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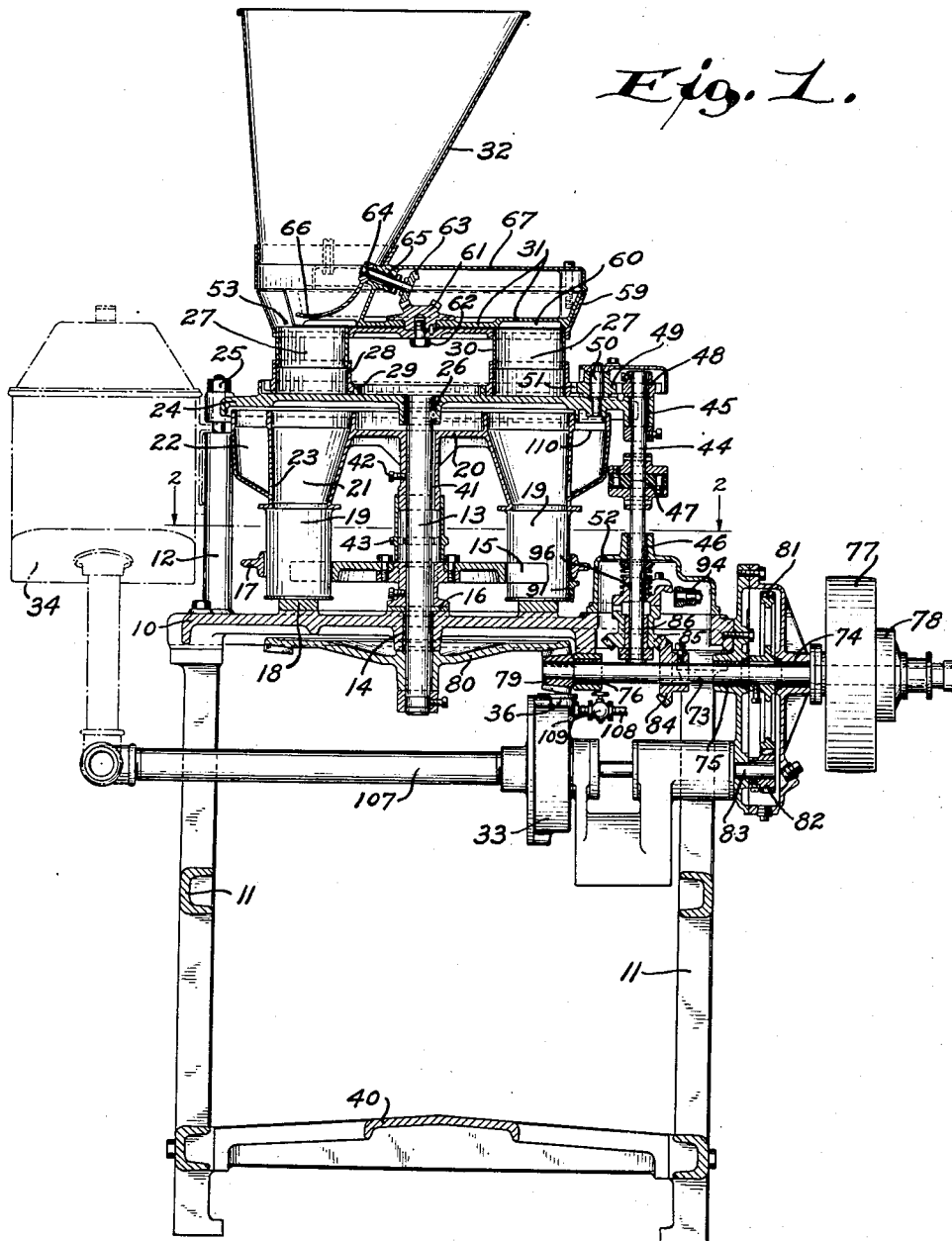
H. MONDLOCH

