

1,046,811.

2 SHEETS—SHEET 1.

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LIQUID FILLING MACHINE.
APPLICATION FILED MAR. 23, 1911.

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Patented Dec. 10, 1912.

2 SHEETS—SHEET 2.

FIG. 3

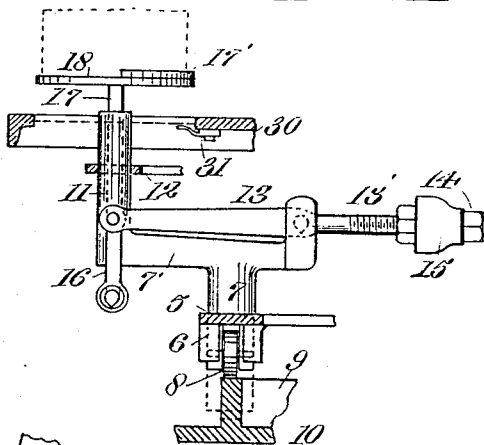
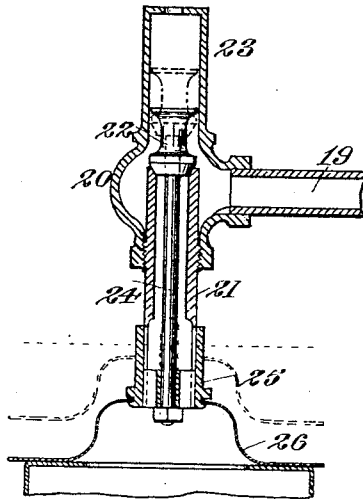


FIG. 4

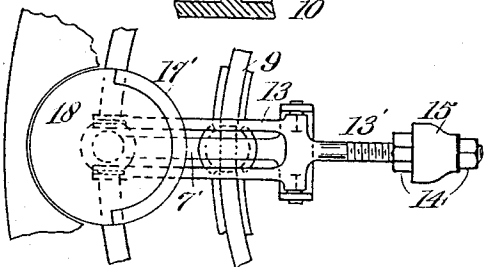


FIG. 5

WITNESSES.

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UNITED STATES PATENT OFFICE.

ENOCH J. LANE, OF SAN JOSE, CALIFORNIA, ASSIGNOR OF SIXTY ONE-HUNDREDTHS TO PRATT-LOW PRESERVING CO., OF SANTA CLARA, CALIFORNIA, A CORPORATION OF CALIFORNIA.

LIQUID-FILLING MACHINE.

1,046,811.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ENOCH J. LANE, citizen of the United States, residing at San Jose, in the county of Santa Clara and State of California, have invented new and useful Improvements in Liquid-Filling Machines, of which the following is a specification.

This invention relates to a can filling machine, and particularly pertains to a continuously operating machine for automatically weighing and packaging liquids, such as syrup, oil, milk and the like.

It is the object of this invention to provide a machine, particularly adapted for using in the fruit canning industry for automatically syringing the cans; also to provide means for insuring that all cans of like sizes will contain the same total weight of fruit and syrup, which means embodies a balance mechanism for controlling a valved filling device.

A further object is to provide a machine of the above character which is continuous in its operation, rapid in its output, and which is simple in construction, accurate and reliable.

The invention consists of the parts and the construction and combination of parts, as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a vertical section of the invention partly in elevation. Fig. 2 is a plan view with parts removed. Fig. 3 is a detail of the controlling valve. Fig. 4 is a detail side elevation of the weighing mechanism. Fig. 5 is a plan view of the same.

In the drawings A represents the frame of the machine, which may be of any suitable construction and in which a vertically disposed rotatable shaft 2 is mounted, the shaft 2 being adapted to be continuously rotated through gears 3—3' from a drive shaft 4, which may be driven from any source of power in any desired manner.

