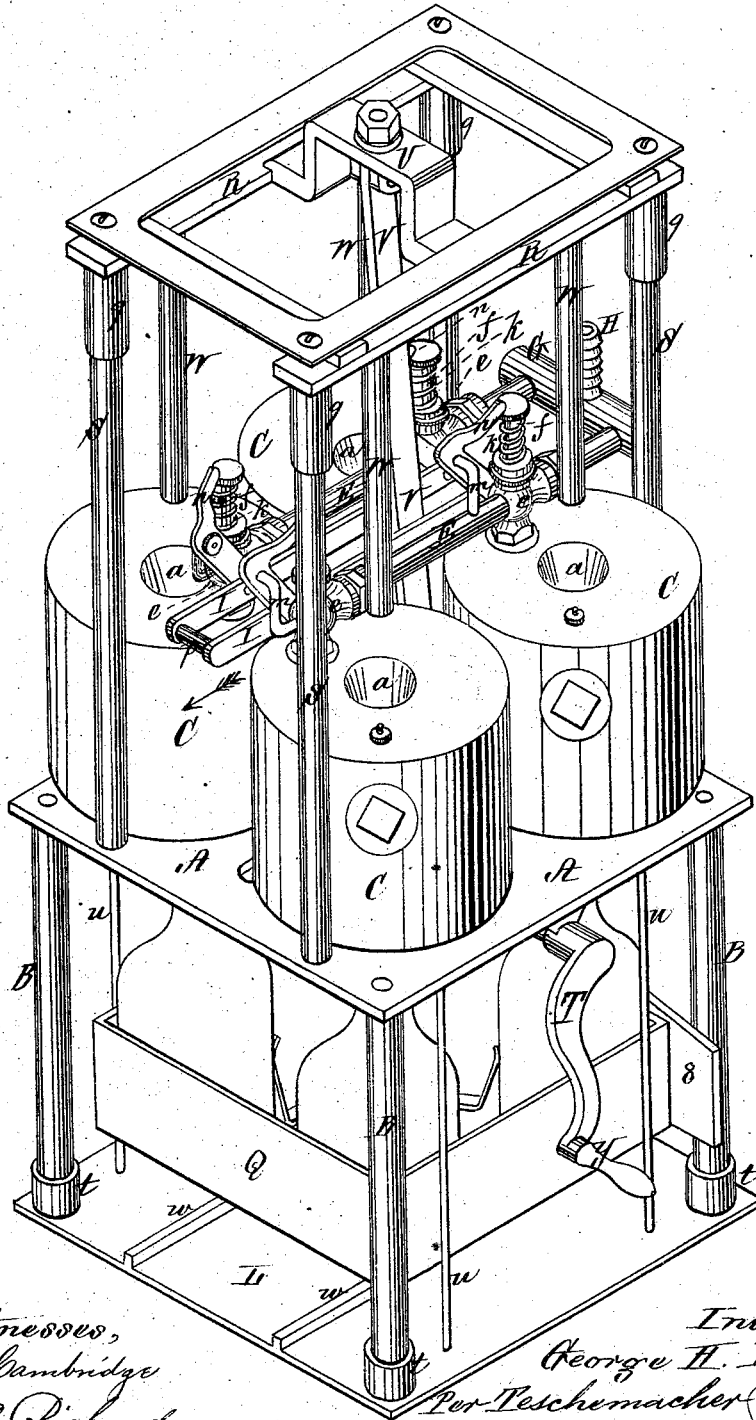


G. H. FERRY.
Bottle-Filler and Corker.

No. 161,107.

Fig. 1.

Patented March 23, 1875.



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 W. J. Cambridge
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 George H. Ferry,
 Per Teschemacher & Stearns
 Attorneys.

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Fig. 2.

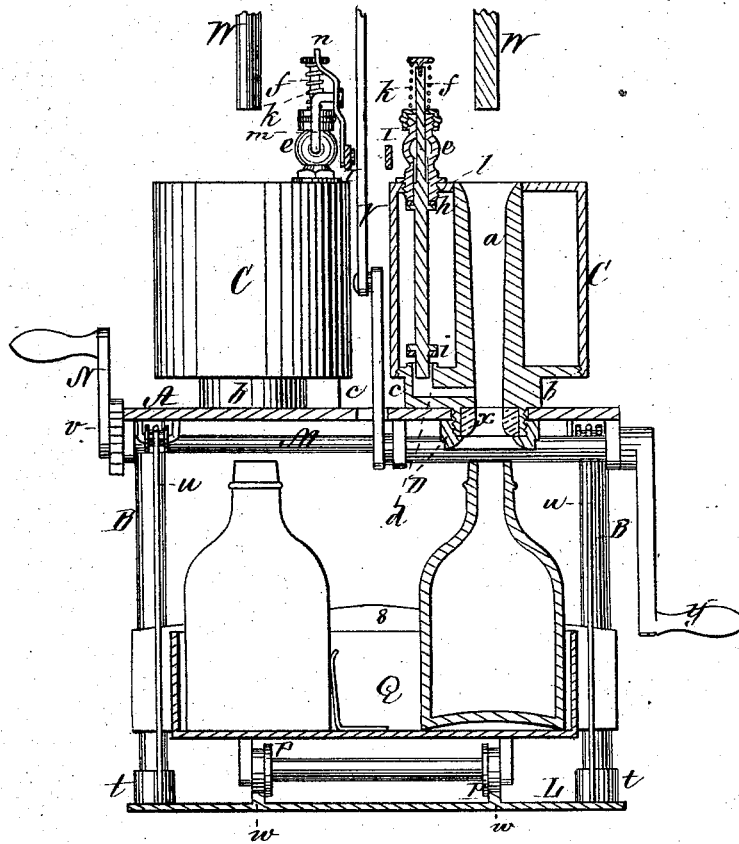
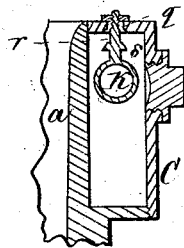