2,329,776

RECEPTACLE FILLING MACHINE

Filed Sept. 29, 1939

3 Sheets-Sheet 1



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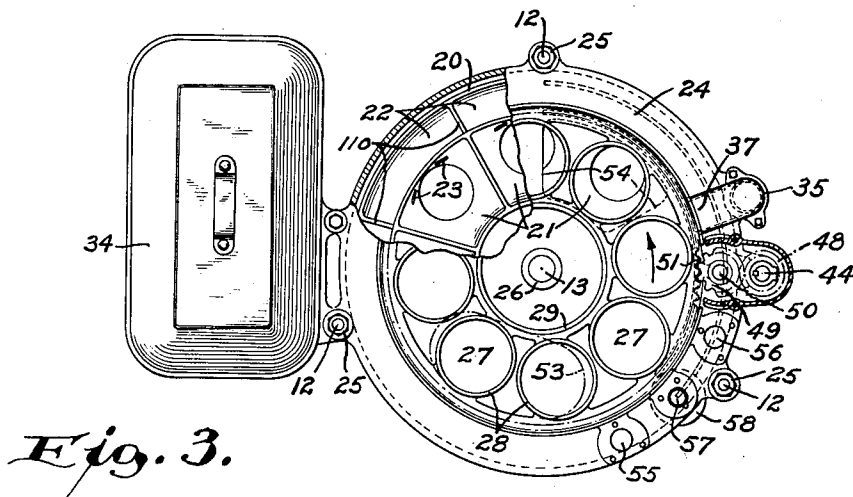
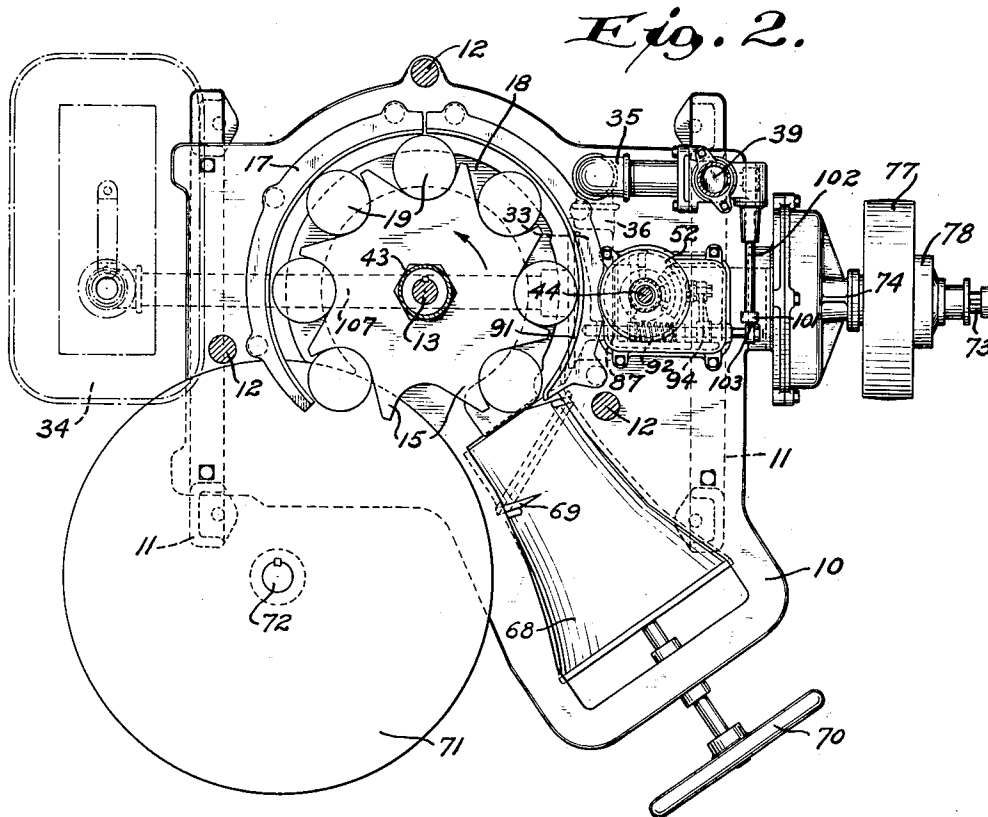
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RECEPTACLE FILLING MACHINE

