(No Model.) 3 Sheets—Sheet 1.

T. COCKCROFT.

FILLING AND CORKING MACHINE.

No. 341,406. Patented May 4, 1886.

FIG. 1.

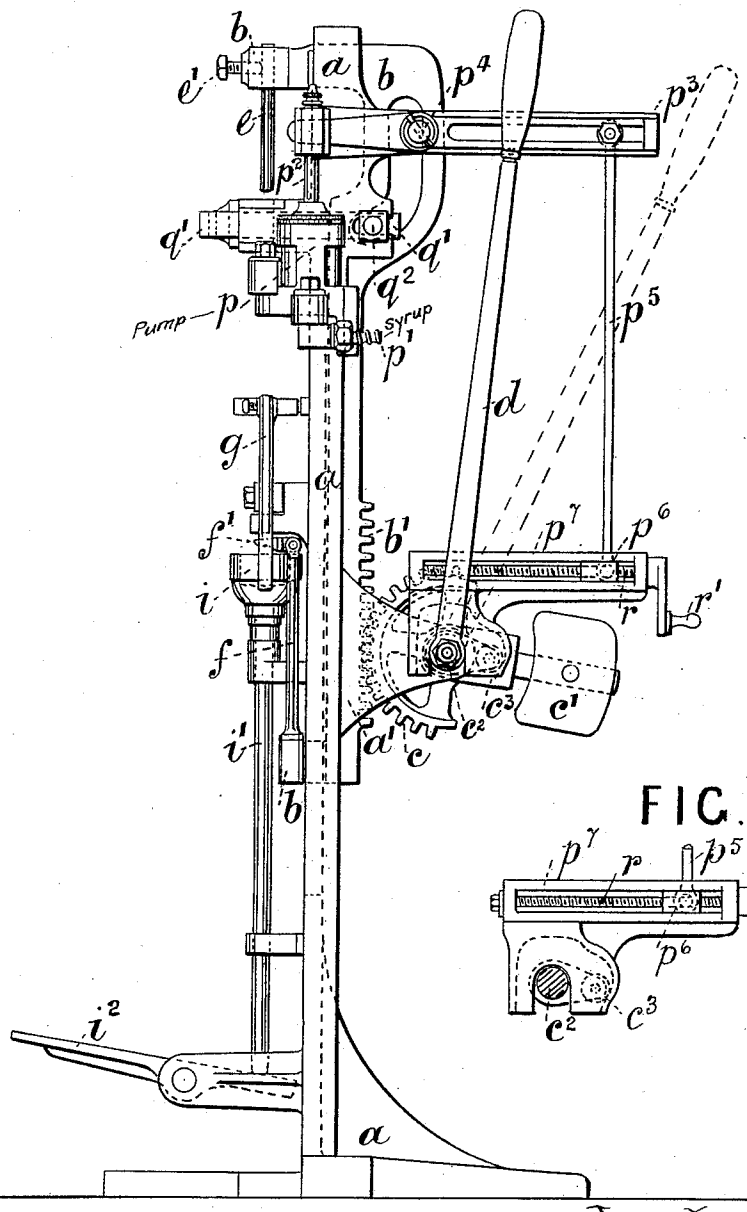


FIG. 6.

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FIG. 2.

