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APPARATUS FOR FILLING BOTTLES AND OTHER RECEPTACLES WITH LIQUIDS.

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1,076,776.

Patented Oct. 28, 1913.

FIG. 1.

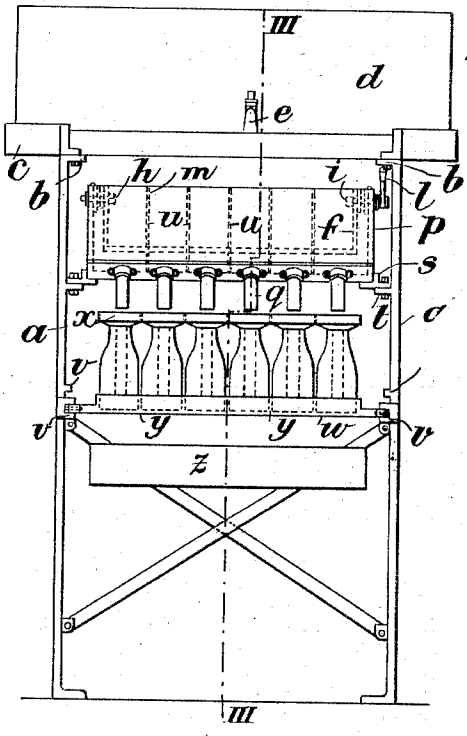


FIG. 2.

FIG. 3.

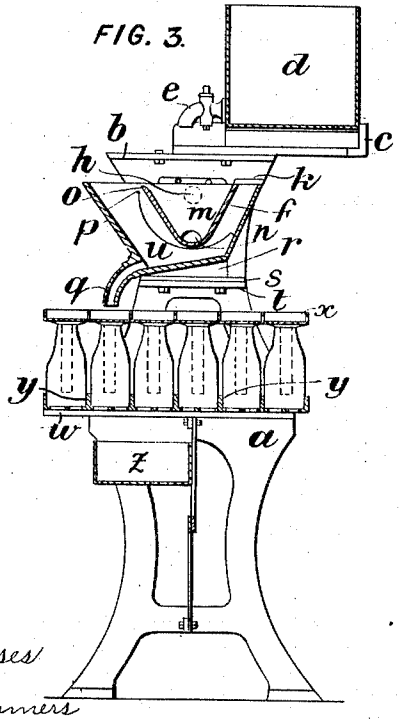
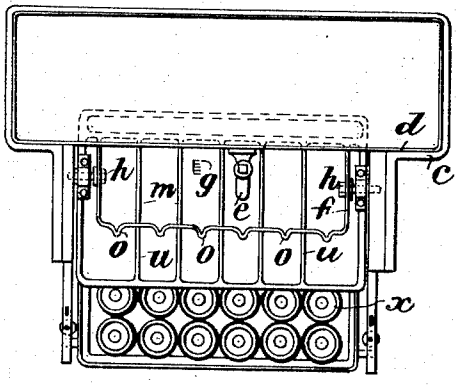


FIG. 4.



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APPARATUS FOR FILLING BOTTLES AND OTHER RECEPTACLES WITH LIQUIDS.

1,076,776. Specification of Letters Patent. Patented Oct. 28, 1913.

Application filed March 1, 1910. Serial No. 546,705.

To all whom it may concern:

Be it known that we, CHARLES JEFFERIES MATTHEWS and JOHN CATTELL POTTER, subjects of the King of Great Britain, residing at Engineering Works, Beach Road, Eastbourne, in the county of Sussex, England, have invented new and useful Improvements in Apparatus for Filling Bottles and other Receptacles with Liquids, of which the following is a specification.

This invention relates to improvements in apparatus for filling bottles and similar receptacles with measured quantities of liquid, and while it is particularly applicable for filling bottles or other receptacles with milk, it is also suitable for use with other liquids.

According to this invention the apparatus comprises a measuring vessel which is preferably provided with gudgeons or trunnions adapted to rest in forks or bearings mounted on or in a member, hereinafter called the distributer, which is provided with a number of partitions forming compartments, each of which has a spout or discharge pipe or nozzle, such nozzles being arranged at equal distances apart, in such a manner as to come fair with the bottles or other vessels placed beneath the apparatus, and so as to permit of the passage of equal amounts of liquids in a given time.

