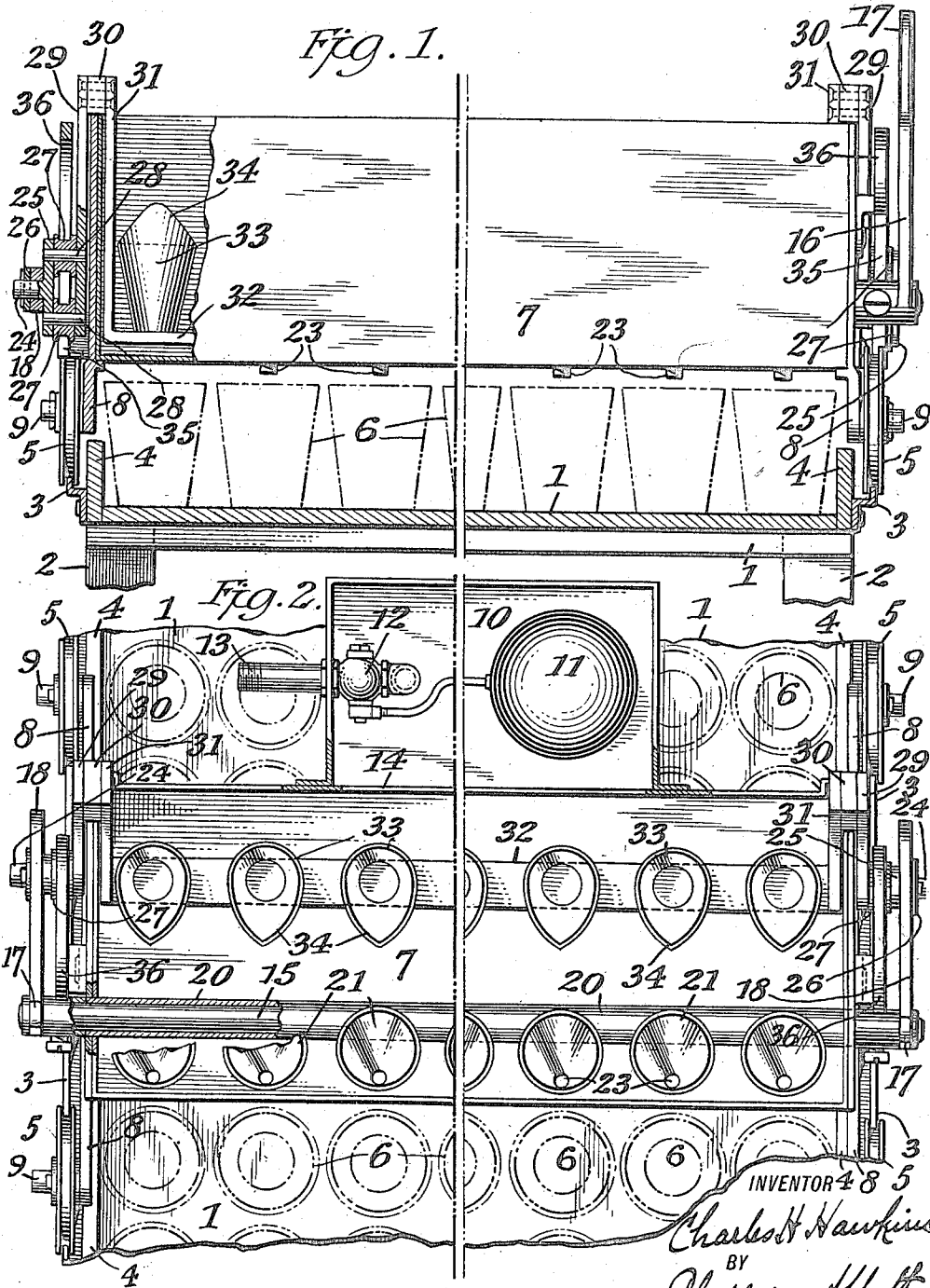


C. H. HAWKINS.
FILLING DEVICE.
APPLICATION FILED APR. 27, 1916.

1,222,759.

Patented Apr. 17, 1917.

