

T. RAPP
PACKAGING MACHINE

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Fig. 13.

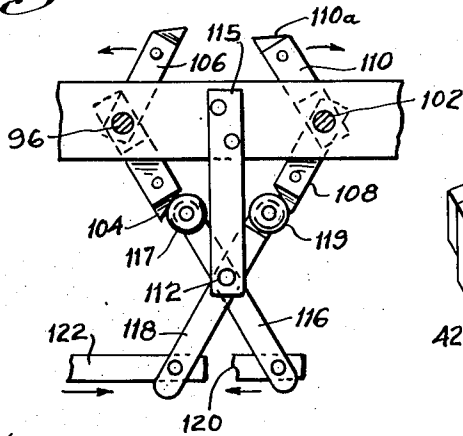


Fig. 15.

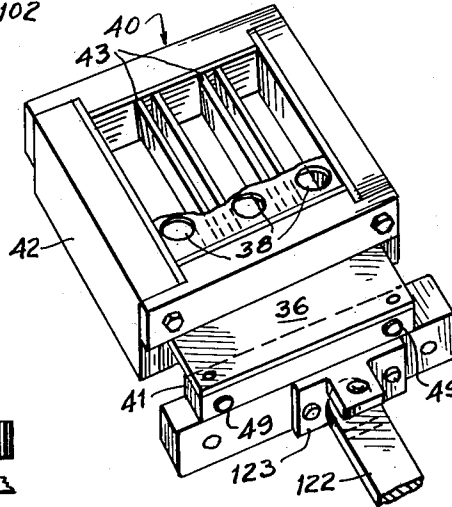


Fig. 14.

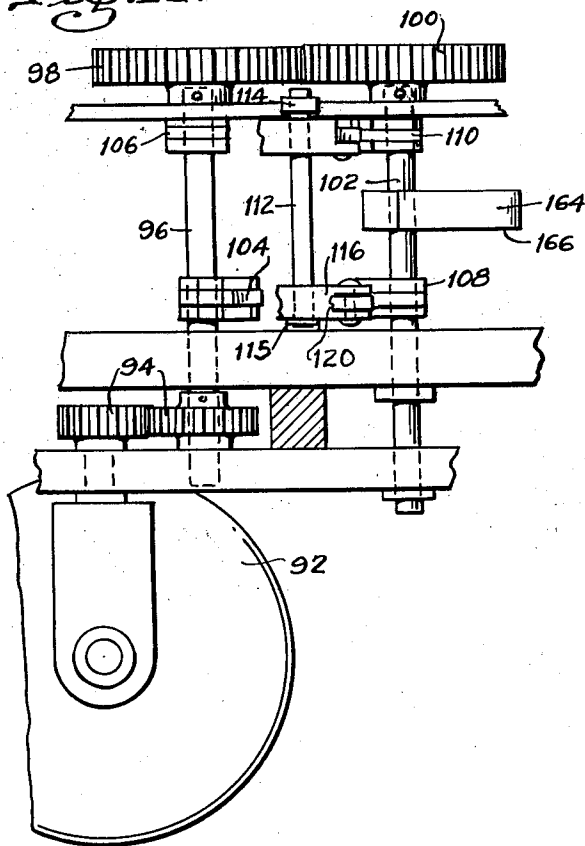


Fig. 16.

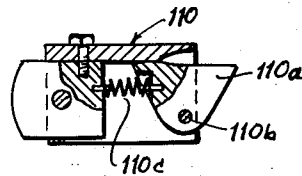
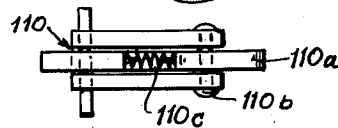


Fig. 17.



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UNITED STATES PATENT OFFICE

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PACKAGING MACHINE

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9 Claims. (Cl. 226—95)

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The invention relates to packaging machines, and more particularly to the type of packaging machines known as volumetric packaging machines.

Packaging machines of type stated now in general use have movable measuring tubes, which are either rotated about a common axis, or are reciprocated together, and such machines are generally more or less complicated, inefficient or impractical.

The general object of my invention is to provide a simplified, highly efficient, and practical volumetric packaging machine for accurately measuring and packaging dry, free flowing material, such as grain and the like.