The bottles or other receptacles are preferably stood in a tray or platform which holds, say, three dozen, or six dozen, or other suitable number, and the tray is advanced a certain distance merely by hand or by mechanical means operated by hand or automatically as soon as a row of bottles has been filled and a fresh row of bottles is to be filled.

The distributer is either made with its bottom in the form of a number of funnels, one for each bottle, or it is otherwise divided up into a number of compartments. The measuring vessel is so constructed and provided with lips that when tipped, it discharges the proper quantity of liquid into each compartment of the distributer and the latter is mounted over a platform or tray on which the bottles are stood in rows, the said platform being adapted to be advanced a distance equal to the distance of the bottles apart from center to center, so as to fill one row after another.

Figure 1 of the accompanying drawings is a front elevation of an apparatus constructed according to this invention. Fig. 2 is an end view thereof. Fig. 3 is a section on the line III—III, Fig. 1, and Fig. 4 is a plan view showing the tray drawn out.

A suitable construction of apparatus as shown in Figs. 1 to 4 comprises a frame, *a*, having flanges, *b*, on which are mounted brackets, *c*, adapted to support a reservoir, *d*, having a cock, *e*. Or instead of a special reservoir the frame may be adapted to support a churn or other suitable receptacle. Below the said reservoir there is mounted a trough-shaped measuring vessel, *f*, more or less triangular in section preferably made with rounded bottom or corners and of tinned iron or steel, aluminium or other suitable metal or material. The said measuring vessel has a scale or marks inside indicated at *g*, so arranged as to indicate to the operator the quantity the vessel contains when filled to various levels, and it is eccentrically pivoted or balanced on gudgeons, *h* and *i*, so that when tipped it always tends to return more or less to the horizontal position ready for filling again, and is suitably provided with a stop, *k*, to prevent it from oscillating or being tipped accidentally. One of the gudgeons or pivots marked *i* is provided with a lever, *l*, or instead of a lever, a handle may be employed, which lever is operated either by hand as shown, or by foot power by connecting it to a treadle. The measuring vessel, *f*, is suitably provided with a number of walls or partitions, *m*, to form separate compartments, and all these compartments are connected together by holes, *n*, and each compartment has a lip, *o*, to cause the measuring vessel to discharge uniformly all along. The measuring vessel is mounted in a somewhat similarly shaped member or distributer, *p*, having at its lower end a number of curved spouts, *q*, in a row adapted to discharge into the bottles (or there may be two or more of such rows, all according to the capacity of the machine). The distributer, *p*, is mounted on suitable feet, *r*, or is otherwise adapted to rest on brackets, *s*, bolted on to flanges, *t*, on the frame or support, *a*, from which it may be easily lifted or bodily removed for cleaning purposes. The distributer has for its object to cause the liquid to flow steadily into the bottles and for this purpose it is sufficiently wide at its top and level with the top of the measuring vessel. More-

over, said distributer is suitably provided with a number of walls or partitions, *u*, which are curved to allow the measuring vessel to be within the distributer, and to be tipped freely. There is a spout or discharge nozzle, *q*, for each compartment, or the bottom of the distributer may be made in the form of a number of funnels, the object in either case being to keep each charge for each bottle separate in order to prevent one bottle or more than one bottle from getting more than its or their proper measure, and as shown each lip, *o*, of the measuring vessel, *f*, comes about in the middle of a compartment in the distributer.

