A. J. KEAST.

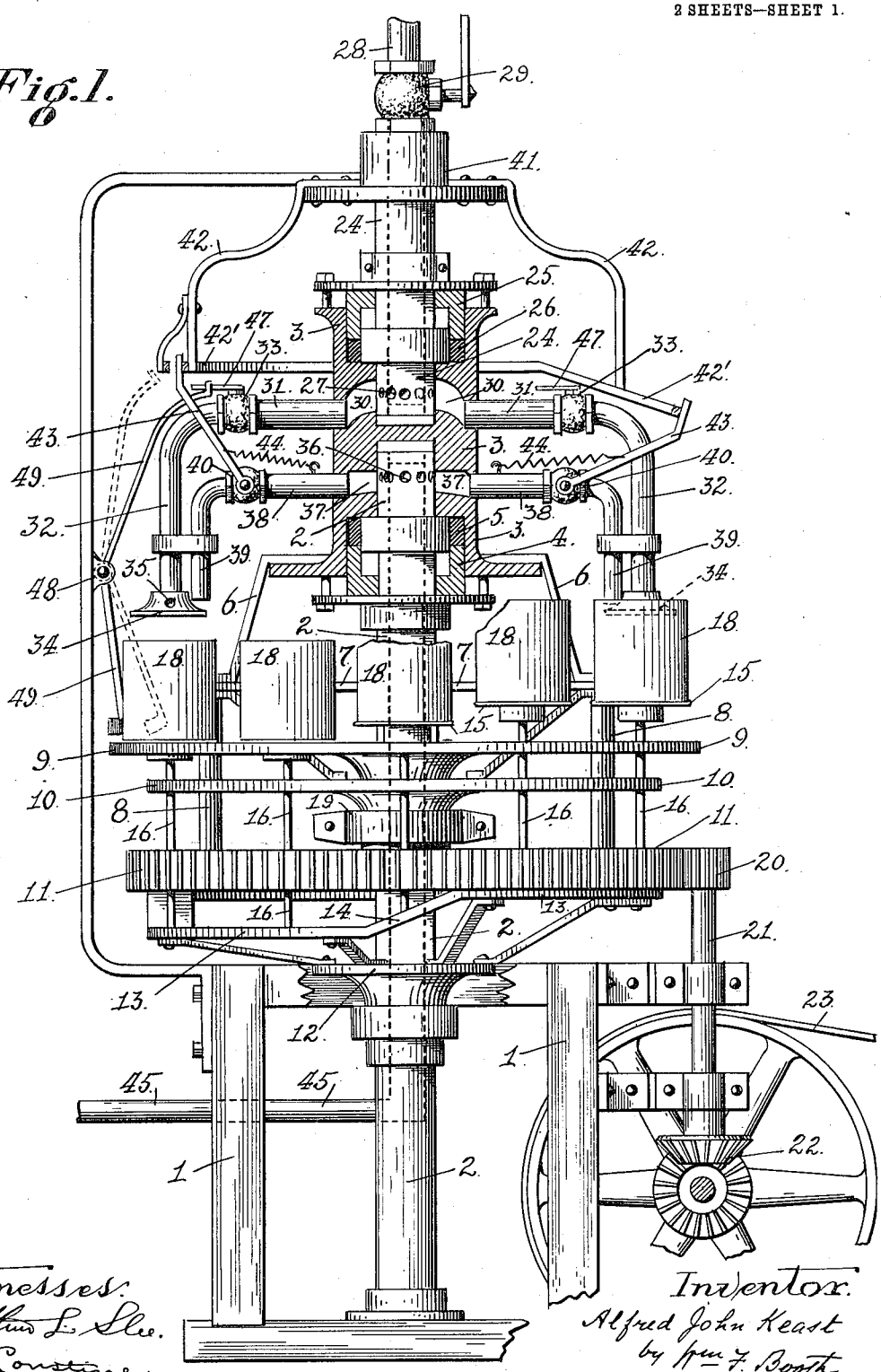
CAN SYRUPING MACHINE.

APPLICATION FILED FEB. 15, 1910.

