C. J. CLEAR.

FILLING MACHINE.

APPLICATION FILED NOV. 11, 1919.

1,427,265.

Patented Aug. 29, 1922.

4 SHEETS—SHEET 1.

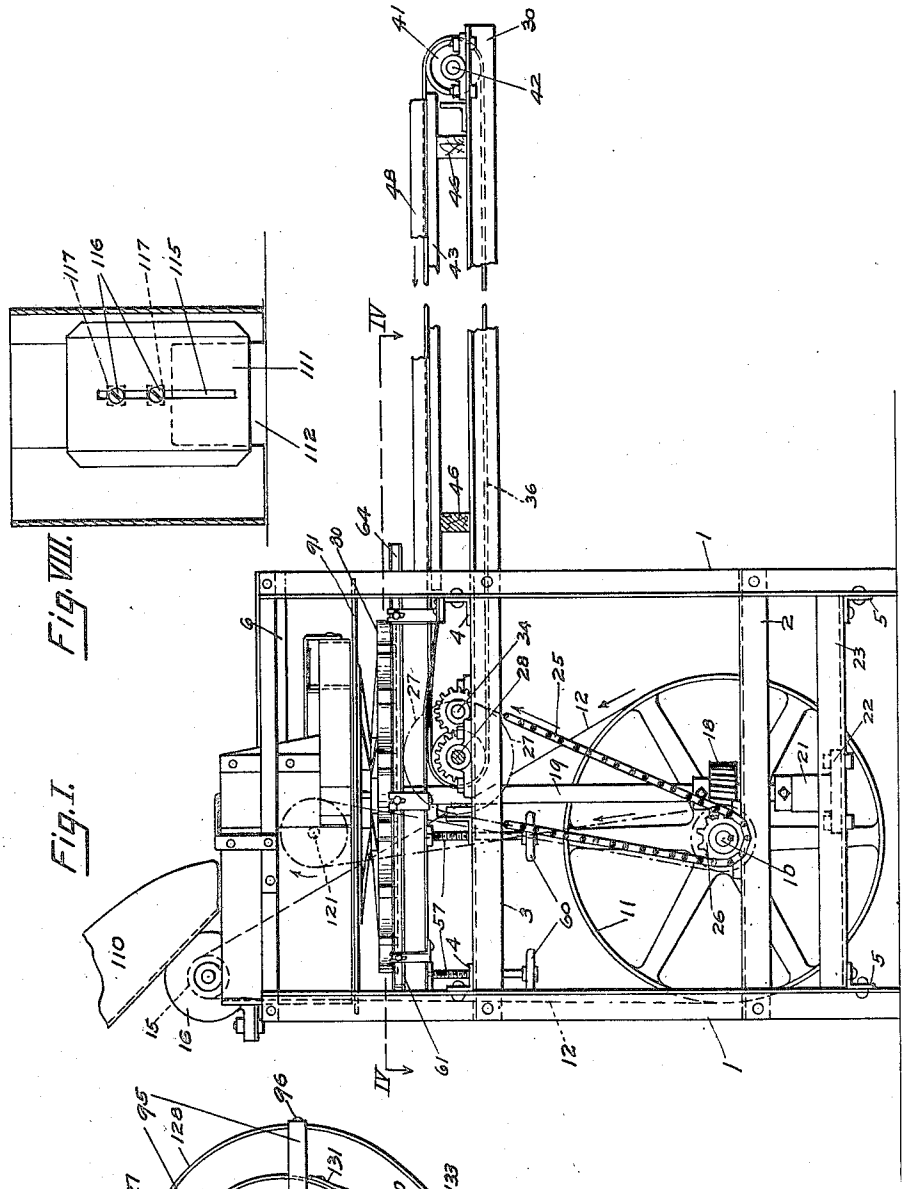


Fig. I.

Fig. VIII.

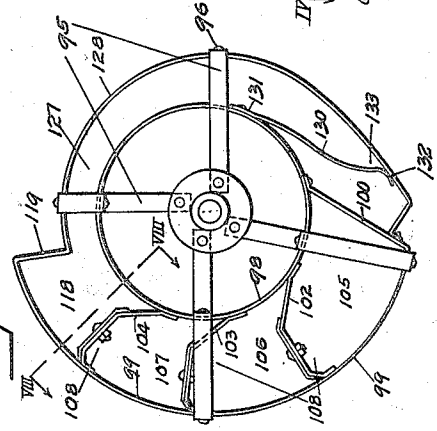


Fig. VII.

