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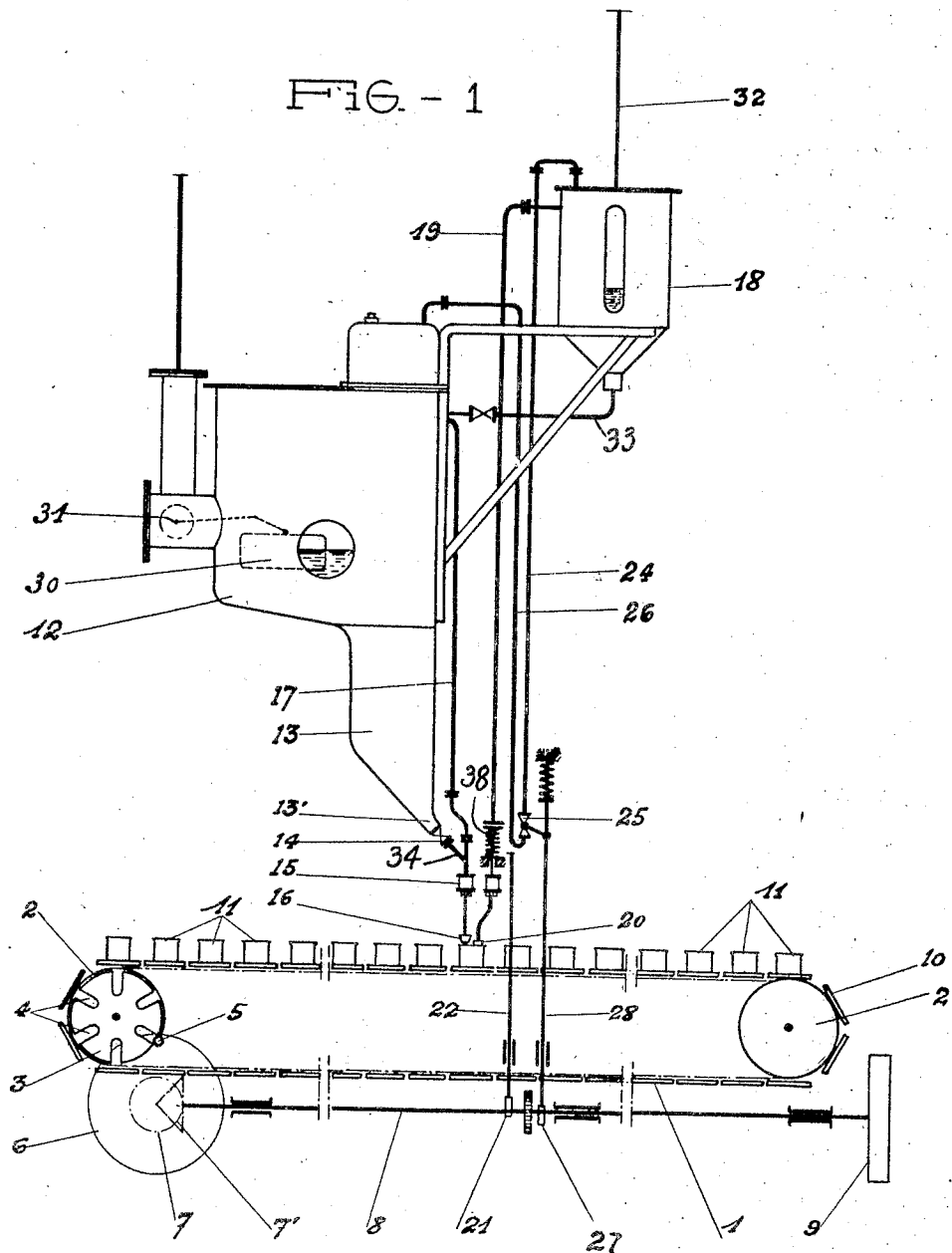
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V. MULLER

RECEPTACLE FILLING MACHINE

Filed June 20, 1927

3 Sheets-Sheet 1



Inventor:

Victor Muller

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3 Sheets-Sheet 2

FIG.-2

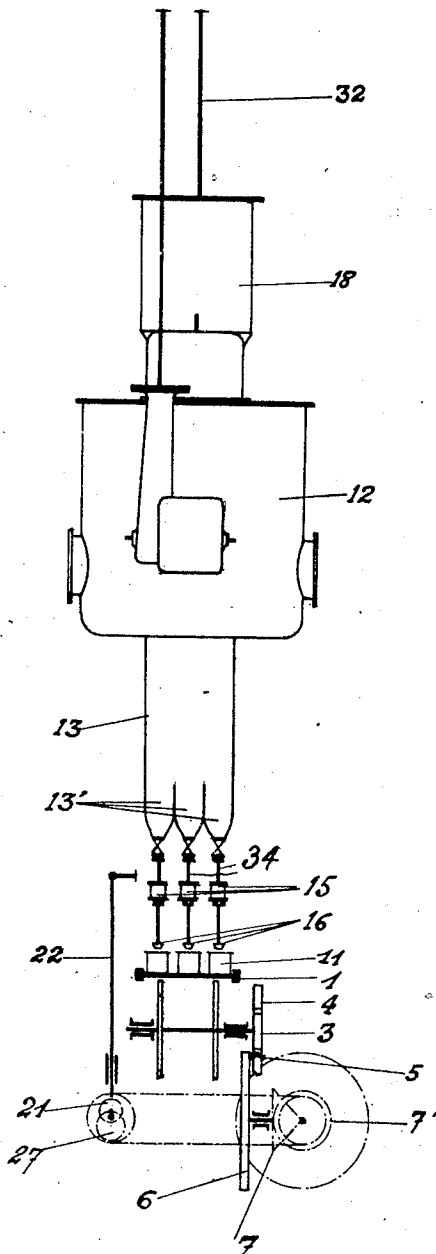


FIG.-3

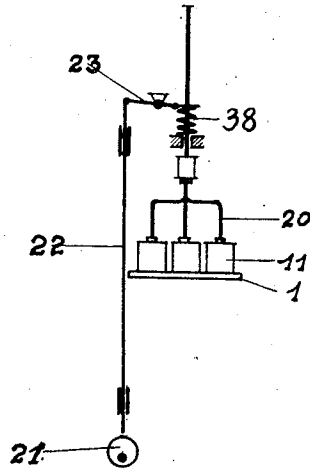
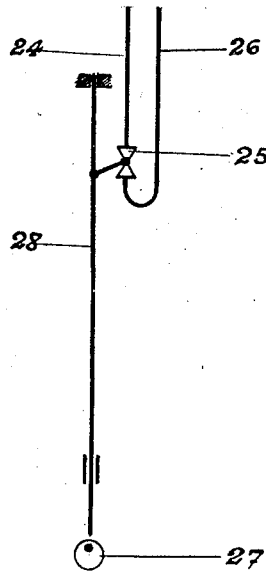