962,026. Patented June 21, 1910.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

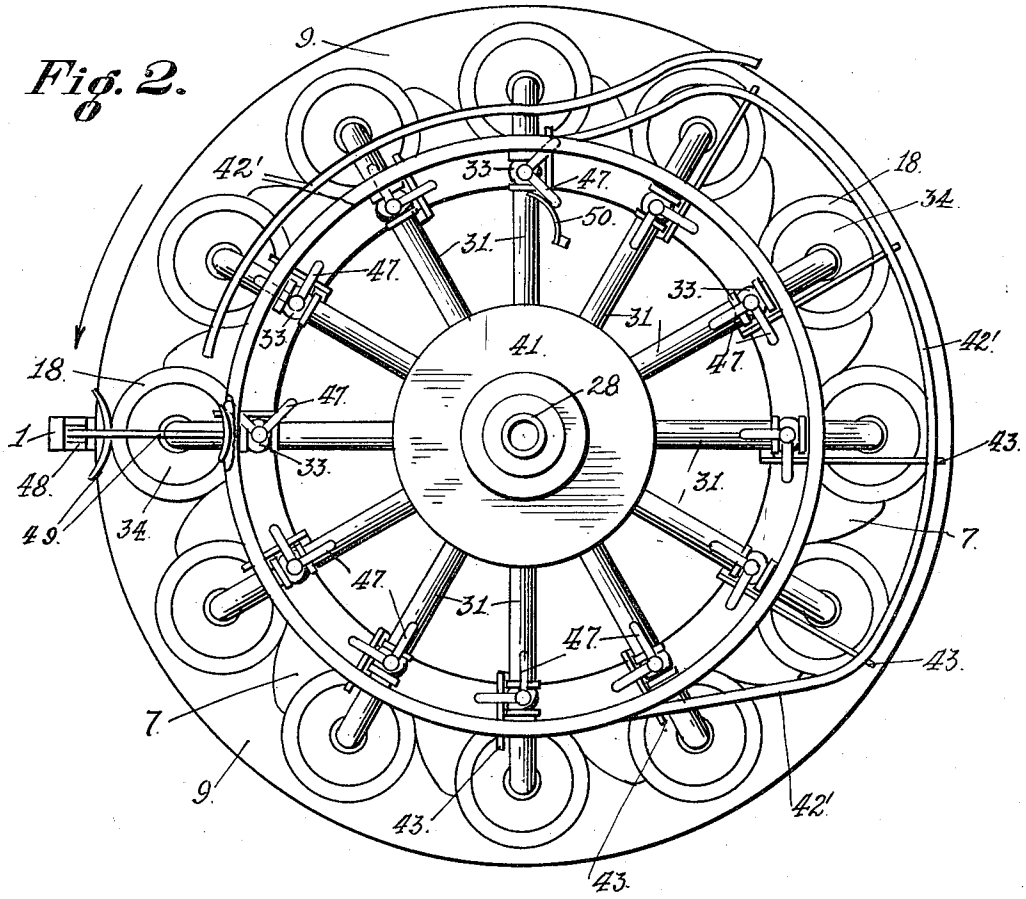
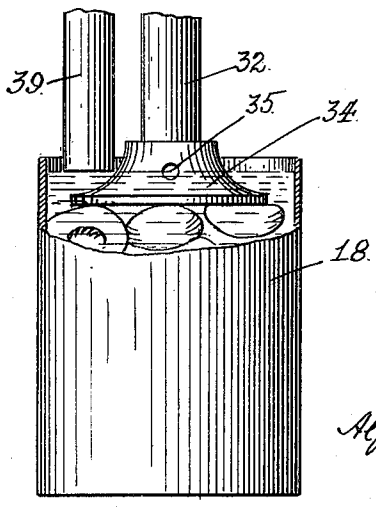


Fig. 3



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UNITED STATES PATENT OFFICE.

ALFRED JOHN KEAST, OF SAN JOSE, CALIFORNIA, ASSIGNOR TO CALIFORNIA FRUIT CANNERS ASSOCIATION, OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF CALIFORNIA.

CAN-SYRUPING MACHINE.

962,626. Specification of Letters Patent. Patented June 21, 1910.

Application filed February 15, 1910. Serial No. 543,960.

To all whom it may concern:

Be it known that I, ALFRED JOHN KEAST, a citizen of the United States, residing at San Jose, in the county of Santa Clara and State of California, have invented certain new and useful Improvements in Can-Syruping Machines, of which the following is a specification.

My invention relates to that general class of machines for filling cans with syrup, in which cans in rotating succession are supplied with syrup delivered through pipes from a syrup tank; though it is applicable to the syruping of cans in whatever manner presented, whether in rotating succession or in groups or batches or otherwise.

The objects of my invention are economy in the matter of syrup, and cleanliness in operation and result; and to these ends my invention consists generally in means for primarily supplying the can with syrup in excess of its needs, and means in conjunction therewith for removing said excess and saving it for use again.