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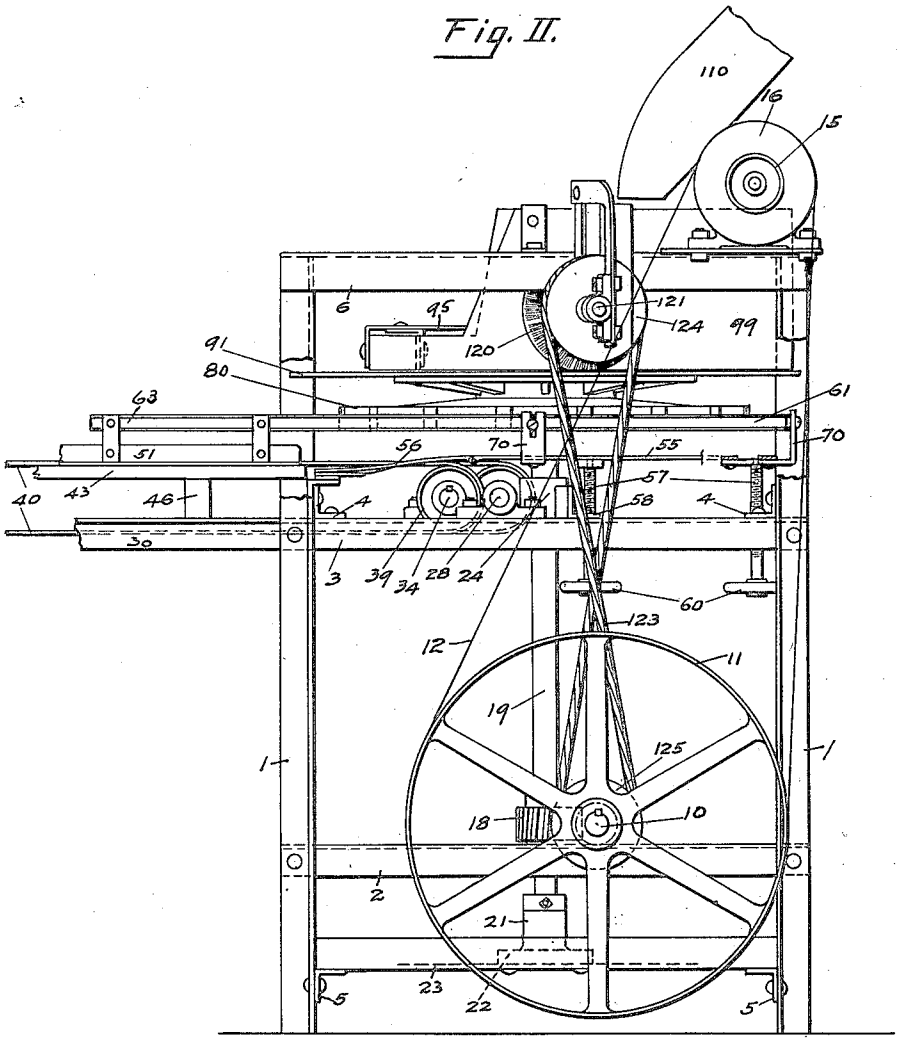
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4 SHEETS—SHEET 2.

Fig. II.



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4 SHEETS—SHEET 3.

Fig. IX.

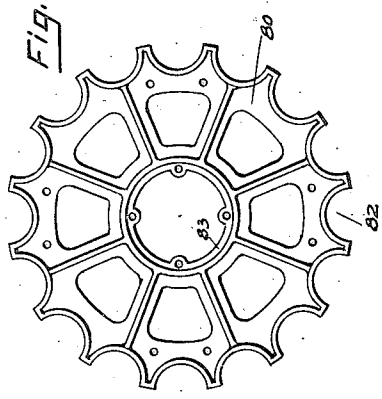


Fig. III.

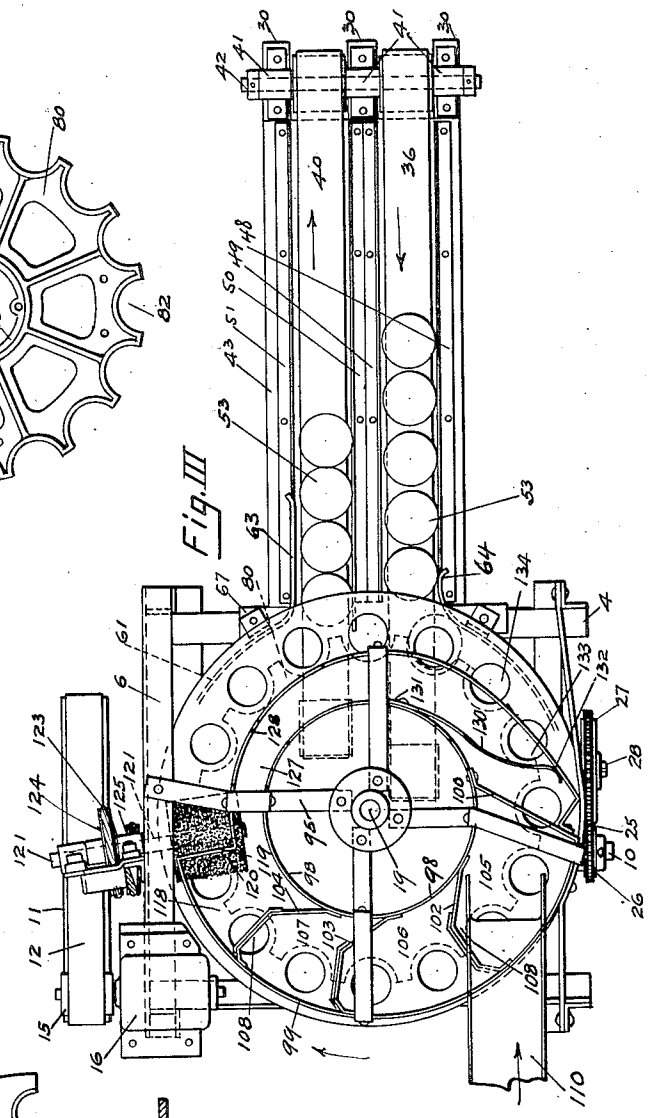


Fig. X.

