

(No Model.)

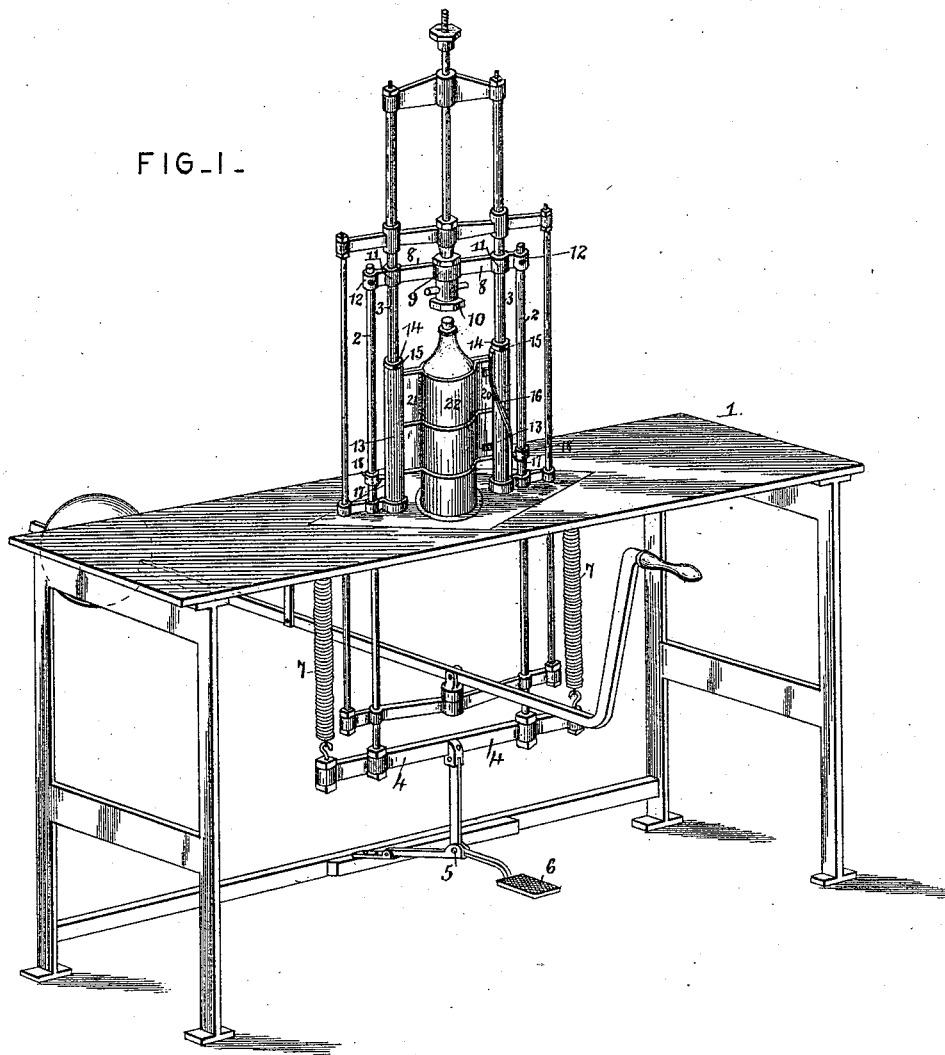
2 Sheets—Sheet 1.

E. S. & H. HUGHES.
SAFETY SHUTTER FOR BOTTLING MACHINES.

No. 454,980.

Patented June 30, 1891.

FIG. 1.



Witnesses

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FIG. 3.

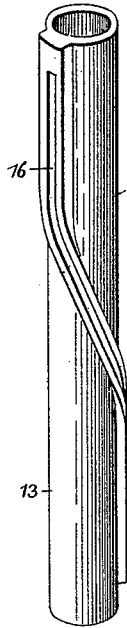


FIG. 4.

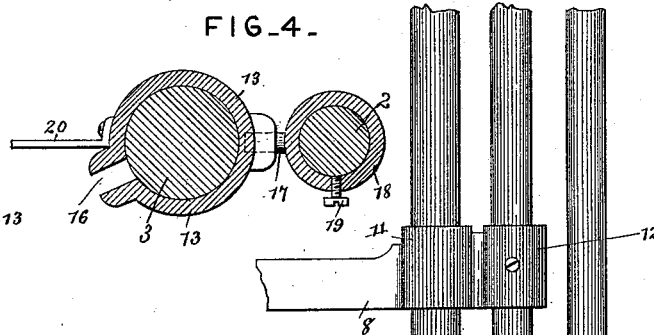


FIG. 5.