A more particular object is to provide a packaging machine of the character stated embodying stationary measuring tubes in which the material measured is controlled by slide valves.

Other objects and advantages will appear hereinafter as this specification progresses.

The invention is illustrated in the annexed drawings, which form a part of this specification, and in which:

Fig. 1 is a perspective view of the machine of my invention showing the left side and back thereof, but omitting conventional framing members.

Fig. 2 is a fragmentary plan view of a belt conveyor moving filled cans out of the machine past automatically operated stop members acting in position empty cans in the filling position.

Fig. 3 is a fragmentary side elevation taken on the line 3—3 of Fig. 2.

Fig. 4 is a fragmentary detail showing the withdrawn position of one of a pair of intermittently operated stops holding cans in filling position.

Fig. 5 is a fragmentary perspective view of a part of one of the stop members shown in Fig. 2.

Fig. 6 is a vertical cross section on the line 6—6 of Fig. 1 drawn to an enlarged scale.

Fig. 7 is a vertical cross section on the line 7—7 of Fig. 6.

Fig. 8 is a cross section on the line 8—8 of Fig. 1 drawn to an enlarged scale.

Fig. 9 is a detail view in perspective and drawn to an enlarged scale of an adjustable sub base.

Fig. 10 is a cross section on the line 10—10 of Fig. 7.

Fig. 11 is a cross section on the line 11—11 of Fig. 8 drawn to a larger scale.

Fig. 12 is a fragmentary plan view of can controlling means shown in Fig. 2, but with the means in open position.

Fig. 13 is a detail plan view to an enlarged scale showing the arrangement of cams operating plate valves controlling the flow of material into the cans.

Fig. 14 is a side elevation, with parts broken away, of the operating means shown in Fig. 13.

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Fig. 15 is a perspective view to an enlarged scale of a guide frame for, and in which an upper slide plate valve is mounted.

Fig. 16 is a fragmentary plan view to an enlarged scale of a yieldable safety cam construction.

Fig. 17 is a side elevation of the parts shown in Fig. 16.

The present invention is particularly directed to the provision of improved charge measuring and can filling elements and operating mechanism therefor, including novel plate valve construction and control means therefor.

Referring now to Fig. 1 the letter A indicates generally a stub hopper into which material from a supply hopper (not shown) is received to be filled into cans.

The stub hopper A is mounted on a structure generally indicated at B in which are positioned adjustable filling and guiding tubes and associated control means later described. The assembly B is mounted by any suitable frame members, not specifically shown since any suitable frame arrangement may be used, over a travelling belt 26', bringing empty cans into position under the filling tubes where they are accurately positioned by means later described, and then transported by the belt out of the machine for top sealing, labelling, or other operations by other machines or by hand.

The stub hopper A is formed, in the illustrated embodiment of the invention, to fill six cans at a time positioned two abreast and three rows deep on the travelling belt 26'.

The hopper comprises walls 20 arranged to form an oblong structure mounted on the walls 22 of an upper guide chamber 24 (Figs. 1 and 6) the floor 26 of which is formed to provide a series of funnel shaped upper guide passages 28 aligned with upper guiding and measuring tubes.

In order to relieve the pressure acting downwardly due to the weight of material in the hopper and secure an even flow of the granular material to each funnel shaped opening, downwardly sloped baffles 30 are preferably mounted on the longer side walls of the chamber 24 and the upper ends of the opening 28 are shaped as indicated in Fig. 10.

The structure 22 is secured to a base 32 stationarily mounted on the machine frame and having secured thereto the upper ends of upper guide and measuring tubes 34. Base 32 is formed to support a sliding plate valve 36 reciprocably mounted with respect thereto and provided with openings 38 which may be aligned with openings 28 and tubes 34, or may be moved to obturate the openings. It will be noted that the openings 28, as shown in Fig. 7, are spaced so that the openings 38 in the slide valve may be moved completely out of registration with openings 28.