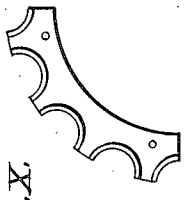


Fig. XI.

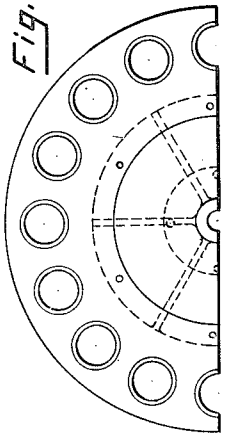
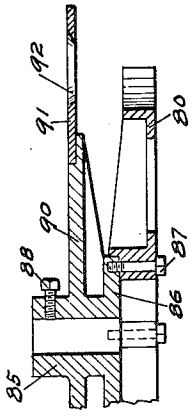


Fig. XII.



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FILLING MACHINE.

APPLICATION FILED NOV. 11, 1919.

1,427,265.

Patented Aug. 29, 1922.

4 SHEETS—SHEET 4.

Fig. VI.

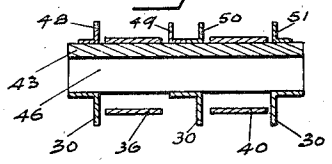
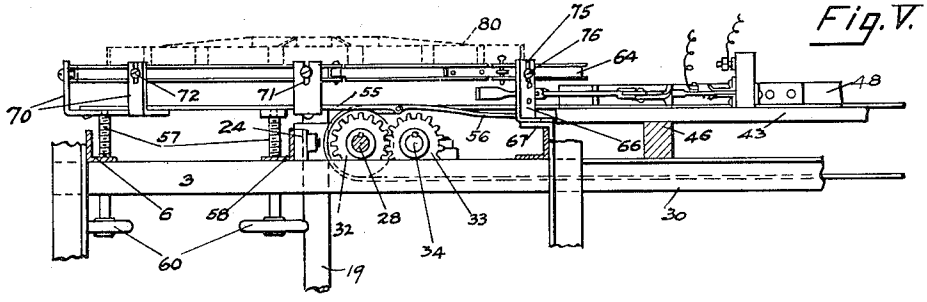


Fig. IV.

Fig. V.



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UNITED STATES PATENT OFFICE.

CHARLES J. CLEAR, OF VANCOUVER, WASHINGTON.

FILLING MACHINE.

1,427,265. Specification of Letters Patent. Patented Aug. 29, 1922.

Application filed November 11, 1919. Serial No. 337,299.

To all whom it may concern:

Be it known that CHARLES J. CLEAR, a citizen of the United States of America, and resident of Vancouver, in the county of Clarke, in the State of Washington, has invented certain new and useful Improvements in Filling Machines, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to improvements in filling machines, and has in view, as one among its various objects, the production of a comparatively simple, economical and completely efficient machine for facilitating and expediting the supplying of small articles to fill packing containers, for example the filling of cans with fruit in cannery service.

The different objects aimed at are arrived at by the employment of various mechanical appliances and combinations of appliances for effecting the same, some of which may be dispensed with for some purposes and others for other purposes; but one object to which all the means employed are designed and adapted to contribute deserves especial mention, and that is to provide means not only for filling most expeditiously, but with substantial uniformity, a succession of containers.

Another very important object is to provide means for effecting a fill in such a manner as not to crush or even so much as bruise any of the individual articles of the fill. In this connection, my invention is of especial utility in the cannng of delicate small fruit, such, for example, as cherries, in which any crushing or bruising of the fruit tends to produce discoloration or other change in the canned article which would detract from its commercial value; but it may also be used to advantage as above indicated, in the packaging of other small articles of any description.

What constitutes my invention will be hereinafter specified in detail and succinctly set forth in the appended claims.

In the accompanying drawings,

Figure 1 is a side elevation of my invention in present preferred form of embodiment, looking towards the intake side of the machine.

Figure II is a similar view, taken from the opposite side of the machine, or towards the discharge side thereof.

Figure III is a top plan view of the complete machine.

Figure IV is a plan section on the line IV—IV of Figure I.

Figure V is a sectional elevation of a portion of the machine taken as on the line V—V of Figure IV.

Figure VI is a section on the line VI—VI of Figure IV made to illustrate in cross section the intake can-conveyor and the discharge can-conveyor in operative assemblage.

Figure VII is a top plan view of the fruit-distributing frame of the machine, detached.

