

(No Model.)

H. GERIKE.
BOTTLE STOPPER ATTACHMENT.

No. 470,187.

Patented Mar. 8, 1892.

Fig. 1.

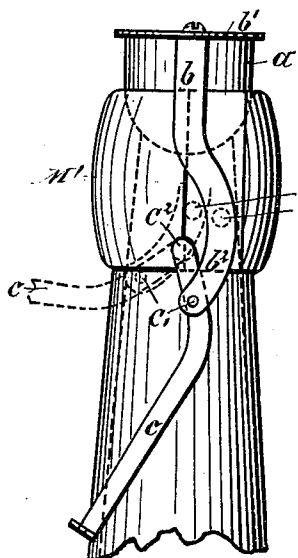


Fig. 2.

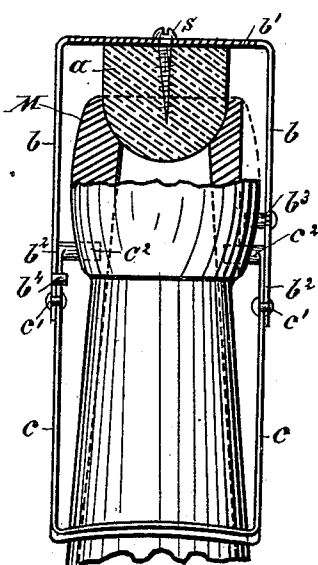


Fig. 4.

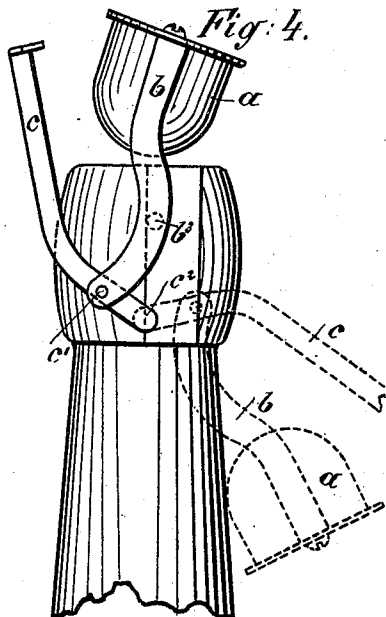


Fig. 3.

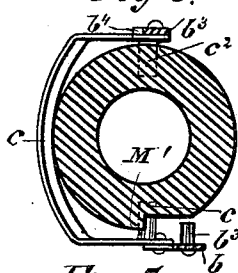


Fig. 6.

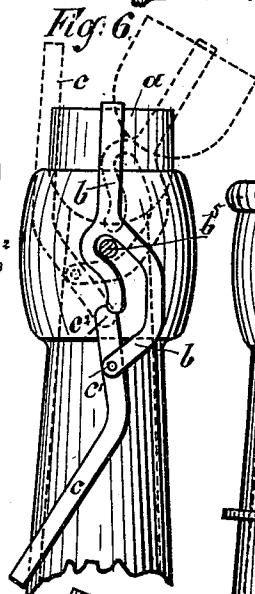


Fig. 9.

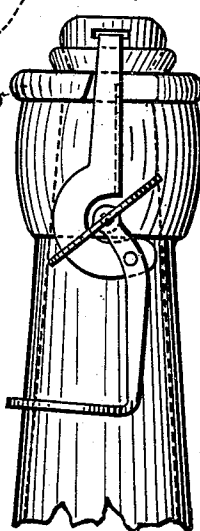


Fig. 10.

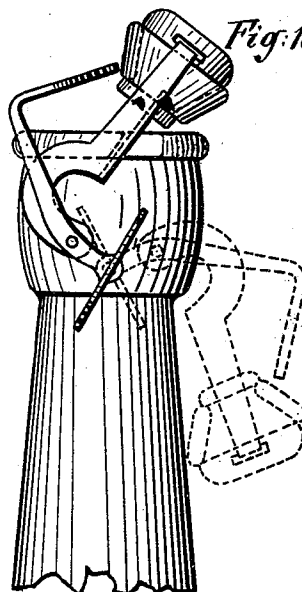


Fig. 7.

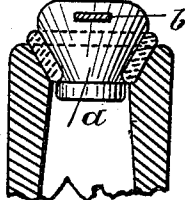


Fig. 8.

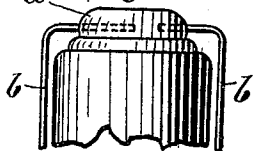


Fig. 6 a

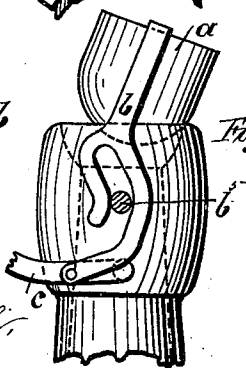


Fig. 5.

