No. 648,538. Patented May 1, 1900.

H. R. STICKNEY.

CAN FILLING MACHINE.

(Application filed Dec. 6, 1899.)

(No Model.)

Fig. 2.

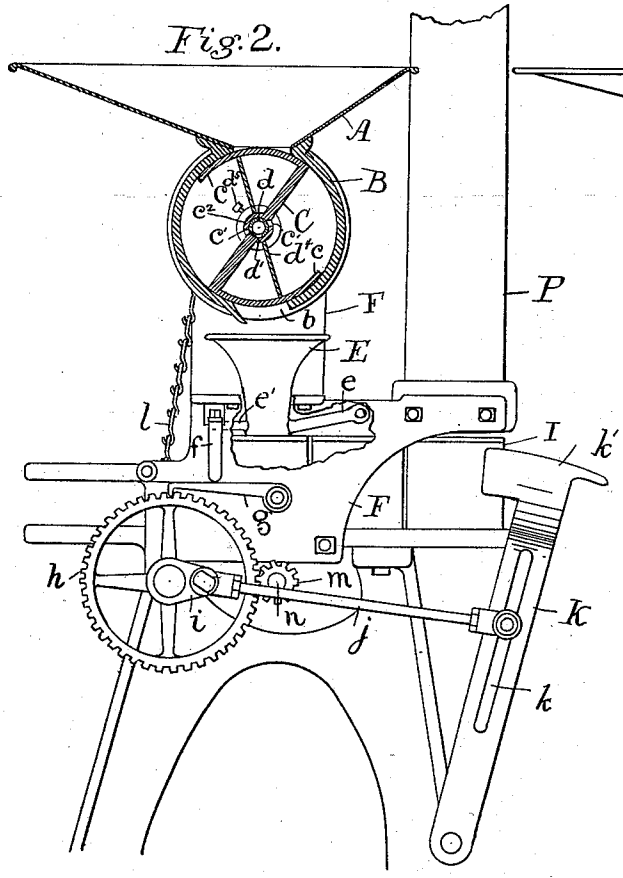


Fig. 1.

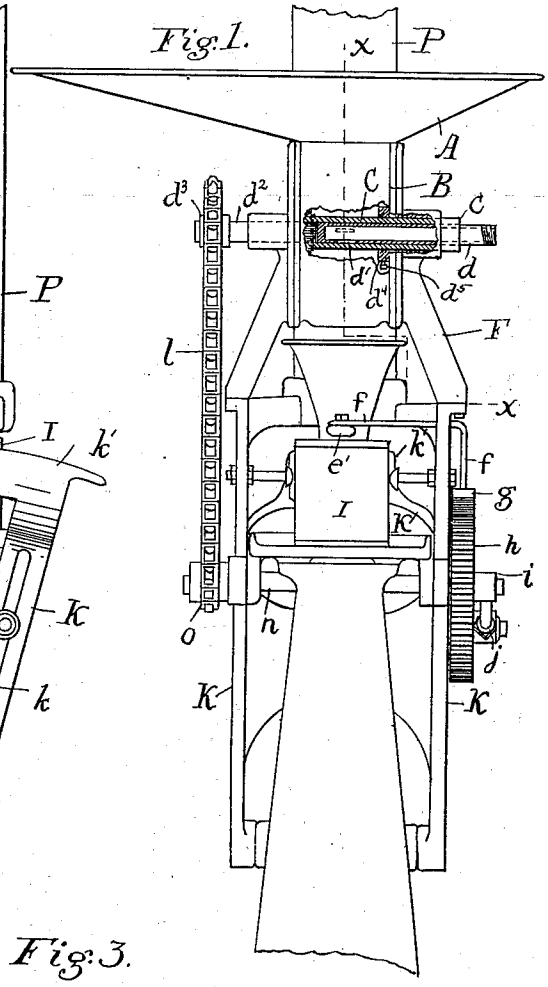
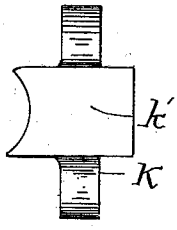


Fig. 3.



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UNITED STATES PATENT OFFICE.

HENRY R. STICKNEY, OF PORTLAND, MAINE.

CAN-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 648,538, dated May 1, 1900.

Application filed December 6, 1899. Serial No. 739,452. (No model.)

To all whom it may concern:

Be it known that I, HENRY R. STICKNEY, a citizen of the United States of America, and a resident of Portland, Cumberland county, State of Maine, have invented certain new and useful Improvements in Can-Filling Machines, of which the following is a specification.

My invention relates to machines for filling cans, particularly those used for green vegetables, such as peas, baked beans, and other like substances; and the invention consists in the novel combination of parts herein described and claimed.

I illustrate my invention by means of the accompanying drawings, which represent a machine as I prefer to construct it.

In the drawings, Figure 1 is an end elevation with a portion in section. Fig. 2 is a part side elevation and part section on the lines $x\,x$ of Fig. 1, and Fig. 3 is a top view of the can-feeding lever.

