C. DROLET, Sr.

RECEPTACLE FILLING MACHINE.

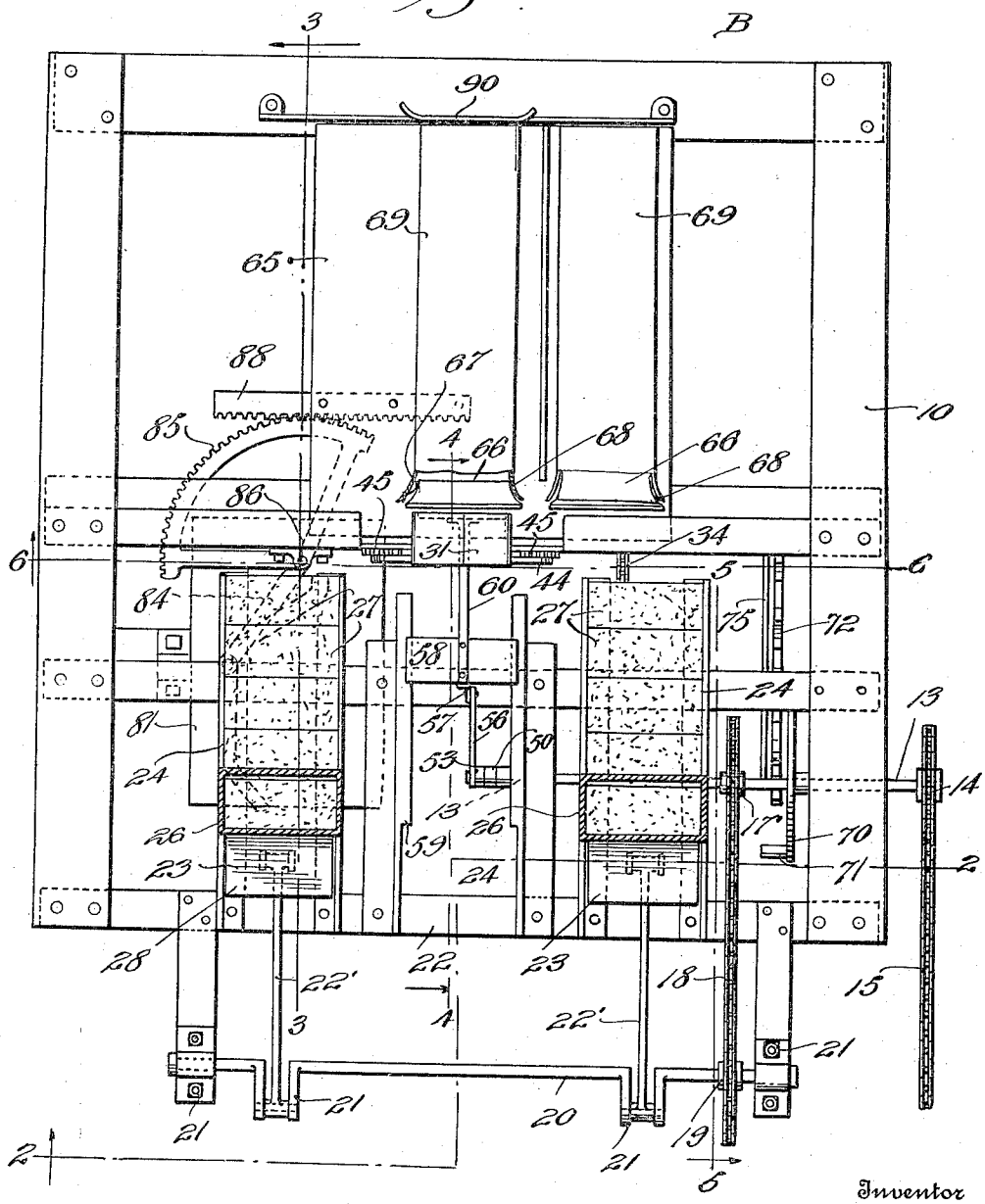
APPLICATION FILED DEC. 13, 1916.

1,228,416.

Patented June 5, 1917.

