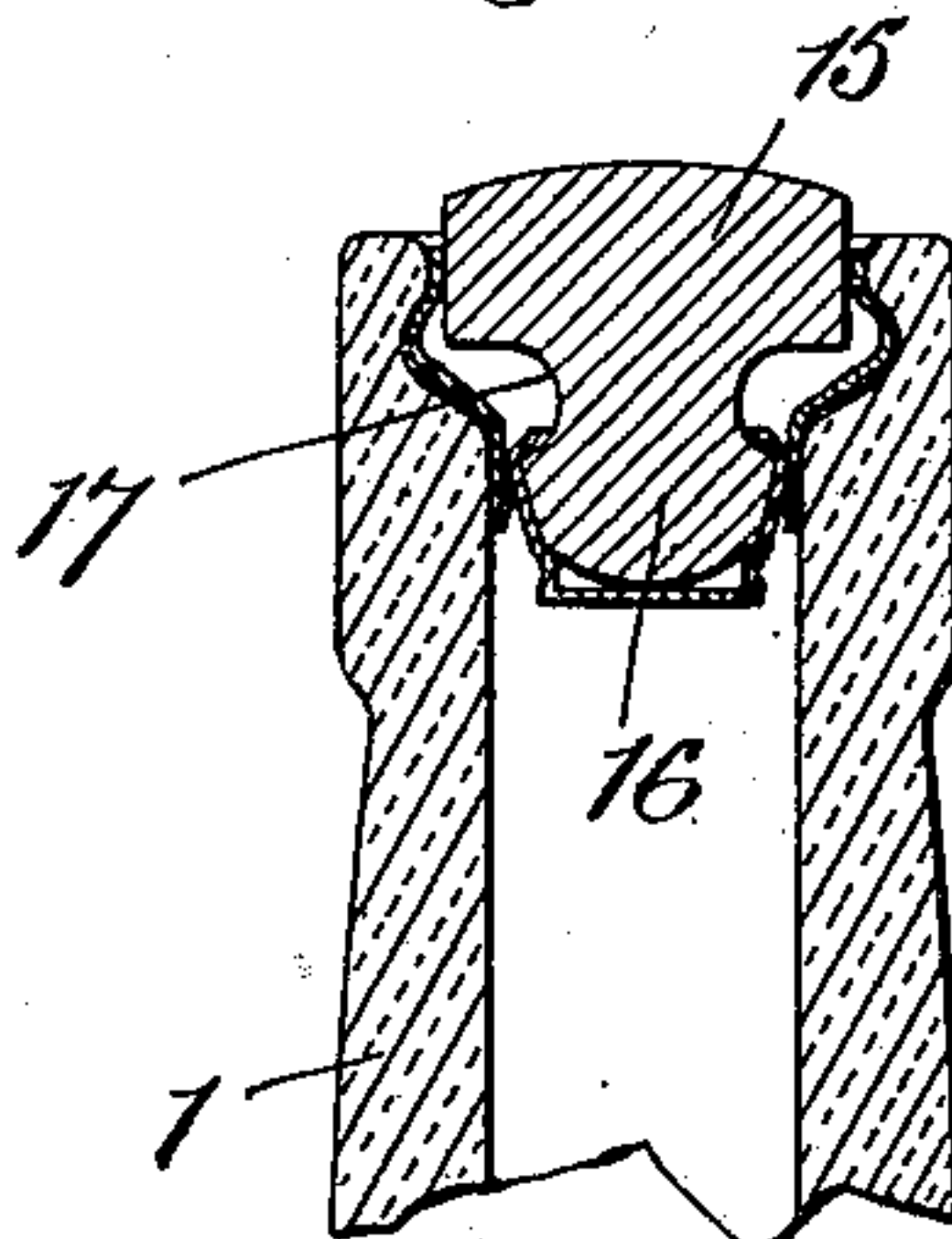


Fig. 5.