Supported upon the shaft 2 and revoluble therewith is a horizontally disposed ring 5 which is arranged concentric with the shaft 2 some distance therefrom and on which a series of vertically disposed hubs or guide bearings 6 are formed. Mounted in each of the guide bearings 6 is a vertically reciprocal stem 7, on the lower end of which a roller or wheel 8 is mounted; this wheel 8 being adapted to travel upon a circular cam

track 9 which is disposed beneath the ring 5 and is formed on a table 10 supported by the frame A.

The cam track 9 has a raised portion and a depressed portion so as to cause the stems 60 to be raised and lowered as they are carried over the cam track by the rotation of the shaft 2 and the ring 5.

Each of the stems 7 terminates at its upper end in a horizontally disposed member 65 7', on one end of which a vertically arranged tubular projection or guide bearing 11 is formed, which guide bearing extends through and is guided in a perforation formed in a ring 12 mounted on and rotatable with the shaft 2. Pivottally mounted on the other end of each of the members 7' is a lever 13, one end of which is threaded, as at 13', to receive a pair of jam-nuts 14, between which, a weight 15, threaded on the lever 13, is clamped. Mounted on the opposite end of this lever 13 is a downwardly depending link 16, the lower end of which is connected to a stem 17, which extends through and is slidable in each tubular guide bearing 11.

Rigidly mounted on the upper end of each stem 17 is a horizontally extending flat, circular disk 18, on approximately one half the periphery of which a vertically disposed flange 17' is formed. These disks 18 are designed to receive and support the cans to be filled and are successively and continuously delivered to a constant can feeding device as they are caused to travel in a circuit by the rotation of the shaft A as later described.

Mounted on the upper portion of the shaft A and revoluble therewith is a reservoir 18', from the bottom of which a series of radially disposed delivery pipes 19 extend, these pipes corresponding in number to the disks 18 and each pipe leading to and terminating in a valve casing 20 located above each disk 18. Each of the valve casings 20 is provided with a vertically disposed tubular member 21 which extends upward within the valve casing and projects some distance therebelow. The upper end of the member 21 in the casing 20 is beveled to form a seat for a valve disk 22 which normally rests on the upper end of the pipe to close the communication between the interior of the casing 20 and the tubular member 21.

Each valve disk 22 has an upwardly pro-

jecting portion formed thereon which extend into and is guided in a tubular extension 23 formed on the valve casing 20, which forms a suction chamber to prevent hammering of the valve, and each valve disk 22 is mounted on a stem 24 which extends downward through the tube 21 and is attached at its lower end to a spider formed in a tubular sleeve 25. This sleeve 25 is slidably mounted on the exterior of the lower end of the tube 21 and has a wide curved flange or cap 26 mounted thereon, which flange is so disposed as to contact the upper end of a can 27 on the disk 18 therebelow when the latter is in its uppermost position, as shown on the left-hand side of Fig. 1.

In operation the shaft 2 with the parts mounted thereon is caused to rotate continuously, and cans or other receptacles 27 are placed upon the disks 18 by any suitable feeding mechanism, here shown as consisting of a rotatable table 28, the periphery of which is provided with a series of spaced recesses 29 into which the cans to be fed to the machine are placed in any desired manner. This table 28 is so disposed and so timed in its travel, in relation to the traveling disks 18, that a can in one of the recesses 29 will be carried across a table 30 mounted on and revoluble with the shaft 2 and caused to pass upon a disk 18 which is in its lowermost position at this point and flush with the upper face of the table 30, the table 30 being perforated to admit of the disk 18 being so disposed. The can 27 on being placed on the disk 18 is retained in a certain position thereon by reason of the flange 17' and is carried forward by the disk 18 out of the recess 29 clear of the table 28, at which movement the disk 18 is caused to move upward by reason of the action of the cam track 9 on the members supporting the disk 18. As the can 27 on the disk 18 is carried upward, it is caused to contact the flange 26 on the sleeve 25 and carry the latter upward therewith which results in the valve disk 22 being lifted from its seat so as to permit the liquid in the reservoir 18' to flow through the delivery pipe 19 into the tube 21, from whence it is discharged into the can 27. The moment the weight of liquid entering the can is sufficient to overbalance the weight 15 on the lever 13, the disk 18 drops to its lowermost position, and, carrying the can 27 therewith, permits the valve disk 22 to gravitate to its seat and thereby cut off the flow of liquid to the can. The downward movement of the disk 18 is limited by a stop 31 on the table 30 which again disposes the top of the disk flush with the top of the table.

