

(No Model.)

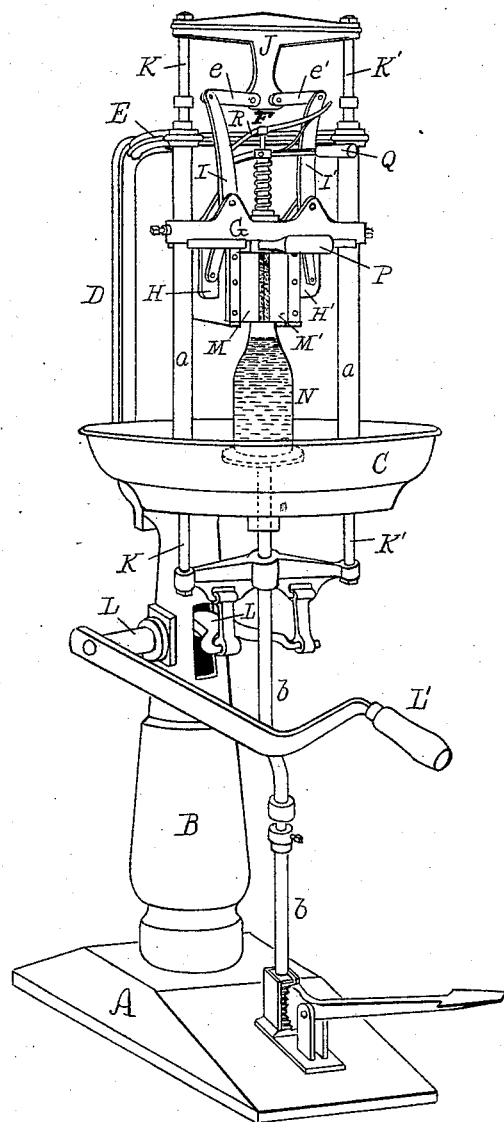
3 Sheets—Sheet 1.

G. S. SLOCUM.
BOTTLING MACHINE.

No. 347,654.

Patented Aug. 17, 1886.

Fig 1



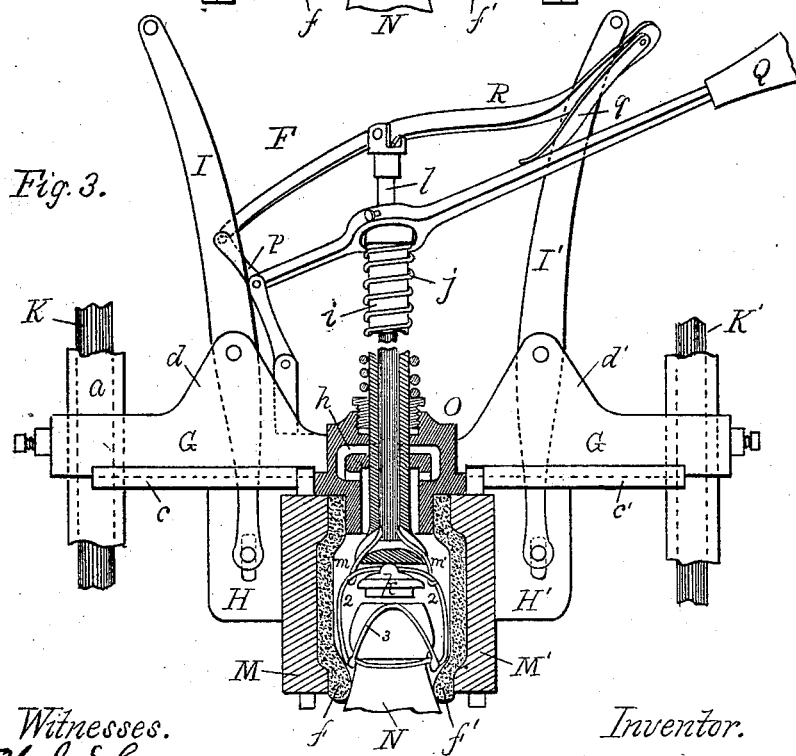
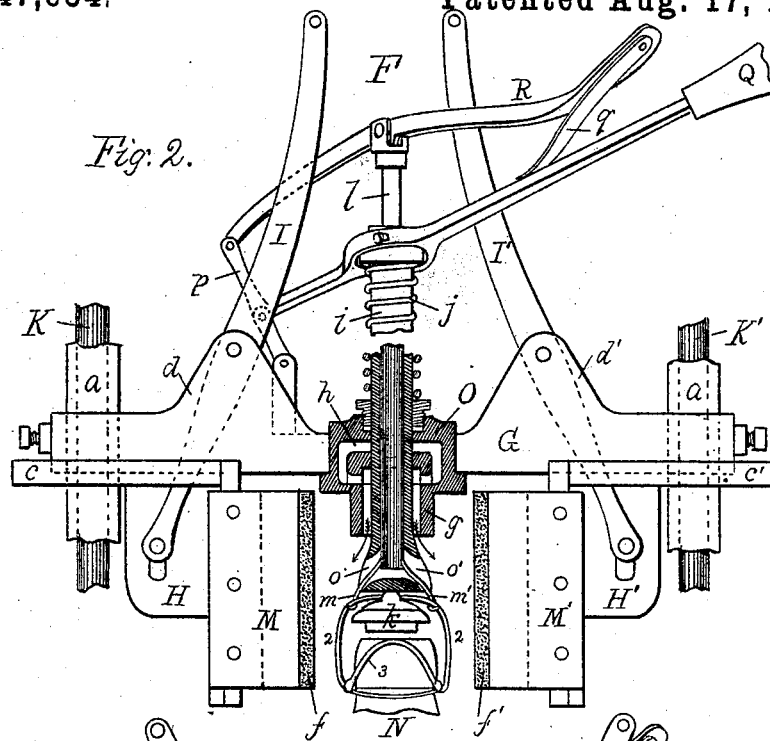
Witnesses.
H. E. Lodge
E. H. Byington