Filed Sept. 29, 1939

3 Sheets-Sheet 2



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RECEPTACLE FILLING MACHINE

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3 Sheets-Sheet 3

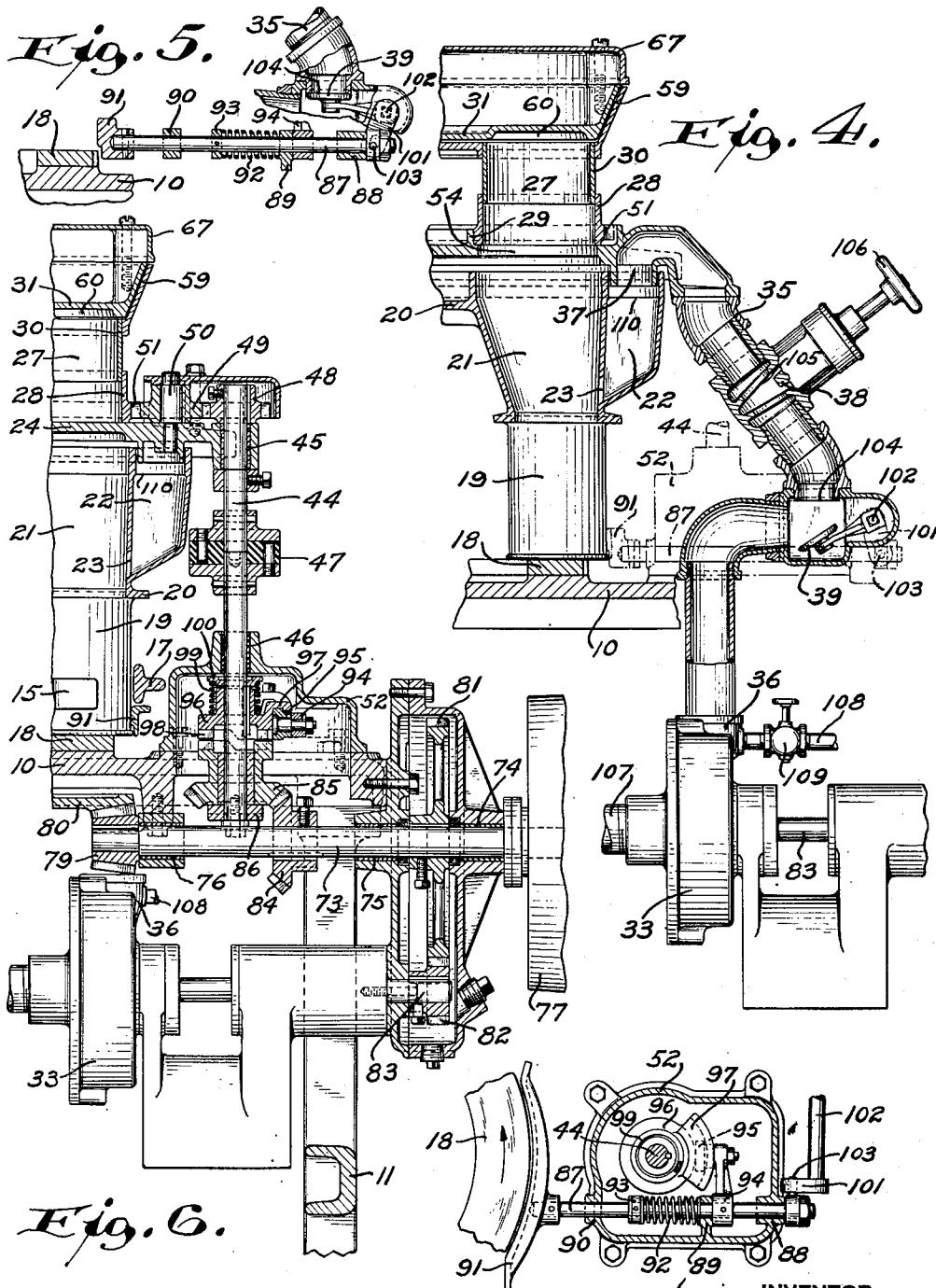


Fig. 7. H. Mondloch
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UNITED STATES PATENT OFFICE

2,329,776

RECEPTACLE FILLING MACHINE

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Application September 29, 1939, Serial No. 297,041

19 Claims. (Cl. 226—97)

The present invention relates generally to improvements in mechanism for delivering quantities of diverse material to each of a succession of receptacles, and relates more specifically to improvements in the construction and operation of automatically functioning machines for partially or completely filling cans or other receptacles with charges of several kinds of material.

An object of the present invention is to provide an improved receptacle filling machine, which is simple in construction, highly efficient in operation, and which avoids excessive waste of material when no receptacle are in position to receive the charges.

Another more specific object of my invention is to provide an improved machine for delivering independent quantities of several kinds of material to each of a succession of receptacles, and wherein discharge of material from the several material delivery devices is automatically stopped when the succession of receptacles is interrupted.

A further specific object of the invention is to provide a new and useful can filling assemblage which is adapted to deposit a measured batch of solids such as peas, and a charge of liquid such as brine into each of a series of cans or the like advancing at relatively high speed along a definite path.

Still another specific object of this invention is to provide an improved no-can-no-fill device for receptacle fillers, and especially for filling machines which automatically deliver independent batches and charges of several kinds of material to receptacles.

An additional specific object of the present invention is to provide an improved receptacle filling machine which is durable in construction, safely manipulable, highly sanitary, and which may be installed and operated at moderate cost.

Another specific object of my invention is to provide an improved can filler or the like, which may be readily assembled and dismantled, and wherein waste of materials is reduced to a minimum.

A further specific object of the invention is to provide an improved filling machine having normally movable measuring pockets for some of the material, and wherein the motion of these pockets is automatically arrested so as to positively prevent discharge of material therefrom when no receptacle is in receiving position.

Still another specific object of this invention is to provide an improved receptacle filling machine having a constantly operating pump for delivering charges of liquid such as brine to successive

receptacles, and wherein the delivery of liquid is automatically prevented when no receptacle is in charge receiving position.

Another specific object of my invention is to provide improved instrumentalities for insuring proper flow of materials such as legumes and liquid through the passages and pockets of a can filling machine or the like, so that bridging of solids and proper flow of liquid will be assured.

These as well as other objects and advantages of the present invention will be apparent from the following detailed description.

A clear conception of the several features constituting my present improvement, and of the construction and operation of a can filling machine built in accordance with the invention, may be had by referring to the drawings accompanying and forming a part of this specification in which like reference characters designate the same or similar parts in the various views.

Fig. 1 is a vertical section through one of my improved receptacle fillers taken through the legume supply hopper and through the measuring pocket drive, and showing the liquid supply reservoir and its mounting in dot-and-dash lines;

Fig. 2 is a transverse horizontal section through the filling machine of Fig. 1, taken along the line 2—2 and also showing the liquid supply reservoir in dot-and-dash lines;

Fig. 3 is a top view of the lower revolving element of the legume measuring pockets, of the mounting therefor, and of the brine supply tank, a portion of the measuring pockets and mounting having been broken away to show the liquid distributing chambers and the discharge chutes located beneath the pockets;

Fig. 4 is an enlarged vertical section through a fragment of the filler, showing the liquid charge supply mechanism in normal position as when delivering liquid to a can;

Fig. 5 is a similarly enlarged fragmentary sectional view showing the liquid shut-off valve in closed position and also showing the mechanism for actuating this valve;

Fig. 6 is an enlarged vertical section through a fragment of the machine, similar to the section of Fig. 1, but showing the no-can-no-fill mechanism for the legumes in action; and

Fig. 7 is a similarly enlarged part sectional top view of the no-can-no-fill mechanism.

While the several features of my present improvement have been shown herein as being specifically embodied in a machine especially adapted to deliver a pre-measured batch of legumes such as peas and a charge of liquid such as brine to

each of a succession of sanitary cans, it is not my intention or desire to unnecessarily restrict the scope or utility of the invention by virtue of such specific embodiment.