4 SHEETS—SHEET 1.

Fig. 1.



Inventor

Charles Drolet Sr.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

C. DROLET, SR.

RECEPTACLE FILLING MACHINE.

APPLICATION FILED DEC. 13, 1916.

1,228,416.

Patented June 5, 1917.

4 SHEETS—SHEET 2.

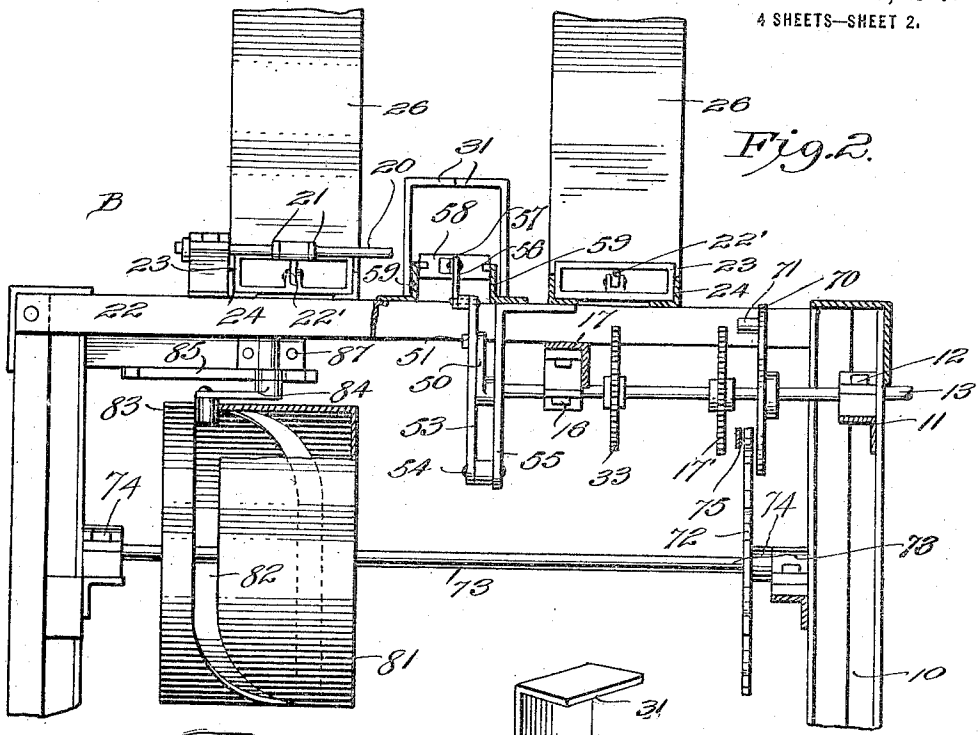


Fig. 2.

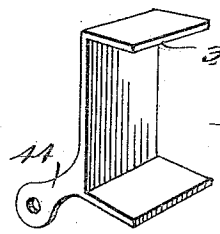


Fig. 10.

Fig. 3.

Inventor

Charles Drolet Sr.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

C. DROLET, Sr.

RECEPTACLE FILLING MACHINE.

APPLICATION FILED DEC. 13, 1916.

1,228,416.

Patented June 5, 1917.

4 SHEETS—SHEET 3.

Fig. 4.