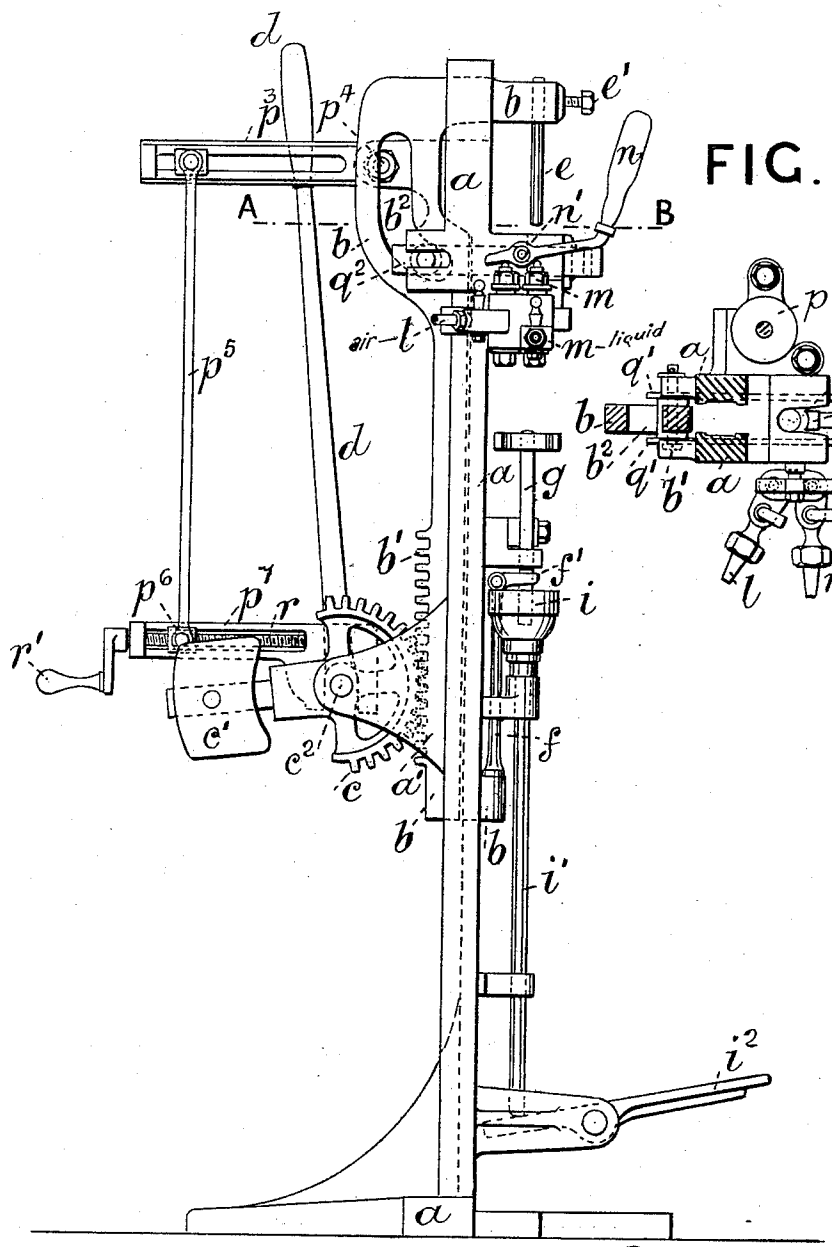


FIG. 4.

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(No Model.) 3 Sheets—Sheet 3.

T. COCKCROFT.

FILLING AND CORKING MACHINE.

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FIG. 3.

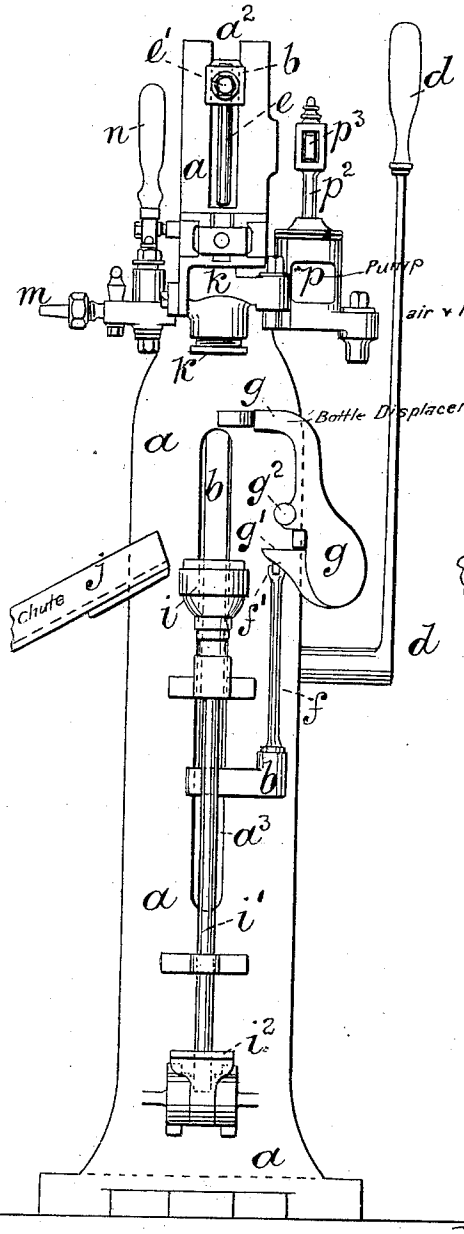
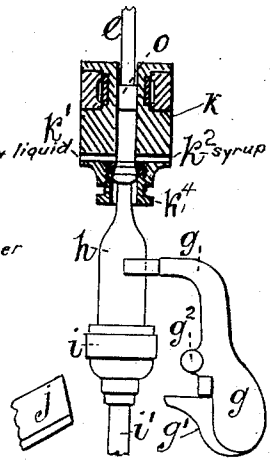