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A supporting frame 40, Fig. 15, for the slide valve is secured to the base and is particularly arranged to prevent the granular material being handled from becoming packed into the clearances between the plate valve 36 and upper surface of supporting frame 40. With this object I provide an upper member formed as a rectangular open frame 42 having depending strips 43 extending along the edges of the openings in the base in the direction of movement of the plate valve 36 as seen in Fig. 15. Strips 43 may be secured in any suitable manner to frame members 42 and the frame 40 secured in any suitable manner to the base 32.

The supporting frame 40 is arranged to provide a slot for the plate valve 36 and is provided with grooves 44 below the plate valve running in the direction of movement of the valve 36 and across the frame between the openings, and also between the openings and the edge of the frame at the side from which the slide is operated. Thus, material caught by the edge of the openings in the plate valves during movement thereof to closed position may be deflected into the grooves instead of being crushed. Filling pieces 46, Fig. 8, fitting accurately in the grooves, are secured to the underside of the slide at the side specified and are arranged to accurately align with the edge of the apparatus when the slide is moved to open position, thus pushing any material lodged in the grooves into the opening aligned with the upper guide and measuring tubes. The depth of the grooves is formed according to the material to be handled, that is, they would be deeper for beans or peas than for rice.

Guide rods 49 slide in bores formed in frame 40 and are secured at their ends in bars 41 extending across the front and back of the upper plate slide valve.

Upper parts 50 of measuring guide tubes 34 are secured by their upper ends in alignment with the apertures in member 40 in any suitable manner.

A vertically adjustable bottom plate 52 carries lower parts 54 of guide tubes 34 positioned over openings 55 in the bottom plate and telescoping over the lower ends of the upper portions of the measuring guide tubes 50.

The tubes 54 are secured in a sub base 55a mounted on plate 52. Bottom guide tubes 56 are secured to a member 52a attached to and below plate 52, the tubes being in alignment with openings 55 of bottom plate 52 and project downwardly to immediately overlie the open ends of cans to be filled and positioned thereunder by means later described.

The bottom plate assembly indicated at 58 in Fig. 9 comprises vertical channel section guides 60 positioned at each corner with the open sides facing inwardly and with angle strips 62 secured to the lower ends of the guides 60 by straps 64. The bottom plate 52 is secured to the inwardly projecting flange of the angle strips 62. The guides 60 at each side of the machine are braced in accurate parallelism by plates 66 suitably secured to the guides and each is provided with a centrally arranged vertical slot 68. The guides 60 are also braced by transverse bars 67 bored to permit passage of the guide rods of the lower plate valve. A rack 70 is secured to the outer face of each plate 66 to extend parallel to the slot.

Projections 71 of transverse bars of base 32 en-

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gage accurately in the upper ends of channel guides 60.

Obviously other suitable construction may be provided to guide the lower or sub base in its vertical adjustment.

The stub hopper base 32 is supported upon the frame of the machine by angles 72 connected to cross members 73 of the frame.

An adjusting shaft 74 extends across the machine between the rows of guide tubes and is supported in bearings on plates 75 secured to the base 32. Shaft 74 has secured thereto gears 76 engaging with racks 70. At one end a knurled hand wheel 78 is secured to the shaft by a pinned sleeve 80. A toothed wheel 82 is secured on the sleeve 80 and a latch 84, mounted for vertical sliding movement in guides mounted on plate 72 is provided with teeth 86 at its lower end adapted to engage between the teeth of wheel 82 to hold the shaft 74 in adjusted position. Latch 84 may be raised to allow shaft 74 to be adjusted by a knob 88 projecting from the upper portion of the latch.

A lower plate valve 90 identical with upper plate valve and provided with front and back bars 90a and 90b is mounted in a slot in the sub base 55a under the lower ends of the lower guide tubes 54.

Preferably adjustable stops 91 (Fig. 7) are fitted to the bars 90a and 90b of lower slide 90 to contact the front and back edges of sub base 55a so that the openings in the slide valve may be brought into exact registry with the guide tubes. Similar stops, not shown, are fitted to the upper valve 36.

The upper and lower plate valves are moved in opposite directions so that the lower ends of the guide tubes are closed while the upper ends are open and vice versa. The upper valve is first opened, the lower valve being closed for a length of time sufficient to completely fill the measuring tubes, and is then snapped shut; immediately thereafter the lower valve is snapped open and remains open until the measuring tubes are completely emptied, after which the lower valve is shut and the upper valve again opened, thus commencing a new filling cycle. The actuating means for thus operating the valves will now be described.