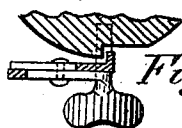
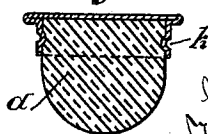


Fig. 11.

Witnesses:

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Charles R. Seale,

Inventor:

H. G. Gerike
by his attorney
Thomas D. Watson

UNITED STATES PATENT OFFICE.

HUGO GERIKE, OF KLEIN-SCHOENEBECK, GERMANY, ASSIGNOR TO FRANZ GERIKE, OF SAME PLACE.

BOTTLE-STOPPER ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 470,187, dated March 8, 1892.

Application filed October 26, 1891. Serial No. 409,787. (No model.) Patented in Germany January 1, 1891, No. 59,885, and in France March 7, 1891, No. 211,962.

To all whom it may concern:

Be it known that I, HUGO GERIKE, a subject of the Emperor of Germany, residing at Klein-Schoenebeck, Niederbarnim, in the Kingdom of Prussia, Germany, have invented a certain new and useful Improvement in Bottle-Stopper Attachments, of which the following is a specification.

The invention is set forth in a German patent to me, dated January 1, 1891, No. 59,885, and French patent, dated March 7, 1891, No. 211,962.

The invention applies to that class of bottle-stopping devices in which the stopper is carried in a metal loop, which is moved by means of a lever pivoted to the neck of the bottle, so that by turning the lever forcibly downward the stopper is pressed tightly into or upon the bottle-mouth and by turning it upward it is relaxed. I provide a stop on the bottle-neck, which by limiting the movement of the loop in one direction serves usefully in determining the position of the stopper in the opening, and especially in the closing, movement. I provide another stop, which by limiting the motion of the lever and loop relatively to each other still further facilitates the closing action. I can effect the stopping of the bottle by acting on the lever alone, the parts communicating the proper movement first to bring the stopper up into line and then to urge it downward into the required firm engagement with the bottle-mouth.

The accompanying drawings form a part of this specification, and represent what I consider the best means of carrying out the invention.

Figure 1 is a side elevation showing the neck of a bottle with a spheroidal bottle-stopper and my attachment in position for working. The strong lines show the stopper tightly engaged. The dotted lines show it in the act of being either tightened or released. Fig. 2 is a central vertical section, partly in elevation, at right angles to the view in Fig. 1. Fig. 3 is a corresponding horizontal section. Fig. 4 is a side elevation corresponding to Fig. 1, but showing the bottle open. The strong lines show the parts with the stopper in its

elevated position in line with the bottle-mouth. The dotted lines show all the parts tilted over out of the way, leaving the mouth clear. The remaining figures show modifications. Fig. 5 is a central vertical section. Figs. 6 and 6^a are side elevations showing similar constructions, but with the parts in different positions. Fig. 7 is a central vertical section. Fig. 8 is a corresponding elevation. Figs. 9 and 10 show similar constructions, but in different conditions. Fig. 11 is a horizontal section through a portion of Fig. 10.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

a is the stopper of soft vulcanized rubber or other suitable material. (Shown as having a hemispherical base and matched in the correspondingly-concaved mouth of the bottle *M*.) It is secured by a screw *s* to a loop *b*, which extends down on each side of the bottle-mouth and connects by pivots *c'* to a lever *c*, properly formed to embrace the bottle-neck and connected thereto by pivots *c''*. (Shown as applied in corresponding holes formed in the glass.) When the lever *c* is depressed into the position shown in strong lines in Figs. 1, 2, and 3, it draws downward, by means of the loop *b*, on the stopper *a* and presses it tightly into its properly-fitted seat in the bottle-mouth. When the lever is raised into the position shown in dotted lines in Fig. 1, it relaxes the pull on the loop *b* and commences to raise the stopper out of the mouth of the bottle. When the lever is raised into the position shown in strong lines in Fig. 4, the stopper is lifted entirely out of the bottle-mouth, and the lever *c* being turned over to the right the loop and the stopper can go with it, and on being dropped down into the position shown in dotted lines in Fig. 4 the bottle-mouth is open and is ready to serve in any way desired.

To close the bottle-mouth, all the parts must be raised from the position shown in dotted lines into the position shown in strong lines in Fig. 4. Then holding the stopper by any means in the position shown in strong lines and depressing the lever *c* strongly the stop-