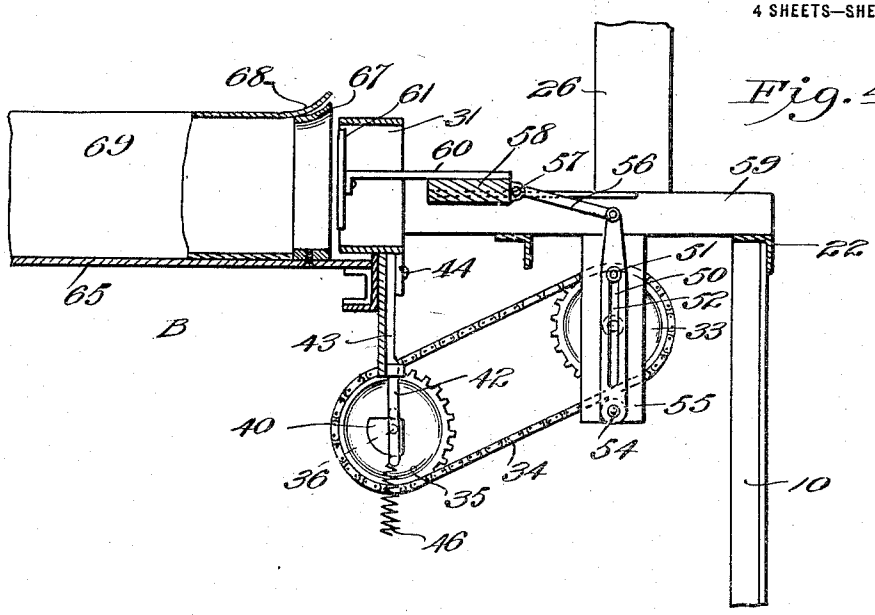


Fig. 5.

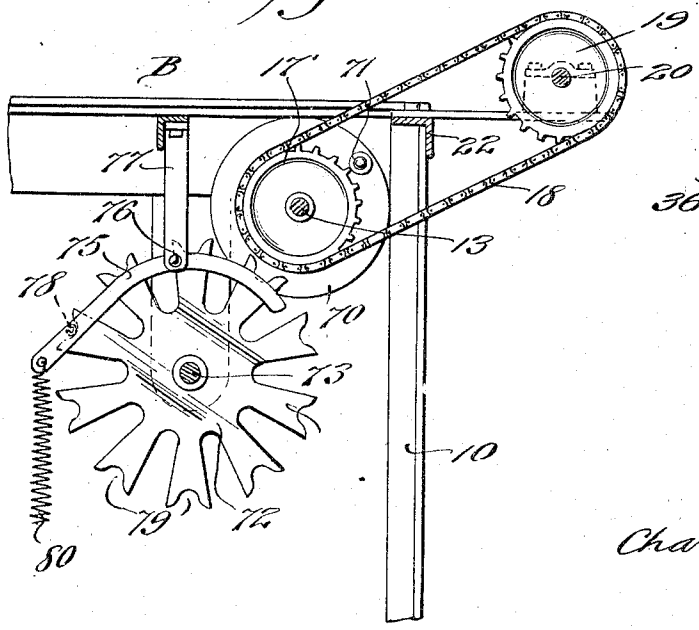
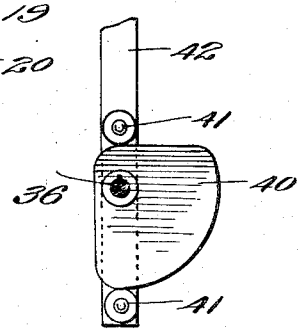


Fig. 9.



INVENTOR

Charles Drolet Sr.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

C. DROLET, SR.

RECEPTACLE FILLING MACHINE.

APPLICATION FILED DEC. 13, 1916.

1,228,416.

Patented June 5, 1917.

4 SHEETS—SHEET 4.

Fig. 6.