It also consists in the novel constructions, combinations and arrangements which I shall now fully describe by reference to the accompanying drawings in which—

Figure 1 is an elevation, partly in section, of my machine. Fig. 2 is a plan of the same. Fig. 3 is an enlarged detail of the presser foot and syrup nozzle, together with the suction nozzle, showing said parts in connection with a can.

1 is a stand, in the base of which is supported a central pillar 2 which rises above the stand a sufficient distance to carry from its top the rotating parts of the machine.

3 is a bushing into the lower portion of which the pillar 2 enters, said bushing being supported on top of the pillar and rotatably mounted thereon, a suitable joint being formed by the gland 4 and the packing 5. From the base of the bushing 3, by means of hangers 6, is suspended the notched annular cam-ring 7 which in turn, through hangers 8, suspend the can-table 9, the stem-guide ring 10 and the gear 11, in the order named. From a flange 12 secured on the central pillar 2 is supported a fixed track 13, a portion of which is on a lower level than the remainder and joins the latter by a suitable grade, as seen at 14. On the can table 9 are carried, in annular series, the can-holders 15, each having a stem 16 which is guided down through ring 10, and rests its lower end upon and in traveling contact with the graded track 13, whereby the can holders 15 are raised and dropped in timely succession. In each holder 15 is a can 18.

19 is a suitable journal or bearing to steady the revolving parts on the pillar 2.

Any suitable means may be employed to drive the gear 11. I have here shown a pinion 20, shaft 21, bevel gears at 22 and a belt drive 23.

Into the upper end of the bushing 3 is entered a non-rotating shaft 24, upon which as an axis the bushing rotates, a suitable joint being made by the gland 25 and packing 26. This shaft 24 is hollow, as indicated by dotted lines, its lower end being plugged. Just above its lower end holes 27, in annular series, are made through its wall. At the upper end of the shaft a communication is made with a supply pipe 28 which may be supposed to proceed from the syrup tank. This communication is controlled by a shut-off valve 29. In the bushing 3 is formed a chamber 30 surrounding the holes 27 in the shaft 24, and this chamber is tapped by pipes 31, radially extending, and provided with down turned delivery extensions or nozzles 32, controlled by valves 33. The extremity of the nozzle 32 has fitted to it a presser foot 34, through a hole or holes 35 in the side of which the syrup issues to fill the cans. The central pillar 2 is also hollow, as indicated in dotted lines, its upper end being plugged. Just below the upper end are made through its walls, the holes 36 in annular series. In the bushing 3, surrounding the holes 36 is made a chamber 37 which is tapped by pipes 38 radially extending and provided with down turned nozzles 39 lying beside the syrup nozzles 32, said nozzles 39 (which are the suction-nozzles) being controlled by valves 40.

Supported by a collar 41 and bracket arms 42 from the stationary shaft 24 is a cam ring 42′, against which the lever handles 43 of the valves 40 impinge, and by which in conjunction with springs 44 said handles are timely operated to open and close the suction nozzles. With the lower portion of the hollow pillar 2, a pipe 45 communicates which may be supposed to lead to a source of suction, such as a pump unnecessary to show.

Each of the radial syrup pipes 31 is fitted

with a valve 33, which has a bell-crank or angled handle 47. Pivoted to a bracket 48 of stand 1 is a trip-lever 49 controlled by a spring so that its lower end stands normally in the path of the cans as shown in dotted lines and its upper end lies outside the path of the valve handles 47. But when a can contacts with the lower end of said trip-lever, the upper end of said lever will be thrown into the path of the valve-handles 47.

50, Fig. 2, is a fixed arm which lies in the path of the valve handles 47, which by contact with said arm closes said valves.