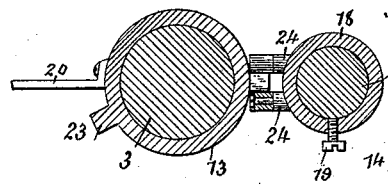
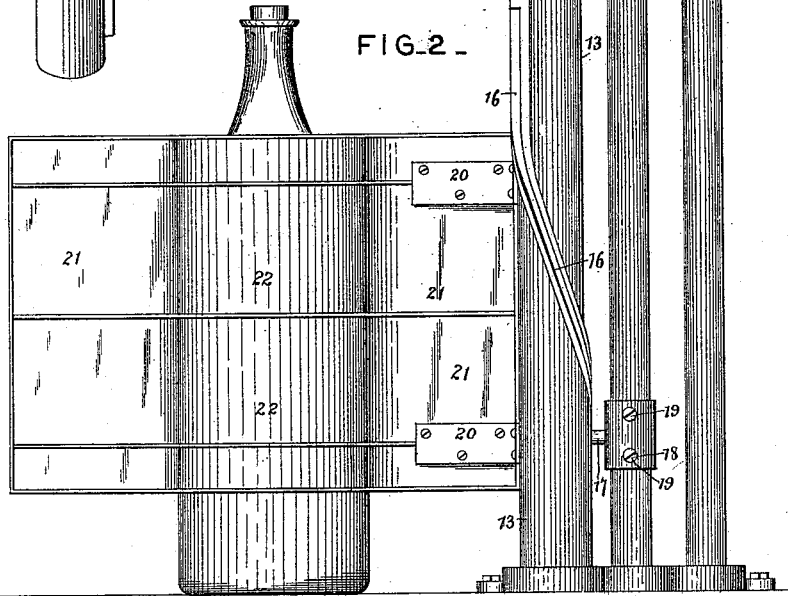


FIG. 2.



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UNITED STATES PATENT OFFICE.

EDWIN S. HUGHES AND HIRAM HUGHES, OF GLENWOOD SPRINGS, COLORADO.

SAFETY-SHUTTER FOR BOTTLING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 454,980, dated June 30, 1891.

Application filed July 21, 1890. Serial No. 359,468. (No model.)

To all whom it may concern:

Be it known that we, EDWIN S. HUGHES and HIRAM HUGHES, of Glenwood Springs, Colorado, have invented an Improvement in Safety-Shutters for Bottling-Machines, of which the following is a specification.

This invention relates to improvements in safety-shutters for bottling-machines, whereby an accidental bursting of the bottle prevents the throwing of glass and injury to the operator.

The objects of our invention are to provide a cheap and simple attachment of the above class to be applied to ordinary bottling-machines and to be automatically operated or closed at each descent of the corking-head and automatically returned to an open position at each elevation thereof.

Other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a perspective of a portion of a bottling-machine provided with our improvements. Fig. 2 is a detail, in side elevation and enlarged, of one of the shutters and its supports and connecting devices. Fig. 3 is a detail of the connecting device or hinge, the same being shown in perspective. Fig. 4 is a transverse section through the same. Fig. 5 is a transverse section similar to that of Fig. 4, but illustrating a slightly-modified construction.

Like numerals of reference indicate like parts in all the figures of the drawings.

1 designates the table or base of an ordinary bottling-machine, through which pass the opposite reciprocating rods 2, and from the table between and adjacent to the rods 2 are fixed cylindrical rods 3. The rods 2 are connected at their lower ends by a cross-yoke 4, located under the table, to which is hinged, as at 5, a treadle 6, designed to be operated by the foot of the operator, and when so depressed to be afterward returned automatically by a pair of coiled springs 7, connected to the yoke 4 and to the under side of the table 1.

8 designates the usual cross-head, through the center of which is formed an eye 9, in which operates the reciprocating corking-head 10. The cross-head is provided at its ends with eyes 11 and 12, the inner eyes be-

ing fixed to the rods 3, and the outer eyes serving as guides for the rods 2.

Upon each of the rods 3 is mounted a cylinder or sleeve 13, the same being adapted for easy rotation and being maintained against vertical movement by means of limiting-collars 14, secured in position through the medium of set-screws 15, passed through the collars and impinging upon the rods 3. Each of the cylinders or sleeves 13 is provided with a spiral slot 16, the same being vertical for portions of their length occurring near the upper and lower ends thereof. In each of the slots projects a stud 17, formed upon the inner side of its collar 18, one of the latter being mounted upon each of the rods 2 and secured in an adjusted position by means of a pair of set screws 19.