Figure VIII is a section on the line VIII—VIII of Figure VII.

Figure IX is a top plan view of the can-spacing and can-driving member of the machine, detached.

Figure X is a side elevation of a wheel segment adapted to be applied to the wheel shown in Figure IX, in order to adapt it for the accommodation of a different size of can.

Figure XI is a top plan view of one-half of a revolving member which I designate as a fruit distributing and can-filling table.

Figure XII is a sectional view of portions of the subject matter of the Figures IX and XI, respectively in operative assemblage and on a slightly enlarged scale, intended to illustrate clearly the relationship of those parts as well as certain preferred structural details thereof.

Referring to the numerals on the drawings, 1 indicates each of the legs, preferably four in number, which are in any approved manner rigidly assembled with other suitable members, such as cross-pieces 2, 3, 4, 5, and 6, to constitute a preferably rectangular frame of requisite stiffness and stability.

Said frame may be constructed of pieces of angle-iron bolted or riveted together, as above described, substantially, it may be, as illustrated in the drawings, but that is a mere detail and subject at will to any desired variation in the structure or design of the frame.

10 indicates the main driving shaft of my machine which is, as by a pulley 11, connected, as through aid of a belt 12, with the driving pulley 15, of a source of power represented, for example only, by an electric motor 16.

To the shaft 10 is fixed a worm 17 which

meshes with a worm-gear 18 on a vertical shaft 19. The shaft 10 is mounted in suitable bearings as in opposite cross-pieces 2 of the frame, and the shaft 19 is mounted likewise, its lower end being, for example, stepped, as indicated at 21, on a cross-beam 22 extending between opposite cross-pieces 23, and its upper end carried by a bearing 24 in the frame of the machine.

A belt 25, preferably a link belt, operatively connects the shaft 10 as by aid of a sprocket gear 26 on said shaft with a sprocket gear 27 secured to a shaft 28 mounted in suitable bearings provided for it in one of the cross-pieces 3, and parallel bed-rails 30 of the shaft 28. To the shaft 28 is fixed a gear 32 which intermeshes with a corresponding gear 33 fixed to a shaft 34 carried preferably in suitable bearings provided for it on the rails 30. The intermeshing of the gears 32 and 33 is designed to impart from the shaft 28 rotative movement to the shaft 34, but in a reverse direction.

The shaft 28 carries a drum 35, about which passes an endless belt or conveyor 36. The shaft 34, in like manner, carries a drum 39, which in turn carries an endless belt or conveyor 40.

The bed-rails 30 are extended, actually or in effect, to accommodate, within bearings 41 provided upon them, respectively, a shaft 42 which is disposed parallel to the shafts 28 and 34, respectively, and which serves to support, at a suitable distance from the frame of the machine, the return bends of the belts 36 and 40, respectively. Illustration of the matter described in the last sentence is afforded in Figures I and III. The upper stretches of the respective belts 36 and 40 are supported as by a floor 43 that may be carried upon the bed-rails 30 by cross-pieces 46 distributed at such intervals as may be necessary for its support.

Upon the floor 43 I provide, at properly spaced intervals, longitudinal guide rails 48, 49, 50 and 51, which may be conveniently made of pieces of angle iron.

The belt 36 is in practice driven in the direction of the arrow as shown upon it, for example, in Figure IV, and constitutes what is termed, in respect to its function, the intake conveyor of the machine. The belt 40, as the arrow upon it in Figure IV indicates, drives in the opposite direction from that in which the belt 36 drives, and it is termed, in respect to its function, the discharge conveyor of the machine. The conveyor 36, as by the aid of additional mechanism presently to be described, delivers cans individually indicated generally by 53, in regular order of succession, to a circular, stationary track, 55, which is preferably skeletonized to reduce friction between it and the cans passing upon it, and which, in turn, discharges its load of cans to the discharge conveyor 40. In practice a constant succession of containers or cans 53 is, by the conveyor 36, kept advancing towards, and is delivered thereby to, the track 55. Passing around said track, the cans are discharged therefrom in uninterrupted succession to the conveyor 40 which takes them to a convenient place for final discharge from the machine. The track 55 is depressed below the upper stretches of the belts 36 and 40, respectively, the bend of deflection being gradual, as indicated by the numeral 56 in Figure V, for example. The track 55 is supported preferably by vertically adjustable screws 57 threaded into plates 58 provided for them at intervals in convenient disposition upon the frame of the machine. Each screw is provided with means for rotating it, preferably a hand-wheel 60, by which it may be raised or lowered, and whereby the track may be adjusted bodily to different levels and may be trued to position as occasion requires.