Inventor.
George S. Slocum.
F. Curtis, atty.

G. S. SLOCUM.
BOTTLING MACHINE.

No. 347,654.

Patented Aug. 17, 1886.



Witnesses.
H. E. Lodge
E. K. Boynton

Inventor.
George S. Slocum,
J. Curtis, atty.

G. S. SLOCUM.
BOTTLING MACHINE.

No. 347,654.

Patented Aug. 17, 1886.

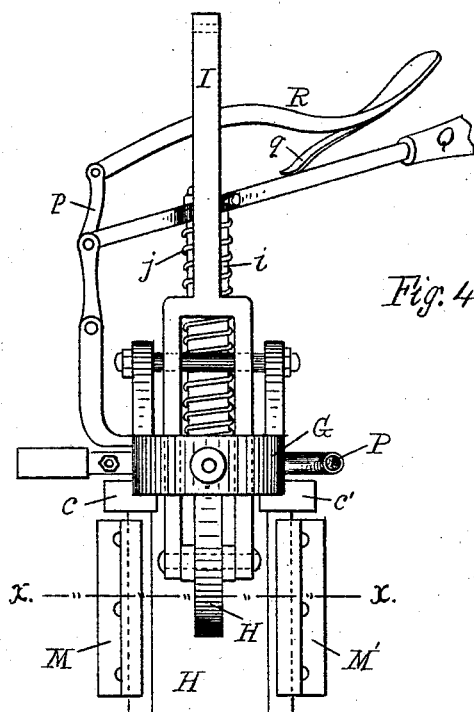


Fig. 4.

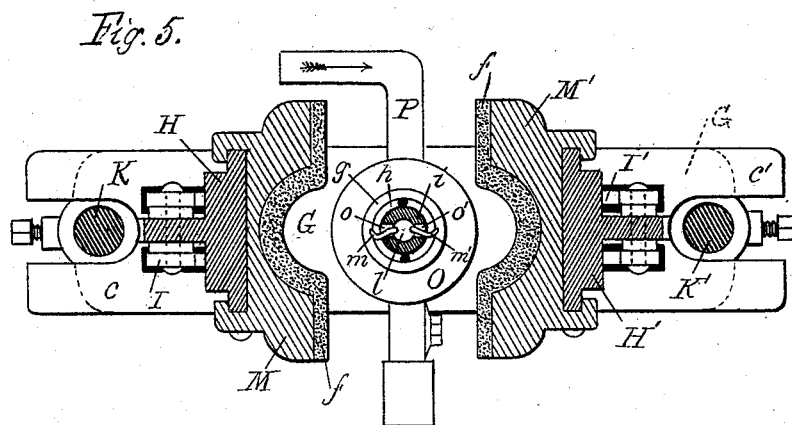


Fig. 5.