To each of the cylinders or sleeves 13 there is secured by means of securing-plates 20 projecting therefrom a shutter 21, the same being provided at about their centers with semicircular concavities 22, so that they combine to embrace a cylindrical object, such as a bottle.

In operation, the bottle being placed in position after filling and preparatory to the final corking, the foot of the operator is employed to depress the treadle 6, which brings down the corking-head to the position necessary to drive the cork. As the treadle is depressed the yoke 4 necessarily follows against the tension of its springs 7 and in its descent draws the rod 2 downwardly. The studs of the collars 18 of the rods being in engagement with the spiral slots 16 of the sleeves or cylinders 13 and said collars descending with the rods 2 necessarily causes a partial rotation of each of the sleeves, and with them the shutters, which are thus swung to a position to embrace the body of the bottle. It will be observed that by reason of the fact that the slots 16 are made straight at their upper and lower ends the stud will travel for some distance before and after the actuation of the sleeves, so that time is given for the corking-head to wholly descend into contact with the cork of the bottle after the shutters have been swung to an embracing position, and during the movements of the studs in the straight portions of the slots the cylinders or sleeves and the shutters remain uninfluenced. As

soon as the corking has been completed and the treadle 6 released from pressure the springs 7 return the parts to their normal positions, and in their ascent the studs 17 swing the sleeves and shutters around to the first position, and thus the shutters release the bottle.

As shown in Fig. 5, I may provide the cylinders with a spiral rib 23 and substitute for the single stud 17 a pair of studs 24, each provided with an anti-friction roller adapted to rise upon the sides of the studs.

From the above construction it will be apparent that we provide a cheap, simple, durable, automatically-operated, and effective safety-shutter applicable to the ordinary bottling-machines of the present day.

Having described our invention, what we claim is—

1. In a bottling-machine, the combination, with the table, the opposite reciprocating rods, the spring for returning the same, and the treadle connected to and adapted to depress the rods, of the stationary rods located adjacent to the reciprocating rods, the loose sleeves mounted upon the latter and provided with spiral ways, collars mounted upon the reciprocating rods and provided with projections engaging said ways, and safety-shutters connected to each of the sleeves, substantially as specified.

2. The combination, with the table, the reciprocating rods, the spring for returning the same, and the collars mounted on the rods and provided with studs, of the fixed rods, the cylinders or sleeves mounted thereon and provided with spiral grooves, each receiving a stud of said collars, and safety-shutters projecting from the sleeves or cylinders, substantially as specified.

3. The combination, with the table 1, the reciprocating rods 2, the yoke connecting the rods, the treadle 6, pivoted to the yoke, the coiled springs 7, connecting the yoke and ta-

ble and serving to retract the former, and the collars 18, having studs 17 and set-screws 19 for adjusting the same, of the cross-head 8, having the eye 9, the plunger 10, and the eyes 11 and 12, the sleeves 13, the fixed rods 3, upon which the sleeves are loosely mounted, said sleeves being provided with spiral slots 16, the collars 14, mounted on the rods 3 and provided with set-screws 15, and the safety-shutters 21, connected to the sleeves and having the concavities 22, substantially as specified.

4. The combination, with the table 1, the reciprocating rods 2, the yoke connecting the rods, the treadle 6, pivoted to the yoke, the coiled springs 7, connecting the yoke and table and serving to retract the former, and the collars 18, having studs 17 and set-screws 19 for adjusting the same, of the cross-head 8, having the eye 9, the plunger 10, and the eyes 11 and 12, the sleeves 13, the fixed rods 3, upon which the sleeves are loosely mounted, said sleeves being provided with spiral slots 16 terminating therein in straight portions, the collars 14, mounted on the rods 3 and provided with set-screws 15, and the safety-shutters 21, connected to the sleeves and having the concavities 22, substantially as specified.

5. The combination, with the table 1, the reciprocating rods 2, the springs for retracting the same, and the adjustable collars 18, mounted on the rods and having set-screws 19 and inwardly-disposed studs 17, of the fixed rods 3, the cylinders or sleeves loosely mounted upon the same and having spiral slots engaged by the studs, the shutters secured to the sleeves, and the adjustable collars 14, having set-screws 15 passing therethrough and impinging upon the rods 3, substantially as specified.

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