W. A. ROSS.

BOTTLING-MACHINE.

No. 194,726. Patented Aug. 28, 1877.

Fig. 1.

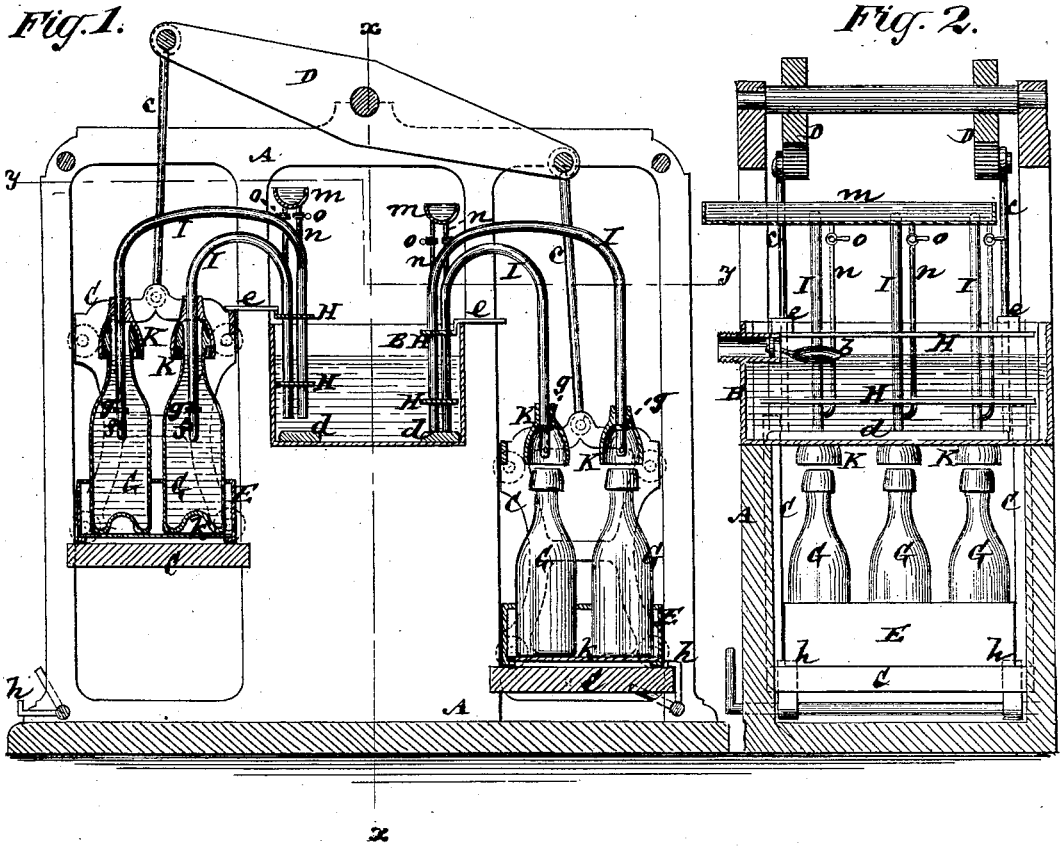


Fig. 2.

Fig. 3.

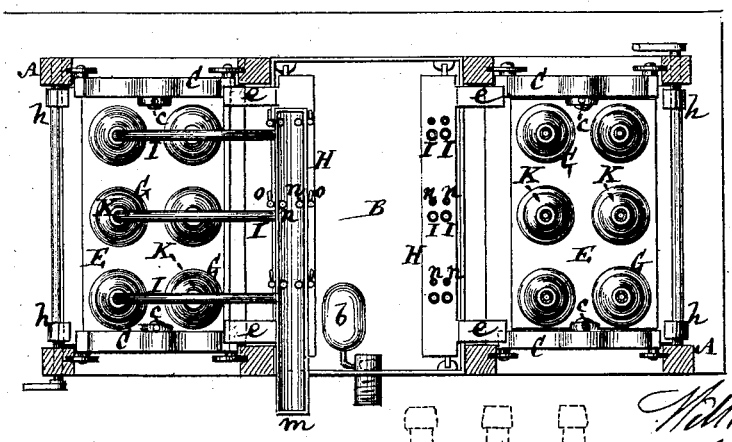


Fig. 4.