An electric motor 92 (Fig. 14) is arranged at the side of the machine opposite from the belt 26; the framing of the machine being extended to this side as shown in Fig. 8 to provide support for various operating elements driven by the motor.

Referring to Fig. 14 the motor 92 through suitable gearing 94 rotates a vertical shaft 96 suitably supported in the machine frame and having a gear 98 fast on the upper end thereof. Gear 98 meshes with a gear 100 of equal diameter fast on a shaft 102 extending parallel with shaft 96. Both shafts will therefore rotate at the same speed but in opposite directions, shaft 96 counterclockwise. On shaft 96 are fixed a lower cam ended arm 104 and an upper cam ended arm 106, while on shaft 102 are fixed a lower cam ended arm 108 rotating in the same plane as cam 104 and an upper cam ended arm 110 rotating in the same plane as cam 106. Between shafts 96 and 102 a vertical shaft 112 is arranged in brackets 114 and 115 projecting from the frame members on which shafts 96 and 102 are supported.

As most clearly shown in Fig. 13 a lower lever

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116 is fixed on shaft 112 in the plane of cams 104 and 108 and an upper lever 118 is fixed in shaft 112 in the plane of cams 106, 110. Levers 116, 118 carry rollers 117 and 119, respectively, are engaged by the cams. The lower lever 116 will be moved by cam 104 in clockwise direction to open the lower plate valve 90, while the upper lever 118 will be moved in counterclockwise direction by cam 110 to close the upper slide plate. To prevent damage to slide valve 36 in the event that an obstruction, such as a stone, gets caught in the upper openings of the base, cam 110, Fig. 16, is provided with a yieldable engaging portion 110a pivoted at 110b and resiliently held in operative position by a spring 110c, which will permit the engaging portion 110a to yield and slip by lever 118 should it encounter heavy resistance.

It will be noted that cams 104 and 106 on shaft 96 are arranged at an angle in the direction of their rotation. Such that a dwell between the actuation of the upper and lower plate valves is provided for and cams 108, 110 are similarly arranged on shaft 102. The cams may be adjusted to operate the valves as previously described. The plate valves 36 and 90 will, therefore, remain in the discharge position until cam 106 engages arm 118 to open upper plate valve 36 and cam 108 engages arm 116 to close the lower plate valve 90.

The movement of the lever 116 is transmitted to the lower side plate valve 90 by link 120 and movement of lever 118 to the upper slide plate valve 36 by link 122. The links 120 and 122 are pivoted at one end to an end of the pivoted levers operating them and link 122 is pivoted at its other end to bracket 123 secured to the members carrying the slide plate valve 36, but link 120 is connected to a sleeve 121 sliding on a vertical rod 121a held by a yoke 121b secured to the frame of lower valve plate 90. The described construction enables the lower slide valve to be raised and lowered with the sub base without affecting the operating means for the slide.

The drive for the belt 26' may be taken from the motor 92, a clutch being arranged in any suitable manner to enable the drive to be transmitted after the belt has been put into operation, or as preferred by a separate motor (not shown) and a chain drive 124 indicated in Fig. 1. The direction of the cans is shown by the arrow. The usual front and back rollers or pulleys and supports for the top run of the belt are omitted for clearness.

In order to properly space the cans, a longitudinal spacer 126 is fixed to the lower face of the bridge spacer 128 holding the sides 130, extending along the belt in spaced relation.

The spacer 126 operates to position the cans under the end tube guides, the cans being arrested in this position for the time required for the filling operation by the means now to be described.

A pair of vertically extending stop members 132, 133, is mounted on a separable stop carrier 134 arranged above the belt 26'. The stop carrier is formed in two halves mounted for parallel movement toward and away from one another by a pair of rods 136, 137 extending through bores in the carrier members and supported in a frame 138 mounted on the machine frame beyond the can filling position.

The stop carrier members are urged toward one another by springs 140, mounted on the rods 136, 137 and under compression between the stop

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carrier members and the inner faces of the frame 138.