2 SHEETS—SHEET 1.



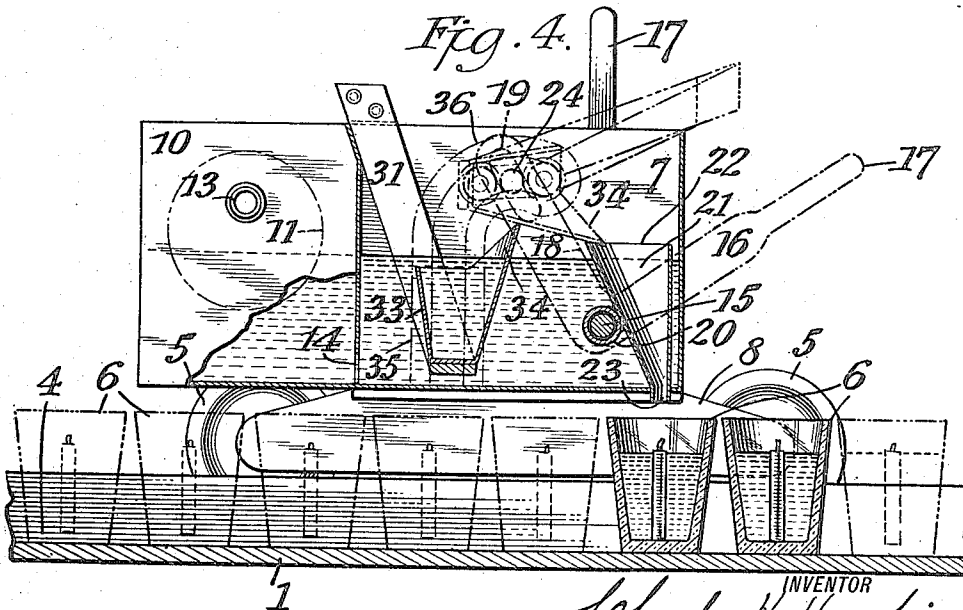
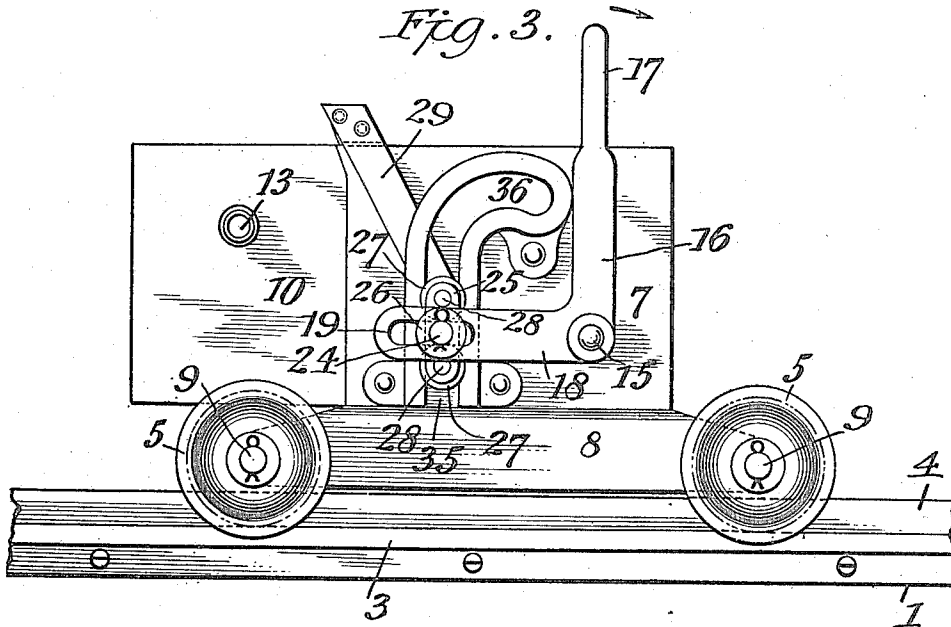
INVENTOR *Charles H. Hawkins*
BY *Phillips Abbott*
ATTORNEY

C. H. HAWKINS.
FILLING DEVICE.
APPLICATION FILED APR. 27, 1916.

1,222,759.

Patented Apr. 17, 1917.

2 SHEETS—SHEET 2.



INVENTOR
Charles H. Hawkins
BY
Phillips Abbott.
ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES H. HAWKINS, OF FREEPORT, NEW YORK, ASSIGNOR TO THE STANDARD OIL COMPANY OF NEW YORK, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

FILLING DEVICE.

