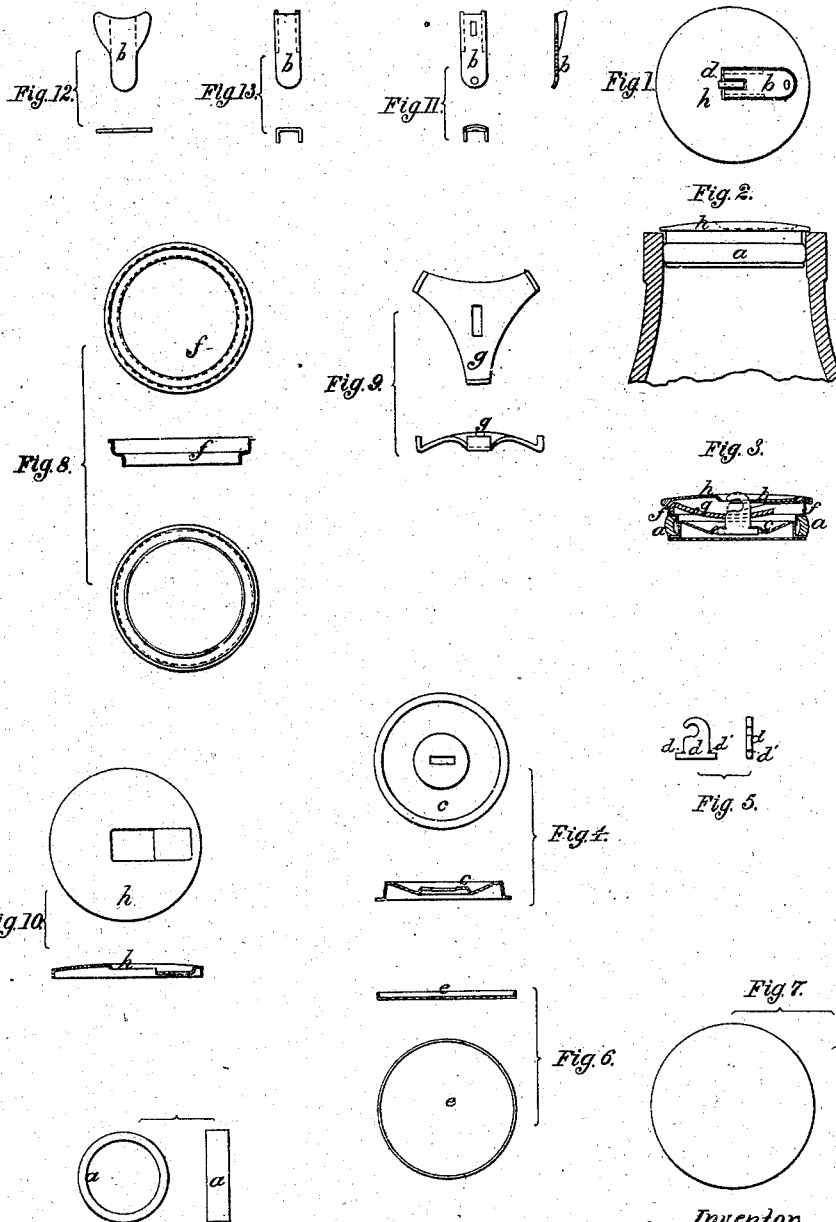


No. 47,779.

PATENTED MAY 16, 1865.

N. THOMPSON.
STOPPER FOR JARS, BOTTLES, &c.

2 SHEETS—SHEET 1.



Witnesses:
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Mr. Black

Inventor:
N. Thompson

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2 SHEETS—SHEET 2.

Fig. 14.

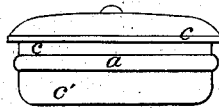


Fig. 15.

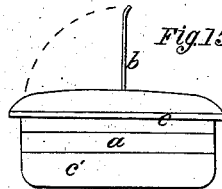


Fig. 19.

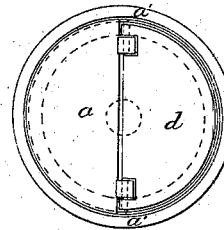


Fig. 16.

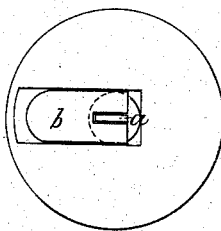


Fig. 17.

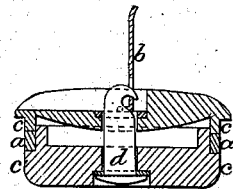


Fig. 20.

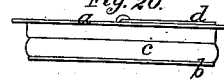


Fig. 21.