Referring to the drawings, the improved can filling machine shown therein, comprises in general a main frame having an approximately horizontal deck 10, a pair of sub-frames 11 for supporting the deck, and three upright posts or columns 12 rigidly attached to the deck; a rotary upright shaft 13 journaled in a central bearing 14 carried by the deck 10; a series of can hooks 15 secured to the shaft 13 above the bearing 14 and resting upon a thrust bearing 16; a can guide 17 and an annular track 18 carried by the deck 10 and cooperating with the hooks 15 to conduct cans 19 in succession around the axis of the shaft 13; a member 20 secured to the shaft 13 above the can hooks 15 and providing an annular series of eight material delivery chutes 21 and a similar series of segregated liquid distributing and delivery chambers 22 disposed outwardly of and communicating with the adjacent chutes 21 through slots 23; a normally fixed plate 24 detachably secured to the upper ends of the columns 12 directly above the chutes 21 and chambers 22 by means of nuts 25, and having a central bearing 26 in which the upper end of the shaft 13 is journaled; an annular series of eight legume measuring pockets 27 formed by a lower section element 28 rotatably supported upon the plate 24 and centered by an annular ridge 29 formed integral with this plate, and coacting telescopically with an upper pocket section element 30 which is adjustable vertically of the lower element 28 to vary the sizes of the pockets 27; a normally fixed upper support or housing 31 in which the upper pocket element 30 is journaled for rotation and which provides a mounting for the legume supply hopper 32; mechanism for revolving the pockets 27 between the plate 24 and housing 31, and about the axis of the shaft 13; a centrifugal pump 33 suspended from one of the sub-frames 11 and being operable to withdraw liquid from a liquid supply reservoir 34 suspended from one of the fixed columns 12 of the main frame; a conduit 35 connecting the discharge fitting 36 of the pump 33 with the successive distributing chambers 22 through a discharge fitting or nozzle 37, the conduit 35 having a control valve 38 and a shut-off valve 39 therein; mechanism for feeding cans 19 in succession to the can hooks 15; mechanism for delivering the successive filled cans 19 from the machine; other mechanism for imparting motion to the various normally movable parts of the assemblage; and a no-can-no-fill assemblage for automatically preventing delivery of legumes from the pockets 27 and liquid from the pump 33 through the chutes 21 when no cans 19 are in position to receive the charges.

The main frame is preferably of simple and durable construction, and the sub-frames 11 which are rigidly inter-connected at their upper ends by the deck 10, may also be additionally connected to each other at their lower portions by a cross-brace 40, see Fig. 1. The posts or columns 12 which are rigidly attached to the frame deck 10, may be formed of central bolts surrounded by hollow tubes of such length that they will properly space the plate 24 and the chutes 21 from each other and from the tops of the cans 19 which are to be filled. By varying the height of the columns 12 and by changing the elevation of the chute supporting member 20 relative to the deck 10, cans 19 of various heights may be

handled. The member 20 is secured to the central shaft 13 by means of a spline 41 and set screw 42 in order to permit vertical adjustment of the member 20; and the can hooks 15 are keyed to the shaft 13 above the guide and thrust bearings 14, 16 and supports the weight of the member 20 through an adjusting sleeve 43 the upper end of which has internal screw threads coacting with the threaded central hub of the member 20, and the lower end of which rests directly upon the can hook hub. The position of the member 20 should preferably be such that the lower flanged ends of the chutes 21 will be in close proximity to the upper open ends of the successive cans 19 as the latter are advanced around the axis of the shaft 13 within the guide 17 by the revolving can hooks 15. The normally fixed guide 17 and can supporting rail 18 may be readily removed from the supporting deck 10, and the liquid supply reservoir 34 may be anchored to any of the fixed columns 12.

As previously indicated, the plate 24 which is supported by the fixed columns 12 is stationary, and the journal bearing 26 carried by this plate cooperates with the journal bearing 14 on the deck 10 to rotatably support the shaft 13 and the elements carried thereby. The pockets 27 which are formed by the telescopically cooperating lower and upper elements 28, 30 are normally revoluble about the axis of the shaft 13 and about the annular ridge 29 of the plate 24, simultaneously with the chutes 21 and can hooks 15, but independently thereof. This independent revolution of the legume measuring pockets 27 is accomplished by a counter shaft 44 disposed parallel to the shaft 13 and having upper and lower sections journaled in bearings 45, 46 and flexibly interconnected by a resilient coupling 47. The bearing 45 is carried by the fixed plate 24, and a gear 48 secured to the upper extremity of the upper section of the shaft 44 meshes with an idler gear 49 journaled on a fixed stub shaft 50, while the idler gear 49 in turn meshes with teeth 51 formed integral with the periphery of the lower pocket forming element 28, see Figs. 1, 3 and 6. The lower bearing 46 is formed in a casing 52 which is rigidly but detachably secured to the stationary deck 10, and it will be noted that when the counter shaft 44 is rotated the pockets 27 will revolve to first cause the open upper ends of the element 30 to successively communicate with the hopper discharge opening 53 formed in the hopper support 31 and shown in dot-and-dash lines in Fig. 3, and to subsequently cause the lower open ends of the lower elements 28 to communicate with the chutes 21 through the opening 54 formed in the fixed plate 24 and shown in solid lines in Fig. 3.

While the legume supply hopper 32 is at all times fixed against rotation relative to the axis of the shaft 13, it is adjustable vertically with the support or housing 31, with the upper pocket forming element 30 when the capacities of the pockets 27 are to be varied. The mechanism for simultaneously vertically adjusting the hopper 32, housing 31 and element 30, while preventing revolution of the housing 31 and hopper 32, is shown in Fig. 3 and may comprise two parallel vertical guide rods 55, 56 secured to the periphery of the fixed plate 24 and slidably engaging bored holes in the housing 31; and an intermediate vertical adjusting shaft 57 journaled against axial movement in the fixed plate 24 and having at one end screw threads coacting with a threaded hole in the housing 31 while its opposite end is