FIG. 5.



Witnesses:
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UNITED STATES PATENT OFFICE.

THOMAS COCKCROFT, OF BIRKENHEAD, COUNTY OF CHESTER, ENGLAND.

FILLING AND CORKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 341,406, dated May 4, 1886.

Application filed February 16, 1886. Serial No. 192,076. (No model.) Patented in England September 25, 1884, No. 12,789.

To all whom it may concern:

Be it known that I, THOMAS COCKCROFT, a subject of the Queen of Great Britain, residing at Birkenhead, in the county of Chester, England, have invented a new and useful Machine for Bottling Aerated Liquids, (for which I have obtained a patent in Great Britain, No. 12,789, bearing date September 25, 1884,) of which the following is a specification.

My invention relates to improvements in machines for bottling aerated liquids; and the object of my improvements is to construct a bottling-machine in which the various operations of siruping, filling, corking, and delivering the filled and corked bottle are all performed by manual power with almost the same speed, with greater accuracy, and with greater economy than in a bottling-machine of this class worked by steam-power. I attain this object by the mechanism illustrated in the accompanying three sheets of drawings, in which—

Figures 1 and 2 are side elevations, and Fig. 3 a front elevation, of the entire machine. Fig. 4 is a transverse section on the line A B, Fig. 2; and Fig. 5 is a vertical section of the filling and corking cylinder, and Fig. 6 are two detailed views of parts of the mechanism for operating the sirup-pump.

Similar letters refer to similar parts throughout the several views.

a is the frame of the machine, upon which is fitted and free to slide vertically a piece, *b*, which has a rack, *b'*, formed upon it, and is operated by a toothed quadrant, *c*, gearing into the rack *b'*. The quadrant *c* is provided with a counter-weight, *c'*, and is fixed upon a shaft, c^2, supported in bearings in projections *a'*, formed on the frame *a*. Secured to the shaft c^2 is a hand-lever, *d*, by operating which the shaft and the quadrant *c* are moved, thereby causing the piece *b* to slide vertically up or down on the frame *a*. The piece *b* as it slides is guided by the upper extended end, which moves in an open slot, a^2. (See Fig. 3.) This upper portion of the piece *b* is also extended forward, where it is formed to receive the end of a plunger, *e*, which is secured in position by a screw, *e'*.

The piece *b* is guided at the lower end by a projecting portion which moves in a slot, a^3, and to which projection is connected the trip mechanism, which consists of the following parts: A rod, *f*, is secured to the projection and moves vertically up and down with it. The free end of the rod is provided with a tumbler-catch, *f'*, which at the proper moment comes in contact with a projection, *g'*, on a weighted lever or kicker, *g*, pivoted to the frame *a* at g^2. *h* is a bottle, (shown in position ready for filling and corking in Fig. 5,) which is held in a cup or rest, *i*, supported on the rod *i'*, which receives a raising-and-lowering motion from the treadle i^2. *j* is a chute into which the filled bottles are tripped by the kicker *g*. *k* is the filling and corking cylinder, the bottom of which is fitted with a screwed bush, k^4, suitably shaped to receive the neck of the bottle, (see Fig. 5,) and from the cylinder *k* there is a passage, *k'*, leading to the air and liquid valves *l* and *m*, respectively, and a passage, k^2, leading to the sirup-pump *p*. The spindles of both the valves *l* and *m* are fitted with springs to keep the valves normally closed, and both valves are controlled or opened by the filling-lever *n*, pivoted to the frame at *n'*. The upper part of the cylinder *k* has an aperture, k^3, in front, (see Fig. 4,) through which the cork *o* is inserted. This aperture k^3 is opened and closed at regular intervals by a movable stop-piece, *q*, fixed on side bars, *q'*, fitted and free to slide in the frame *a*. At the other end the side bars, *q'*, carry an anti-friction roller, q^2, which is operated by an angle-slot, b^2, in the sliding piece *b*, so as to impart a reciprocating motion to the side bars, *q'*, and the stop-piece *q*, and open and close the aperture k^3 when the piece *b* is raised and lowered by moving the lever *d*.