per will be drawn tightly down into its seat and the bottle will be again closed, as shown in strong lines in Fig. 1. I facilitate the raising of the parts in the correct relative position by means of an arm b^4 on the loop b , and I provide for arresting the loop in the correct position with the stopper in line with the bottle-mouth, and, as the motion of the lever c is continued further, guiding the stopper correctly into its seat. This last (the arresting of the loop) is effected by an internal projection b^3 on the inner face of the loop b . I form the adjacent side of the bottle-mouth with a vertical offset M' , against which the projection b^3 strikes when the stopper is in the correct position and forbids the stopper being carried too far and insures its arrest in the line of the bottle-mouth. As the lever c is depressed this projection b^3 , sliding downward on the vertical offset M' , guides the stopper into its seat. When the lever is again raised and the stopper is again sufficiently lifted to clear the mouth of the bottle, the whole may again be thrown over into the position shown in dotted lines in Fig. 4. The arm or projection b^4 is soldered or otherwise attached to the loop b . When the loop is formed, as shown, of sheet metal, it may be made integral therewith by properly-formed dies. It extends forward a sufficient distance, and is then bent sharply inward toward the bottle, so as to engage reliably with the lever c and limit the motions of the loop and lever relatively to each other. If the pivots which connect the lever c and the loop b are a little stiff, these parts maintain their relative positions in the first part of the closing motion, the elevation of the stopper into the closing position, and the arresting of the motion of the loop b with the stopper. On continuing the motion of the lever c with sufficient force to overcome the stiffness of the joint the depression of the stopper is successfully effected. In the absence of such stiffness the internal projection b^4 on the loop b serves an important function. It is struck by the lever c , and the depression of the latter compels the lifting of the loop and stopper. If the parts are so proportioned that the stopper cannot by this means be brought into its correct position for closing (that shown in Fig. 4) it will be raised partially into that position and will by that movement call the attention of the operator to the necessity of lifting it properly into place, which he can readily do by again lifting the lever c to slacken the parts, and then raising the stopper and its loop by the fingers into the correct position, and finally again depressing the lever c . The members are so proportioned as to permit the joint by which the loop b is connected to the lever c on each side to be moved a little past the perpendicular to prevent any accidental loosening of the parts in storage or transportation of the bottle.

The stopper in Figs. 1, 2, 3, and 4 is shown

as backed or topped with a plane disk b' of metal.

Fig. 5 shows a modification in which the metal top is extended down a little on the stopper. The indentations in the metal which is extended down may in this form hold the parts reliably together and avoid the necessity for the screw s .

Fig. 6 shows the stop formed by a projection b^5 on the bottle-mouth and a slot or channel in the loop. The strong lines show the parts in the position for securing the mouth and the dotted lines in the position to hold the stopper in the detached and elevated position. I consider the projection an equivalent to the offset in the other figures.

Fig. 6^a shows the same device in the partially-closed position. The lever in this figure has been turned half-way down and the stopper is engaged in the bottle-mouth, but is not yet drawn down so far as to close the bottle tightly.

Figs. 7 and 8 show a modification in the means for engaging the loop with the stopper, the loop being inserted in a rectangular hole extending across the upper part of the stopper. Fig. 7 is a vertical section, and Fig. 8 a side elevation.

Figs. 9, 10, and 11 show another modification. In this the forms of the parts are considerably modified, and a thumb-piece is provided, which allows the parts to be operated for opening or closing the mouth by acting on this thumb-piece alone. This thumb-piece needs only to be provided on one side of the bottle. If this is turned in the direction of the arrow, the bottle will be opened. If it is turned in the opposite direction, the bottle will be closed again.

In the forms of the invention shown in Figs. 9 to 11 the offset M' does not extend down far on the bottle-neck. It is confined to a shallow rim at the immediate mouth of the bottle. The invention can be worked successfully with this form of the recess in the bottle and of the stop formed thereby.

The offset may be on both sides of the bottle-neck or only on one side. It may be struck by an arm b^3 , extending inward from the loop b , or the loop itself may be formed so as to strike the offset. I have described the loop b as rigidly connected to the stopper a ; but there may be, if preferred, a looseness in the connection.

Figs. 7, 8, 9, and 10 show rectangular cavities in the stopper, receiving corresponding but smaller ends of the loop. Liberty for a slight movement of one relatively to the other may be of advantage in allowing the stopper to adapt itself to its seat.

Other forms of stopper than the spherical base shown may be employed. I can use the ordinary metal or glass stopper with rubber rings fitted thereon adapted to press on and fit tightly to the mouth of the bottle.

I claim as my invention—

1. The stopper *a*, lever *c*, and loop *b*, pivoted to the lever and secured to the stopper, in combination with each other and with a bottle *M*, having an offset *M'*, arranged to arrest the swinging movement of the stopper and guide it to its seat, substantially as herein specified.

2. In combination with the bottle *M*, provided with an offset *M'*, the stopper *a*, attached loop *b*, and lever *c*, connected substantially as described, the projection *b'*, loosely connecting the said lever and loop, so that

the elevating of the loop may be commenced by the depression of the lever, substantially as herein specified.

In testimony whereof I have hereunto set my hand, at Berlin, German Empire, this 19th day of September, 1891, in the presence of two subscribing witnesses.

HUGO GERIKE.

Witnesses:

CARL GRONERT,
CHARLES R. SEARLE.