provided with a manipulating hand wheel 58. This assemblage is obviously such, that by turning the shaft 57 with the aid of the hand wheel 58, the housing 31, hopper 32 and the upper element 30 may be moved up or down without interfering with free rotation of the pocket forming elements 28, 30. The rods 55, 56 and shaft 57 while avoiding obstruction to the rotation of the pockets 27, positively prevent the hopper 32 and housing 31 from rotating, and the periphery of the housing 31 may be provided with a removable sealing ring 59 coacting with the periphery of the revolving element 30 to center the latter relative to the axis of the central shaft 13 and ridge 29. The housing 31 is also provided with a recessed portion 60 above the path of travel of the pockets 27, which serves to level off the measured batches of legumes without crushing the same, after the pockets 27 have passed the hopper discharge opening 53, see Fig. 1. The upper pocket forming element 30 is rotatably suspended from the hopper support 31 by means of a central bevel gear 61 and a cap screw 62, the gear 61 being journaled in a central bore in the housing or support 31 and meshing with a bevel pinion 63 secured to an inclined agitator shaft 64 journaled in a bearing 65 which is carried by the lower side wall of the hopper 32. A curved agitator blade or arm 66 is secured to the end of the shaft 64 within the hopper 32 directly above the discharge opening 53; so that when the upper pocket element 30 is being revolved by virtue of its telescopic coaction with lower element 28, the agitator arm 66 will also be revolved within the hopper 32 over the opening 53 and bridging of legumes across this opening will be positively prevented. The gears 61, 63 are normally concealed and protected by a removable cover 67 secured to the hopper supporting housing 31.

The mechanism for delivering the successive empty cans 19 to the can hooks 15, guide 17 and rail 18, is of relatively well known construction, and comprises a constantly revolving tapered drum 68 having a helical can feeding projection 69 at the discharge end thereof, adapted to deliver the successive empty cans 19 in properly spaced relation in front of the advancing hooks 15, within the guide 17 and onto the track 18.

The drum 68 is journaled for rotation on the deck 10 and is provided with a hand wheel 70 for effecting manual rotation thereof. The mechanism for delivering the successive filled cans 19 from the zone of filling, is likewise of well known construction and comprises a horizontal disk 71 mounted on a rotary shaft 72 and cooperating with the hooks 15, guide 17 and rail 18 to automatically discharge the loaded cans in succession, see Fig. 2. The mechanism for driving the receptacle filling machine during normal operation thereof, consists primarily of a main horizontal drive shaft 73 journaled in bearings 74, 75, 76 and having a driving pulley 77 and a clutch 78 at one end thereof; a bevel pinion 79 secured to the opposite end of the drive shaft 73 and meshing with a bevel gear 80 secured to the lower end of the central shaft 13, so as to impart rotation to the latter; a gear 81 secured to the shaft 73 between the bearings 74, 75 and meshing with a pinion 82 secured to the pump driving shaft 83; and a bevel gear 84 secured to the shaft 73 between the bearings 75, 76 and meshing with another bevel gear 85 rotatably suspended by a bushing 86 from the lower headed extremity of the counter shaft 44, see Figs. 1, 2 and 5.

The improved no-can-no-fill mechanism which constitutes an important feature of my present invention, is best shown in Figs. 1, 4, 5, 6 and 7 of the drawings, and comprises generally a rod 87 slidable in bearings 88, 89, 90 formed integral with the casing 52 in which the countershaft 44 is journaled; a can engaging shoe 91 secured to one end of the rod 87 and formed to engage the bottom seams of the successive cans 19; a compression spring 92 embracing the medial portion of the rod 87 and coacting at one end with a collar 93 secured to the sliding rod, while its opposite end reacts against the intermediate bearing 89; an arm 94 rigidly secured to the rod 87 between the bearings 88, 89 and having a roller 95 journaled at its upper end; a clutch collar 96 rotatable with and slidable along the countershaft 44 and having a laterally projecting quadrant cam 97 cooperable with the roller 95, the collar 96 also having jaws 98 at its lower end cooperable with complementary jaws formed on the upper end of the bevel gear 85; a compression spring 99 embracing the countershaft 44 and coacting at one end with the collar 96 while its opposite end reacts against a stop plate 100 secured to the shaft 44; and a lever 101 secured to an end of the pivot shaft 102 which supports the shut-off valve 39, and co-operating with an actuating pin 103 secured to the outer extreme end of the rod 87. This no-can-no-fill assemblage is so constructed that when no can 19 is brought into engagement with the shoe 91, the rod 87, arm 94 and pin 103 will be retained by the spring 92 in the positions shown in Figs. 5 and 7, and the roller 95 will then coact with the quadrant cam 97 of the collar 96 to lift the jaws 98 out of driving engagement with the jaws on the revolving pinion 85 as shown in Fig. 6; while the pin 103 will simultaneously coact with the lever 101 to keep the shut-off valve 39 closed, as shown in Fig. 5. However, when a can 19 engages the shoe 91, the rod 87 will be pushed outwardly against the action of the spring 92, thereby removing the roller 95 from coaction with the cam 97 and causing the spring 99 to restore the driving connection between the gear 85 and shaft 44 through the collar 96; while at the same time opening the valve 39 through the lever 101 and pivot shaft 102.

The shut-off valve 39 is adapted to engage a seating 104 in the conduit 35; and the liquid flow control valve 38 is of the gate type adapted to seat against a seating 105, this valve 38 being manipulable by means of a hand wheel 106. The centrifugal pump 33 is constantly operable at uniform speed, and has its suction opening connected to the liquid supply tank 34 by a pipe 107, and the discharge fitting 36 of the pump 33 may be provided with a connection 108 leading to the tank 34 and having a control valve 109 therein. This valve 109 may be utilized in conjunction with the control valve 38 to regulate the delivery of liquid from the pump 33 to the chambers 22 through the conduit 35, and is preferably closed so as to prevent by-passing of liquid from the pump to the supply tank when large cans 19 are being filled, so that the valve 38 is used as the sole means of regulation under such conditions of operation. The successive liquid distributing chambers 22 are segregated from each other by partitions 110 which are low enough to clear the nozzle 37 as shown in Fig. 4. All parts are accurately machined to avoid leakage and consequent waste of material,

and the various elements are also freely removable for inspection and cleaning.

