(No Model.) 2 Sheets—Sheet 1.

G., J. G. & M. O. REHFUSS.

BOTTLE FILLING MACHINE.

No. 456,907. Patented July 28, 1891.

FIG. 1.

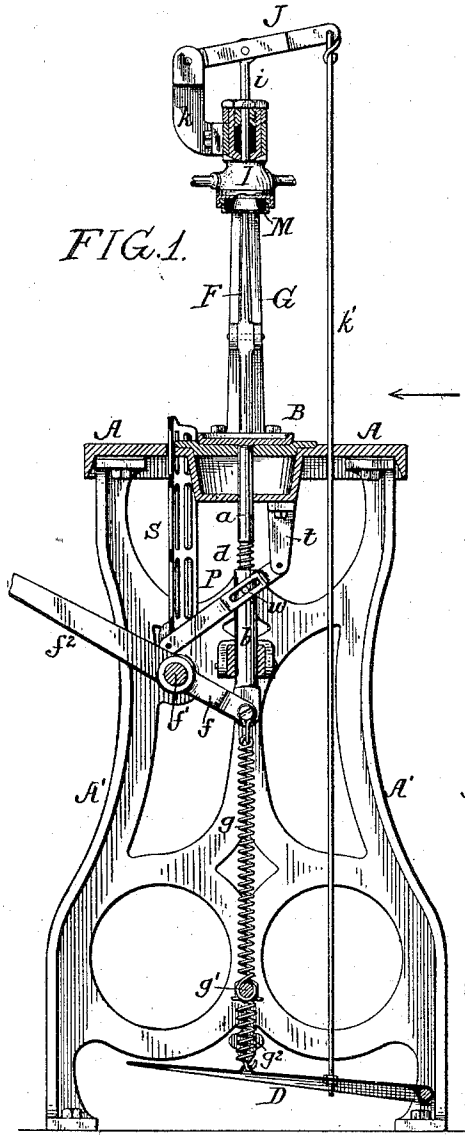
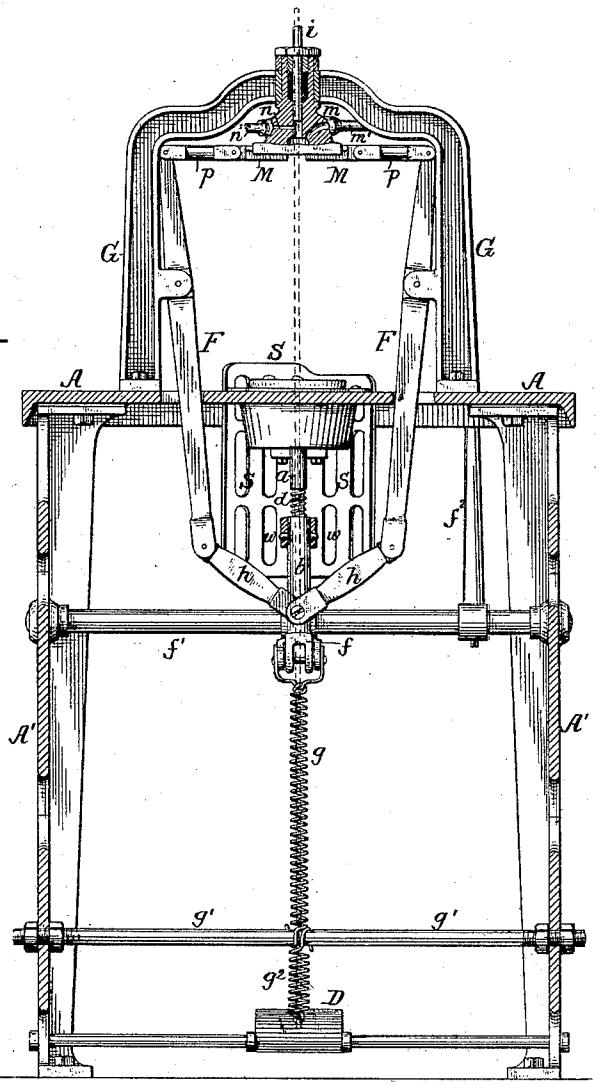


FIG. 2.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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FIG. 3.