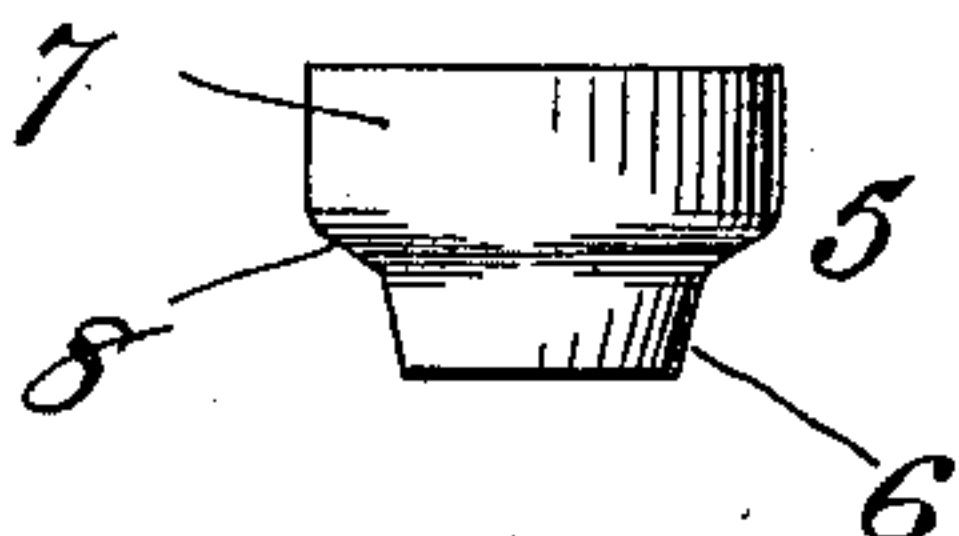


Fig. 6.

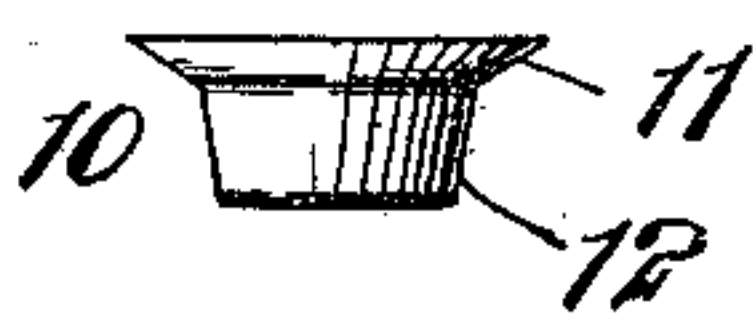


Fig. 7.