The pump *p* is supplied with sirup through the pipe *p'*, and the piston and piston-rod p^2 are operated by the arm p^3, which is pivoted at p^4 to the frame *a*. The other end of the arm p^3 is slotted and connected by a rod, p^5, which is provided with a nut, p^6, at the lower end. This nut p^6 is fitted in a frame or slide piece, p^7, through which passes a screw, *r*, with a handle, *r'*, so that by turning the screw *r* the nut p^6 is traversed along the slide p^7, and the position of the rod p^5 can be adjusted in the slot of the arm p^3 to regulate the stroke and quantity of sirup discharged by the piston. The slide-piece p^7 is raised and lowered to act-

uate the piston of the sirup-pump p by means of an anti-friction roller mounted on a cam, c^3, fixed upon the shaft c^2, working in a suitably-shaped recess formed in the lower part of the slide-piece p^7.

The operation of the apparatus is as follows: The bottle to be filled and corked is placed in the cup i and raised into the position shown in Fig. 5 by pressing down the treadle i^2. The cork o is then inserted through the aperture k^3, and the lever d is pulled forward to actuate the sliding piece b until the cork has been squeezed and forced into the cylinder k in position over the mouth of the bottle by the action of the piece q, worked from the angle-slot b^2. During this operation, as the shaft c^2 is turned, the anti-friction roller and cam c^3 raise the slide-piece p^7, which, by the rod p^5 and arm p^4, forces down the piston of the pump p and drives a charge of sirup through the passage k^2 into the bottle. The lever d is then held stationary, while the filling-lever n is operated to open the valve m and allow aerated water or liquid under pressure to pass through the passage k' and into the bottle. When the aerated liquid has partly filled the bottle, it is necessary to move the filling-lever n, so as to allow the valve m to close and to open for an instant, or "snift," as it is commonly called, the valve l, so as to allow the compressed air in the bottle to escape. More aerated liquid can then be admitted by again opening the valve m until the bottle is full. When full, the lever n is raised and released, and the liquid-valve m is allowed to close, and the lever d pulled forward to its full extent, which causes the plunger to force the cork into the bottle. The treadle i^2 is then released to lower the filled bottle, the lever d pulled back, and the piece b raised, thereby causing the tumbler-catch f' to trip the kicker g and discharge the full bottle into the chute j, from whence it is taken for wiring. Another bottle may then be placed in the cup-support i, and the filling and corking operations repeated. As the piece b descends and the rod f is drawn down, the tumbler-catch f' turns on its pivot, and so passes the projection g' without imparting any motion to the kicker g.

It is obvious that by removing or disconnecting the sirup-pump p the machine can be used for bottling unsiruped or hand-siruped liquors.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim, and desire to secure by Letters Patent of the United States, is—

1. The lever d and the sliding piece b, in combination with the cylinder, the stop-piece which feeds the corks thereto, the piston which drives the corks, and the kicker which dislodges the filled bottles, said stop-piece, piston, and kicker all being actuated by sliding piece b, substantially as set forth.

2. The pivoted tumbler-catch f' and the kicker g actuated thereby, in combination with the sliding piece b, which carries said kicker, a support for the bottles arranged in position for each to be struck by the kicker after filling, and the chute arranged to receive them when thus dislodged, substantially as set forth.

3. The combination, with the sirup-pump, piston, piston-rod p^2, arm p^3, rod p^5, and nut p^6, of the screw r, slide-piece p^7, and mechanism for actuating the same, substantially in the manner and for the purposes herein set forth.

The foregoing specification of my improvement in machines for bottling aerated liquids signed by me this 23d day of January, 1886.

THOMAS COCKCROFT.

Witnesses:

THOMAS PRICE,

THOMAS ALBERT CARROLL.