Fig. 3.



Witnesses,
 W. J. Cambridge
 Wm. E. Richards

Inventor,
 George H. Ferry
 Per Deschermacher & Stearns
 Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE H. FERRY, OF NEW YORK, N. Y., ASSIGNOR TO JEREMIAH B. BRADFORD, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN BOTTLE FILLERS AND CORKERS.

Specification forming part of Letters Patent No. 161,107, dated March 23, 1875; application filed January 13, 1875.

To all whom it may concern:

Be it known that I, GEORGE H. FERRY, of the city, county, and State of New York, have invented an Apparatus for Filling Bottles with Liquids, and Corking the same, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of my apparatus by which a number of bottles may be filled and corked simultaneously. Fig. 2 is a transverse vertical section through the same. Fig. 3 is a sectional detail.

In the process of bottling liquids, it is customary to fill each bottle separately by means of a measure and tunnel, or by a flexible spigot, one end fitting into or snugly around the neck of the bottle, and the other end connected with the faucet of the barrel or receptacle from which the supply is to be drawn. In both cases, however, the bottles are filled singly, and are afterward removed to an apparatus which corks them separately, one at a time.

These methods of filling and corking are objectionable for the reasons that considerable waste of the liquid is occasioned, and the operation is slow and tedious.

To overcome the above-mentioned objections is the purpose of my invention, which consists in a series of measuring-receptacles connected with the supply-reservoir, and provided with valves which control their inlet and outlet passages, each receptacle being provided with a central passage or tunnel extending vertically through it, and each receptacle being of the exact capacity of the bottle to be filled, a number of bottles corresponding to that of the receptacles being brought up in a box or carrier, so as to cause the neck of each bottle to fit snugly into the bottom of its tunnel a short distance below the junction of the outlet-passage therewith, the tunnels also serving as conductors for the corks, which, after the bottles are filled, are pressed down into their necks by the simultaneous descent of a series of plungers, connected together to perform the operation of corking.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A represents a platform, supported by uprights B. A short distance above the platform are placed a series of cylindrical-shaped receptacles, C, each of which is provided with a tapering opening, *a*, passing vertically through its center and through the circular base *b*, which screws into and forms its bottom, the lower end of the base *b* passing through and projecting a short distance below the platform, and having a hollow nut, D, screwed thereover to keep the receptacle securely in place. From the outside of the base *b* of each receptacle, and extending in toward the center of the machine, is a rectangular enlargement, *c*, through which and the bottom of the receptacle is formed a passage, *d*, which communicates with the tapering opening *a* a short distance above its bottom, and forms the outlet of the receptacle. Entering the top of each receptacle is a short vertical pipe, *e*, the several pipes *e e* being connected by horizontal pipes E E placed parallel to each other, and extending in a longitudinal direction, and being united by a short pipe, G, extending transversely with the machine. From the center of the transverse pipe G rises an upright tube, H, over which is fitted one end of a hose or pipe, which is connected with the outlet of the supply-reservoir. (Not shown.) Within each vertical pipe *e* slides a central spindle, *f*, surrounded at its top by a spiral spring, *k*, and carrying two valves, *h i*, the upper valve, *h*, fitting snugly up against a valve-seat formed around an opening, *l*, with which the interior of the pipe E communicates, the opening *l* leading down into the receptacle C, and forming the inlet-passage, by which it is filled. To the lower end of the spindle *f* is secured the valve *i*, which fits snugly on a seat formed around the top of the outlet-passage *d*, when the spindle is pressed down against the resistance of the spring *k*, by mechanism now to be described. Rising from the horizontal pipes E E, and the vertical pipes *e e*, at points in close proximity

