C. F. McEWAN.

BOTTLE FILLING MACHINE.

APPLICATION FILED DEC. 2, 1907.

959,577. Patented May 31, 1910.

Fig. 1.

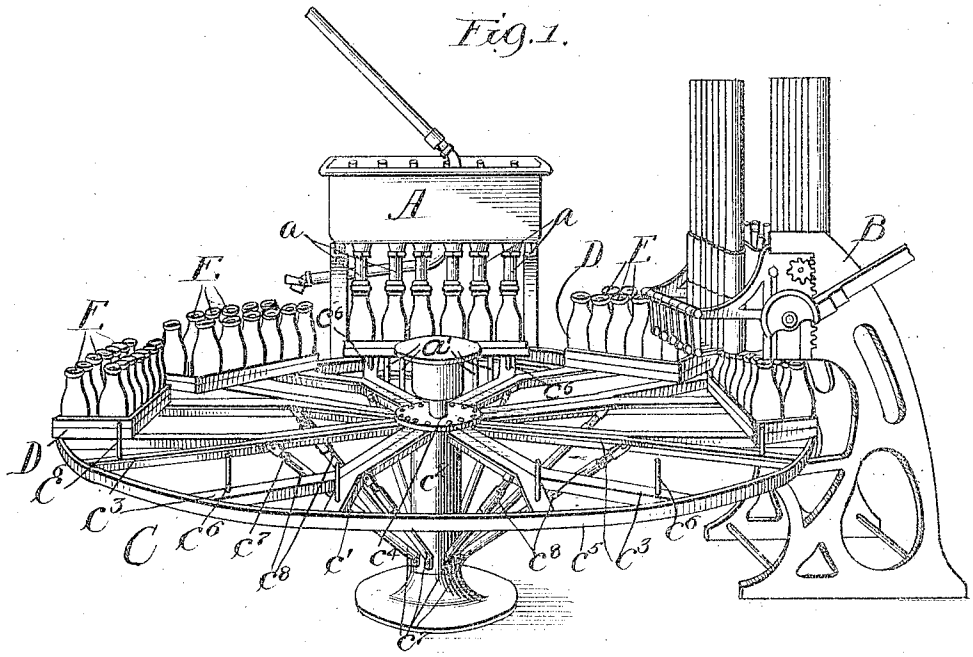


Fig. 2.

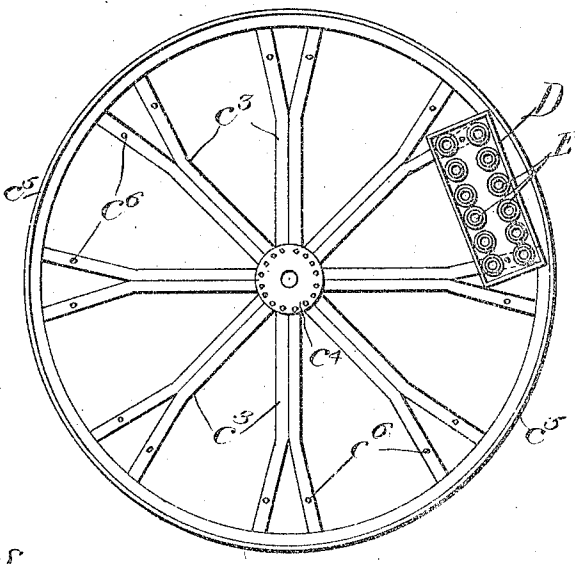


Fig. 4.

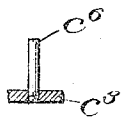
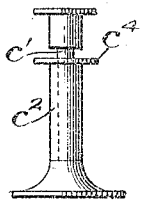


Fig. 3



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UNITED STATES PATENT OFFICE.

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BOTTLE-FILLING MACHINE.

959,577. Specification of Letters Patent. Patented May 31, 1910.

Application filed December 2, 1907. Serial No. 404,737.

To all whom it may concern:

Be it known that I, CHARLES F. McEWAN, a citizen of the United States, residing at Marengo, in the county of McHenry and State of Illinois, have invented certain new and useful Improvements in Bottle-Filling Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to bottle filling machines, and especially to an improved form by which a plurality of bottles contained in a suitable tray are successively presented to a filling device and a capping or stopping device in such manner that the alinement or register of the mouths of the bottles with the individual filling-nozzles or heads and with the individual capping or stoppering parts is automatically assured.

In filling bottles the tray containing a set is placed in position to be raised by suitable vertically moving parts of the filling device to bring the mouths of the bottles into register with the filling-nozzles, and after the bottles of a set are filled the tray is then placed in position for the caps or stoppers to be secured in place; in devices as heretofore employed the alinement or registering of the bottle mouths with the filling-nozzles and capping or stoppering devices depended upon the skill and judgment of the operator to properly place the traps successively in position with respect to these two machines, and it is the primary object of my invention to provide a machine which will accomplish this work automatically, thereby enabling the work to be done much more accurately and expeditiously.