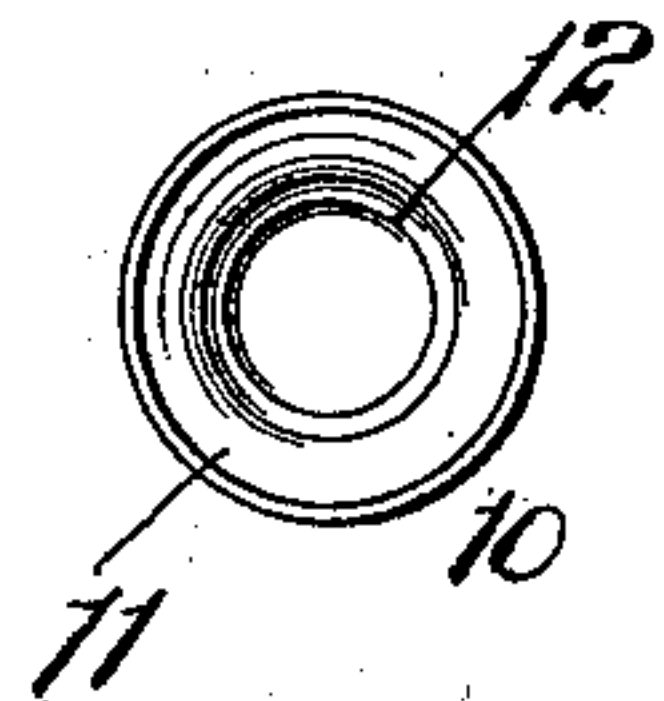
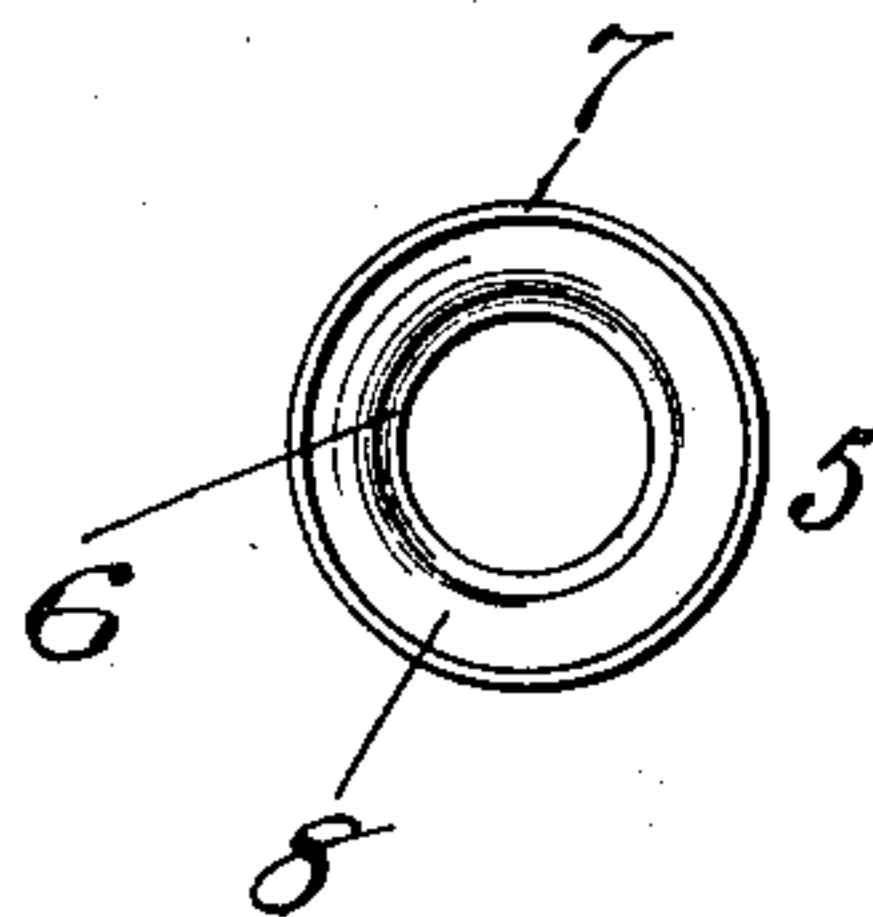
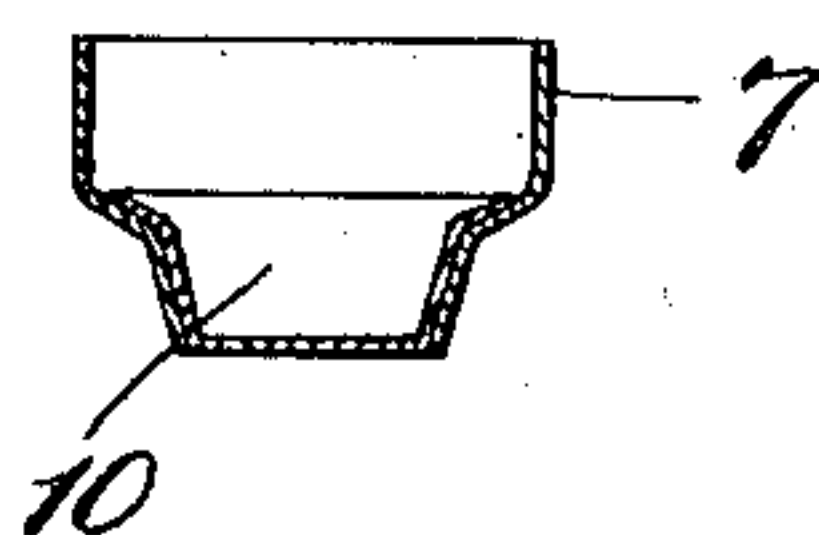
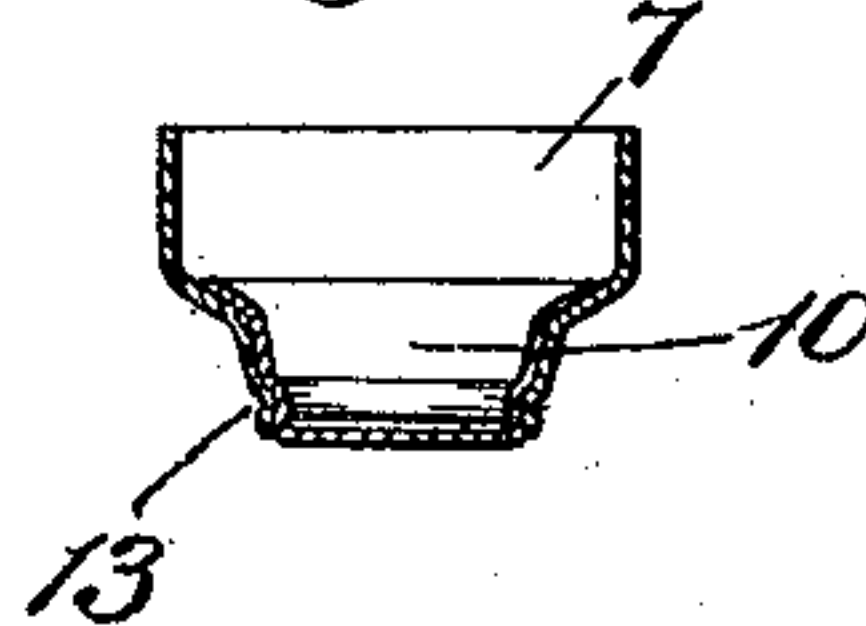