to the valve-spindles *f*, are upright arms *m m*, bent in slightly at their tops, to which are pivoted bent levers *n n*, of the form seen, the lower ends of these levers being pivoted to parallel bars I I, joined by a cross-piece, *p*, at their outer extremities, by which construction, as the bars I I are drawn in the direction of the arrow, the upper or bent ends of the levers *n n* are brought down upon the caps of the spindles, which are thus depressed simultaneously against the resistance of the springs *k k*, whereby all of the inlet-passages *l l* to the receptacles are opened, and are so kept by securing the movable bars I I in this position in any convenient manner. Simultaneous with the opening of the inlet-passages *l l* the outlet-passages *d d* are closed by the descent of the spindles *f* carrying the valves *i i* down upon their seats. As each receptacle is being filled the air within it is expelled through an opening, *q*, in its top, in which is placed a triangular-shaped plug, *r*, having a hollow spherical ball, K, secured to its bottom, the form of the plug being such as not to fill the opening, but leaving sufficient room for the air to escape as the liquid rises. When the receptacle becomes full, the pressure of the liquid lifts the ball K till a valve, *s*, on its upper side is brought against a seat of corresponding form made at and around the bottom of the vent-opening *q*, thus closing it and preventing the overflow of the liquid from the receptacle.

The several receptacles are intended to be of exactly the same capacity, being precisely that required to fill a bottle.

I will now describe the manner of filling a number of bottles corresponding to that of the receptacles. L is a platform provided at its corners with short sleeves *t*, which fit around the uprights B B, which thus serve to guide it as it is raised and lowered by winding up cords *u* around a shaft, M, by turning a crank, N, the upper end of each cord being secured to the shaft, and the lower end to the platform, the shaft being provided with a ratchet-wheel, *v*, into which engages a pawl for keeping the platform at any desired height.

The upper side of the movable platform L is provided with a pair of parallel rails, *w*, upon which rest the wheels P of a rectangular carrier, Q, in which the bottles are placed in sockets in an upright position. The carrier is rolled upon the rails of the platform till it comes into contact with a stop, *8*, which is carefully placed at such point as will insure the proper fitting of the neck of each bottle within an elastic ring, *x*, sprung into the lower end of the tapering opening *a*, the top of the bottle being situated just below the outlet *d* of the receptacle, and the ring *x* serving as a packing to prevent the liquid from leaking out through the bottom of the opening *a*. The contents of the several receptacles are now allowed to flow out into their respective bottles, by simply releasing the parallel bars I I, which are immediately returned to their nor-

mal position by the upward pressure of the caps of the spindles *f f* upon the upper bent extremities of the levers *n n*, brought about by the recoil of the spiral springs *k k*.

The operation of corking the bottles will now be described. R is a rectangular frame provided at its corners with tubes or sleeves 9, which surround four posts, S, rising from the platform A, by which means it may be made to slide up and down thereon, by turning the handle *y* of a crank, T, which is connected with a cross-bar, U, of the frame by a pitman, V. Projecting down from the under side of the frame R, and in line with the vertical axis of the central openings *a a* through the receptacles, are a number of cylindrical plungers, W, corresponding thereto.

These openings *a a* are, as previously stated, tapering, and, beside the offices fulfilled by them above described, serve as tunnels or conductors for the corks used in corking the bottles. After the bottles are filled, the corks are placed in their conductors, and the plungers brought down upon them, forcing them gradually into the necks of the bottles, each cork in its passage down its conductor being compressed sufficiently to enable it to fit tightly, as required. The crank N is now turned, so as to allow the sliding platform L, with the carrier Q and its bottles, to descend, when the latter are removed, and a corresponding number of empty ones are placed in position to be filled in a similar manner.

Should a bottle be accidentally broken during the filling process, the liquid will flow into the carrier, from which it can be saved by pouring back into the supply-reservoir.

Each receptacle is provided with an opening in its side to afford access to its interior to cleanse it, if desired. The capacity of one or more of the receptacles may be reduced to conform to the contents of smaller bottles, by introducing through the top of the receptacle a vertical tube closed at its bottom. This tube being lowered or raised therein to different heights, so as to occupy more or less of its area.

From the foregoing, it will be seen that I am enabled to perform in one and the same apparatus the three following operations, viz: First, the accurate measurement of the liquid for any capacity of bottle before filling it; second, the filling of a number of bottles at once; and third, corking them simultaneously, whereby the waste, inconvenience, and delay incident to the methods heretofore practiced, are avoided.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A series of measuring-receptacles, C C, of predetermined capacity, connected with the supply-tank, and provided with inlet and outlet passages *l d*, controlled by valves, in combination with plungers W W, substantially as and for the purpose described.

2. A series of plungers, W W, acting simultaneously in combination with a correspond-

ing number of measuring-receptacles, C C, provided with central tunnel-shaped openings or cork-conductors *a a*, substantially as described for the purpose set forth.

3. The bottle carrier Q, raised and lowered by suitable mechanism, in combination with a series of measuring-receptacles, C C, and cork-conductors *a a*, substantially as and for the purpose specified.

4. The platform L, and bottle-carrier Q, in combination with the measuring-receptacles C C, substantially as and for the purpose set forth.

5. The spindles *f f*, with their springs *k k*, and valves *h i*, operated by the levers *n n*, connected with the movable bars I I, as and for the purpose set forth.

Witness my hand this 8th day of January, A. D. 1875.

GEORGE H. FERRY.

In presence of—

N. W. STEARNS,

W. J. CAMBRIDGE.