No. 679,780 Patented Aug. 6, 1901.

# C. H. PLUMMER.

## CAN FILLING MACHINE.

(Application filed Aug. 11, 1900.)

(No Model.)

Fig. 1.

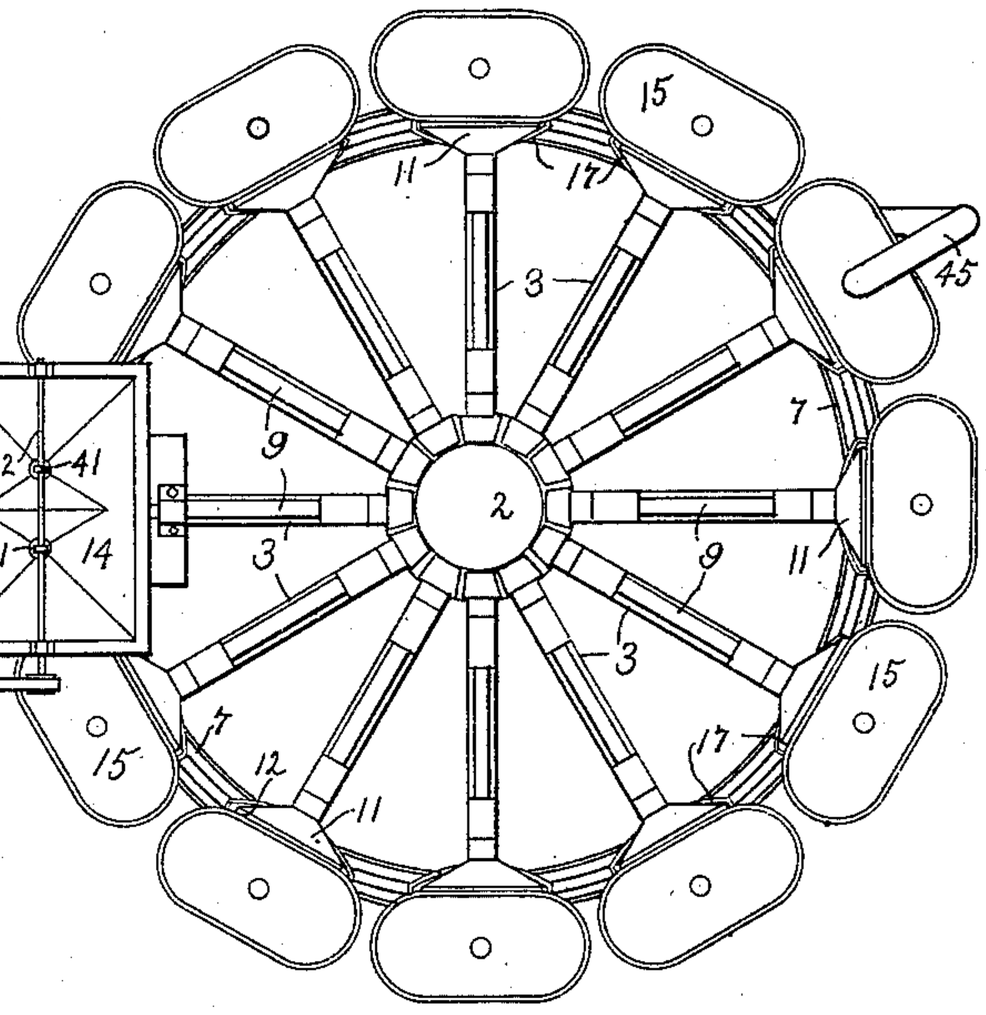



Fig. 2.

Fig. 3.