Witnesses.
H. E. Lodge
E. K. Boynton

Inventor.
George S. Slocum.
J. Curtis, atty.

UNITED STATES PATENT OFFICE.

GEORGE SCOTT SLOCUM, OF NEWPORT, RHODE ISLAND.

BOTTLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 347,654, dated August 17, 1886.

Application filed November 17, 1885. Serial No. 183,000. (No model.)

To all whom it may concern:

Be it known that I, GEORGE SCOTT SLOCUM, a citizen of the United States, residing at Newport, in the county of Newport and State of Rhode Island, have invented certain new and useful Improvements in Bottling-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to bottling-machines; and it consists in the peculiar features and special arrangement of parts by which a bottle provided with a stopper permanently or otherwise secured to the neck thereof and retained therein by a pivoted lever, may be filled under pressure.

Hitherto in the filling of bottles provided with some one of the numerous patented stopping devices now in use, it has been found to be a matter of great difficulty to fill and stopper under pressure bottles so provided, and although the patented devices are much more convenient and superior to the cork and its securing-wire, still the latter device has generally been employed, owing, as before premised, to the difficulty of operating the instrumentality which holds and secures the stopper in place when the fluid contents are to be introduced under pressure.

A prominent feature of my invention is in the arrangement of parts by which the stopper is grasped and held away from the mouth of the bottle in the act of filling, and such parts are adapted to be adjusted to suit either a long or short necked bottle with equal facility. The general arrangement, operation, and relation of the various component parts of the machine will be more fully hereinafter described.

The drawings accompanying this specification represent in Figure 1 a general view in elevation of a bottling-machine embodying my invention. Fig. 2 shows a sectional elevation of the head-stock with the chamber open in the act of admitting a bottle, while Fig. 3 is a similar view with the chamber closed. Fig. 4 is an end elevation of the head-stock, and

Fig. 5 is a section of the same portion of the machine, looking from beneath, taken on plane $x x$ in Fig. 4.

In these drawings I have represented a stand composed of a base-plate, A, pedestal B, and catch-basin C, to which latter part is secured a vertical post, D, terminating in a forked or Y-shaped bracket E. Upon this bracket are attached two hollow upright posts, $a a$, the lower extremities of which are securely and tightly fitted into the bottom portion of the basin C.

Upon the base-plate, and operated by a foot-lever or otherwise, is pivoted a toothed sector which engages a rack secured to one end of a vertical rod, b . This rod passes centrally through the basin and terminates in a flat head or shelf or support, upon which the bottle is held during the act of bottling. By means of this mechanism the varying heights of bottles can be accommodated with respect to the head-stock F, while at the same time a firm support is provided for the bottle in the act of driving in the stopper.

The head-stock, which is shown as an entirety at F in the drawings, is mounted adjustably upon the posts $a a$, the latter passing through a metal housing or plate, G, suitably bored to admit them, the position of such head-stock being secured at any desired height above the basin C by set-screws. Beneath the housing G, I have disposed two rectangular castings, H H', which are secured to and guided upon the housing G by the guide-plates $c c'$. These pieces H H' are adapted to move simultaneously toward and away from each other, and I have therefore pivotally connected to them the lower ends of two rock-levers, I I', which are mounted and secured upon the bosses $d d'$, formed upon the plate G. To actuate said levers, I have attached a cross-head, J, by links $e e'$, to the upper extremities of said levers, while motion of the cross-head in vertical paths of movement is obtained by means of two connecting-rods, K K', which reciprocate freely within the two hollow posts $a a$, before mentioned, and are united at their lower ends to a rocker-arm, L, horizontally disposed in suitable bearings in the pedestal B, and is to be actuated by a hand-lever, L'. Hence it will be readily understood that oscillations of the

hand-lever L' will cause vertical reciprocations of the connecting-rods $K K'$ and cross-head J to rock the levers $I I'$, and thus actuate the sliding blocks $H H'$, which will move simultaneously toward and away from each other at proper intervals of time, as may be desired.