A represents a supply-hopper, and it is connected with a filling-cylinder B, which is located beneath it. The cylinder B is horizontally disposed as to its axis, and it has a discharge-opening b on its under side. The charge is conveyed from the inlet-opening to the discharge-opening by means of a winged piston C, having a hub c^3, which is journaled in the cylinder, and each wing of this piston has on the outer edge a segmental flange c, which fits the internal surface of the cylinder and extends, as here shown, ninety degrees one way from each edge of the piston in the opposite direction from the motion of the piston. Thus the advancing face of each wing is unobstructed, while the retreating portion of each wing forms a pocket, which constitutes one side of the measuring-space in which the charge is contained. It will be understood that two charges are received from the hopper and delivered to the discharge-opening at each revolution of the piston. The extent of the measuring-space is regulated or graduated by means of a diaphragm d^4, which is pivoted to the hub of the winged piston C. This diaphragm fills the space from the hub to the inner surface of the flange, and it may be swung back and forth to graduate the extent of the operative filling-space. It is held in place by set-screws d^5. Means are provided for discharging syrup through the hub of the piston when the material is passing through the discharge-opening. For this purpose I provide a liquid-supply pipe d, which extends into the hub of the piston C to a point at or near the center of the cylinder, and it is there provided with a port d', adapted to discharge downward. The liquid-supply pipe is connected with a reservoir containing syrup. In the hub of the piston and immediately forward of each wing is a port c', adapted to register with the port d' when the piston reaches the discharging-point. The piston C is fixed on the end of a short shaft d', which extends through one of the flanges, and on the shaft is a sprocket-wheel d^3, receiving power from a sprocket-chain l, which connects with the sprocket-wheel o on the main driving-shaft n, said shaft being journaled in the frame F of the machine.

Below the discharge-opening b is a filling hopper or nozzle E, so constructed that it may be agitated while the machine is in operation. With this end in view I pivot the hopper to the frame of the machine by means of an arm e, which extends horizontally forward. Secured to a projection e' on the opposite side of the hopper from the arm e, as here shown, is a projection e', to which is secured a supporting-bar f. The bar f extends horizontally out to a point outside of the frame and then turns down at right angles and rests on top of a horizontally-disposed pawl g, the end of which engages the gear h, which acts as a ratchet-wheel to reciprocate the pawl. It will be seen that as the gear turns the pawl will be rapidly moved up and down and the filling-hopper will be shaken. In order to prevent this hopper from clogging, I form its interior surfaces convex in a vertical direction, thus preventing the formation of natural arches, which tend to clog the hopper, and I have found in practice that this is an important feature of the machine. The gear h is operated by a pinion m on the shaft n.

The cans I are fed to the filling-hopper through a guideway formed by the sides of the frame F of the machine, and a vertical can-feed spout P is so located as to drop the cans one after the other into the guideway. The cans are fed forward through the guideway by means of a can-feeding lever which is

normally out of line with the spout and reciprocates horizontally beneath its lower end, pushing one can forward while the next can above is resting on its upper surface, then drawing back and allowing the latter can to drop down, and so on.

The lever K is here shown as bifurcated, having two downward-extending arms, the lower ends of which are pivoted to the machine, with a flat head k', adapted to swing immediately beneath the lower end of the spout, moving forward in the line of the guideway just the diameter of one can and withdrawing out of line with the spout, so as to let the column of cans drop down. The lever K is reciprocated by means of a pitman j, connected with a crank i on the gear h, and a slot k is provided in the lever for regulating the point of attachment of the pitman and the extent of the throw of the lever.

From what has been said the operation of the machine is evident. As the piston C turns the material which is being filled into the cans drops from the supply-hopper into the space between the straight face of each wing and the diaphragm d^4, a greater or less portion of the flange c projecting into the forward portion of said space, according to the charge to be put in each can. When this flange reaches the discharge-opening, it uncovers the same and lets the material drop into the filling-hopper, and when the charge is nearly or quite out of the cylinder the port c' registers with the port d' and a quantity of syrup is forced in, washing out the cylinder and carrying down any material which may have been left behind.

It will be observed that the filling-space in the cylinder is generally wedge shape and so formed that the material drops easily from the cylinder.

The machine can be readily adjusted to fill cans of different capacities. It is simple and rapid and is particularly designed to handle material of the character described—*i. e.*, green peas, beans, &c.

It will be understood that before each charge is dropped into the filling-hopper one of the cans is fed forward to a position below the hopper by the mechanism before described, and when the can is filled it is pushed along by the coming can, and so on indefinitely.

I claim—

1. In a can-filling machine, the combination of a hopper, a horizontally-disposed cylinder connected therewith, a rotating winged piston journaled on said cylinder, a liquid-supply pipe within the journal of said piston having a downward-discharge port, the hub of said piston being provided with ports adapted to register with the port of said liquid-discharge pipe and a discharge-opening in the lower portion of said cylinder.

2. In a can-filling machine, the combination of a hopper, a filling-cylinder connected therewith moving a discharge-opening a filling-hopper beneath said discharge-opening pivoted at one side to the frame of the machine, a supporting-bar secured to the other side of the filling-hopper a pawl on which said supporting-bar rests and a toothed gear or ratchet for rapidly reciprocating said pawl and agitating said filling-hopper.

3. In a can-filling machine, the combination of a guideway for guiding a row of cans, a vertical can-feeding spout for dropping the cans into said guideway, a vertically-disposed can-feeding lever pivoted by its lower end below said spout, a head rigidly secured to the upper end of said lever and being adapted to swing immediately below the end of the spout and in line with said guideway so that as one can is pushed forward by the head the upper surface thereof forms a rest for the can in the spout, the can dropping into its place when the head is swung backward, and means for reciprocating the lever.

4. In a can-filling machine, the combination of a guideway for guiding a row of cans, a vertical can-feeding spout for dropping the cans into said guideway, a vertically-disposed can-feeding lever pivoted by its lower end below said spout the upper end or head of said lever being rigidly secured thereto and adapted to swing immediately below the end of said spout and in line with said guideway so that as one can is pushed forward by the head, the upper surface thereof forms a rest for the can in the spout, the said can dropping into the guideway when the head is swung backward, the upper surface of said head being in the form of a cylindrical segment with the pivoting-point of the lever as a center, and means for reciprocating said lever.

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Witnesses:

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