The track 55, being circularly concentric to the shaft 19, is provided with an outside guide rail 61 conformable to its shape and disposition. Said rail is provided with deflected terminal wings 63 and 64, which are made to conform, in vertical disposition, to the inner faces of the rails 51 and 48, respectively, and it is supported upon opposite sides of its terminal wings as by brackets 65 and 66 projecting upwardly from a bridge 67. Said bridge is provided for the support of the brackets 65 and 66 upon the frame of the machine and extends across the belts 36 and 40, respectively, between their upper and lower stretches. At convenient and suitable intervals, the track 55 is united to the rail 61 which it supports as by aid of angle plates 70 riveted or otherwise fixed to the track and adjustably secured to the rail as by vertical slots 71 in said plates and set-screws 72 passed therethrough into the rail. The brackets 65 and 66 are likewise provided with vertical slots 75 for reception of adjustment screws 76 let into the guide rail 61.

Fixed to the shaft 19 is a spacing and driving member 80, which is shown detached in Figure IX, and whose relative disposition in assemblage is well shown in Figures III and XII. It consists substantially of a peripherally indented wheel which revolves within the circumference of the rail 61 to whose diameter its own diameter is duly proportioned for the accommodation of its office of spacing and driving cans, which are taken as representative of containers generally. To that end, its outside diameter is substantially equal (provision being made for can clearance) to the diameter of the rail 61, less the transverse

diameter of an individual can 53, the cans, of course, being uniform in size. Each indentation or cup 82 of the member 80 is shaped to conform to the outside of a can, so as in service snugly to fit and hug the same, each can being held within it during the operation of the machine by the circumferential inner face of the rail 61, as is clearly shown in Figure III of the drawings. The engaging face of each cup 82 is, as shown in Figure XII, vertically elongated sufficiently to afford stable support for a can when in engagement therewith.

The details of construction of the member 80, which is substantially wheel-shaped, as specified for example, may be left to the sound discretion and preference of the builder, but the construction at present preferred by me is well shown in Figures IX and XII of the drawings. In Figure X a wheel segment is shown as adapted to be disposed about and assembled with a hub 83, with which the member 80 is preferably provided, the parts being bolted or riveted or otherwise secured, one to another, the purpose being to render the same member 80 adaptable to accommodate different sizes of cans if need be. Having specified that the member 80 is secured to the shaft 19, it is proper to add that that end is preferably attained by the aid of a superposed hub 85 having an annular flange 86, to which the member 80 is fastened as by a ring of tap bolts 87, a set-screw 88 serving to affix said hub directly to the shaft 19. The details of construction last described are well shown in Figure XII of the drawings.

The hub 85 is also provided with spokes 90 which collectively carry an annular plate or table 91 whose extreme diameter is preferably a little greater than that of the rail 61 which, in assemblage, it surmounts and overreaches so as, in effect, to constitute a cover for it.

The table 91 is, in respect to its function, designated as a distributing and gravitational can-filling table. It not only performs at all times the function of a fill-distributing member, as will be hereinafter more fully and in detail explained, but it also performs the distinctive and novel function of taking care of any residual excess of fruit which remains over from the can-filling operation whereunto it contributes, with the effect of ultimately conveying all the fill to the cans.

To capacitate it for the performance of its filling function, the table 91 is provided at regular intervals with preferably shallow, funnel-shaped, openings 92 (see Figure XII) which are substantially equal in diameter to that of the open end or mouth of a can. Consequently, the diameter of each opening 92 is correspondingly less than the transverse diameter of the entire can or, in other words, of a can-containing cup 82, as is indicated in Figure XII. One opening 92 is provided for each cup 82, and they are disposed in vertical co-axial alignment, as Figure XII also clearly indicates, the openings 92 collectively being in series disposed nearer the outer edge of the table 91.

The distance between the top of the track 55 and the bottom of the table 91 is but slightly in excess of the height of a container or can 53, so that in operation each can substantially fills said space, with provision of clearance, and each can, when in place on the track, is over-topped by its individual funnel-shaped opening 92. Such relationship is maintained throughout the travel of each can upon the track 55.

Above the table 91, is supported a stationary fill-distributing frame preferably comprising vertically disposed side walls made of sheet metal whose lower edges are in close operative, but preferably non-contacting, juxtaposition to the face of the table 91 whose perimeter is taken as a measure for its utmost transverse extent, as shown in Figure III.

The fill-distributing frame being of irregular contour and adapted to functionate in at least two distinctive ways may be best designated by reference to its parts. Proceeding accordingly, it is specified that the said frame, which is supported by arms constituting in conjoint effect a spider 95, and severally secured to the frame of the machine, as indicated at 96, preferably comprises a circular wall or inner barrier 98 which is disposed co-axially to the shaft 19, and whose diameter is substantially co-extensive with or rather a little greater than that of the inside diameter of the annulus constituting the table 91.

Adjacent to the outer edge of the table 91 above which the fill-distributing frame is superposed in assemblage, said frame is provided with an outside wall 99, which, in longitudinal extent, is preferably somewhat less than one-half the annular extent of the table 91, as is clearly shown in Figure III of the drawings. In order to contribute to the performance of its filling function, it is believed to be quite important, though not absolutely essential, to dispose the wall 99 in the plane of a spiral about the axis of the shaft 19 instead of co-axially therewith. Consequently, there is, by preference, a slight convergence of the wall 99 towards the wall 98 from its intake end to the opposite end thereof, the convergence referred to being clearly illustrated in Figure III of the drawings.

