(Model.)

M. RUBIN.

BOTTLE STOPPER.

No. 307,990. Patented Nov. 11, 1884.

Fig. 6.

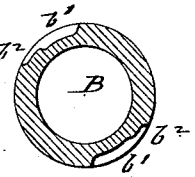


Fig. 1.

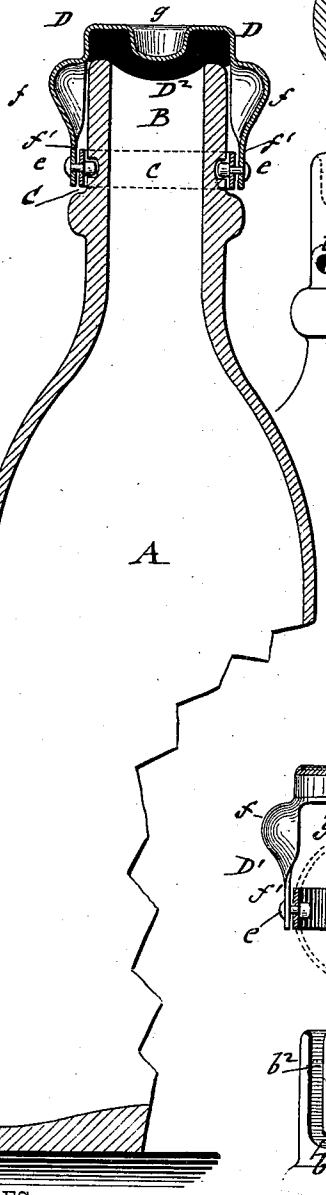


Fig. 5.

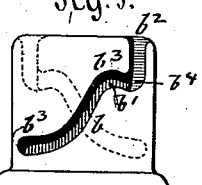


Fig. 2.

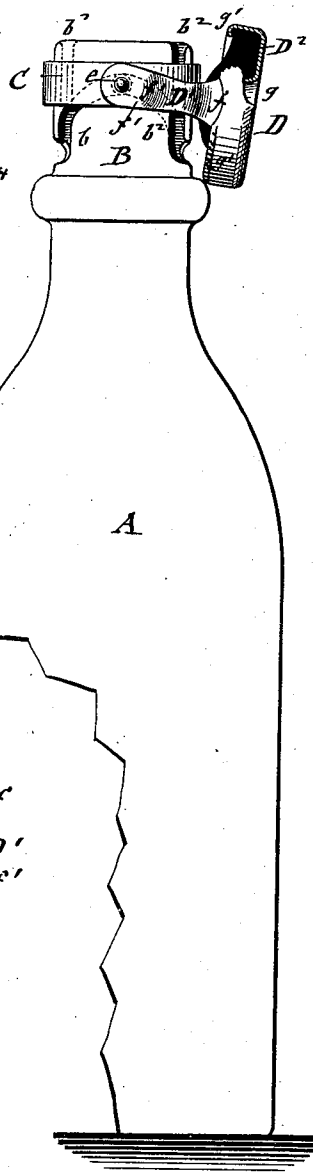
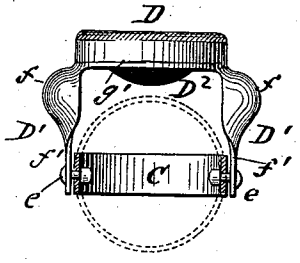
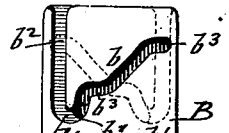


Fig. 3.





A

Fig. 4.

WITNESSES:

Fol. K. Rosenbaum.

Martin Petry.

INVENTOR

Max Rubin

BY Goepel & Raegener,

ATTORNEYS.

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

MAX RUBIN, OF PHILADELPHIA, PENNSYLVANIA.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 307,990, dated November 11, 1884.

Application filed July 10, 1884. (Model.)

To all whom it may concern:

Be it known that I, MAX RUBIN, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Bottle-Stoppers, of which the following is a specification.

This invention has reference to certain improvements in the bottle-stopper for which Letters Patent have been granted to me heretofore, No. 299,269, dated May 27, 1884, the improvements being designed with a view to secure the easy opening and tight closing of the bottle, and to facilitate the attachment of the stopper to the bottle-neck; and the invention consists of the combination of a bottle-neck having spiral grooves with bent portions, and vertical grooves at one end of said spiral grooves, with a neck-band and a cap pivoted to said neck-band, the pivot-pins of said cap projecting into and being guided in said grooves.