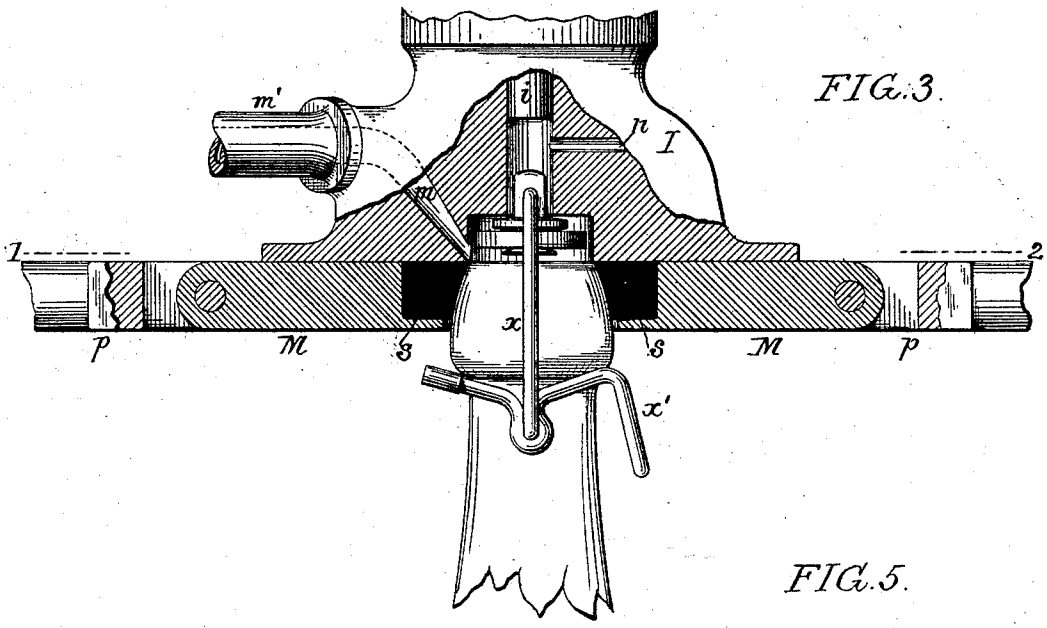


FIG. 5.

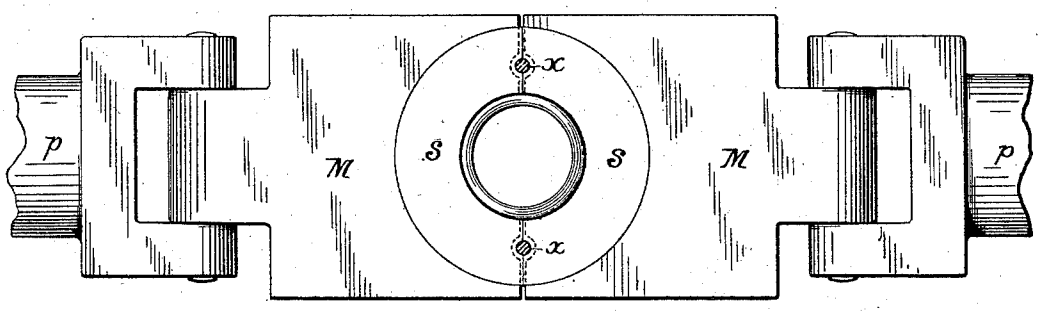
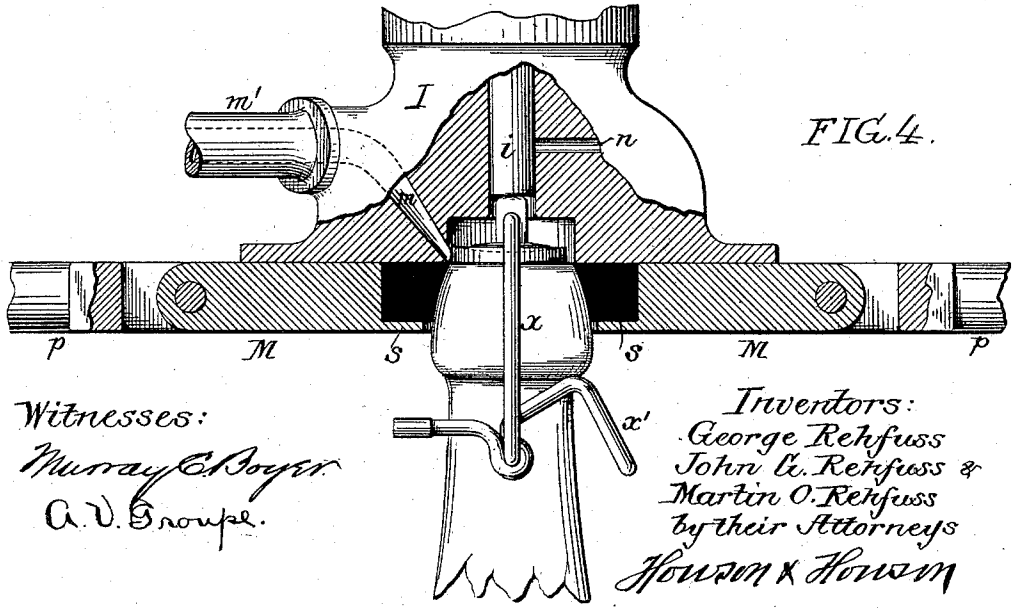