The space between the walls 98 and 99 above the table 91 is divided by an end-wall 100 and by partition-walls as, for example, 102, 103 and 104, into separate compartments, preferably three in number, to wit, 105, 106 and 107. Each of the walls 102, 103

and 104 is so shaped by convergence of its sides as to constitute, in effect, a pocket whose narrow end, indicated by 108 in each instance, is in width substantially equal to or a little greater than the diameter of a can mouth, as will appear upon reference to Figure III, and each of said walls is disposed preferably in substantially radial disposition to the axis of the shaft 91. The object of the shape and disposition of the pockets or partition-walls above referred to will be better understood if it be borne in mind that the revoluble table 91 constitutes the bottom of the fill-distributing frame now under consideration which is stationary as has been specified. Consequently, when the articles of the fill are deposited into said frame, the movement of the table 91 tends, because of the convergence of the walls 102, 103, and 104, to carry said articles toward the bottom of the said pockets, respectively. The movement of the table 91 is also made to convert each partition-wall 102, 103 and 104 into means for effecting a leveling distribution of the articles upon the floor 91 and then to deliver them into the cans as the latter advance in regular succession and at a uniform, slow rate of speed, substantially in the manner and for the purpose explained below, in the three paragraphs immediately following.

The compartment 105 is the first of the series of three compartments illustrated and receives from a source of supply not illustrated, as through a chute 110, a constant supply of articles of fill in regulated quantity. Of the fill so supplied, a continuing discharge into the cans, one by one as they succeed one another in consequence of the rotation of the table 91, is effected through the relative movement between the table 91 and the partition wall 102, whose convergence serves to collect and pocket the fill towards its end 108, and thence to deliver it into the can below it. In order to provide for an adequate fill supply, it is desirable, and in order to meet all conditions it is essential, that there be at all times present in the compartment 105 a quantity of the fill in excess of the actual demand for delivery, and means of disposal of that excess quantity must be provided for. Accordingly, in each end wall 108, for example that of the partition 102, a vertically adjustable gate 111 (see Figure VIII) is employed. The space between the lower edge of the gate 111 and the top of the table 91, indicated in Figure VIII by the numeral 112, is made to conform to the maximum diameter of the fruit or other fill that is being canned. In practice it is not necessary to limit the fill in the first compartment 105 to one layer, as that may be effected in the subsequent compartments 106 and 107. Exact accuracy of adjustment is, in any case, of course, neither practicable nor is it important, but it is enough that the height of the opening 112 shall be sufficient to effect a leveling of the excess fill toward a single layer upon the table 91. In that disposition the excess fill supply finds, upon passing underneath the gate 111, ample accommodation within the compartment 106. For the vertical adjustment of each gate 111, each is provided with a vertical slot 115 through which are passed screw-bolts 116 that take into apertures provided for them in the wall 108. Washers 117 may be employed to afford convenient means for fixing the gate 111 to any position of adjustment preferred.

It may happen, of course, that both cans, shown for example in Figure III, as disposed between the end wall 100 and the partition-wall 102, are filled by the time they pass under the gate 111 of the wall 102. In that event, the compartment 106 would be functionless so far as regards the can-filling operation; but if not filled, the cans would derive an additional supply in passing underneath the compartment 106; that is to say, between the walls 102 and 103, the wall 103 being provided with a gate corresponding to the gate 111 previously described, and tending, by reason of the presence of its converging side walls, to discharge into each succeeding can.

Again, in passing the partition 103, the surplus fill will be kept distributed towards a single layer through the adjustment of the gate 111 in said partition wall. Any surplusage of fill which passes underneath the wall 103 enters the compartment 107 whose walls functionate substantially in the same manner as do those of the compartment 106, its partition-wall 104 being, like the walls 102 and 103, provided with a fruit distributing gate 111, which does actually reduce the fill to a single layer. In the provision of a series of compartments, three is found a sufficient number to insure practical certainty of filling all of the cans as they advance successively in order. But to insure this, the excess of fill supply must be continued through all of the compartments. Consequently, some part thereof must pass the partition-wall 104 and be carried by the table 91 into the enlarged area 118, that is bounded by the walls 98, 99, and 104 already specified, and by a jog-wall 119 provided as a part of the fill-distributing frame.

Operatively disposed within the area 118, above the table 91, is a sweeper, preferably a rotary brush 120, secured upon an obliquely disposed shaft 121 mounted on the frame of the machine, and driven by the shaft 10 that is operatively connected with the shaft 121 as by a cross-belt 123 passing around pulleys 124 and 125 fixed to the shaft 121 and to the shaft 10, respectively. The obliquity of the shaft 121 may be varied at

discretion to suit different articles of fill upon which the brush 120 is operatively employed.