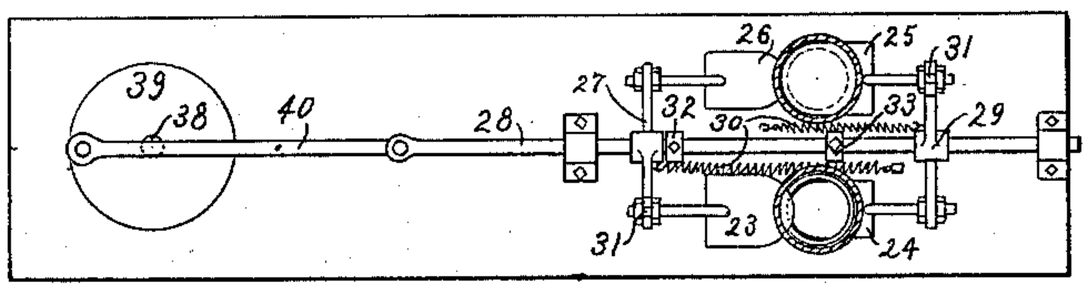
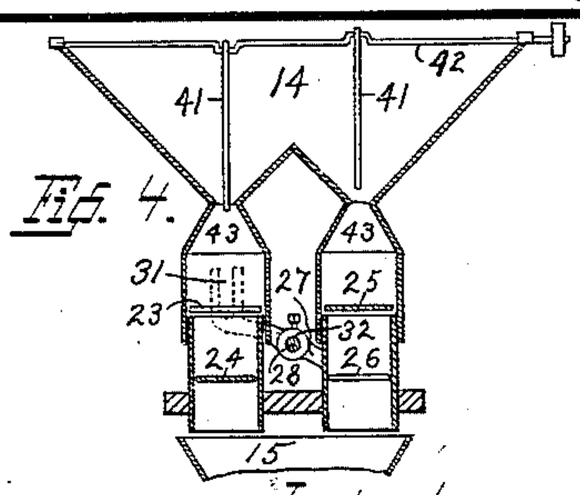



Fig. 4.

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# UNITED STATES PATENT OFFICE.

CLARENCE H. PLUMMER, OF WAUKESHA, WISCONSIN.

## CAN-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 679,780, dated August 6, 1901.

Application filed August 11, 1900. Serial No. 26,556. (No model.)

*To all whom it may concern:*

Be it known that I, CLARENCE H. PLUMMER, a citizen of the United States, residing at Waukesha, county of Waukesha, and State of Wisconsin, have invented new and useful Improvements in Can-Filling Machines, of which the following is a specification.

My invention relates to improvements in can-filling machines.

The object of my invention is to provide for filling the cans successively in a continuous operation without clogging the funnels or crushing the contents.

In the following description reference is had to the accompanying drawings, in which—

Figure 1 is a plan view of my invention. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a detail plan view of the measuring apparatus; and Fig. 4 is a vertical sectional view of the main hopper, showing the valves of the measuring apparatus.

Like parts are referred to by the same reference characters throughout the several views.

As the particular machine shown in the drawings is especially adapted for canning peas, it will be described as used for that purpose. Its use and adaptability for analogous purposes will be readily understood.

A stationary shaft or standard 1 is provided with a bevel gear-wheel 2 at its upper end. Carrier-frames 3 are revolubly supported on the standard 1 by means of a tubular shaft 4, to which motion is communicated from any suitable source of power through the sprocket chain or belt 5 and pulley 6 or in any other convenient manner.

7 is a circular track around which the cans to be filled are successively conveyed by means of arms 8, projecting from the carriers 3. The friction of the cans on the track produces a jarring movement, which causes the contents to settle together.