A slot 142 is machined equally in the meeting faces of the carrier members and a cam 144, shown in detail in Fig. 11, is positioned in the slot. The cam 144 is preferably formed as a short length of heavy bar having pivots 146 extending downwardly therefrom, on which are mounted rollers 148, 149. When the cam extends longitudinally of the cam slot, carrier members 134 are in contact with one another and the stop plates 132 carried thereby are positioned in the path of the cans and hold them in filling position, the belt 26' sliding under the bottom of the cans. When the cam is rotated into a position substantially perpendicular to the carriers, the latter with the stop plates are forced apart so that the stop plates are moved clear of the cans as shown in Fig. 4. The cam 144 is mounted on a vertical cam shaft 150, carried in a bore affording a bearing in a framing member 152, and through a bore, affording an outboard bearing, in a Z bracket 154 secured to the top of the framing member 152.

In order to intermittently rotate the cam shaft 150 I provide a pivoted lever 156, Fig. 8, mounted on a vertical shaft 158 mounted in a vertical bearing on a frame member 159. One end of lever 156 is provided with a roller 160, and the other end of the lever is provided with a chain-wheel segment 162. Roller 160 is arranged in the plane of rotation of, and to be intermittently engaged by, a can stop and release cam 164 secured to an arm 166 mounted on shaft 102 (Fig. 14). Obviously any suitable form of cam may be provided giving a rapid change from one radius, which will move the lever 156 in one direction and hold it, this operation of the lever causing opening of the can stop plates 132 and permitting belt conveyor 26 to move the filled cans from under the machine, and a rapid change to a lesser radius, which will leave the lever 156 free to return under resilient pressure to initial position. A bumper 166' is mounted on frame member 152 to limit and cushion the return of the lever 158 to initial position.

A length of chain 168 is secured to chain-wheel segment 162 and is secured to a second chain segment 170 secured on cam operating shaft 150. A lever 172 (Fig. 8) is pivoted on a plate 174 and bears with one end against a roller 176 mounted at the end of a crank arm 178 secured at the upper end of cam operating shaft 150, the lever 172 being pressed against the roller by a spring 180 arranged under compression between the other end of lever 172 and an abutment 182 extending upwardly from plate 174. Since the movement of the arm 178 necessary to rotate shaft 150 to bring the cam 144 from one position to the other is only one quarter revolution, the crank arm engages the lever only toward the end of the opening movement to move the cams from the dead center position assumed when perpendicular to the carriers 134.

Operation

In operating the machine the drive for the belt first is switched on or put into operation, and the operator feeds cans onto the belt, then seeing to it that the can stop plates are in can arresting position so that the cans are in contact with one another in the filling position before the machine is put into operation. When the machine is put into operation, the cam controlling the can arresting stops is not actuated until

the guide and measuring tubes have first been completely filled and then emptied into the cans before it operates to release the cans.

The main supply hopper may be filled in any suitable manner, this element forming no part of the present invention. When the machine is put into operation and material is flowing into the hopper, the upper slide plate valve will be held open for a predetermined period, the lower plate valve being closed. The open slide valve will then close, after which the cam operating the lower slide plate valve opens that valve. The lower plate valve remains open for a period while six cans are filled and the lower plate valve is then closed, the cam operating the can arresting mechanism then operating rapidly to release the filled cans; the cam holding the stop plates open to permit three cans to pass before allowing the can stop plates to snap back into position to stop empty cans in the filling position.

The adjustable measuring tubes, in the described embodiment of the invention, enable a variation of about 50% in the capacity of the cans handled to be provided for, this variation being due to change in height, but not in diameter, of the cans to be filled at one setting.

Preferably the machine is provided with electric switches indicated at 184, Fig. 2, having pivoted arms 186 resiliently urged toward a position inwardly of the walls 130 extending along the sides of the conveyor belt 25'. The switches are arranged at the filling station and are pressed outwardly by the cans if properly located at the filling station, but if not so located the inward movement of the arms operate through any suitable means to interrupt the action of the filling mechanism, thus preventing waste of material and providing automatic switching off of the machine when a batch of cans has been filled.

As before stated the machine is built to specification and the described construction is applicable to a wide range of granular products. It will be seen that the machine can be readily taken apart for thorough cleaning from time to time as usually required by the sanitary code of most localities and by the use of oil impregnated bearings no oil can work into contact with the material being handled. Obviously any type of self supporting "can" can be used with the machine whether of waxed paper, cardboard or metal.