FIG. 4.



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UNITED STATES PATENT OFFICE.

GEORGE REHFUSS, JOHN GEORGE REHFUSS, AND MARTIN O. REHFUSS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS TO THE JOLY STOPPER COMPANY, OF SAME PLACE.

BOTTLE-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 456,907, dated July 28, 1891.

Application filed November 21, 1890. Serial No. 372,193. (No model.)

To all whom it may concern:

Be it known that we, GEORGE REHFUSS, JOHN GEORGE REHFUSS, and MARTIN O. REHFUSS, citizens of the United States, and residents of Philadelphia, Pennsylvania, have invented certain Improvements in Bottle-Filling Machines, of which the following is a specification.

The object of our invention is to construct a simple and readily-operated machine, which is adapted for filling bottles having outside stoppers; and this object we attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a transverse section of a bottle-filling machine constructed in accordance with our invention. Fig. 2 is a view, partly in longitudinal section and partly in elevation, looking in the direction of the arrow, Fig. 1. Figs. 3 and 4 are enlarged longitudinal sections of part of the machine; and Fig. 5 is a sectional plan view on the line 1 2, Fig. 3.

A represents the table of the machine mounted upon suitable end frames A′ and having centrally located thereon a bottle-carrying plate or disk B, which is mounted upon a spindle *a*, passing down through suitable bearings in the central dished portion of the table and reduced in diameter at its lower end, so as to fit into a hollow stem *b*, a spring *d* being interposed between the upper end of this hollow stem and the shoulder formed by reducing the spindle *a*, so that said spindle is free to yield vertically independently of the stem *b*. Said stem *b* is hung to a forked arm *f* on a transverse shaft *f′*, adapted to bearings in the end frames A′, this shaft having an operating-arm f^2 extending to the front of the machine, so that the rocking of the shaft can be readily effected by the attendant. The forked end of the arm *f* is acted upon by a spring *g*, connected to a transverse bar or strut *g′* on the frame, to which is also connected the upper end of a spring g^2, the lower end of which is connected to a treadle or foot bar D. Hung to the stem *b* are the forked inner ends of a pair of links *h*, the outer ends of these links being connected to opposite levers F, hung to brackets on a frame or yoke G, mounted upon the table A, this frame or yoke having at the upper end the filling-head I, in which is a central vertical opening for the guidance of a presser rod or plunger *i*, the latter being hung to a lever J, pivoted to a bracket *k*, projecting from the yoke G, and said lever being connected by a cord or wire *k′* to the treadle D.