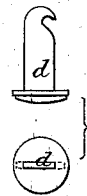
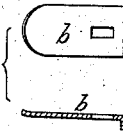
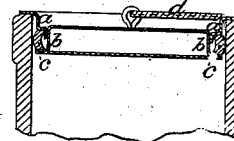


Fig. 18.

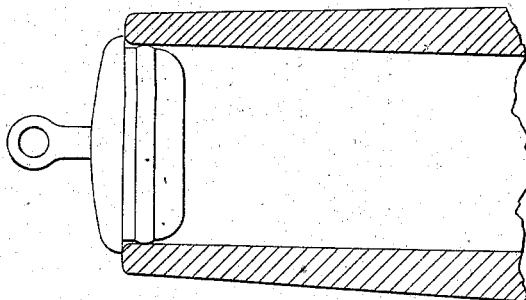


Fig. 22.

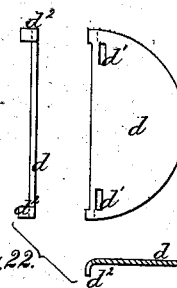


Fig. 23.

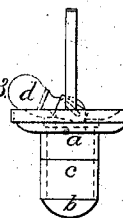
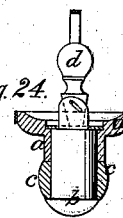


Fig. 24.



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*The drawing in this patent
is not in print.*

UNITED STATES PATENT OFFICE.

NATHAN THOMPSON, OF ABBEY GARDENS, ST. JOHN'S WOOD, MIDDLESEX
COUNTY, ENGLAND.

IMPROVED STOPPER FOR JARS, BOTTLES, &c.

Specification forming part of Letters Patent No. 42,779, dated May 16, 1865.

To all whom it may concern:

Be it known that I, NATHAN THOMPSON, of Abbey Gardens, St. John's Wood, in the county of Middlesex, England, a citizen of the United States of America, have invented or discovered new and useful Improvements in Stoppers for Bottles, Jars, Vessels, and Tubes, also for Ordnance and Fire-Arms; and I, the said NATHAN THOMPSON, do hereby declare the nature of the said invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement thereof—that is to say:

This invention has for its object improvements in stoppers for bottles, jars, vessels, and tubes, also for ordnance and fire-arms; and it consists in constructing a stopper of a ring of a soft, yielding, elastic substance placed between two disks or parts, an upper and a lower one, to one of which is hinged or jointed a lever which, when turned on its hinges or axis, is caused to act on the other part in such manner as to move the two parts toward each other. When the disks or parts are drawn toward each other, by turning the lever, they compress the elastic material between them and cause it to bulge or protrude outward all around the disks or parts; and the lever is so formed as to retain the parts from again separating until the lever is turned to allow them to do so.

In the drawings hereunto annexed I have shown examples of stoppers constructed as above described; but I would have it understood that I do not confine myself to constructing the stoppers as there shown, as the parts of which the stopper is composed may be variously constructed in carrying out my invention.

Figure 1 shows a plan view of a stopper constructed according to my invention; Fig. 2, a side view of the stopper inserted into the mouth of a bottle, the bottle being shown in section. Fig. 3 is a transverse section of the stopper.

In these figures, *a* is the ring, of vulcanized india-rubber or other elastic material, placed between the upper and lower parts of the stopper; *b*, the lever by which the parts are drawn toward each other in order to compress the ring, and by which the parts are retained

in this position. The lower part of the stopper is composed of three pieces of metal, *c*, *d*, and *e*, stamped in dies from sheet metal to the form shown in Figs. 4, 5, and 6, tin-plate being by preference the sheet metal employed. The plate *c* is dished inward, as is shown in the section, Fig. 4, in order that it may be of sufficient strength. Through the slot in the center of this plate is passed the hooked portion of the piece *d*, and the piece *d* is held there by a small portion of the metal at each end of the slot being pressed into the small notches *d'* in the piece *d*. The under side of the piece *c* is then covered over with the covering disk or plate *e*. At the same time the disk *e* is itself covered over with a disk of thin sheet-tin, and over this disk of fabric, or in place of this, the covering-plate *e* may itself be composed of sheet-tin, and this may be covered with enamel or otherwise protected, if desired. The so covering the underside of the stopper with tin prevents the stopper being corroded if it be applied to bottles containing acid substances. In place of so covering the under surface of the stopper it may be otherwise covered or protected.