The operation of the machine is as follows:—I have not deemed it necessary to illustrate the feed and discharge of the cans to and from the machine, as mechanisms for this purpose are well known. The cans are of the type with full-open upper ends, as seen in Fig. 3, and each has been filled with its fruit or other solid contents and is ready to receive the syrup. A can is placed on a holder 15 when said holder is at its lowest position, due to the lower level of the graded track 13. In this position its top is well below the delivery ends of the syrup and suction nozzles 32 and 39. The can, in its travel, contacts with the lower end of trip-lever 49, which being forced outwardly, throws the upper end into the path of the valve handle 47, and as the handle moves past said upper end, the valve 46 is opened and the syrup flows. The can being lifted and held up by the upper level of the track 13, its top encircles the ends of the nozzles 32 and 39 as seen in Fig. 3. The foot 34 of the syrup nozzle presses the solid contents of the can well down, and the syrup, flowing from the holes 35 in the foot fills the can. The suction nozzle 39 enters the can but a short distance, that is to the level to which the can is to have its charge of syrup, say, in practice, about half an inch from the top. By the time the can is filled to or above this level the cam ring 42 has thrown back the handle 43 of valve 40 and has thereby opened the suction nozzle. The surplus syrup is thus sucked out down to the required level, and said syrup passes back through the suction pump and is delivered to the tank for use again. Then when the can reaches the point at which the flow of syrup is to cease, the valve handle 47 contacts with the arm 50, which thereby closes the syrup valve 46. The arrangement of the trip-lever 49, is such that it will only open the syrup valve in case there is a can in place to receive the syrup. If no can is there, the trip-lever is inoperative. There is thus no waste, (a matter of considerable moment in large plants) and as there is no spill or overflow, the operation is a clean one, and is distinctly superior to the practice of submerging cans in syrup to fill them, as there is no drip from the can and its surface is kept clean. Moreover the saving of the film of syrup which on submerged cans is wasted, is considerable. This operation is also advantageous in that there is no necessity for a stated or fixed syrup charge, each can being primarily supplied with more than it needs and the surplus removed to reduce it to the proper amount. This avoids complicated charge measuring devices and thereby simplifies the machine. The presser foot 34 is of advantage in using this type of can with full open tops, for there is nothing to hold the solid contents down, as there is with the ordinary capped cans. But the presser foot does this and thus provides accurately for the syrup capacity of the can.

Having thus described my invention what I claim as new and desire to protect by Letters Patent is—

1. In a can syruping-machine, the combination of a traveling can table; can-holders carried by the table; pipes traveling in unison with the table and overlying the cans in the holders, said pipes being connected with a source of syrup for supplying said cans; other pipes traveling in unison with the table, and extending beside the first pipes, said other pipes being connected with a source of suction; and means for timely bringing the cans and pipes together to enter the ends of both pipes into the cans to a predetermined level, to supply the cans with syrup and remove therefrom the excess of said syrup.

2. In a can syruping-machine, the combination of a traveling can table; can-holders carried by the table; pipes traveling in unison with the table and overlying the cans in the holders, said pipes being connected with a source of syrup for supplying said cans; other pipes traveling in unison with the table, and extending beside the first pipes, said other pipes being connected with a source of suction; means for timely bringing the cans and pipes together to enter the ends of both pipes into the cans to a predetermined level, to supply the cans with syrup and remove therefrom the excess of said syrup; and valves automatically operated through suitable connections, by the travel of the table, to control the operation of both pipes.

3. In a can syruping-machine, the combination of a rotatable can table; an annular series of can-holders on said table; a series of pipes traveling in unison with the table and overlying the cans in the holders, said pipes being connected with a source of syrup for supplying said cans; a series of other pipes traveling in unison with the table, and extending beside the first pipes, said other pipes being connected with a source of suction; means for timely bringing the cans

and pipes together to enter the ends of both pipes into the cans to a predetermined level, to supply the cans with syrup and remove therefrom the excess of said syrup, and valves automatically operated through suitable connections, by the travel of the table, to control the operation of both pipes.

4. In a can syruping-machine, the combination of a holder for the can; a pipe for supplying the can with syrup, said pipe having on its lower end a presser foot; and means for bringing the can contents and the presser foot in pressing contact, whereby the can contents are held down while the syrup is being supplied.

5. In a can syruping-machine, the combination of a holder for the can; a pipe for supplying the can with syrup, said pipe having on its lower end a presser foot; means for bringing the can contents and the presser foot in pressing contact, whereby the can contents are held down while the syrup is being supplied; a suction pipe entering the can to a predetermined level; and means for effecting suction in said suction pipe while the can is being filled with syrup, to remove the syrup above said predetermined level.