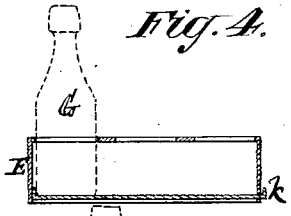


Fig. 5.

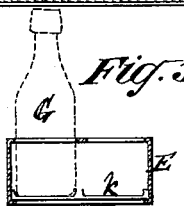
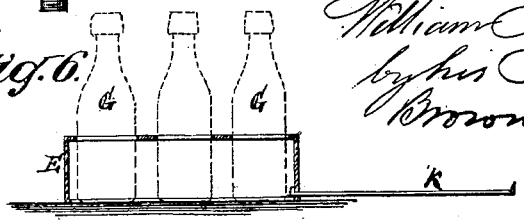


Fig. 6.



Witnesses

John Becker

Jno. Haynes

Inventor

William A. Ross

by his Attorneys

Brown + Allen.

UNITED STATES PATENT OFFICE.

WILLIAM ADOLPHUS ROSS, OF BELFAST, IRELAND.

IMPROVEMENT IN BOTTLING-MACHINES.

Specification forming part of Letters Patent No. **194,726**, dated August 28, 1877; application filed July 10, 1877.

To all whom it may concern:

Be it known that I, WILLIAM ADOLPHUS ROSS, of Belfast, Ireland, have invented certain new and useful Improvements in Bottling-Machines, of which the following is a description, reference being had to the accompanying drawings, which form part of this specification.

This invention relates to that description of bottling-machines in which siphons are used to fill the bottles, and is more particularly designed to be applied to machines for bottling ales, spirits, oils, and other still liquids.

The invention consists in certain novel constructions and combinations of devices, whereby the efficiency of the machine is greatly improved, the same including a certain combination of balancing and alternately rising and falling cradles, and rising and falling siphons, with a filling tank or cistern between the cradles; also, a combination, with either cradle, of a peculiarly-constructed bottle-holding tray; likewise certain means for guiding the bottles onto the siphons; and, furthermore, certain devices for starting the siphons and for holding them charged.

Figure 1 represents a vertical longitudinal section of a bottling-machine or apparatus constructed in accordance with my invention; Fig. 2, a transverse section thereof on the line *x x;* and Fig. 3, a horizontal section of the same on the irregular line *y y*. Figs. 4, 5, and 6 are vertical longitudinal and transverse sections of a tray of peculiar construction used in said apparatus.

A is the frame of the machine. Said frame may be of any suitable construction, and serve to carry a charging-cistern, B, which may be supplied from any vessel or general source whatever with the liquid to be bottled, and said liquid be kept at a uniform level in said cistern by means of a valve controlled by a float, *b*.

Along each side of said charging-cistern B, and descending below it, are one or more cradles, C, which are free to rise and fall, and may be suitably guided in their ascent and descent by the main frame. Each opposite pair of said cradles are connected to work alternately in relation with each other by means of one or more balance-beams D and connecting-rods *c*, or by means of cords, chains, or bands and pulleys, so that said cradles are arranged on opposite sides of a balancing support or fulcrum, and in their motion up and down are made to balance each other.

These cradles serve to carry trays E, in which the bottles G to be filled are placed.

Along each side of the cistern B, and attached to rising and falling frames H, are one or more rows of siphons, I, the short limbs of which project down within the cistern, while their longer limbs enter into the bottles to be filled. These siphon-frames may descend by their own gravity till the lower ends of the short limbs of the attached siphons close with a valvular fit or action on pads or cushions *d* arranged in the bottom of the cistern.