I claim:

1. A packaging machine including: a stationary hopper having a bottom formed with a plurality of spaced openings; downwardly extending telescopic measuring and delivery tubes, each having one element secured in alignment with one of said openings; a vertically adjustable plate mounted below said hopper and supporting lower elements of said telescopic delivery tubes; means for adjusting the vertical position of said plate; a first plate valve mounted above the upper ends of said tubes and below the spaced openings in the bottom of the hopper and a second plate valve mounted below the lower ends of the measuring tube elements carried by said adjustable plate; a pair of parallel shafts rotated at the same speed; a first cam secured on one shaft and arranged in the same plane as a second cam secured on the other shaft; a third cam mounted on the same shaft as the first cam but spaced therefrom; a fourth cam mounted on the same shaft as the second cam and in the same plane as the third cam; a rigid member moved back and forth by said first and second cams and con-

nected to the first plate valve, and a rigid member moved back and forth by said third and fourth cams and connected to the second plate valve, said cam means being arranged so that the upper valve is moved to open and then to shut position before the lower valve is opened and does not again operate the upper plate valve until the lower plate valve has been closed; a conveyor belt effective to carry empty cans into position to be filled; can stop means effective to hold said cans stationary at filling position during the can filling operation and to release them to be transported out of said position when filled; a can stop and release cam secured on one of said parallel shafts; and means actuated by said latter cam to operate said can stop and release means.

2. A machine as set forth in claim 1 and in which the means for adjusting the vertical position of the plate supporting lower elements of said telescopic measuring and delivery tubes comprise; vertical guide elements slidably engaging with parts of said hopper; vertical racks secured to the plate; a shaft supported from said hopper; gears mounted on said shaft and engaging said racks; means for manually rotating said shaft; and means effective to lock the shaft in adjusted position.

3. A packaging machine for granular material as set forth in claim 1 and in addition comprising: a base member to which the hopper is secured; a frame member secured to said base and slotted to receive said first plate valve; rods secured to the front and back of said plate valve and extending in the direction of the travel of said valve and slidable in bores in said frame; a member secured to and below the vertically adjustable plate; and rods secured to the front and back of said second plate valve and extending in the direction of travel of said valve and slidable in bores in said member secured to the vertically adjustable plate.

4. A packaging machine as set forth in claim 1 and in which the means for operating the lower plate valve include a yoke connected to said valve; a rod extending vertically in said yoke; a sleeve slidably mounted on said rod; a rod connected to said sleeve at one end; a vertical shaft; an arm mounted on said shaft and oscillated by said second and fourth cams, and pivotally connected to said rod, whereby the operation of the lower plate valve is effected regardless of the vertical adjustment of the adjustable plate.

5. A packaging machine as set forth in claim 1 and in which the can stop and release means comprise the cams operating the plate; a pivoted arm intermittently rocked by said can stop and release cam, and connected to said can stop and release means; and resilient means effective to return said arm to initial position.

6. A packaging machine as set forth in claim 5, and in which the can stop and release means also comprise a pair of movable carrier members; guides for said carrier members arranged to position them over the conveyor; a cam shaft supported vertically in the frame of the machine; a cam mounted on the lower end of said shaft in position to force the carrier members apart when the cam is rocked; resilient means urging the carriers toward one another; an operative connection between said shaft and the pivoted arm whereby movement of said arm is transmitted in one direction to said shaft, and stop plates mounted on said carrier members to project downwardly into position to arrest the cans

when the carrier members are in inward position and to be moved out of the path of the cans when the carrier members are moved outwardly from one another by the partial rotation of said cam.

7. A packaging machine as set forth in claim 5 and in which the can stop and release means also comprise a pair of movable carrier members; guides for said carrier members arranged to position them over the conveyor; a cam shaft supported vertically in the frame of the machine; a cam mounted on the lower end of said shaft in position to force the carrier members apart when the cam is rocked; resilient means urging the carriers toward one another; a chain sprocket secured on the cam shaft; a segment of a chain wheel carried on the free end of the pivoted arm; a length of drive chain secured to said chain sprocket to extend therearound at one end and secured at its other end to extend around the segmental chain wheel on the pivoted arm; a crank arm secured to the cam shaft and a pivoted lever mounted on the frame of the machine in position to be engaged by the end of the crank arm toward the end of the operative movement of the latter; a spring resisting movement of said lever and thereby initiating return movement of said crank; and a stop effective to hold the pivoted arm in position to be engaged by its operating cam.