During normal operation of my improved receptacle filling machine, and assuming the various parts to have been properly constructed and assembled, the hopper 32 should be supplied with an abundance of legumes such as peas, and the supply tank 34 should likewise be furnished with an abundance of liquid such as brine. The drive shaft 73 may then be operated with the aid of the pulley 77 and clutch 78, to cause the central shaft 13 and the member 20 and can hooks 15 which are associated with this shaft, to revolve about the vertical shaft axis. Before cans 19 are supplied to the machine, the legume measuring pockets 27 will remain idle by virtue of the disconnection of the counter-shaft 44 from the gear 85 as shown in Fig. 6, and the shut-off valve 39 will remain closed as shown in Fig. 5, so that the pump 33 will not be delivering liquid into the conduit 35, but may be delivering a slight quantity of liquid back to the tank 34 past the valve 109. As the feed drum 68 delivers the successive cans 19 to the can hooks 15, each can engages the shoe 91 and pushes the rod 87 outwardly. This outward shifting of the rod 87 causes the roller 95 to disengage the quadrant cam 97, thus immediately making the spring 99 effective to establish a driving connection between the revolving gear 85 and the shaft 44 through the collar 96, thus causing the gears 48, 49 to transmit rotary motion to the lower pocket forming element 28 and from thence to the upper pocket forming element 30. Simultaneously with this rotation of the pockets 27, the rod 87 will also open the shut-off valve 39 as shown in Fig. 4, and depending upon the setting of the gate valve 38, quantities of liquid will be delivered from the nozzle 37 into the advancing chambers 22 located therebeneath. As each pocket 27 passes the hopper discharge opening 53, it receives a measured batch of legumes from the hopper 32, and as the loaded pockets pass over the opening 54 in the plate 24, the measured batches of legumes are deposited by gravity through the corresponding chutes 21 into the cans 19 located below these chutes. Before the legumes are thus delivered into the cans 19, some or all of the liquid deposited into the chambers 22 by the nozzle 37, will have passed through the slots 23 into the can, and these slots serve to prevent sudden delivery of the entire charge of liquid from each chamber 22 so that undesirable splashing will not occur. The cans 19 after having received their charges of legumes and liquid, will be carried beyond the legume discharge opening 54 and will eventually be delivered from the path of travel of the can hooks 15 onto the discharge disk 71 and from thence away from the machine. The same cycle of operations occurs with respect to each can 19, and when no can is in position to receive a measured batch of legumes and a charge of liquid, then the shoe 91 will not actuate the rod 87, so that the pockets 27 will not revolve and therefore cannot deliver material, while the shut-off valve 39 will remain closed and delivery of liquid will likewise be avoided.

From the foregoing detailed description of the construction and operation of my improved machine, it will be apparent that the machine will function to automatically deliver a measured batch of legumes, and a quantity of liquid, to each can 19 as it is advanced around the axis of the

shaft 13. When no can is in place, however, the legume measuring pockets 27 will not revolve, and the valve 39 will remain closed against its seating 104, so that waste of legumes and brine due to the absence of a can 19 is definitely avoided. Each of the successive pockets 27 will be properly filled with legumes from the hopper 32 by virtue of the revolving agitator 66 which positively prevents bridging of the legumes over the hopper discharge opening 53. When the revolution of the pocket 27 ceases, the operation of the agitator bar 66 also ceases. The recess 60 in the housing 31 not only insures uniform filling of the successive pockets 27, but also avoids damaging the legumes at the top of each charge, and the capacity of the pockets 27 may be readily and quickly varied by merely manipulating the hand wheel 58 and thereby raising or lowering the upper pocket forming element 30 relative to the lower element 28. While the hopper 32 and the housing 31 move vertically with the upper element 30, this element rotates whereas the hopper and housing do not rotate. The resilient coupling 47 located in the counter shaft 44 which imparts rotation to the pockets 27, serves to eliminate shock when rotation of the pockets is started, and when the collar 96 is positioned as shown in Fig. 6, this collar which is keyed to the shaft 44 will not rotate until it is again drivingly connected to the bevel gear 85. The gear 85 is, however, constantly revolving upon the bushing 86, when the main drive shaft 73 is operating, so that the driving connection for the pockets 27 can be quickly restored whenever a can 19 is in proper position.

It will also be noted that the main control valve 38 cooperating with the valve 109 in the by-pass conduit 108, serves to effectively regulate the quantity of liquid delivered to each of the chambers 22. When operating on large cans 19, the valve 38 will necessarily be opened to a greater extent than when filling smaller cans, and the effect of the adjustment of the valve 38 at such times will not be as noticeable as when the valve 38 is closed to a greater extent. It is then preferable to close the auxiliary by-pass valve 109, and to depend upon the valve 38 alone for regulation of the liquid quantities. The shut-off valve 39 will be quickly closed by the spring 92 and opened by the successive cans 19 so as to insure proper delivery of liquid to the chambers 22 and to the cans 19, and the elongated slots 23 effectively distribute the successive charges of liquid and deliver the same through the adjoining chutes 21 to the successive cans 19.

As previously indicated, the entire assemblage may be readily assembled and dismantled and can therefore be kept in highly sanitary condition. The improved structure avoids damaging the legumes while insuring accurate pre-measuring thereof, and also reduces waste of materials to a minimum. All bearings are so constructed and positioned that the materials being handled will not be contaminated by lubricant, and the bearings are also readily accessible for lubrication. The improved mechanism is obviously simple, durable and compact in construction, and is entirely automatic and highly dependable in operation. My improved receptacle filling machine has proven highly satisfactory in actual commercial use and may obviously be utilized to handle not only peas and brine, but other similar materials.

It should be understood that it is not desired to limit this invention to the exact details of construction or to the precise mode of use, herein

shown and described, for various modifications within the scope of the claims may occur to persons skilled in the art.