Fig. 8.



Witnesses:  
George Barry Jr.,  
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# UNITED STATES PATENT OFFICE.

WILLIAM H. SHERMAN, OF NEW YORK, N. Y.

## BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 723,741, dated March 24, 1903.

Application filed July 11, 1902. Serial No. 115,174. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. SHERMAN, a citizen of the United States, and a resident of the borough of Manhattan, in the city and State of New York, have invented a new and useful Improvement in Bottle-Stoppers, of which the following is a specification.

My invention relates to an improvement in bottle-stoppers, and has for its object to provide a stopper which can be readily locked in position in the neck of the bottle and which may be unlocked therefrom in a very simple and effective manner when it is desired to remove the stopper.

A further object is to provide an improvement in the bottle-stopper shown, described, and claimed in my pending application, filed July 3, 1901, Serial No. 66,977, by the use of a ring interposed between the cup and the neck of the bottle for compensating for greater variation in the necks of the bottles, for resisting greater internal pressure and at the same time permitting the cup to be released with a small amount of force, and to permit the permanent retention of the gasket for repeated use.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 represents in vertical central section the upper portion of the neck of a bottle, the parts being in the position which they assume when the cup has been secured to the ring and the ring resting upon the gasket before the ring has been expanded into the locking-groove in the neck of the bottle. Fig. 2 is a similar view after the ring has been expanded into position within the neck of the bottle and the cup-flange corrugated. Fig. 3 is a similar view showing the releasing-plug in its normal position within the cup when the stopper is locked within the neck of the bottle. Fig. 4 is a similar view showing the releasing cup and plug forced inwardly for releasing the cup from the ring and engaged with the plug. Fig. 5 represents the ring in side elevation and top plan. Fig. 6 represents the cup in side elevation and top plan. Fig. 7 represents the cup seated within the ring before it has been locked thereto, the parts being shown in vertical central section;

and Fig. 8 represents the cup seated within the ring locked thereto, the parts being shown in vertical central section.

The neck of the bottle is denoted by 1, and it is provided with an interior annular groove 2, developed into a tapered seat 3, extending downwardly toward the interior of the neck of the bottle. A locking-shoulder 4 is formed opposite the seat 3 by the annular groove 2. The stopper-ring is denoted by 5, and it comprises a tapered inner portion 6, a cylindrical portion 7, and an intermediate tapered shoulder 8. This ring may be stamped or drawn from sheet metal, and the cylindrical portion 7 thereof is of slightly less diameter than the mouth of the neck of the bottle to permit the insertion of the ring into the neck of the bottle.

