

R. G. Pike,

Bottle Stopper,

No. 54,201.

Patented Apr. 24, 1866.

Fig. 4.

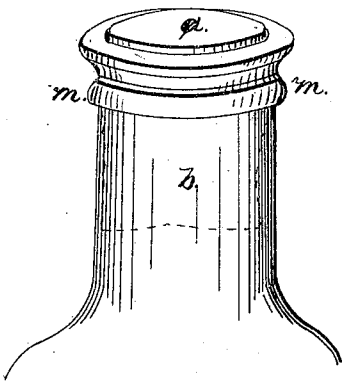


Fig. 2.

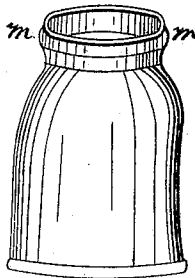


Fig. 6.



Fig. 1.

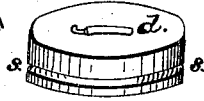


Fig. 7.

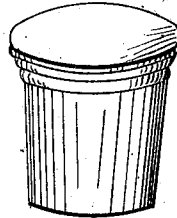


Fig. 5.

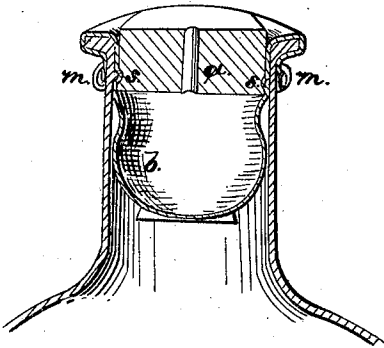
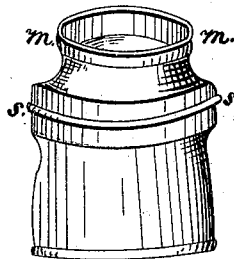


Fig. 3.



Attest:

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# UNITED STATES PATENT OFFICE.

ROBERT G. PIKE, OF MIDDLETOWN, CONNECTICUT.

## IMPROVED STOPPER FOR BOTTLES.

Specification forming part of Letters Patent No. 54,201, dated April 24, 1866.

*To all whom it may concern:*

Be it known that I, ROBERT G. PIKE, of the city of Middletown, in the State of Connecticut, have invented and made a new and Improved Mode of Stopping Preserve Jars and Bottles; and the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Preserves are generally fastened into the jar or bottle while steaming hot, with a view to the more effectual exclusion of the air. If properly closed the preserves will keep; otherwise not. When sealed in this way, steaming hot, it is evident that they are expanded in bulk. As they cool, however, they contract in bulk, and if the bottle or jar is perfectly tight a perfect vacuum is formed between the stopper and the top of the preserves, with an atmospheric pressure outside thereof of fifteen pounds to a square inch. If the bottle is frail and the vacuum large, it will burst in. If the stopper is not firm, it will be pushed in. If not pushed, and there is any weakness around the stopper, the pressing atmosphere will search it out, the air will creep in, fill the vacuum, reach the preserves, and destroy them. In this way the most careful and expert housekeepers are often baffled, although using the best devices heretofore invented.

Now, the design of my invention is to overcome these difficulties by producing a stopper easily put on or taken off, which will not only effectually close the bottle, but so close it that the pressure of the atmosphere shall regulate the vacuum, filling it as fast as produced by the contraction of the preserves, yet excluding the air from contact therewith. This I claim to have done by the following contrivance: I make an elastic sack or bag of thin sheet india-rubber (that commonly known as "bandage-gum") a little smaller in diameter than the orifice of the bottle or jar, and its length one and a half times its diameter, or more. This sack is air-tight at the sides and bottom. Around the outside of the edge of the opening of the sack is permanently attached, with india-rubber glue, an elastic ring of rubber of about the same (or smaller) diameter as that of the sack. I then take a stopper (thin cork is preferable, about a half an inch thick) that goes easily into the bot-

tle. Through this cork I make a hole large enough for the free passage of air, and around the cork, near the bottom edge, I cut a deep narrow groove. I push this cork into the sack about half its depth down, which being little smaller in diameter than the cork, draws tightly around it and into the groove. I fasten the cork in place by slipping an elastic ring into the groove, or tying a string around it in the groove. This completes my stopper.

Fig. I shows the cork. *s s* is the groove, and *c d* the air-hole, through which is also fastened a metallic clamp, through which a ring or string may be passed to pull out the cork when necessary.

Fig. II is the bag or sack without the cork, open at the top, around which *m m* is the elastic ring or collar. Fig. III is the sack with the cork fastened therein.

This stopper is used with bottles or jars that have flanges or collars around the orifice. It is adjusted as follows: The bottle being filled with hot preserves, the stopper is inserted, the bag crowding up the sirup until the cork is well into the bottle. Then draw the edge of the sack over the flange all around until the ring is brought firmly and smoothly under the flange, or lower down, if possible, around the neck of the bottle. Its appearance then is seen at Fig. IV; but as the contents cool and contract, and a vacuum thereby created, the air rushing through the hole in the cork distends the sack, filling what would otherwise be a vacuum. When entirely cold the sack appears as represented in Fig. V, which is a vertical section passing through the center of the cork. *a* is the cork; *b*, the distended sack; *m m*, the elastic ring; *s s*, the grooves in the cork.

Now, by examination it will be seen that the air is shut out, first, by the ring *m m* pressing around outside the neck; second, by the sack contracting around the flange or collar; third, by the cork pressing the rubber against the inside of the neck; and, fourth, by the expansion of the bag against the neck. It is also evident that if the jar should be accidentally warmed again the expanding contents would meet a yielding sack, the air passing out, and no harm would result. Thus it regulates itself and adapts itself to any change of tem-

perature. It will also be seen that the greater the contraction the tighter the bulb *b* is expanded, whereby the cork and sack are more firmly and snugly held in place. Again, when preserves are rich with sugar a simple paper cover is often used, being tied or pasted onto the jar. It is difficult to do this, however, neatly and effectually.

By dispensing with the cork, and shortening the sack, by tying it tight with a string, or otherwise, we shall have a sack as represented in Fig. VI. When placed on the jar, or a flanged tumbler, for example, it will appear as in Fig. VII. This will serve to cover other articles than preserves.

Having thus fully described my invention, I proceed to state my claims, as follows:

1. The elastic bag or sack with an elastic

ring permanently fastened around the border of the opening thereof, or its equivalent, substantially in the manner and for the purpose as described, whether with or without the perforated cork or stopper.

2. The stopper, whether of cork or other material, perforated for the passage of the air, for the purpose substantially as described.

3. Closing the orifice of bottles or jars by means of air acting expansively in an elastic bag or sack placed within or over the orifice of the jar or bottle, substantially and for the purpose as described.

ROBERT G. PIKE.

Witnesses:

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MARY M. BRAINARD.