FIG. - 4



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Victor Müller

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3 Sheets-Sheet 3

FIG. - 5

FIG. - 6

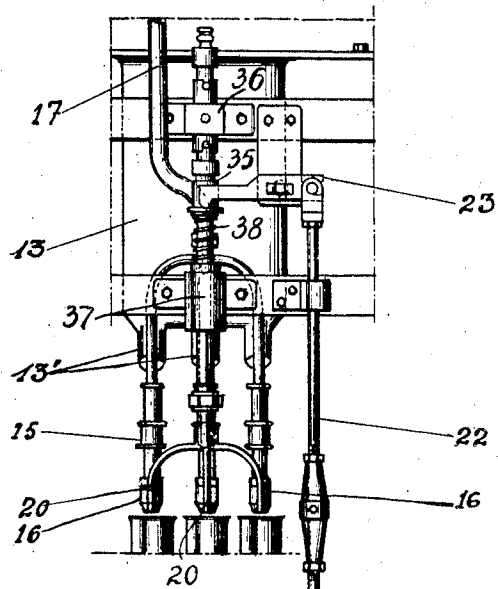
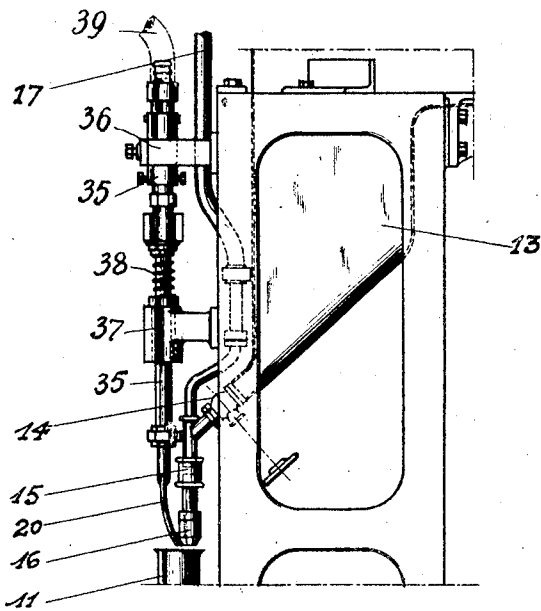
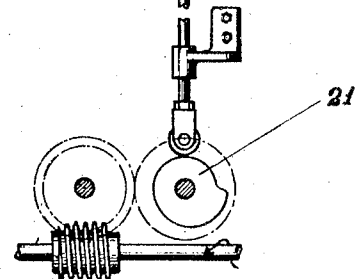
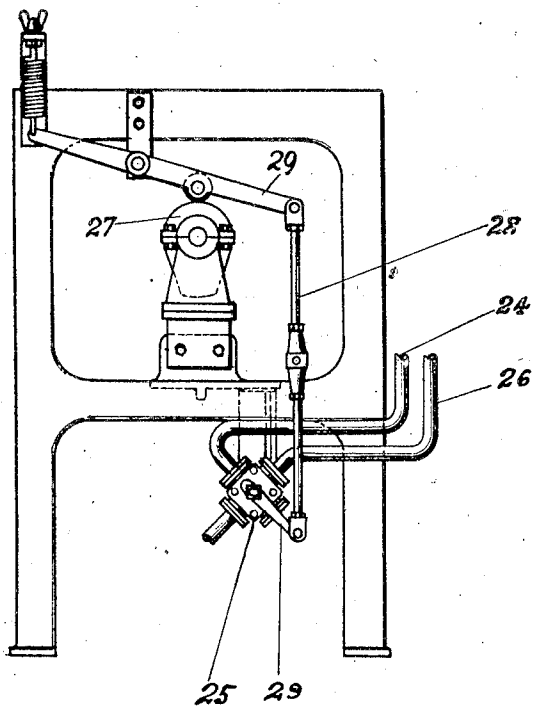


FIG. - 7



Inventor:

Victor Muller

UNITED STATES PATENT OFFICE.

VICTOR MULLER, OF STRASBOURG, FRANCE.

RECEPTACLE-FILLING MACHINE.

Application filed June 20, 1927, Serial No. 200,198, and in France March 18, 1927.

This invention relates to a machine for filling tins, jars and similar containers with semi-liquid materials such as tomato sauce, marmalade, mustard, oil, varnish and the like, its object being to provide efficient means for dispensing correctly measured quantities without overflow and waste.

With this object in view the invention consists essentially in supplying the materials through constantly opened filling nozzles which are exchanged for different materials and for different filling quantities. The discharge of materials from the nozzles is interrupted after each filling operation by putting the supply receptacle under reduced pressure, and the filling is rectified in a manner known per se by means of aspirating nozzles which are lowered into the containers to a predetermined level.

Fig. 1 of the accompanying drawings represents a diagrammatic side view of the apparatus,

Fig. 2, a diagrammatic front view of the same,

Fig. 3, a diagrammatic view of the device for actuating the aspirating nozzles,

Fig. 4, a diagrammatic view of the device for reducing the pressure in the supply receptacle,

Fig. 5, a side view on an enlarged scale of the filling and aspirating nozzles,

Fig. 6, an enlarged front view of the same together with the device whereby the actuating nozzles are actuated, and

Fig. 7, an enlarged view of the mechanism for reducing the pressure in the supply receptacle.

The apparatus comprises a closed supply receptacle 12 which is fed with the semi-liquid material through a float valve 31, the float 30 of which is situated in the receptacle so as to maintain the liquid in the latter at a constant level. There is also a closed tank 18 wherein a low pressure is maintained by any suitable means acting through a pipe 32. The lower end of the tank 18 is connected through a pipe 33 with the upper part of the receptacle 12 and is situated on a higher level so that liquid can be discharged from the tank into the receptacle. The upper parts of both vessels are also connected through pipes 24 and 26 which meet in a three-way cock 25 adapted in one position to set the two vessels in communication with each other and

in another position to set the receptacle 12 in communication with the atmosphere.