I claim:

1. In combination, a fixed source of material supply, an annular series of material measuring pockets revolvable about an axis and successively communicable with said source, means revolvable about said axis independently of said pocket series for advancing receptacles in succession in a path concentric to said axis in position to receive measured batches of material from the successive pockets of said series and for normally advancing said receptacles together with said pockets in alignment therewith, and means for arresting the revolving movement of said pocket series without stopping operation of said receptacle advancing means when no receptacle is in position to receive a charge.
2. In combination, a fixed source of material supply, a series of material measuring pockets movable past and successively communicable with said source, a like series of material delivery chutes movable simultaneously with said pocket series with each chute of the material delivery series aligned below a pocket of said pocket series, said delivery chute series also being operable independently of said pocket series, means for advancing receptacles in succession with said chute series and in position to receive measured batches from said pockets through said chutes, and means for arresting the movement of said pocket series alone when no receptacle is in position to receive a charge.
3. In combination, a fixed source of material supply, an annular series of measuring pockets revolvable about an axis and being successively communicable with said source, means for advancing receptacles in series about said axis, a series of material delivery chutes revolvable about said axis independently of said pocket series and being formed to deliver measured batches of material from said pockets to said receptacles, and means for arresting the revolving motion of said pocket series alone when the succession of said receptacles is interrupted.
4. In combination, a source of material supply, a series of measuring pockets movable past and communicable with said source, an agitator within said source operable by the movement of said pockets, means for moving receptacles in succession with said pocket series, said receptacle moving means also being operable independently of said pocket series, and means for automatically arresting the movement of said pocket series and of said agitator without stopping operation of said receptacle moving means when no receptacle is in position to receive a measured charge.
5. In combination, a material supply hopper, an annular series of measuring pockets revolvable about an axis and communicable with said hopper, an agitator rotatable within said hopper by the revolution of said pocket series, means for advancing receptacles about said axis in position to receive measured batches of material from said pockets, said receptacle advancing means also being operable independently of said pocket series, and means for automatically arresting the movement of said pocket series and of said agitator without stopping operation of said receptacle advancing means when no can is in position to receive a measured charge.
6. In combination, means for advancing receptacles in succession along a definite path, a series of measuring pockets for solid material movable along said path with and adapted to deliver measured batches of said material to said receptacles, said receptacle advancing means also being operable independently of said pocket series, a constantly operating pump for delivering liquid charges to said receptacles, and means for automatically stopping the movement of said pocket series and for shutting off the delivery of liquid from said pump without stopping operation of said receptacle advancing means whenever the succession of said receptacles is interrupted.
7. In combination, means for advancing receptacles in succession along a definite path, a series of measuring pockets for solid material movable along said path with and adapted to deliver measured batches of said material to said receptacles, said receptacle advancing means also being operable independently of said pocket series, a constantly operating pump for delivering liquid charges to said receptacles, and means for automatically arresting the movement of said pockets and for shutting off the discharge from said pump without stopping operation of said receptacle advancing means whenever no receptacle is in position to receive solid material and liquid.
8. In combination, means for advancing receptacles in succession about an axis, an annular series of measuring pockets for solid material revolvable about said axis with said receptacles and adapted to deliver measured batches of said material to said receptacles, said receptacle advancing means also being operable independently of said pocket series, a constantly operating centrifugal pump for delivering liquid charges to the advancing receptacles, and automatically operable means for simultaneously stopping said pockets and the liquid delivery from said pump without stopping operation of said receptacle advancing means whenever the succession of receptacles is interrupted.
9. In combination, means for advancing receptacles in succession about an axis, an annular series of measuring pockets for solid material revolvable about said axis with said receptacles and adapted to deliver measured batches of said material from said source to said receptacles, said receptacle advancing means also being operable independently of said pocket series, a constantly operating centrifugal pump for delivering liquid charges to the advancing receptacles, and means for automatically arresting the revolution of said pocket series and for stopping the delivery of liquid from said pump independent of the operation of the receptacle advancing means whenever no receptacle is in position to receive material.
10. In combination, a fixed source of material supply means for advancing receptacles in succession about an axis, an annular series of measuring pockets for solid material revolvable about said axis and being successively communicable with said source, an annular series of delivery chutes revolvable about said axis independently of said pocket series, an annular series of liquid distribution chambers revolvable about said axis with said chutes, a pump for delivering liquid to said chambers, and means for arresting the movement of said pockets and for stopping delivery of liquid from said pump to said chambers without stopping operation of said receptacle advancing means whenever the succession of receptacles is interrupted.
11. In combination, means for advancing re-

ceptacles in succession along a definite path, a series of measuring pockets for solid material movable along said path and adapted to deliver measured batches of said material to said receptacles, a like series of material delivery chutes movable along said path independently of said pocket series, a liquid distributing chamber movable with each of said chutes, a pump for delivering charges of liquid to each of said chambers for delivery therefrom through said chutes to said receptacles, and means for arresting the movement of said pockets alone and for stopping the delivery of liquid to said chambers without stopping operation of said receptacle advancing means when the succession of receptacles is interrupted.

12. In combination, means for advancing receptacles in succession along a definite path, a series of measuring pockets for solid material movable along said path and adapted to deliver measured batches of said material to said receptacles, a like series of material delivery chutes movable along said path independently of said pocket series, a liquid distributing chamber movable with each of said chutes, a pump for delivering charges of liquid to each of said chambers for delivery therefrom through said chutes to said receptacles, and means for automatically arresting the movement of said pockets and for simultaneously positively preventing delivery of liquid from said pump to said chambers without stopping operation of said receptacle advancing means when no receptacle is in position to receive material.