1,222,759.

Specification of Letters Patent.

Patented Apr. 17, 1917.

Application filed April 27, 1916. Serial No. 93,845.

To all whom it may concern:

Be it known that I, CHARLES H. HAWKINS, a citizen of the United States, and a resident of the town of Freeport, county of Nassau, and State of New York, have invented a new and useful Improvement in Filling Devices, of which the following is a specification, reference being had to the accompanying drawings.

In the embodiment of the invention shown in the drawings a machine is illustrated adapted to fill the container of a night light with its fuel; in the present instance the container is a glass tumbler with a candle already deposited therein. Such machine and product afford good examples whereby the utilities of the invention may be readily appreciated.

It will of course be understood that with suitable structural changes the invention is adapted to the filling of all sorts of receptacles with all sorts of fluent material, such, for example, as milk, oil, medicine, jelly and many other products.

Generally stated, the invention embodies a level surface, as, for instance, an extended table, transversely across which are arranged in straight lines successive rows of the receptacles to be filled. Upon the sides of the table are preferably constructed suitable tracks or guideways whereby a tank, or reservoir, adapted to contain the fluent matter, which is to be deposited in the receptacles, may be moved and guided lengthwise of the table. The material is conveyed to the tank or reservoir from any suitable source of supply by any desired means and the desired level of the liquid in the tank is maintained by any suitable device, as for example, the well known float valve. Within the tank there are a series of measuring devices, the open tops of which are adapted to be submerged below the level of the liquid and then lifted above the liquid so that the excess will overflow back into the tank, and the measures being then further moved will be tilted or tipped over in such manner as to empty their contents into a corresponding series of filling funnels by means of which the contents of each measure will be conveyed to and deposited in the appropriate receptacle to be filled. Thereupon, by suitable manipulation of the mechanism, the measures are again returned to primary position and submerged; the reser-

voir and all its co-acting parts are then advanced to the next transverse line of receptacles, and the above stated operations are repeated, and so on until all the receptacles upon the table are filled. These being then removed and others substituted, the operation may be continued indefinitely.

It will be noted that the filling capacity of the apparatus may be indefinitely extended by increasing the dimensions of the tables and co-acting parts and that instead of the traveling reservoir and stationary table, a traveling table or belt continuously supplied with transverse rows of receptacles to be filled and a stationary reservoir and co-acting parts may be substituted. Such alternative construction is too well known to require illustration or specific description.

The apparatus is well adapted to the realization of certain specific advantages incident to certain liquids, some of which advantages will be stated below.

Referring to the drawings, Figure 1 is an end elevation, partly in section and partly broken away, of one form of apparatus embodying my invention; Fig. 2 is a plan view of that which is shown in Fig. 1; Fig. 3 is a sidewise elevation of the reservoir and co-acting parts shown in this instance as mounted and movably supported upon rollers or wheels; Fig. 4 is a sectional view, similar to Fig. 3, showing some of the vessels filled and others awaiting the filling operation.

In the drawings, 1 represents a table of any suitable construction supported upon legs or a frame 2. 3, 3, are in this instance suitable rails made of angle iron bolted to the sides of the table. 4, 4, are upwardly extending flanges or sidebars to aid in the location of the transverse lines of vessels to be filled. 5, 5, are wheels upon which the reservoir is supported. They travel upon the rails 3. 6 are the receptacles to be filled, in the present instance shown as tumblers used in the manufacture of night lights. 7 is a tank or reservoir supported by a frame 8 in the ends of which the axles 9, upon which the wheels are journaled, are supported. The tank is equipped with the following devices:

10, seen best in Fig. 2, is a float valve tank fastened to the side of the main reservoir 7. Within it is a float valve 11, which, in a manner well understood, controls the supply cock 12, which is attached to the end

of a supply pipe 13, which connects with any suitable source of supply, the connection being flexible, preferably a rubber hose. The tank 10 is connected with the reservoir 7 at its lower inner edge, as at 14, so that the liquid supplied to the tank 10 will pass into the reservoir, the level whereof in both will be determined by the float valve. I prefer to have the float valve in the tank 10 separated from the main reservoir, so that if bubbles form in the liquid, as is apt to be the case, they will be confined to the tank, so that the liquid which flows therefrom to the reservoir will be free from such bubbles.