A gasket 9 is interposed between the tapered seat 3 in the neck of the bottle and the tapered shoulder 8 on the ring, which gasket is made of some suitable compressible material, preferably of a diameter sufficiently small to secure itself to the ring before the ring is inserted into the neck of the bottle.

The stopper-cup is denoted by 10, and it is provided with a flange 11 and a tapered body portion 12. The tapered body portion 12 snugly fits within the tapered portion 6 of the ring 5, while the flange 11 rests upon the shoulder 8 of the said ring.

The cup and ring are interlocked before the stopper is inserted into the neck of the bottle by indenting the tapered portion 6 of the ring into the tapered portion 12 of the cup, as shown at 13.

In the present instance I have shown the cup and ring as locked together by providing a circumferential indentation, which serves to still further seal the cup and ring together to prevent the escape of gases from within the bottle when the stopper is used in connection with bottles where it is desirable to have an absolute seal.

The ring is locked within the neck of the bottle after the stopper has been inserted therein by expanding the cylindrical portion 7 of the ring, as shown at 14, into the annular groove 2, the locking-shoulder 4 serving to prevent the removal of the ring after it has once been expanded into the groove 2.



The cup is released from its locking engagement with the ring when it is desired to remove the stopper by means of a releasing-plug. The releasing-plug is provided with a  
 5 suitable head 15 and a tapered shank 16. A shallow circumferential groove 17 is formed on the shank adjacent to the head 15. The shank 16 of the plug is preferably of sufficient  
 10 diameter to snugly engage the tapered portion 12 of the cup, so that the plug may be held normally within the said cup ready for use when it is desired to release the cup from the ring. As the plug is forced inwardly the tapered portion of the ring 5 is forced out-  
 15 wardly, thus releasing the cup from the ring. At the same time the flange 11 of the cup is drawn into the circumferential groove 17 in the plug, so that when the plug is removed either by the internal pressure within the bot-  
 20 tle or by external means the cup and the plug will be removed together.

The cup 10 is preferably stamped or drawn from soft metal, so that it can be easily released from the ring 5 by a comparatively  
 25 slight inward pressure of the releasing-plug.

The interlocking engagement of the cup and ring is such that the internal pressure will serve to more securely seal the two together because of the pressure having free  
 30 access to the exterior of the tapered portion 6 of the ring. At the same time that the cylindrical portion 7 of the ring is expanded into the annular groove 2 and the gasket compressed the flange 11 of the cup and the  
 35 shoulder 8 of the ring may be corrugated by a suitable tool. This will tend to strengthen the shoulder of the ring and will also permit the flange of the cup to be drawn evenly into the annular groove 17 of the releasing-plug  
 40 when the plug is forced inwardly to release the cup.

What I claim is—

1. A bottle-stopper comprising a ring adapt-

ed to be secured within the neck of the bottle and a cup secured to said ring. 45

2. A bottle-stopper comprising a ring adapted to be secured within the neck of the bottle, a cup secured to said ring and means for releasing the cup from the ring.

3. A bottle-stopper comprising a ring adapted to be secured within the neck of the bottle, said ring having a tapered portion and a cup having a tapered portion fitted to the tapered portion of the ring, the said cup being secured to the said ring. 50 55

4. A bottle-stopper comprising a ring adapted to be secured within the neck of a bottle, a soft-metal cup fitted to be locked to the said ring and a releasing-plug, the said cup and releasing-plug being fitted to be locked to- 60  
 65

5. A bottle-stopper comprising a ring having its walls struck outwardly to engage the neck of a bottle, a soft-metal cup secured to the said ring and having an outwardly-flaring rim and a releasing-plug having a circumferential groove, the said cup and releasing-plug being fitted to be locked together when the cup is released from the ring by the said plug. 70

6. In combination, a bottle having an annular groove therein, a shoulder adjacent to the groove, a ring having an annular shoulder, a gasket interposed between the annular 75  
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In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 28th day of June, 1902.

WILLIAM H. SHERMAN.

Witnesses:

FREDK. HAYNES,  
 HENRY THIEME.