13. A can filling machine comprising a fixed source of material supply, an annular series of material measuring pockets revolvable about an axis and successively communicable with said source, means revolvable about said axis independently of said pocket series for advancing the cans in succession in a circular path concentric to said axis in position to receive measured batches of material from the successive pockets of said series and for normally advancing the cans together with said pockets in alignment therewith, and means for arresting the revolving movement of said pocket series and without stopping the operation of said can advancing means when no can is in position to receive a charge.

14. A can filling machine comprising means for advancing the cans in succession along a definite path, a series of measuring pockets for solid material adapted to deliver measured batches of said material to said cans, said series pockets being normally movable together with said cans along said path and said can advancing means being operable independently of said pocket series, a constantly operating pump for delivering liquid charges to said cans, and means for automatically stopping the movement of said pocket series for discontinuing the delivery of solid material to the cans and for shutting off the delivery of liquid from said pump but without stopping operation of said can advancing means whenever the succession of said cans is interrupted.

15. In combination, a fixed source of material supply, an annular series of measuring pockets rotatable about an axis and being successively communicable with said source, means independently rotatable about said axis for successively advancing receptacles in series, in the path of said measuring pockets and in registry there-

with, means for normally continuously rotating said pocket series and receptacle advancing means, and means including a clutch between said pocket series and receptacle advancing means for automatically arresting the revolving motion of said pocket series when the succession of receptacles is interrupted, and without stopping the continued rotation of said receptacle advancing means.

16. In combination, a fixed source of material supply, an annular series of measuring pockets having discharge outlets at the bottoms thereof, said pocket series being rotatable about an axis and being successively communicable with said source, means independently rotatable about said axis for successively advancing receptacles in series, in the path of said measuring pockets, and below said pockets in registry therewith, a horizontally disposed member intermediate said pockets and said receptacle advancing means, said member having an elongated opening extending in the direction of the path of said discharge outlets whereby material may gravitate from the measuring pockets through said opening into the receptacles, said opening being of greater length than the width of said discharge outlets whereby the receptacles travel for a distance in receiving relationship to said pocket discharge outlets, means for normally continuously rotating said pocket series and receptacle advancing means, and means for arresting the revolving motion of said pocket series when the succession of receptacles is interrupted, and without stopping the continued rotation of said receptacle advancing means.

17. In combination, a fixed source of material supply, an annular series of measuring pockets having discharge outlets at the bottoms thereof, said pocket series being rotatable about an axis and being successively communicable with said source, an annular series of material delivery chutes rotatable about said axis independently of said pocket series, and below said pockets in registry therewith, means rotatable together with said chute series for successively advancing receptacles in series in the path of said chutes and in registry therewith, a horizontally disposed member intermediate said measuring pockets and chutes, said member having an elongated opening extending in the direction of the path of said discharge outlets whereby material may gravitate from the measuring pockets through said opening into said chutes and through said chutes into the receptacles, said opening being of greater length than the width of said discharge outlets whereby the chutes travel for a distance in receiving relationship to said pocket discharge outlets, means for normally continuously rotating said pocket series, chute series, and receptacle advancing means, and means for arresting the revolving motion of said pocket series when the succession of receptacles is interrupted, and without stopping the continued rotation of said chute series and said receptacle advancing means.

18. In combination, a fixed source of solid material supply, an annular series of measuring pockets having discharge outlets at the bottoms thereof, said pocket series being rotatable about an axis, and being successively communicable with said source, means independently rotatable about said axis for successively advancing receptacles in series in the path of said measuring pockets below said pockets and in registry there-

with, a horizontally disposed member intermediate said pockets and the receptacle advancing means, said member having an elongated opening extending in the direction of the path of said discharge outlets whereby material may gravitate from the measuring pockets through said opening into the receptacles, said opening being of greater length than the width of said discharge outlets whereby the chutes travel for a distance in receiving relationship to said pocket discharge outlets, a constantly operating pump for delivering liquid charges to the advancing receptacles, means for normally continuously rotating said pocket series, and receptacle advancing means, and means for arresting the rotation of said pocket series and for stopping delivery of liquid from said pump to said receptacles, when the succession of receptacles is interrupted, and without stopping the continued rotation of said receptacle advancing means.

19. In combination, a fixed source of solid material supply, an annular series of measuring pockets having discharge outlets at the bottoms thereof, said pocket series being rotatable about an axis, and being successively communicable with said source, an annular series of material delivery chutes rotatable about said axis independently of said pocket series and below said pockets in registry therewith, a liquid distribu-

tion chamber associated with each of said delivery chutes and communicating with the interior thereof, means rotatable together with said chute series for successively advancing receptacles in series in the path of said chutes and in registry therewith, a horizontally disposed member intermediate said measuring pockets and chutes, said member having an elongated opening extending in the direction of the path of said discharge outlets whereby material may gravitate from the measuring pockets through said opening into said chutes and through said chutes into the receptacles, said opening being of greater length than the width of said discharge outlets whereby the chutes travel for a distance in receiving relationship to said pocket discharge outlets, means for normally continuously rotating said pocket series, chute series and receptacle advancing means, a pump for delivering liquid to said chute liquid chambers and means including a clutch and a valve, for arresting the rotation of said pocket series and for stopping delivery of liquid from said pump to said chute chambers when the succession of receptacles is interrupted, and without stopping the continued rotation of said chute series and said receptacle advancing means.

HENRY MONDLOCH.

CERTIFICATE OF CORRECTION.

Patent No. 2,329,776.

September 21, 1943.

HENRY MONDLOCH.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 5, second column, line 54, claim 9, after "pump" strike out "independent of the" and insert instead --without stopping--; line 55, for "the" read --said--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 7th day of December, A. D. 1943.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.