At each end of the reservoir there is a bell-crank lever rigidly supported upon the end of a shaft 15, one member 16 of the bell-crank lever being provided with a handle 17 and the other member 18 slotted as at 19. The shaft 15 (see best Fig. 2) extends transversely across the reservoir and is preferably inclosed within a sleeve 20, which sleeve supports a series of filling funnels 21, the upper open mouths 22 whereof are normally above the level of the liquid, as shown best in Fig. 4, and the lower end open downwardly through the bottom of the reservoir, as shown at 23, in proper registration with the underlying transverse lines of vessels to be filled. The passage of the funnels through the bottom of the reservoir and the ends of the sleeve 20 through which the shaft 15 passes, are made liquid tight against the bottom and walls of the reservoir.

The bellcranks with their handles 17 and all coacting parts are in the instance shown located upon both sides of the reservoir, so that the apparatus may be worked from either the left or the right hand side, or if the apparatus be large and the vessels to be filled be many, it may require two men to operate them, in which event one man will be upon one side and the other upon the other side. Also in some instances it may be more convenient to place two relatively small filling apparatuses side by side, in which event the same man can operate one apparatus with his right hand and the other with his left hand.

24 is a stud upon a plate 25 provided with a washer and cotterpin 26, whereby the stud may be confined within the slot 19 of the member 18 of the bellcrank lever. The plate 25 is provided with a pair of flanged rollers 27, which are supported upon pins or rivets 28, which also pass through and rigidly hold an upwardly extending bar 29, which is on the outside of the reservoir and is connected at its upper end through a spacing block 30 with a corresponding bar 31 on the inside of the reservoir which after projecting downwardly into the reservoir extends transversely across the same, as shown at 32, to corresponding parts on the opposite side

and upon this transverse part 32 are arranged a series of measures 33, each of which is provided with a laterally projecting spout 34. The purpose of thus straddling the side of the reservoir by means of the devices 29, 30, 31, is to avoid the passage of any shaft, or its equivalent, through the side of the reservoir, thus avoiding the necessity for stuffing boxes or the like to prevent leakage.

The level of the top of the measures 33 when in their normal or depressed position within the reservoir is, as shown best in Fig. 4, below the level of the liquid, so that they may be more than completely filled with the liquid. This is so that there may be positive assurance they contain at least full measure.

On each end of the reservoir there is fastened a peculiar shaped cam plate. It is seen best in Fig. 3 and comprises a vertical section 35 and a curved section 36, and within this cam plate the flanged rollers 27 move, the edges of the cam plate being received within the groove of the rollers.

The operation of the apparatus above described is as follows:

The receptacles are placed in transverse lines upon the table and the liquid admitted to the tank 10, the float valve gradually rising as it enters until the predetermined level is reached, which will be maintained by the float valve in a manner well understood. As already stated, the predetermined liquid level is above the level of the top of the measures, so that they are more than completely filled with the liquid. The operator then by means of the handles, 17, tips over the bellcrank to the right as indicated by the arrow in Fig. 3, whereby the mechanism, which supports and manipulates the filling measures, is in the first instance carried in a truly vertical line during the time the rollers 27 are passing through the vertical section of the cam plate. Consequently all the measures will be simultaneously lifted vertically until their upper edges are above the level of the liquid, so that all excess of the complete filling of the measures will spill over and flow back into the reservoir. As, however, the continued movement of the lever 17 brings the rollers 27 into the curved section 36 of the cam plate, then the carrier will be transferred from a vertical position into a horizontal one, inevitably carrying with it the frame 29—31, and the transverse part thereof 32, in so doing tilting and finally tipping over all of the measures 33, as indicated in dotted lines in Fig. 4, so that their spouts 34 will register with the upper open ends 22 of the filling funnels 21, and, without spilling, the contents of each measure will flow into its appropriate filling funnel and through it to the proper receptacle in the transverse line across the table, whereupon the operator swings the lever

back again to the left, returning all the parts to their primary position. The car carrying the reservoir is then advanced to the next transverse line of vessels to be filled, whereupon the operation above stated is repeated.