The invention consists, further, of certain details of construction and combination of parts, which will be fully described hereinafter, and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a vertical central section of a bottle with my improved stopper, showing the same in closed position. Fig. 2 is a side elevation of the same, showing the cap partly in section. Fig. 3 is a sectional side elevation of the stopper shown as detached from the bottle. Figs. 4 and 5 are detail side views of the bottle-neck with the stopper detached therefrom, and Fig. 6 is a horizontal section of the bottle-neck shown in Fig. 5.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents a bottle, which is provided with a cylindrical neck, B, having spiral grooves *b b* at diametrically-opposite points. The grooves *b b* are connected at their upper or lower ends by short bent portions *b'* with vertical grooves b^2, that extend to the upper edge of the bottle-neck. The spiral grooves *b b* are arranged with stops b^3 at both ends. A ring-shaped neck-band, C, is fitted to the cylindrical neck B, and serves to support a cap, D, the downwardly-extending arms D' of which are pivoted to diametrically-opposite points of the neck-band C. The pivot-pins *e e* are enlarged at their inner ends, so as to fill up the spiral grooves *b b*. They are guided in the grooves so as to raise or lower the neck-band C, and thereby the cap D. The arms D' are made integral with the body of the cap D by being stamped up in one piece therewith, and provided with outwardly-bulging projections *f* below the lower edge of the body of the cap, and with flat lower ends. The projections *f f* serve as finger-rests, by which the turning of neck-band C and cap D in opening or closing the bottle-stopper is facilitated. The projections are struck up from the metal of the arms, whereby the strength of the arms D' is considerably increased. The body of the cap D is provided with a central conical depression, *g*, and at the lower edge, at points intermediate between the arms D', with an inwardly-projecting flange, *g'*, the latter serving to retain the elastic disk or packing D^2, of rubber or other suitable material, in the body of the cap D, so as to cause the lifting of the packing with the cap when the same is opened, and prevent it from sticking to the bottle-mouth and getting detached from the body when the stopper is opened. When the neck-band C is turned in downward direction until it arrives at the lower ends of the spiral grooves *b b*, the bottle-cap D is tightly applied to the mouth of the bottle-neck and the packing-disk D^2 forced by the central conical depression, *g*, into the mouth, so that it closes hermetically the mouth of the bottle, as shown in Fig. 1. When opening the bottle, the neck-band and cap are moved in upward direction along the spiral grooves *b b*, whereby the cap is raised above the bottle-mouth, so that it can be thrown sidewise of the bottle-neck, as shown in Fig. 2, in which position the bottle is open for being filled or emptied.

When it is desired to apply the stopper to the neck B, (shown in Figs. 1, 2, and 4,) the bottle-cap D is placed in a position sidewise of the neck, as shown in Fig. 2, after which the pins *e e* of the neck-band are moved downward along the vertical grooves b^2 and round the bent portions *b'* into the spiral grooves *b b*, along which they are passed in upward direction until the pins arrive at the upper ends of the grooves. When the neck-band C is in this

position, the bottle-cap D is raised and closed on the mouth of the bottle-neck in the manner described.

When it is desired to remove the stopper from the neck B, the neck-band is moved to the upper end of the spiral grooves *b b* and the cap thrown sidewise of the bottle-neck B, as shown in Fig. 2. The neck-band and cap are then moved downward along the spiral grooves *b b* until the pivot-pins *e e* arrive at their lower bent portions, *b' b'*. A slight pressure moves the pins *e e* over the stop-ridges b^4 b^4, after which the pivot-pins *e e* are passed in upward direction along the vertical grooves b^2 until the stopper is detached.

In the modification shown in Fig. 5 the pivot-pins *e e* are passed along the straight grooves b^2 and into the spiral grooves *b* when placing the stopper on the neck B. In removing the stopper the neck-band is passed up along the spiral grooves *b b* until the pivot-pins *e e* arrive at the stop-ridge b^4, over which they are moved by pressure on the neck-band into the vertical grooves b^2, along which the pins are passed until the stopper is detached. At the point where the bent portions *b'* connect with the vertical grooves b^2 a slight ridge or stop-shoulder, b^4, is formed, which prevents the passage of the pivot-pins *e e* into the vertical grooves b^2 b^2, except when a certain pressure is exerted on the neck-band C. The vertical grooves b^2 b^2 may be of the same depth as the spiral grooves *b b*, or of less depth, level with the stop-ridges b^4, as desired. In my former patent referred to, the vertical grooves were located intermediately between the ends of the spiral grooves, which was objectionable, as the pivot-pins were liable, in opening or closing the bottle-stopper, to pass into the vertical grooves. This is entirely avoided by locating the vertical grooves either at the lower or at the upper ends of the spiral grooves, as shown, respectively, in Figs. 4 and 5. The stops b^3 at the ends of the spiral grooves prevent the accidental passage of the pivot-pins *e e* into the bent portions *b'*. When the cap is to be placed into position on the bottle-neck, the pivot-pins are inserted into the vertical grooves b^2 b^2, then moved downwardly along the same until they arrive at the bent portions *b'*, along which they are passed into the spiral grooves *b b*, upon which the stopper is ready to be opened or closed, as described.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a bottle-stopper, the combination of the bottle-neck B, having spiral grooves *b b* and bent portions *b'*, and vertical grooves b^2 b^2 at one end of said spiral grooves, a neck-band, C, and a cap, D, having arms D' pivoted to said neck-band, the pivot-pins of the cap projecting into and being guided in said grooves, substantially as set forth.

2. In a bottle-stopper, the combination of a bottle-neck, B, having spiral grooves *b b* and bent portions *b'*, and vertical grooves b^2 at one end of said spiral grooves, the bent portions having stop-ridges or shoulders b^4, a neck-band, C, and a cap, D, having arms D' pivoted to said neck-band, the pivot-pins of said cap projecting into and being guided in said grooves, substantially as set forth.

3. In a bottle-stopper, a bottle-neck, B, having spiral grooves *b b*, bent portions *b' b'* at one end of said grooves, and straight grooves b^2, extending from the bent portions to the edge of the bottle-neck, substantially as set forth.

4. In a bottle-stopper, the combination of the bottle-neck B, having spiral grooves *b b*, a circular neck-band, C, a cap, D, having downwardly-extending arms D', said arms being provided with outwardly-bulging projections or thumb-rests, and flattened ends *f' f'* below said projections, which ends are pivoted to said neck-band, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

MAX RUBIN.

Witnesses:
PAUL GOEPEL,
OTTO RISCH.