J. H. HILL.

FILLING MACHINE.

APPLICATION FILED SEPT. 2, 1919.

1,371,370. Patented Mar. 15, 1921.

2 SHEETS—SHEET 1.

Fig. 1

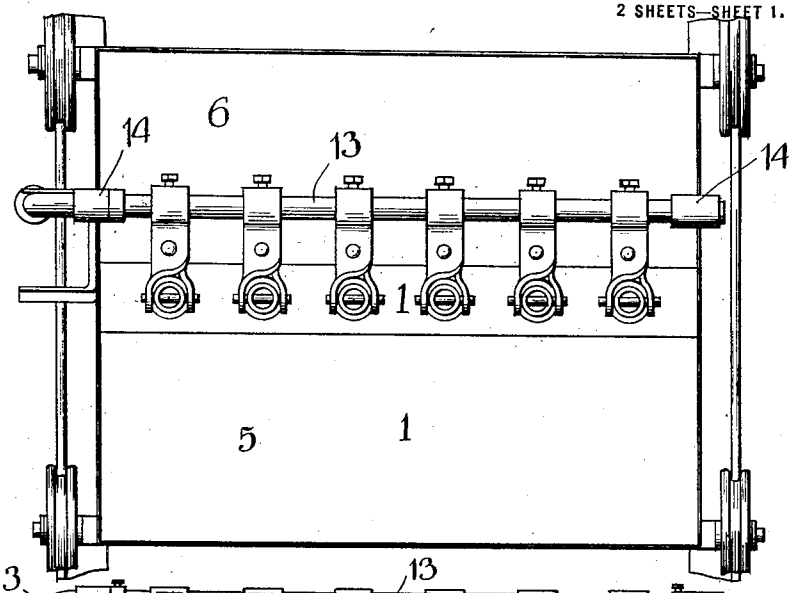
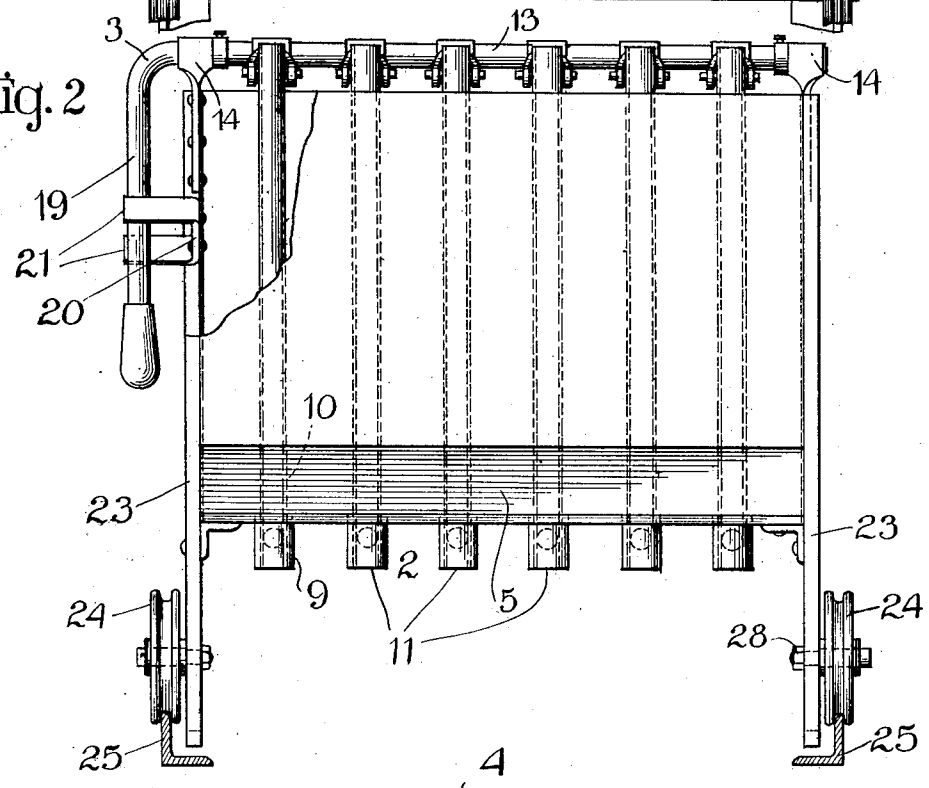


Fig. 2



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2 SHEETS—SHEET 2.