6. In a can syruping-machine, the combination of a rotatable can-table; an annular series of can-holders carried by the table; a hollow non-rotatable shaft located in the axis of rotation of the can-table, said shaft communicating above with a source of syrup and having below an exit for the syrup; a hollow non-rotatable pillar alined with the hollow shaft in the axis of rotation of the can-table, said pillar communicating below with a source of suction and having above an inlet for the syrup; a bushing connected to and rotatable with the can-table, said bushing having the adjacent ends of the shaft and pillar for an axis of rotation, and provided with two independent chambers, the upper encircling the syrup exit of the hollow shaft, and the lower encircling the syrup inlet of the hollow pillar; radial pipes fitted to the bushing and tapping the upper chamber; radial pipes fitted to the bushing and tapping the lower chamber; syrup filling nozzles fitted to the upper pipes above the can holders; syrup suction nozzles fitted to the lower pipes above the can holders; means for effecting the approach of nozzles and can holders to enter the suction nozzles into their open tops to a predetermined level; and means for simultaneously effecting the delivery flow of the syrup through the upper nozzles and the suction flow of an excess of syrup through the lower nozzles.

7. In a can syruping-machine, the combination of a rotatable can-table; an annular series of can-holders carried by the table; a hollow non-rotatable shaft located in the axis of rotation of the can-table, said shaft communicating above with a source of syrup and having below an exit for the syrup; a hollow non-rotatable pillar alined with the hollow shaft in the axis of rotation of the can-table, said pillar communicating below with a source of suction and having above an inlet for the syrup; a bushing connected to and rotatable with the can-table, said bushing having the adjacent ends of the shaft and pillar for an axis of rotation, and provided with two independent chambers, the upper encircling the syrup exit of the hollow shaft, and the lower encircling the syrup inlet of the hollow pillar; radial pipes fitted to the bushing and tapping the upper chamber; radial pipes fitted to the bushing and tapping the lower chamber; syrup filling nozzles fitted to the upper pipes above the can holders, said nozzles having presser feet; syrup suction nozzles fitted to the lower pipes above the can holders; means for effecting the approach of nozzles and can holders to effect a pressing contact of the presser feet of the filling nozzles with the can contents and to enter the suction nozzles into their open tops to a predetermined level; and means for simultaneously effecting the delivery flow of the syrup through the upper nozzles and the suction flow of an excess of syrup through the lower nozzles.

8. In a can syruping-machine, the combination of a rotatable can-table; an annular series of can-holders carried by the table; a hollow non-rotatable shaft located in the axis of rotation of the can-table, said shaft communicating above with a source of syrup and having below an exit for the syrup; a hollow non-rotatable pillar alined with the hollow shaft in the axis of rotation of the can-table, said pillar communicating below with a source of suction and having above an inlet for the syrup; a bushing connected to and rotatable with the can-table, said bushing having the adjacent ends of the shaft and pillar for an axis of rotation, and provided with two independent chambers, the upper encircling the syrup exit of the hollow shaft, and the lower encircling the syrup inlet of the hollow pillar; radial pipes fitted to the bushing and tapping the lower chamber; syrup filling nozzles fitted to the upper pipes above the can holders; syrup suction nozzles fitted to the lower pipes above the can holders; means for effecting the approach of nozzles and can holders to enter the suction nozzles into their open tops to a predetermined level; valves for controlling both sets of nozzles, and a means dependent on the rotation of the parts to operate said valves for simultaneously effecting the delivery flow of the syrup through the upper nozzles and the suction flow of an excess of syrup through the lower nozzles.

9. In a can syruping-machine, the combination of a rotatable can-table; an annular

series of can-holders carried by the table; a hollow non-rotatable shaft located in the axis of rotation of the can-table, said shaft communicating above with a source of syrup and having below an exit for the syrup; a hollow non-rotatable pillar alined with the hollow shaft in the axis of rotation of the can-table, said pillar communicating below with a source of suction and having above an inlet for the syrup; a bushing connected to and rotatable with the can-table, said bushing having the adjacent ends of the shaft and pillar for an axis of rotation, and provided with two independent chambers, the upper encircling the syrup exit of the hollow shaft, and the lower encircling the syrup inlet of the hollow pillar; radial pipes fitted to the bushing and tapping the upper chamber; radial pipes fitted to the bushing and tapping the lower chamber; syrup filling nozzles fitted to the upper pipes above the can holders, said nozzles having presser feet; syrup suction nozzles fitted to the lower pipes above the can holders; means for effecting the approach of nozzles and can holders to effect a pressing contact of the presser feet of the filling nozzles with the can contents and to enter the suction nozzles into their open tops to a predetermined level; valves for controlling both sets of nozzles, and a means dependent on the rotation of the parts to operate said valves for simultaneously effecting the delivery flow of the syrup through the upper nozzles and the suction flow of an excess of syrup through the lower nozzles.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALFRED JOHN KEAST.

Witnesses:
WILLIAM T. EVANS,
C. R. BURNETT.