Through the operation of the brush 120, not only is the fill of each can successively reduced to practical uniformity with that of every other can, but all residual excess-supply of fill, including that, if any, brushed from the top of each can, is gently, in a sweeping operation, rolled or pushed towards the wall 98 of the area 118 upon the smooth, level, and imperforate portion of the table 91 provided for the purpose. Then, in consequence of the continued rotation of the table 91, the said residual fruit or other article is carried into a tail-race 127 defined between the wall 98 and an outside wall 128 with which the fill-distributing frame is still further provided. The distance between the walls 98 and 128 preferably increases as the wall 128 approaches the end-wall 100 of the compartment 105. (See Fig. III.)

The tail-race 127, terminated as above specified by the end wall 100, is provided with a sweep 130, which is preferably a yielding resiliently actuated plate disposed obliquely across the end of the tail-race, being fixed at one end as indicated at 131 to the inner wall 98, and being provided with a snub end 132, which is held by the resiliency of the sweep 130 in contact with the wall 128. It should be observed that the sweep 130, although preferably as described, may be a brush like the brush 120.

By reason of the disposition of the sweep 130 relatively to the wall 128, an angular pocket 133 is formed between said wall and the free end of the sweep and is disposed vertically over the line of travel of the cans upon the track 55, so that each can of the traveling series of cans, as it reaches the position of the can indicated by 134 in Fig. III, passes underneath said pocket and receives therefrom any intake of the residual excess of fill supply that may be accumulated in the tail-race. In the operation of the machine there is, into the tail-race, a constant, though comparatively scanty, influx of fill, and the accumulation so afforded, the constant succession of cans or containers is effective to receive and carry away.

In order to insure the uninterrupted operative efficiency of the machine and to provide against the possibility of the waste of the fill as well as the loss of time which might result from any interruption of the constant succession of cans that might occur in consequence, for example, of the omission in series of a single can, I provide stop mechanism, for example, an automatic electric switch mechanism for instantly arresting the operation of the machinery in case a break in the succession of cans should occur. Such mechanism, in present preferred form of embodiment, is shown particularly in Figures IV and V, to which reference is now made. Before proceeding, however, to a description of the stop mechanism, it may be observed that the succession in series of the cans or containers which it is important to keep unbroken is that which extends from the point of delivery from the conveyor 36 to the indented wheel 80. Before the cans enter into engagement with the cups 82 of said wheel and after they pass underneath the brush 120, any break in the succession of cans is one that may be easily rectified by an attendant, or one that does not directly affect the operation of the machine as a whole. Under those conditions, it is sufficient to provide, in proximity to the point at which delivery from the conveyor 36 to the wheel 80 is made, a lever 135 which is designed and adapted to operate at once as a tell-tale and as an actuator to the stop mechanism. It is pivoted as indicated at 136 to a supporting member, for example the bracket 66. (Compare Figures IV and V.) Its free end 137 is bent or spoon-shaped so as to ride smoothly against the outer surface of a supporting can distinctively indicated in Figure IV by the numeral 138, it being observed that each can of the series successively assumes the position indicated by the can 138. The end of the lever 135 opposite to the end 137 is shown in the specific example of stop mechanism given as operatively connected as by a link 140 to a lever 141 that is pivoted, as indicated at 142, to a lever-support 143, the link 140 being pivoted at its opposite ends to the lever 135 and to the lever 141, respectively. The end 145 of the lever 141 works with a certain freedom of oscillation between adjustable stop-pieces 146 and 147 upon a longitudinally movable rod 148, constituting a circuit breaker, mounted, for example, in a bearing-plate 149, and in the lever-support 143, respectively. The said stop-pieces may consist of two nuts threaded to the rod 148, each having a jam-nut for holding it in place.

In the specific form of stop-mechanism shown, 150 indicates one contact member and 151 another contact member of an electric switch whose conjunction makes electric circuit between leads 152 and 153 that are in circuit with the electric motor 16, and whose separation breaks circuit through the same. A contractile spring 155 secured at one end to the lever 141 between its fulcrum 142, and its end 145 and at the other end to the plate 149 imparts a constant pull upon the end of the lever 141 to which it is attached, in the direction of the stop-piece 146 upon the rod 148. That pull the presence of the can 138 effectually resists, because its surface supports the end 137 of the lever 135 against the tension of the spring 155. A certain vibration of the lever 135,

which communicates the oscillation to the end 145 of the lever 141 above alluded to, occurs as the bent end 137 of the lever undulates between succeeding cans in series traveling upon the track 55 towards the position of the can 138; but such oscillation of the end 145 is accommodated between the stop-pieces 146 and 147 and produces no operative effect upon the rod 148. If, however, support for the end 137 of the lever 135 be removed, as it would be in consequence of the absence of a single can in series at the point occupied by can 138, the lever 135, under the actuation of the spring 155, would drop into the space made vacant in the series of cans by the absence of the can 138. Thereupon the end 145 of the lever 141 would drive with forcible impact against the stop-piece 146, and causing the rod 148 to shift with endwise movement, would separate the switch contacts 150 and 151, and break circuit through the leads 152 and 153.

Instant arrest of the motion of the machinery is effected by the interruption of the circuit. Thereupon the can 138 being supplied by an attendant, operation of the machine may proceed as before.