The receptacle 12 feeds its liquid into a hopper 13 which in the illustrated device terminates in three oblique discharge spouts 13' fitted with valves 14. Each spout opens into a Y-pipe 34 one arm of which is adapted to receive, by means of a joint 15, a filling nozzle 16. The Y-pipes are all connected, through arms which are vertical and in alignment with the nozzles 16, to a pipe 17 which opens into the upper part of the receptacle 12. Arranged in close proximity to each filling nozzle 16 is an aspirating nozzle 20. All the nozzles 20 are connected to a vertical pipe 35 which is arranged to slide in brackets 36 and 37 and which is controlled by a spring 38. A flexible connection 39 joins the pipe 35 with a pipe 19 through which the nozzles 20 thus communicate with the upper part of the tank 18 so as to be subjected like the latter to reduced pressure.

The tins or other containers 11 which are to be filled with the liquid, are placed, three abreast, on platforms 10 connected to an endless conveyer belt 1 which is carried over rollers 2 and 2' so as to present the containers in succession to the filling nozzles 16. The belt is moved intermittently, the roller 2 being for this purpose controlled by a disc 3 having radial notches 4 which receive in turn a driving pin 5 connected to a continuously revolving disc 6. The latter is rotated through the medium of conical gears 7, 7', a driving shaft 8, and a pulley 9. A cam 21 operates, by means of a rod 22, a double-armed lever 23 which engages a collar on the pipe 35 so as to lower the latter and the nozzles 20 in opposition to the spring 38. Another cam 27 operates the three-way cock 25 through the medium of a rod 28 and a lever arm 29.

The action is as follows:

The valves 14 are normally open, and the receptacle 12 feeds its liquid through the hopper 13 into the containers 11 through the open nozzles 16, the receptacle being connected to the atmosphere through the three-way cock 25. During the filling the nozzles 20 are lowered into the containers so as to remove from the latter any liquid that happens to be fed into the containers in excess of a predetermined quantity. The liquid thus sucked up by the nozzles 20

enters the tank 18 and is returned through the pipe 33 to the receptacle 12. The filling is interrupted by the operation of the three-way cock 25 which sets the two vessels into communication with each other, thereby lowering the pressure in the supply receptacle. Any air drawn in through the nozzles 16 owing to the depression in the receptacle, will have a tendency to follow the vertical arms of the Y-pipes 34 and pass through the pipe 17 into the upper part of the receptacle, it being thus prevented from bubbling up through the liquid. While the supply receptacle is subjected to depression, the nozzles 20 are withdrawn from the containers, and the belt 1 is moved so as to present a fresh set of containers to the filling nozzles, whereupon the process is repeated, the three-way cock being operated so as to set the supply receptacle into communication with the atmosphere.

It will be observed that all the operations take place while the disc 6 revolves once about its axis and that, therefore, the quantity of liquid delivered to each container will be dependent upon the magnitude of the flow. This magnitude can be varied within the capacity of the pipes 34 by applying to the latter filling nozzles of different sizes.

I claim:

1. An apparatus for filling containers with semi-liquid material, comprising a supply receptacle, exchangeable filling nozzles connected to said receptacle, means for feeding the containers to said nozzles, means for reducing the pressure in said receptacle

temporarily so as to interrupt the filling, aspirating nozzles, and means for lowering said aspirating nozzles into the containers when the filling is interrupted so as to take off material above a certain level in the containers.

2. An apparatus for filling containers with semi-liquid material, comprising a closed supply receptacle, exchangeable filling nozzles connected to said receptacle, a conveying apron for presenting the containers to said nozzles, a closed tank maintained at a low pressure, a three-way cock through which the supply receptacle can communicate either with the tank or with the atmosphere, means for operating said cock so as to set the receptacle in communication with the tank for interrupting the filling, aspirating nozzles connected to said tank, and means for lowering said aspirating nozzles into the containers so as to take off material above a certain level.

3. An apparatus as claimed in claim 2 wherein the tank is arranged at a higher level than the supply receptacle and connected to the latter so as to return to the same any liquid sucked up through the aspirating nozzles.

4. The apparatus claimed in claim 2 in combination with a pipe connecting the filling nozzles with the upper part of the supply receptacle so as to deliver to the latter any air sucked in through the filling nozzles.

VICTOR MULLER.