8. A packaging machine including: a stationary hopper having a bottom formed with a plurality of spaced openings; downwardly extending telescopic measuring and delivery tubes, each having one element secured in alignment with one of said openings; a vertically adjustable plate mounted below said hopper and supporting lower elements of said telescopic delivery tubes; means for adjusting the vertical position of said plate; plate valves mounted above the upper ends of said tubes and below the spaced openings in the bottom of the hopper and a second plate valve mounted below the lower ends of the measuring tube elements carried by said adjustable plate; a pair of parallel shafts rotated at the same speed; a first cam secured on one shaft and arranged in the same plane as a second cam secured on the other shaft; an operating lever shaft; a first operating lever pivoted on said shaft and having one end arranged in the plane of said first and second cams in position to be moved in one direction by the first cam and returned in the opposite direction by the second cam; a link connecting the opposite end of the lever to one of the slide plate valves; a third cam mounted on the same shaft as the first cam but spaced therefrom; a fourth cam mounted on the same shaft as the second cam and in the same plane as the third cam; a second operating lever pivoted on the operating lever shaft with one end in position to be engaged and moved in one direction by the third cam and in the opposite direction by the fourth cam; a link connecting the other end of the second operating lever to the second plate valve, said cam means being arranged so that the upper valve is moved to open and then to shut position before the lower valve is opened and does not again operate the upper plate valve until the lower plate valve has been closed; a continuously moving conveyor belt carrying empty cans into position to be filled; can stop means holding said cans stationary at the filling position during the can filling operation and releasing them to be transported out of said position when filled, a can stop and release cam secured on one of said parallel

shafts; and can stop and release means operated by said latter cam.

9. In a packaging machine for granular material having a stationary hopper fitted with a bottom formed with a plurality of openings there-through; a stationary horizontal plate spaced below said bottom, the plate having openings there-through aligned with the openings in the bottom of the hopper, and grooves in the upper surface of the plate between the openings; a plate valve having openings therein alignable at times with the openings in the hopper bottom and positioned in the space between the bottom of the hopper and said plate and fitting closely in said space, the grooves in the upper surface of the stationary plate extending in the direction of movement of the plate valve, and between the edge of the opening and the edge of the plate on the side of the plate over which the outermost aperture in the plate valve is located when in closed position, and groove filling pieces secured to the underside of the plate valve arranged to scrape any material, working between the lower face of the valve and the upper face of the plate and into the grooves, into the openings when the plate valve is moved to open position, said filler strips aligning with the edge of said openings in the plate in the open position of the valve; downwardly extending telescopic measuring and delivery tubes, each having one element secured in alignment with one of the openings in the hopper bottom; a vertically adjustable plate mounted below said hopper and supporting lower elements of said telescopic delivery tubes; means for adjusting the vertical position of said plate; a second plate valve mounted below the lower ends of the measuring tube elements carried by said adjustable plate; a pair of parallel shafts rotated at the same speed; a first cam secured on one shaft and arranged in the same plane as a second cam secured on the other shaft; an operating lever shaft; a third cam mounted on the same shaft as the first cam but spaced therefrom; a fourth cam mounted on the same shaft as the second cam and in the same plane as the third cam; a rigid member moved back and forth by said first and second cams and connected to the first plate valve means, and a rigid member moved back and forth by said third and fourth cams and connected to the second plate valve; said cam means being arranged so that the upper valve is moved to open and then to shut position before the lower valve is opened and does not again operate the upper plate valve until the lower plate valve has been closed; a conveyor belt effective to carry empty cans into position to be filled; can stop means effective to hold said cans stationary at filling position during the can filling operation and to release them to be transported out of said position when filled; a can stop and release cam secured on one of said parallel shafts and means actuated by said latter cam to operate said can stop and release means.

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