A further object is to provide a device of this character having guides engaging the trays in such manner that the trays will remain in engagement therewith during their movement to bring the bottles into contact with the filling-nozzles, so that the trays will not become disalined from proper position to successively register the bottles with the capping or stoppering devices.

The invention consists in the arrangements and organizations hereinafter described and then pointed out in the appended claims.

In the accompanying drawing, which illustrates an embodiment of my invention—Figure 1 is a perspective view of an organization constructed and arranged to carry out my invention; Fig. 2 is a top plan view of the carrier shown in Fig. 1, with a bottle-tray in position thereon; Fig. 3 is a detail view in side elevation showing supporting base and associated revolving sleeve for the carrier or revolving table, and Fig. 4 is a detail view of a form of pin or guide preferably employed on the table or carrier.

In the drawings the reference letter A represents a suitable machine for filling bottles with any liquid, as for example milk, and B a bottle-closing machine, such as a capping or stoppering-machine, each being of any suitable type and operated in the customary manner. These two machines are set in suitable relation to a revolving table or carrier C adapted to carry a plurality of trays D, each of which holds a number of bottles E, the capacity of the trays usually corresponding to the number of filling and capping units or heads of the associated machines, and the various parts being so arranged that the bottles on the trays will be successively brought to position with relation to the coöperating parts of the filling and capping machines respectively as the table is revolved.

The table comprises a suitable pedestal or base having reduced upright shaft or standard c' adapted to receive a rotatable sleeve c^2. The tray-carrying portions of the table comprise a series of radial arms c^3 rigidly connected at their inner ends to a flange or head c^4 on the upper end of the sleeve c^2, and preferably composed of angle-irons as shown; the arms are arranged in pairs as illustrated more clearly in Fig. 2 with the vertical webs or flanges of each pair in contact, and at their outer ends the arms are angularly bent in tangential lines with reference to the shaft. The outer ends of the arms are connected by a common band c^5, defining the periphery of the table, the arms being suitably connected to the band c^5 and to the head c^4 by rivets or other fastening means. The angular portion of each arm is provided with an upright pin c^6 set inwardly from the band at a suitable distance, as about half the width of the trays, these pins being adapted to enter openings in the trays to hold the same in position, as shown in Figs. 1 and 2. The pins are of sufficient length to remain in engagement with the trays when the latter are lifted to bring the

mouths of the bottles into register with the filling-heads or nozzles *a* of the filler A. The arms are so disposed that the angular portions of opposite arms of adjacent pairs extend parallel with each other to constitute a base or support for a tray, the distance between each pair of associated angular portions of the arms being slightly less than the length of a tray and so that each tray will thereby be held by two pins c^6, as clearly shown in the drawings. The arms may be suitably braced, and for this purpose I provide braces c^7 extending from the joint or union of the angular portions of each pair to the sleeve as shown. These braces are preferably made adjustable by any suitable means, such as the turn-buckles c^8. The table may be rotated by hand or other power, and as shown presents the trays successively to the filling machine A and capping machine B. When a tray is positioned with respect to the filling machine A it is raised slightly above the plane of the table to bring the mouths of the bottles into register with the filling-heads or nozzles *a* until the bottles are filled when it is again lowered to place on the table, this operation being performed by the moving parts *a'* of the machine A in a manner well-understood in the art and which therefore need not be further described; and when the trays are so raised and lowered they slide up and down on the pins c^6 as guides which hold them against dis-alinement. This feature is important because the continuing engagement of the pins with the trays insures the proper positioning of the latter on the table to bring the bottles into register with the stoppers or caps of the capping machine B when the table is rotated to cap the filled bottles.

The machines A and B are set at predetermined distance apart corresponding to the amount of movement of the carrier necessary to move a tray from position at the first to the second machine, and in such relation to the tray-supports of the carrier that when the first tray is in position for the machine B a succeeding tray will be in position for the machine A.

Having described my invention, I claim:—

1. In a device of the class described, a bottle-filling machine having means to raise a bottle-tray, a bottle-closing machine, and a revolving tray-carrier arranged adjacent said machines and having guides to engage a tray during its raising movement.

2. A revolving tray-carrier adapted to support a plurality of bottle-trays having openings in position to be successively presented at predetermined points, and guides on the carrier engaging the openings of the trays in their raised and lowered positions on the carrier.

3. A revolving tray-carrier comprising a base or pedestal, a revolving sleeve on the base, a series of radial arms carried by the sleeve and having angular outer portions provided with upright pins, the angular portions of adjacent arms being parallel to form a tray-base.

4. A revolving tray-carrier comprising a base, a revolving sleeve on the base and having an upper flange or head, a series of radial arms secured to said head and having angular ends, the arms being arranged in pairs, a brace between the sleeve and each pair of arms, and upright pins in the angular portions of the arms.

5. A revolving tray-carrier comprising a base, a revolving sleeve on the base and having an upper flange or head, a series of radial arms secured in pairs to said flange and having angular ends, the angular ends of adjacent arms being parallel to form a tray-base and having upright pins, and a brace extending from the sleeve to each pair of arms.

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

CHARLES F. McEWAN.

Witnesses:
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