In order to form a hollow chamber, as before premised, within which to inclose the mouth of the bottle, and thus preserve the pressure and prevent any external influences from diminishing the same in the act of filling a bottle or other vessel, I have secured two curved recessed jaws, $M M'$, to the sliding blocks $H H'$, said jaws being faced or interiorly lined with some elastic material, $f f'$. Thus the yielding quality of this substance will prevent the pressure of the jaws from breaking the bottle when grasped by them, and, furthermore, an air-tight chamber can thus be all the more readily secured.

By the disposition of the parts (see Fig. 3) it will be seen that the neck of the bottle N is grasped, at a point below the wire fastening attachment, by the elastic material, and thus the lower part of the chamber is closed, while the upper part thereof is similarly rendered air-tight by the jaws inclosing and gripping the lower circular portion, g , of the bung O . Hence it will be seen that a hollow air-tight chamber may be quickly formed, through which the liquid under pressure can flow under pressure readily into the bottle to be filled, and at the same time the stopper and fastening-lever can move freely within said chamber whenever it is desired by the operator. The liquid is admitted to the chamber and bottle N through the annular duct h , formed in the bung O , which latter connects with the supply-pipe P , leading to the source of supply under pressure.

In the process of filling it has been found necessary to hold the stopper away from the mouth of the bottle while the neck thereof is inclosed within the air-tight chamber. At the same time said stopper must be maintained in vertical adjustment with the mouth, so that after the bottle has been filled the stopper shall be in such a position that it will positively advance into the bottle-neck, to close it when the proper moment arrives.

To accomplish the above result I employ, first, a reciprocating hollow plunger-rod, i , furnished with a large head, by which to guide the stoppers within the mouths of the bottles. This stoppling-rod plays centrally within the bung O , and is actuated in its active advance movement by the lever Q , which is pivoted to a toggle-arm secured upon a support, the latter being bolted to the housing G . Return movement of the said plunger is effected by means of a peripherally-disposed coiled spring, j .

To hold the stopper k centrally of but above and away from the mouth of the bottle, I have placed a small rod, l , within the hollow plunger i , and furnished the lower end of such rod

with a pair of curved arms, $m m'$, which at the proper time shall engage with the wire 2 of the fastening device herein shown, which retains the stopper k .

In order to attach the curved arms or fingers $m m'$ to their actuating-rod l , within the plunger i , I have cut two corresponding divergent slots, $o o'$, in the lower enlarged portion or head of the said plunger; hence the arms $m m'$ may be withdrawn or extended, as desired, by movement of the rod l , caused by the spring-actuated lever R , pivotally secured at one extremity to the link p , uniting it with the lever Q . The spring q serves to maintain the fingers normally in a closed or retracted position, so that when they have once engaged the wire 2 the latter will be securely grasped thereby and the stopper held firmly against the center of the plunger i , in readiness to be guided into the mouth of the bottle when the latter has been filled.

With the above-described mechanism the bottle can be readily filled under pressure and the stopper then inserted within the mouth of the bottle prior to the opening of the chamber, and, furthermore, kept in that position until after the locking-lever wire 3 has been brought into its active position.