The opening for the passage of the plunger *i* is enlarged at the lower end for the reception of the stopper for the bottle-mouth, and with this enlarged opening communicates an inclined passage *m*, the latter also communicating through a pipe *m′* with the reservoir of liquid under pressure, with which the bottle is to be filled. The plunger-opening also has a vent-passage *n* communicating with a pipe *n′* for the escape of air and gas during the filling of the bottle, this being a usual construction in this class of machines.

In the under side of the filling-head I are guides for a pair of slides M, which are connected by links *p* to the upper ends of the levers F, and each of these slides carries a semicircular block *s*, of rubber or like elastic material, as shown in Figs. 3, 4, and 5.

To a depending hanger *t* on the under side of the table A is hung a lever P, forked to embrace the stem *b*, which has projecting pins *w*, adapted to slots in said lever P, the outer end of which carries a segmental shield or guard S, which is free to rise and fall through a corresponding segmental slot or opening formed in the table A.

The operation of the machine is as follows: The bottle, with its stopper raised above the mouth, is placed upon the disk B, and the arm f^2 is then depressed so as to raise said disk and the bottle carried thereby until the stopper enters the enlarged lower end of the plunger-opening in the filling-head, as shown in Fig. 3. At the same time the levers F are actuated so as to force the slides M toward each other, and thus close the rubber blocks *s* upon the head of the bottle, as shown in Figs. 3 and 5, the blocks yielding so as to fit snugly around the side bars *x* of the stopper-bail, as shown in Fig. 5. The liquid is then permitted to flow into the bottle until the same has been filled, whereupon the treadle D is depressed, so as to force down the plun-

ger *i* and close the stopper firmly upon the mouth of the bottle, as shown in Fig. 4, the stopper being retained in this position by swinging around under the shoulder of the bottle-neck, and the clamping-lever *x'* being hung to the lower end of the bail *x*. Pressure upon the treadle and arm f^2 is then released, and the disk B, with its bottle, descends, the bottle is removed, and the operation repeated. As the disk and its bottle rise, the shield or guard S also rises in front of the bottle, owing to the connection of the shield-carrying lever P with the stem *b*, the shield remaining in the elevated position during the entire operation of filling the bottle, so that in the event of the bursting of the bottle during this operation the attendant is protected from injury by the flying glass. As the bottle-carrying disk descends, the shield also descends. Hence it will not interfere with the removal of the filled bottle and the placing of an empty bottle upon the disk.

Having thus described our invention, we claim and desire to secure by Letters Patent—

1. The combination of the bottle-carrying disk, the transversely-guided slides having packing-blocks for the head of the bottle, a single operating-lever, and mechanism connecting said lever both to the disk and laterally-guided slides, so as to insure the joint and simultaneous operation of said parts, substantially as specified.

2. The combination of the bottle-supporting disk, the operating-stem therefor, a pair of laterally-guided slides, with packing-blocks for the head of the bottle, levers connected to said slides, a rock-shaft having a single operating-lever and an arm connected to the operating-stem of the supporting-disk, and links connecting said stem to the slide-operating levers, substantially as specified.

3. The combination of the vertically-moving bottle-supporting disk, the filling-head having laterally-guided slides, with packing-blocks for the head of the bottle, and a plunger for pressing the stopper onto the bottle-mouth, a single operating-lever connected both to the bottle-supporting disk and to the packing-slides, a treadle, and means for connecting the latter to the plunger, substantially as specified.

4. The combination of the bottle-carrying disk, the transversely-guided slides less in depth than the bottle-head and located adjacent to the bottle-mouth, but having their inner faces cut away to avoid contact with the bars of the stopper-bail, packing-blocks projecting beyond said slides so as to bear on the bottle-head and close around said bars, a single operating-lever, and mechanism connecting said lever both to the bottle-supporting disk and to the packing-slides, so as to effect the joint and simultaneous operation of said parts, substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

GEORGE REHFUSS.
JOHN GEORGE REHFUSS.
MARTIN O. REHFUSS.

Witnesses:
EUGENE ELTERICH,
HARRY SMITH.