The frame, *a*, is provided with means for varying the height or distance at which the distributer shall stand above the bottles to be filled either by making a number of grooves or lugs, *v*, in the sides of the frame, *a*, at various heights for the reception of the tray or platform, *w*, on which the bottles are stood or by similarly providing the frame, *a*, with several sets of lugs, such as *t*, so as to adapt the brackets, *s*, of the distributer, *p*, to be mounted at various heights above the bottles. Or the stand may be provided with set screws or the like so that the distributer may be raised or lowered to conform to bottles of different heights. The bottles are placed in a large tray or platform, *w*, having divisions, *y*, one for each bottle, and this platform is pushed a measured distance by hand as shown, or it may be by a measured distance feed device, such as a lever with a pawl adapted to take into a rack on a carriage for carrying the platform or tray along. The liquid may be allowed to flow direct from the spouts, *q*, of the distributer into the bottles, but preferably there is a series of funnels, *x*, connected together for each row or two rows of bottles so as to form one piece for facility and speed in handling, the spouts of said funnels being sufficiently long to reach near the bottoms of the bottles to prevent frothing (in case of milk and some other liquids) during filling.

Instead of dividing the platform, *w*, into a number of compartments by divisions, *y*, as shown in Figs. 1, 3 and 4, to take the bottles, the divisions may be dispensed with and separate trays or baskets may be employed to hold say half a dozen or a dozen bottles. In order to prevent waste of liquid the apparatus may also be provided with a receptacle, *z*, below the platform which is suitably supported on the frame, *a*, of the apparatus by hooks or otherwise. The milk or other liquid is either contained in a milk churn or other receptacle, such as *d* as aforesaid, the liquid being supplied by the cock, *e*, which cock is turned on to fill the measuring vessel, *f*, and turned off when the latter is full. The liquid may be strained, filtered or otherwise treated before being allowed to flow into the reservoir, *d*. Or the liquid may be supplied by pressure, for instance, by means of a pump instead of by gravity.

The apparatus is simple in construction, there is practically nothing to get out of order, approximately exact quantities of liquid are supplied to the bottles or other receptacles, and the liquid is not touched by hand. The reservoir is adapted to be lifted off and may be easily cleaned, which remark also applies to the measuring vessel, the distributer, and the tray or platform.

What we claim as our invention and desire to secure by Letters Patent is:—

1. In apparatus for filling a plurality of receptacles, the combination of a distributer comprising a number of compartments each fitted with delivery means, a measuring vessel pivotally mounted within said distributer and formed with a similar number of compartments each of which is appropriate to a respective one of the first-named compartments, and operating means connected with said measuring vessel and adapted for turning said measuring vessel on its pivots so as to cause simultaneous discharge of the contents of the various compartments of the measuring vessel into corresponding compartments of said distributer, substantially as set forth.

2. An apparatus for filling receptacles, comprising a liquid containing reservoir, a distributer provided with a plurality of compartments having discharge spouts, a measuring vessel pivotally mounted within the distributer and provided with a plurality of partitions and lips, and means for mounting a plurality of receptacles under said discharge spouts.

3. An apparatus for filling receptacles, comprising a liquid containing reservoir, a stationary distributer provided with a plurality of compartments having discharge spouts, a gravity controlled measuring vessel having a plurality of partitions and lips and mounted within the distributer, means for tipping said measuring vessel, and means for supporting a plurality of receptacles under the discharge spouts.

4. An apparatus for filling receptacles, comprising a liquid containing reservoir, a stationary distributer provided with a plurality of compartments having discharge spouts, a gravity-controlled measuring vessel having a plurality of partitions extending nearly to the bottom thereof and mounted within the distributer, means for tipping said measuring vessel, and means for supporting a plurality of receptacles under the discharge spouts.

5. In apparatus for filling a plurality of receptacles, the combination of a distributer comprising a number of compartments each fitted with delivery means, a measuring ves-

sel pivotally mounted within said distributer and formed with a similar number of compartments each communicating with its neighbor or neighbors and each being appropriate to a respective one of the first-named compartments, and operating means connected with said measuring vessel and adapted for turning said measuring vessel on its pivots so as to cause simultaneous discharge of the contents of the various compartments of the measuring vessel into the corresponding compartments of said distributer, substantially as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

CHARLES JEFFERIES MATTHEWS.
JOHN CATTELL POTTER.

Witnesses as to Charles Jefferies Matthews:
T. E. VARLEY KIRTLAN,
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AUGUSTUS E. INGRAM,
R. B. NICHOLLS.