Presuming the levers $I I'$ and the co-operating blocks and their jaws $M M'$ are thrown back, as shown in Fig. 2 of the drawings, the active operation of this machine is as follows: The operator grasps the bottle in his left hand and places his right upon the hand-levers $R Q$, advancing the latter toward its adjacent lever, which remains stationary. This compresses the spring q and moves the rod l downward, which act advances the curved arms $m m'$, when the wire 2 is interlocked thereupon, and the bottle then adjusted vertically upon its movable support and centrally aligned with respect to the rods $i l$. In case a short-necked bottle is to be filled, the plunger-rod i , by means of the lever Q , must likewise be advanced to meet the bottle, thus carrying the arms $m m'$ with it until they can grasp the wire 2. Retreat movement of rod l will be prevented by the shoulders of the bottle coming in contact with the extreme lower part of the elastic material $f f'$. Now, assuming the bottle is in position, as above described, the hand-lever L' is depressed. This action advances the rods $K K'$, and cross-head J downward, rocks the lever-arms $I I'$. Simultaneously therewith the blocks $H H'$ and jaws $M M'$ close upon and grasp the bung portion g and bottle-neck. This position of the component actuating parts is shown in general view in Fig. 1 of the drawings, while an enlarged view of the head-stock and its mechanism is shown in the same position in Fig. 3. Thus it will be seen that an air-tight chamber is formed about the neck and mouth of the bottle, and the latter is in readiness to be filled under any desired pressure. The liquid contents are now admitted by the supply-pipe P , thence into and through the duct h in the bung O , whence

it passes into the chamber and flows into the bottle. When the latter is filled the supply is shut off, and it now becomes necessary to force the stopper home within the mouth of the bottle. This act is accomplished by the operator, who now presses the lever Q downward, and the plunger *i* and its rod *l* descend, carrying the stopper *k*, which is still grasped by the fingers *m m'*. This movement continues until the stopper is guided home within the mouth of the bottle. Now all that remains to complete the final and entire operation of bottling is to secure the stopper in place, and this is effected by the operator, who with his left hand raises the rock-lever L', which withdraws the jaws from the bottle and opens the chamber, the right hand being still maintained upon the plunger-lever Q to prevent expulsion of the stopper, due to the pressure within the bottle. Directly after the jaws are withdrawn the locking-lever wire 3 is brought forward, pressed down, and the operation is completed. The bottle is now disengaged by depressing the lever R, advancing the fingers *m m'* and unlocking them from the wire 2, when the bottle is removed, ready for packing and shipment. The small amount of liquid which enters the chamber in the process of filling the bottle is received and caught by the basin C.

My machine is shown in the present instance as adapted to the especial form of a fastening device termed the "Lightning Bottle-Stopper," in which the stopper is permanently attached to the bottle by a retaining-wire; but there are other forms of stoppling apparatus in which the stopper is separable from the bottle, but is secured to the latter when full by a locking-lever.

Now I do not desire my invention to be limited to the bottling of vessels which are closed in the precise manner herein represented, since the stopper-holding device may be slightly modified, and the grasping-fingers changed in shape to enable them to grasp stoppers vary-

ing in construction, without, as I consider, departing from the spirit and substance of my invention, as hereinbefore premised.

I claim—

1. In a bottle-filling machine, the combination, with the bottle, the reciprocating chamber-forming jaws, and fluid-supply bung, of the plunger *i*, and the rod *l*, movable within the plunger, whereby said rod may advance to grasp and hold the stopper above the mouth of the bottle in the act of filling, substantially as set forth.

2. In a bottle-filling machine, the combination, with the bottle, the reciprocating chamber-forming jaws and, fluid-supply bung, of the hollow plunger-rod *i*, and the stopper-holding rod *l*, arranged within said plunger-rod, substantially as set forth.

3. A bottle-filling machine provided with two reciprocating spring-actuated rods, one movable within the other, the inner rod armed with curved stopper-holding fingers, the outer rod being longitudinally adjustable, for the purpose set forth.

4. The combination, with the frame of a bottling-machine and its post D, with the hollow rods *aa*, of the head-stock F and the longitudinally-movable rods, the levers, links, sliding block, and jaws, substantially as and for the purpose set forth.

5. The combination, with the plate G, carrying the reciprocating jaws *MM'*, and their rock-levers *I I'*, of the cross-head J, rods *K K'*, and oscillating lever *L'*, whereby said jaws are simultaneously operated to advance toward or move away from about the neck of the bottle, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GEO. SCOTT SLOCUM.

Witnesses:

EDWARD HIGGINSON,
VICTOR GEOFFISON.