If other driving power than electricity be used, the lever 135 may still be employed as a prime-mover to actuate any suitable stop mechanism that may be used instead of the electric switch.

It should be observed that the fill of the containers, or, specifically, cans 53 is measured by the vertical adjustment of the track 55 and ultimately by the distance between the functioning periphery of the brush 120 and each can mouth. Wherefore, the shaft 121 of the brush 120 may be made vertically adjustable, so as to maintain the desired level of fill in the cans or containers.

Another important feature of my machine to be noted is that it makes provision for a fill supply of indeterminate quantity and out of that supply effects a withdrawal in measured quantities into containers, by providing for constant return of any residue of the fill into the body of the main fill supply. By this means a cycle of operation is maintained that is continuous and uninterrupted.

What I claim is:

1. In a filling machine, the combination of means for delivering containers in regular order, a track for receiving the containers from said delivery means, means for moving the containers in regular order over said track, a movable table above said track having a series of filling openings, said container moving means being adapted to move the containers with each container constantly in registry with a filling opening until it has been filled, and a stationary fill-distributing frame above said table, said frame having a plurality of compartments having communicating openings, and means for directing any surplus fill from the final compartment to fill openings approaching the first compartment of the series without removing material from the table.

2. In a filling machine, the combination of means for delivering containers in regular order, a vertically adjustable track for receiving the containers from said delivery means, means for moving the containers in regular order over said track, a movable table above said track having a series of filling openings, said container moving means being adapted to move the containers with each container constantly in registry with a filling opening until it has been filled, and a stationary fill-distributing frame above said table, said frame having a plurality of compartments having communicating openings, means for adjusting the size of said openings, and means for directing any surplus fill from the final compartment to fill openings approaching the first compartment of the series without removing material from the table.

3. In a filling machine, the combination of means for delivering containers in regular order, a track for receiving the containers from said delivery means, means for moving the containers in regular order over said track, a movable table over said track having an endless series of filling openings, said container moving means being adapted to move the containers with each container constantly in registry with a filling opening until it has been filled, and a stationary fill-distributing frame above said table forming a hopper for which said table forms the bottom, a plurality of compartments in said frame having communicating openings, the fill being delivered initially to only one of said compartments, all of said compartments being disposed over said series of fill openings, and a final raceway in said hopper for which said table forms a bottom adapted to receive surplus fill from the last of said compartments and to direct the surplus fill as it is carried by said table to the fill openings of the table approaching the first compartment, a portion of said raceway being positioned to one side of said series of fill openings and over an imperforate portion of said table.

4. In a filling machine, the combination of means for delivering containers in regular order, a track for receiving the containers from said delivery means, means for moving the containers in regular order over said track, a movable table over said track having an endless series of filling openings, said container moving means being adapted to move the containers with each container constantly in registry with a filling opening until it has been filled, and a stationary fill-distributing frame above said table forming a hopper for which said table forms the bot-

tom, a plurality of compartments in said frame having communicating openings, the fill being delivered initially to only one of said compartments, all of said compartments being disposed over said series of fill openings, a final raceway in said hopper for which said table forms a bottom adapted to receive surplus fill from the last of said compartments and to direct the surplus fill as it is carried by said table to the fill openings of the table approaching the first compartment, a portion of said raceway being positioned to one side of said series of fill openings and over an imperforate portion of said table, and a sweep in the last compartment directing the material into said raceway.

5. In a filling machine, the combination of means for delivering containers in regular order, a track for receiving the containers from said delivery means, means for moving the containers in regular order over said tracks, a movable table over said track having an endless series of filling openings, said container moving means being adapted to move the containers with each container constantly in registry with a filling opening until it has been filled, and a stationary fill distributing frame above said table forming a hopper for which said table form the bottom, a plurality of compartments in said frame having communicating openings, the fill being delivered initially to only one of said compartments, all of said compartments being disposed over said series of fill openings, a final raceway in said hopper for which said table forms a bottom adapted to receive surplus fill from the last of said compartments and to direct the surplus fill as it is carried by said table to the fill openings of the table approaching the first compartment, a portion of said raceway being positioned to one side of said series of fill openings and over an imperforate portion of said table, a sweep in the last compartment directing the material into said raceway, and a second sweep in said raceway adapted to move the surplus fill thereon radially of the table to a position over the openings in the table that are approaching the first compartment.

6. In a filling machine, the combination with driving mechanism of a container spacing and driving member, a container filling mechanism comprising a movable table provided with openings adapted to register with containers placed beneath said openings and moved by said driving member in synchronism with said containers, a super-posed stationary fill-distributing frame divided into a plurality of compartments, the compartments having communicating openings, means for adjusting the size of said openings, said table constituting a bottom for said fill-distributing frame, a portion of the frame being adapted to direct the surplus fill from the last compartment around the table to the openings approaching the first compartment without removing the fill from the table.

In testimony whereof, I have hereunto set my hand in the presence of two subscribing witnesses.

CHARLES J. CLEAR.

Witnesses:
JOSEPH L. ATKINS,
LEICESTER B. ATKINS.