The parts are put together, as above described, by means of dies or instruments such as are used in the manufacture of buttons, when the bottom of the stopper is covered with a coating of tin and of fabric. This is done by placing a disk such as is shown at Fig. 7 of the collodionized fabric in a suitable hollow die, and over this is placed a disk of tin-foil or thin sheet-tin. The piece *e* is then placed above it, the projecting ring being upward. The edges of the disks of fabric and tin are then by the tools or dies turned over the piece *e*, and the combined pieces *c* and *d* are placed above it, (the edges of the piece *c* resting on the turned-over edges of the disks.) The flange of the piece *c* is then by the dies turned or thrown over onto the flange of the piece *e*, and thus the pieces are connected together and the edges of the disks of sheet-tin and fabric also secured.

The upper part of the stopper is composed of three pieces, *f*, *g*, and *h*, shown separately at Figs. 8, 9, and 10. Each of the pieces is stamped separately into the form shown in each of these figures. The pieces are then

connected together and also connected to the lower part of the stopper in the following manner: The ring *f* is placed on the upper surface of the bottom part of the stopper. The piece *g*, which is the piece upon which the thrust of the lever *b* is taken, is placed into the ring, the hook *d* of the lower part of the stopper passing up through the slot in this piece. The lever *b* is then hooked on to the hook *a*. The covering-plate *h* is placed over the ring *f*, and the lever is turned down, so as to lie within the recess in the plate *h*. The parts so put together are then placed in a hollow die, the lever and plate *h* being downward. The edge of this plate is then by the dies turned or thrown over the projecting ring or flange at the top of the ring *f*. The stopper is then complete. The manner of constructing the lever *b* is shown at Figs. 11, 12, and 13.

Fig. 11 shows views of the lever *b* when completed. The lever is made from a piece of sheet metal of the form shown at Fig. 12. The piece of metal so formed is first bent over into the form shown at Fig. 13, and the slot through which the hook *d* is to pass is then pierced through it, so bringing the piece of metal to the form shown at Fig. 11.

A similar stopper to that above described is shown at Figs. 14, 15, 16, and 17. The upper and lower parts of this stopper are, however, of wood in place of being of metal, as in the stopper first described. *a* is the ring of vulcanized india-rubber; *b*, the lever; *c* and *c'*, the upper and lower parts, respectively, between which the ring is compressed. Through the center of the lower part, *c'*, is a hole, through which is passed the piece *d*, similar to the piece *d* in the stopper first described. This piece may be cemented into its place with a suitable cement. When the two parts *c* and *c'* of the stopper are placed together, the piece *d*, which projects upward from the part *c'*, rises up through an opening in the center of the part *c*. The lever *b* is then hooked onto the hook on the top of the piece *d*, and into the end of the slot or recess in the upper surface of the piece *c* is cemented a small strip of wood or other material to prevent the lever *b* from coming off the hook. When this is done, the india-rubber ring *e* is stretched into its place around the part *c'*, when the lever is turned upward, and the stopper is then complete.

At Fig. 18 is shown a stopper similar to the one last described, applied as a tompon for stopping the muzzle of a cannon. Figs. 19,

20, and 21 show views of another variation of stopper constructed according to my invention, Fig. 19 being a plan view, and Fig. 20 a side view, of the stopper, and Fig. 21 a transverse section of the stopper applied to a bottle. *a* is the upper, and *b* the lower, part of the stopper. Each of these parts is composed of stamped metal, as in the stopper first described. *c* is the ring of vulcanized india-rubber or other elastic material, and *d* the lever hinged to the lower part, *b*, of the stopper. Separate views of the lever *d* are shown at Fig. 22, from which figure it will be seen that the lever is composed of a semicircular flap, having slots *d'* through it, by which it is hinged to the part *b*, and also having two small projections, *d''*, which act on the surface or ring *a'* of the upper part, *a*, of the stopper.

At Figs. 23 and 24 is shown another example of a stopper constructed according to my invention, Fig. 23 being a side view, and Fig. 24 a vertical section, of the stopper. In this case the upper and lower parts of the stopper are drawn closest together when the lever is in a vertical position, in place of being closest together when the lever is in a horizontal position, as in the other stoppers before described. *a* is the upper, and *b* the lower, part of the stopper; *c*, the ring of vulcanized india-rubber, and *d* the lever which is connected to the lower part, *b*, by a pin carried by it passing through a slot in the part *b*.

Having thus described the nature of my invention and the manner of performing the same, I would have it understood that what I claim is—

1. Constructing stoppers of an elastic ring interposed between two parts, which are so combined with a lever that the parts may be moved to or from each other by the lever, as above described.

2. Forming the upper part of the stopper so constructed with a projecting ring of larger diameter than the mouth of the bottle or other article to which the stopper is to be applied.

3. A recess in said top for the lever to lie in.

4. The connecting the lever to the lower part of the stopper by a hook, as above described.

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