A shaft 9 is journaled in each of the carriers and projects radially from the central axis, the inner end of the shaft being provided with a bevel gear-wheel 10, arranged to mesh with the gear 2, whereby as the frames revolve around the standard 1 the gears 10 will be caused to revolve, each on its own axis, and the motion thereof will be communicated to its respective shaft 9. Each shaft 9 is provided at its outer end with a filler 11, consisting in a receptacle preferably formed with a circular periphery 12 and sides tapered toward the periphery. The latter is provided with apertures 13, as best shown in Fig. 2. The peas are fed from the main hopper 14, through measuring apparatus hereinafter described, into a hopper 15, which discharges them through an axial opening 16 into the filler 11. As the latter revolves with the shaft 9 the peas are slowly fed through the apertures 13 into a funnel 17, and thereby conveyed to the can 18. The funnel 17 is supported by an arm 19 from the carrier 3, and the funnel 15 may be conveniently supported from the funnel 17 by means of a bar 20. It will be understood that the funnel 15 is sufficiently large to permit the free discharge of the peas into the filler, so that there is no tendency to clog. On the other hand, the filler has a larger capacity than the can and never contains a greater quantity of peas than is required to fill one can. Hence the peas continually fall away from the apertures 13 on the upper side and through the uncovered openings on the lower side as the filler revolves until the contents are entirely discharged, all clogs being thus removed by gravity. The funnel 17 is provided with a comparatively small mouth adapted to enter the mouth of the can; but as the peas are slowly fed into this funnel there is no tendency to clog therein.

It will be observed that the lower end of the hopper 14 is bifurcated and extended in the form of parallel telescoping tubes at its lower end. These tubes are provided with valves 23, 24, 25, and 26, which subdivide them into measuring-chambers equal in capacity to that of one of the cans to be filled. These measuring-chambers are filled and emptied alternately and discharged successively into the funnels 15 of the respective fillers as the rotation of the carriers 3 brings such funnels into registry with the discharge-openings of the hopper.

In order that the measuring-chambers may be alternately filled and emptied, the upper or inlet valve 23 of one of the measuring-chambers and the lower or discharge valve 26 of the other measuring-chamber are actuated in unison, the same being true of the

valves 24 and 25, respectively. To provide for this, I have connected the valves 23 and 26 by means of a cross-head 27, slidably mounted on a valve-actuating rod 28, the valves 24 and 25 being similarly connected by a cross-head 29. The upper ends of the cross-heads 27 and 29 are extended vertically and provided with slots 31, which permit of a vertical adjustment of the telescoping tubes. Springs 30 tend to hold all the valves in their closed positions. The rod 28 is, however, provided with fixed collars 32 and 33, which are adapted to engage, respectively, with the cross-heads 27 and 29 when the rod is reciprocated. The motion of the rod in one direction is such as to cause the collar 32 to engage against the cross-head 27 and push the same backwardly against the tension of its respective spring 30 sufficiently to open the valves 23 and 26. The opposite movement of the rod brings the collar 33 into engagement with the cross-head 29 and retracts the latter sufficiently to open the valves 24 and 25. This reciprocal motion may be conveniently communicated to the rod 28 from the rotary standard 4 through the sprocket-wheel 35, chain 36, sprocket-wheel 37, shaft 38, crank 39, and actuating-rod 40.

41 represents agitators located in the contracted portion of the main hopper 14 and actuated by a crank-shaft 42 to prevent clogging in the mouth of the hopper. The tubes are expanded downwardly at 43 sufficiently to prevent clogging below the agitators.

It will be observed, Fig. 1, that a single hopper 14 is used to supply all the fillers of the machine, the latter being radially disposed around a common center and the movement of the various parts so gaged that the opening of either of the discharge-valves 24 or 26 of the measuring-chambers takes place simultaneously with the passage of one of the funnels 15 underneath the mouth of the hopper. The peas discharged into any one filler will be distributed therefrom to the can by the time the filler and can reach a position in the line of their circular movement opposite the hopper. The can is then charged with brine through a spout 45, after which it may be removed from the machine by hand or by any suitable form of mechanism.

From the construction shown it is obvious that the operation of filling the cans may be rendered continuous so long as the supply of peas in the hopper 14 is maintained. When the size of the cans is increased, the hopper 14 is raised with the upper valves of the measuring-chambers, thus increasing the capacity of such chambers.

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

1. In a can-filling machine, a chamber having one or more discharge-apertures, of such size as to permit the discharge of all the contents of the chamber, but of such small size as to prevent the discharge of the contents of the chamber in bulk; and means for actuating the chamber to bring said aperture or apertures successively under and above the contents of the chamber, whereby the contents are caused to fall successively toward and away from each aperture, and a portion of the same permitted to escape with each such movement.