This closing of the shorter limbs of the siphons, which takes place after a set of bottles have been filled by the siphons, and the cradle or tray therein holding said bottles has been lowered, prevents the liquid in the cistern from being wasted or further run off by the siphons. Said short limbs of the siphons are raised from their pads or cushions *d* by the cradles C coming into contact, when raised, with lifting projections *e* on the siphon-frames H, thus causing the bottles, which are carried by the raised cradle, to be filled by the longer limbs of the siphons entering within said bottles. These longer limbs are each provided with one or more lower outlets, *f*, and with a loose bell or hollow cone, K, which receives the neck or mouth of the bottle to be filled. Said loose bell or hollow cone serves, as the neck or mouth of the bottle is raised, to receive the longer limb of the siphon down within it to guide the mouth or neck of the bottle over the longer limb of the siphon.

A collar or projection, *g*, upon the outer and longer limb of each siphon prevents the loose bell or hollow cone from falling off the longer limb of the siphon when the filled bottle is lowered by its cradle from off said limb, and allows of the lowering or adjustment of the hollow cone to receive within it the mouth or neck of a succeeding bottle to be filled.

Supposing the machine as herein represented and described to be a double one—that is, provided with duplicate cradles C on reverse sides of the charging-cistern B, and

connected so that when one cradle is raised the other cradle on the opposite side of the cistern is lowered to alternately fill the several bottles of each cradle, and to provide for the removal of the bottles from each cradle alternately by raising and lowering the cradles alternately, as described—the weight of either cradle which carries the filled bottles operates in descending to lift the cradle on the opposite end of the balance-beams D, to which the cradle having the empty bottles is attached. In this way a rapid filling of one, two, or more rows of bottles on opposite sides of the charging-cistern alternately is provided for by a siphonic action, which is automatically controlled by the rising and falling cradles and rising and falling siphon-frames.

As either cradle C is raised and the bottles carried by it are being filled, the other cradle on the opposite side of the balance-beam, and from which the previously-filled bottles are being removed, is locked or held down to its place by means of catches *h*, of any suitable construction. This provides for the removal of the full bottles and the replacing of them by empty ones from either opposite cradle alternately while the bottles of the other cradle are being filled.

The trays E, in which the bottles G are placed to be carried by the cradles, are of peculiar construction. Thus each tray *e* is made with a false or sliding bottom, *k*, which, after the tray having the filled bottles in or on it has been removed from its cradle or support, is slid or drawn out, as shown in Fig. 6, thereby depositing the filled bottles on the ground or floor, and so that the body of the tray can be lifted up from off or over the bottles, which are accordingly left standing upon the ground or floor. After this the false bottom *k* is slid in or made to close the base of the tray E, to provide for replenishing the tray with empty bottles to be filled, which tray may then be transferred to the empty cradle of the machine.

This construction of a bottle-tray does away with the separate removal of the bottles one by one, and greatly facilitates or expedites the filling and removal of the bottles, or, in other words, expedites the working of the machine.

A glass gage may be applied to the charging-cistern to enable the operator to see the height to which the bottles to be filled should be raised to accord with the level of the liquid in said cistern.

To facilitate the starting of the apparatus, the siphons I are or may be filled with liquid by means of elevated troughs or ducts *m* containing the liquid, and connected by supply-tubes *n*, controlled by cocks *o* with said siphons, which cocks are closed after the siphons have been charged or filled.

I claim—

1. The combination of two or more alternately rising and falling bottle-carrying cradles C, arranged on opposite sides of a balancing support or fulcrum, and connected so that they balance one another, two or more series or sets of rising and falling siphons, I, and a charging cistern or tank, B, between the cradles, substantially as specified.

2. The loose bells or hollow cones, in combination with the larger legs of the siphons, essentially as and for the purpose herein set forth.

3. The combination, with the siphons, of the starting or liquid-filling tubes applied thereto, and cocks or valves for closing said tubes after the siphons have been charged, substantially as specified.

4. The combination, in a bottling apparatus, with either rising and falling cradle C, of the removable bottle-holding tray E, constructed with a false sliding bottom *k*, whereby the loading and unloading of either cradle is facilitated and the working of the apparatus is expedited, essentially as described.

WILLIAM ADOLPHUS ROSS.

Witnesses:

WILLIAM SIMMS,

SAML. M. WILLIAMS,

Clerk at U. S. Consulate, Belfast.