Fig. 3

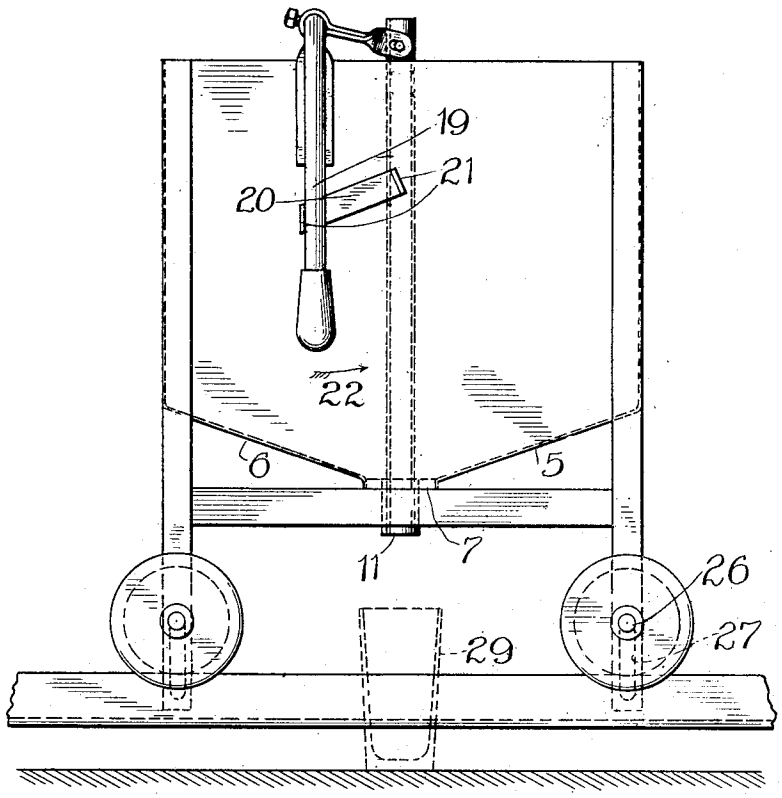


Fig. 4

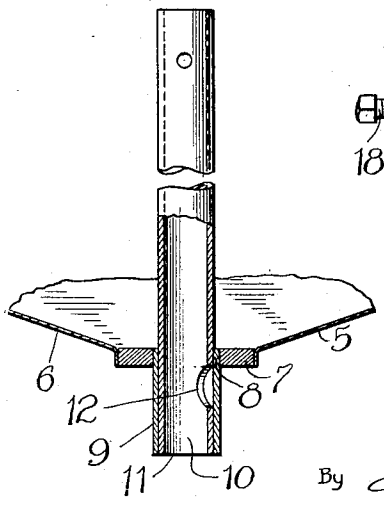
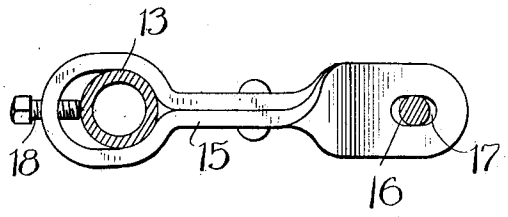


Fig. 5



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UNITED STATES PATENT OFFICE.

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FILLING-MACHINE.

1,371,370. Specification of Letters Patent. Patented Mar. 15, 1921.

Application filed September 2, 1919. Serial No. 321,150.

To all whom it may concern:

Be it known that I, JAMES H. HILL, a citizen of the United States of America, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Filling-Machines, of which the following is a specification.

The main objects of this invention are to provide an improved machine for filling various kinds of receptacles with liquid or semi-liquid products; to provide improved means whereby a number of receptacles are filled simultaneously; to provide an improved construction and arrangement of valve mechanism for a machine of this kind; to provide improved means for actuating said valve mechanism; to provide improved means for adjusting the valve mechanism for the purpose of regulating the flow of material to the receptacles; to provide improved means for moving the filling means and receptacle support relative to each other for the purpose of advancing the machine along a series of receptacles; and to provide an improved machine of this kind which is particularly adapted for use in filling glasses, jars, or cans with such viscous substances as jelly, jams, mustard, honey, etc.

An illustrative embodiment of this invention is shown by the accompanying drawings, in which—

Figure 1 is a plan of a machine constructed in accordance with this invention.

Fig. 2 is a side elevation of the same, a part thereof being broken away to more clearly illustrate some of the interior construction.

Fig. 3 is a side elevation of the machine.

Fig. 4 is an enlarged fragmentary sectional detail of the valve mechanism used is a machine of this kind.

Fig. 5 is an enlarged detail of one of the links and its adjusting means by which the operating member is connected to the valves.

The specific embodiment of the invention herein shown comprises a tank 1 in which is arranged suitable valve mechanism 2 controlled by an operating member 3 for filling receptacles arranged on a support 4, with regard to which the tank is relatively shiftable both horizontally and vertically. The construction shown in the drawings is particularly designed for use in filling jelly-glasses.

The tank 1 is rectangular-shaped and has the bottom sections 5 and 6 inclined inwardly and downwardly from the sides and joined to a narrow flat plate 7 extending across the bottom. The plate 7 has openings formed in the bottom thereof with which the valve mechanism coacts for controlling the discharge of the contents from the tank.

The valve mechanism 2 comprises a plurality of sleeves 9 and tubular members 10. The sleeves 9 have their upper ends secured in the openings 8 of the plate 7 and depend therefrom so as to provide outlets 11 from said tank. The valves 10 are in the form of tubular members and have the lower ends thereof telescopically mounted within the sleeves 9 and are provided with openings or ports 12 in the sides thereof, which through the shifting of the valve members are moved above or below the bottom of the tank for the purpose of opening and closing communication between the interior of said tank and the outlet 11.