2. In a can-filling machine, a rotary chamber provided with peripheral discharge-openings, and sides converging toward said openings; means for delivering material to said chamber in bulk; and means for conveying the material escaping through said openings into a can.

3. In a can-filling machine, a rotary chamber provided with one or more discharge-openings of a size adapted to permit a gradual escape of all the material from the chamber, the walls of said chamber being arranged to converge toward said opening or openings.

4. In a can-filling machine, the combination of a series of axially-rotating chambers, each provided with one or more discharge-apertures, adapted to permit the contents of the chamber to escape slowly therethrough; a collecting-funnel located underneath each chamber; and means for supporting a can underneath each of said funnels; together with means for separately charging said chambers from a common source of supply.

5. In a can-filling machine, the combination with a series of filler-chambers arranged and adapted for axial rotation, and having discharge-apertures adapted to permit a slow discharge of the contents of the chambers; means for moving said chambers in an endless path or orbit, in addition to the axial movement of the individual chambers; a series of funnels, each leading to and discharging into one of the filler-chambers; a series of funnels, each leading from one of the filler-chambers, and adapted to convey its contents into a can; and means for actuating the funnels and cans in synchronism with the orbital movement of the fillers.

6. In a can-filling machine, a measuring device; a rotary chamber of greater capacity than the measuring device, provided with one or more peripheral discharge-apertures, adapted to permit the material to escape slowly from said chamber; means for directing the material from the measuring device into said chamber; and means for directing the material escaping from said chamber, into a can.

7. In a can-filling machine, the combination of a series of filler-chambers arranged to travel in an orbit, and provided with one or more discharge-apertures of relatively small size, adapted to permit a slow escape of the contents of the chamber; a charging device located at one point in said orbit, and adapted to deliver material for the cans into the fillers in quantities insufficient to fill the same; means for actuating the filler-chambers on an

axis having a different plane from that of the movement of the apertures; and means for conveying the contents discharged from the filler-chambers into the cans.

8. In a can-filling machine, the combination of a series of filler-chambers, provided with one or more discharge-apertures of relatively small size, and adapted to permit a slow escape of the contents of the chambers; means for actuating said chambers in an orbit; a charging device located at one point in said orbit, and adapted to deliver material for the cans into the fillers; means for conveying cans along said orbit; means for actuating the filler-chambers on an axis in a different plane from that of the movement of the discharge-aperture; and means for conveying the contents discharged from the filler-chambers into the cans.

9. In a can-filling machine, the combination of a series of axially-rotating filler-chambers arranged to travel in an orbit around a central axis; means for passing an annular row of cans around said axis in an orbit parallel to that of the filler-chambers; a main hopper; a measuring device connected therewith; and means for charging the fillers successively from said measuring device with material for the cans, said filler-chambers being adapted to slowly feed the material into the cans during their revolution around the central axis.

10. In a can-filling machine, a hopper provided with a plurality of discharge-conduits; valves separating each conduit into one or more measuring-chambers of definite capacity; and means for actuating the valves of each conduit alternately, and in alternation with similar valves of the other conduits; together with a series of axially-rotating fillers having fixed funnels communicating therewith, and contracted discharge-openings, each adapted to permit the escape of a limited portion of the contents of the filler during each rotation thereof; and means for bringing said measuring-chambers successively into communication with said funnels.

11. In a can-filling machine, a hopper provided with one or more discharge-conduits; valves separating each conduit into one or more measuring-chambers of definite capacity; a series of axially-rotating filler-chambers, each having one or more peripheral discharge-apertures of relatively small size, each adapted to permit the escape of a limited portion of the contents of the chamber during each revolution; and means for bringing said filler-chambers successively into communication with the measuring chamber or chambers.

In testimony whereof I affix my signature in the presence of two witnesses.

CLARENCE H. PLUMMER.

Witnesses:

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