Means are provided for automatically moving the filled can from the disk 18, which is here shown as comprising an arm

32 which extends into the path of travel of the can in such position that the can will be caused to be engaged thereby and be shoved off the disk 18 as the latter moves forward onto a receiving table 33, as shown in Fig. 2.

From the foregoing it will be seen that this machine is continuous in its operation, a can 27 being fed to the successive disks 18 as they are disposed in juxtaposition with the can feeding table 28, and each can being filled from the reservoir 18' as it is carried forward. The cam track 9 is so shaped that the carriage supporting the disks 18 will be disposed in its uppermost position from the time the disk leaves the feeding table until it reaches the discharging arm 32, and so the carriage will remain in its lowermost position between the point of discharge and the feeding point.

As a means of supplying liquids to the reservoir 18' a feed pipe 34 leading from any suitable source of supply terminates over the open upper end of the reservoir 18' and is provided with a cut-off valve 35, which valve is adapted to be automatically opened and closed by means of a float 36 in the reservoir 18' so as to govern the quantity of liquids contained in the reservoir and prevent their overflow.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is—

1. In a liquid-filling machine, the combination of a rotating support turning about a vertical axis, a series of scale-beam holders mounted in said support for independent vertical movement, means for reciprocating the holders independent of the support, a scale-beam mounted on each holder, a can-platform on each scale-beam and a filling-font having a valved outlet for each can-platform, said valved outlet being automatically operated by the cans on the platforms.

2. In a liquid-filling machine, the combination of a rotary support having a circumferential series of sockets parallel with the axis of rotation, a scale-beam holder mounted for sliding movement in each of said sockets, a scale-beam fulcrumed on each holder, a can-platform on each scale-beam, a cam track on which the holders run continuously and so fashioned as to raise and lower the holders at proper intervals, and a filling-font having a series of valved outlets rotating in unison with and disposed above the respective can-platforms, the valves in said outlets being constructed and arranged to be automatically operated by the cans on the platforms.

3. In a liquid-filling machine, the combination of a central vertical shaft, a pair of spaced upper and lower supporting members thereon and turnable therewith, said supporting members each having a circumferential series of sockets, the series of sock-

ets in one member being at a greater radial distance from the shaft than the series in the other member, a sliding stem for each lower socket, a circular cam track on which
5 the stems run, each stem having an offset hollow guide, parallel with the stem, and working in a corresponding socket in the upper member, a scale-beam fulcrumed on each stem, a can-platform, a spindle carry-
10 ing each platform and working in a respective offset guide aforesaid, said spindles being hung on said scale-beams.

4. In a liquid-filling machine, the combination of a central vertical shaft, a pair of
15 spaced upper and lower supporting members thereon and turnable therewith, said supporting members each having a circumferential series of sockets, the series of sockets in one member being at a greater radial
20 distance from the shaft than the series in the other member, a sliding stem for each lower socket, a circular cam track on which

the stems run, each stem having an offset hollow guide parallel with the stem, and working in a corresponding socket in the
25 upper member, a scale-beam fulcrumed on each stem, a can-platform, a spindle carrying each platform and working in a respective offset guide aforesaid said spindles being hung on of said scale-beams, a liquid
30 containing receptacle carried by the shaft and having a circumferential series of valved outlets operatively disposed above each can platform, each outlet having a normally closed valve arranged to be opened by a can
35 on the platform.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ENOCH J. LANE.

Witnesses:

WM. GAVIN,
F. ENDERLIN.

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