The operating member 3 is in the form of a shaft 13 journaled in bearings 14 at the top of the tank, from which arms 15 extend to and connect with the upper ends of the tubular valve members 10. The connection of the arms 15 to the tubular valve members 10 comprises a pin 16 and slot 17, so as to allow for relative horizontal shifting of said arms and tubular members during the swinging of the former. The angular positions of the arms 15 are determined by set screws 18 carried by the arms and bearing against the shaft 13. These pins constitute the adjusting means whereby the angular position of the arms 15 may be varied for the purpose of varying the amount of movement of the ports 12 into communication with the interior of the tank. The necessity of providing such adjustment arises because of the tendency of the viscous fluids for which the machine is generally used, to flow more readily from the middle of the tank than from the sides, so that it becomes necessary to provide less communication of the ports 12 with the interior of the tank near the middle thereof than at the ends, in order to insure a uniform filling of all of the receptacles arranged crosswise of the tank. A crank 19, herein shown as a part of the shaft 13, extends downwardly at right angles thereto, by means of which the shaft is rotated. A member 20 is secured to the side of the tank and provides arms or fingers 21 extending outwardly on opposite sides

of the crank 19 so as to limit its angular movement. The arrangement of the operating mechanism is such that shifting the arm 19 in the direction of the arrow 22 opens all of the valve mechanisms simultaneously, and upon releasing the lever 19 it will swing in the opposite direction and the valve mechanisms be closed by gravity.

The tank is mounted above the receptacle support 4 and arranged so that the tank and support are moved relatively of each other horizontally for the purpose of advancing the receptacles to be filled, and vertically for accommodating receptacles of different kinds. In the construction herein illustrated, the tank is mounted on uprights 23 secured to the four corners thereof. These uprights depend below the tank and have rollers 24 secured near the ends, which rollers travel on tracks 25 arranged on or above the support 4.

In order to provide for the vertical adjustment, the bolts 26 upon which the rollers 24 are journaled, extend through slots 27 (see Fig. 3) and are secured in place by nuts 28. Such an arrangement allows for a limited amount of adjustment so as to vary the height of the valve mechanism 2 above the support 4.

The operation of the device herein shown is substantially as follows:

A plurality of receptacles, as for instance glasses 29 (Fig. 3), are arranged in transverse rows upon the support 4. The tank 1 is moved into position above the first transverse row and the crank 19 swung in the direction of the arrow 22, whereupon the valves 10 are moved upwardly so as to bring the ports 12 into communication with the interior of the tank 1. The material in the tank thereupon flows out through the ports 12 and the outlet 11 into the receptacles. When the operator observes that the receptacles are properly filled, the crank 19 is either swung in a direction opposite to the arrow 22, or released, whereupon it will swing automatically so that the valves 10 are shifted downwardly and the ports 12 move into the sleeves 9. The flow of material from the tank is thereupon instantly cut off, whereupon the tank is moved along the tracks 25 so as to bring the outlet ports 11 directly above the next row of receptacles.

It is of course obvious that the tank can be made stationary and the support 4 be made in the form of a conveyer, whereupon the receptacles can be moved intermittently into position to be filled.

Although but one specific embodiment of this invention has been herein shown and described, it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention as defined by the following claims.

I claim:

1. In a device of the class described, the combination of a tank having a plurality of outlets arranged thereon, valves controlling said outlets, an operating member, and mechanism connecting said operating member with said valves and normally urging said valves into their closed positions, said mechanism including adjusting means whereby the movement of said valves may be relatively varied.

2. In a device of the class described, the combination of a tank having a cylindrical outlet, a tubular member slidingly mounted in said outlet and having a port in the side thereof, an operating member mounted on said tank, mechanism connecting said operating member with said tubular member so as to shift the same for opening communication between the interior of said tank and said outlet, and adjusting means included in said mechanism for regulating the extent of shifting of said tubular member.

3. In a device of the class described, the combination of a tank, a plurality of sleeves depending from said tank across the bottom thereof and providing outlets for said tank, a plurality of tubular members having their lower ends telescopically supported in said sleeves, each of said tubular members having a port formed in the side thereof, a crank shaft journaled on said tank, a plurality of arms connecting said crank shaft with the respective tubular members, whereby said tubular members may be shifted for moving the ports therein into and out of position to open communication simultaneously between the interior of said tank and the respective outlets, and means on said arms for adjusting the same with respect to said crank shaft for the purpose of varying the amount of communication permitted through the respective ports in each of said tubular members.

4. In a device of the class described, the combination of a rectangular-shaped tank having the bottom thereof inclined toward a narrow flat part extending across the middle of said tank, said middle flat part having a plurality of openings therein, sleeves depending from said openings and forming outlets for said tank, a plurality of tubular members having the lower ends thereof telescopically arranged within said sleeves and having ports formed in the sides thereof, a crank shaft mounted on the top of said tank and connected to said tubular members, whereby said tubular members are adapted to be operated for moving the ports into and out of position to open communication simultaneously between the interior of said tank and the respective outlets.

Signed at Chicago this 29 day of August 1919.

JAMES H. HILL.