A series of advantages, referred to above, result from the employment of my invention, that is to say:

Many substances, as, for example, paraffin, certain of the waxes and many syrups, can only be rendered fluent by means of heat and yet some of them very readily congeal, so that it is desirable in order that absolute accuracy in measurement may be secured, that all parts of the apparatus manipulating them should be maintained at the appropriate temperature. It will be noted that in my apparatus the measures 33 and the filling funnels 21 are mostly submerged in the liquid at all times and that the parts which project above the level of the liquid, to wit, the extremities of the spouts of the measures and the upper part of the funnels, are so small in area and so close to the surface of the liquid, that they will maintain permanently the same temperature, or substantially the same temperature, as that of the liquid and that the time the measures are lifted from the liquid is so brief and the operation is such, that the contents thereof are almost immediately dropped into the funnels, which are of the same temperature as the contents of the reservoir, consequently there is no possibility that congealing shall occur which under certain circumstances and with certain liquids might interfere with the accuracy of the measuring and filling operations.

It will also be noted that the construction is such that there are no moving parts passing through the walls of the reservoir. The sleeve 20 and the funnels, which are non-moving parts, are sealed at the points where they pass through the walls of the reservoir and there is no joint through which leakage can occur. This is very important in the manipulation of materials of certain character, for instance, medicines and food, in connection with which it would not be permissible to employ stuffing boxes or similar devices requiring care, attention and oiling, which latter might contaminate the liquid.

As shown in the drawings (see Fig. 4) I prefer to have the opening at the bottom of the funnels offset to the front side of the tank, so that better view may be had of the underlying vessels to be filled.

The capacity of the measures may be regulated by the employment of any suitable form of displacer, not shown.

It will be obvious to those who are familiar with such matters that the embodiment of my invention illustrated and described is one form only of many in which

it may be employed. Modifications will at once occur to those familiar with such matters without departing from the essentials of the invention. I therefore do not limit myself to the specific apparatus shown and described.

I claim:

1. In apparatus of the class stated, a reservoir, a filling tank separate from but connected with the reservoir near the bottom of the tank, means located in the filling tank to maintain a predetermined level of the liquid within it and the reservoir, a series of measures within the reservoir, a support for the measures having a bellcrank on its end which straddles the wall of the reservoir, a series of funnels practically entirely within the reservoir and practically entirely submerged in the material, and means on the exterior of the reservoir engaging with the outer part of the bellcrank whereby the measures may be first elevated vertically above the level of the liquid and then tipped forwardly for emptying them into the funnels.

2. In apparatus of the class stated, a reservoir, means to supply liquid thereto, means to maintain a predetermined level of the liquid within the reservoir, a series of measures within the reservoir, a movable support for the measures having a bellcrank on its end which straddles the wall of the reservoir, a cam plate on the exterior of the reservoir, means on the outer member of the bellcrank which engage with the cam plate, and means to move the said last named means relative to the cam plate.

3. In apparatus of the class stated, a reservoir, means to supply liquid thereto, means to maintain a predetermined level of the liquid within the reservoir, a series of measures within the reservoir, a movable support for the measures having a bellcrank on its end which straddles the wall of the reservoir, a cam plate on the exterior of the reservoir, means on the outer member of the bellcrank which engage with the cam plate, means to move the said last named means relative to the cam plate, and a series of funnels registering with the measures, the discharge ends whereof are located near one wall of the reservoir.

4. In apparatus of the class stated, a reservoir, means to supply liquid thereto, means to maintain a predetermined level of the liquid within the reservoir, a series of measures within the reservoir, a movable support for the measures having a bellcrank on its end which straddles the wall of the reservoir, a cam plate on the exterior of the reservoir, means on the outer member of the bellcrank which engage with the cam plate, means to move the said last named means relative to the cam plate, and a series of funnels registering with the measures.

5. In apparatus of the class stated, a reservoir, means to supply liquid thereto, means to maintain a predetermined level of the liquid within the reservoir, a series of measures within the reservoir, a movable support for the measures having a bellcrank on its end which straddles the wall of the reservoir, a cam plate on the exterior of the reservoir, means on the outer member of the bellcrank which engage with the cam plate,

means to move the said last named means relative to the cam plate, and a series of funnels registering with the measures and located practically entirely within the reservoir, the discharge ends whereof are located near one wall of the reservoir.

In testimony whereof I have signed my name to this specification.

CHARLES H. HAWKINS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."