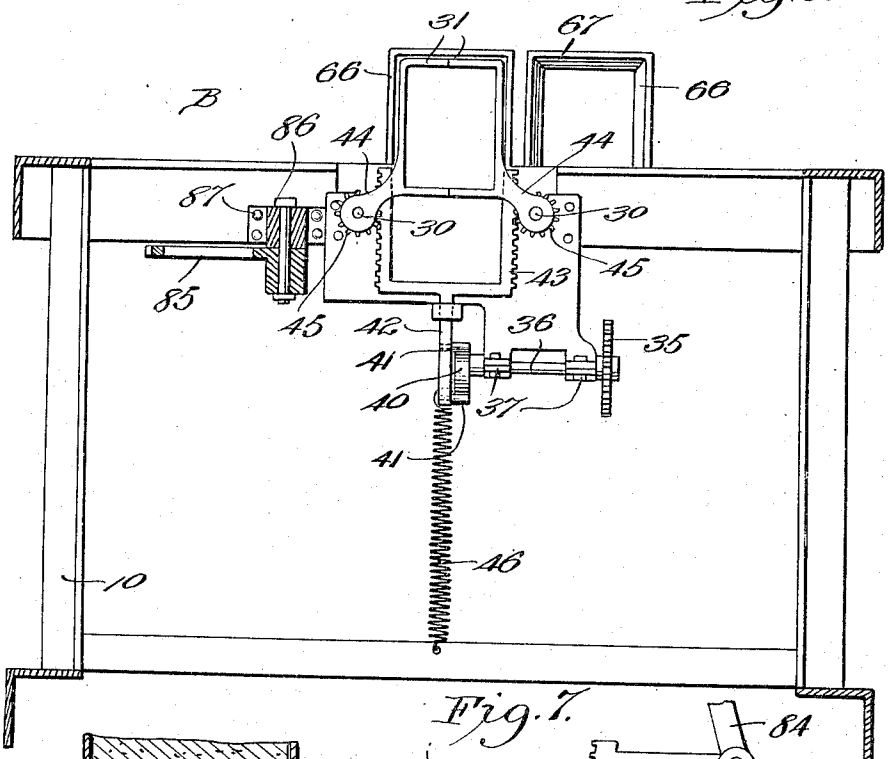


Fig. 7.

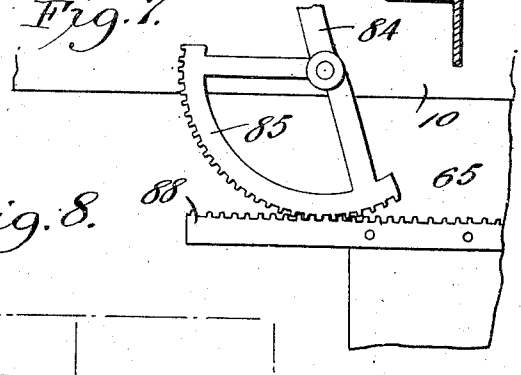


Fig. 8.

Inventor

Charles Drolet Sr.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES DROLET, SR., OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO FELS AND COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

RECEPTACLE-FILLING MACHINE.

1,228,416. Specification of Letters Patent. Patented June 5, 1917.

Application filed December 13, 1916. Serial No. 136,654.

To all whom it may concern:

Be it known that I, CHARLES DROLET, Sr., a citizen of the United States of America, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Receptacle-Filling Machines, of which the following is a specification.

This invention relates to packing machines, and has for an object to provide a machine which will efficiently and expeditiously accomplish the function of packing various articles of merchandise into suitable containers or receptacles.

Another object resides in a packing machine primarily adaptable for use in soap manufacturing establishments, wherein is provided means for assembling and packing bars of soap into suitable shipping and handling receptacles.

A further object thereof is to accomplish the above set forth function in a purely mechanical manner so as to practically eliminate the element of manual labor hitherto involved in fulfilling this result.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts, which will be hereinafter fully set forth and pointed out with particularity in the annexed claims.

In the drawings

Figure 1 is a top plan of the packing machine comprising the present invention, parts having been shown in section to disclose the underlying structure.

Fig. 2 is a vertical sectional view taken along the line 2—2 of Fig. 1.

Fig. 3 is a transverse sectional view, the plan of which being disclosed by the line 3—3 of Fig. 1.

Fig. 4 is a similar view taken along the line 4—4 of Fig. 1.

Fig. 5 is a transverse sectional view on the line 5—5 of Fig. 1, taken in the direction indicated by the arrow.

Fig. 6 is a vertical sectional view, taken along the line 6—6 of Fig. 1, disclosing more particularly the carrier operating mechanism.

Fig. 7 is a fragmentary bottom plan view setting forth the receptacle table and its controlling means.

Fig. 8 is a detailed view, disclosing the mechanism for effecting the release of soap from the magazine structure.

Figs. 9 and 10 are detail views of the machine.

Similar characters of reference denote corresponding parts throughout the several views of the drawings.

In order that the aims and achievements of the present invention may be more fully understood, it is advisable to state at this juncture that in the soap manufacturing industry it has usually been the common practice to pack soap into the usual cartons or receptacles through the agency of manual labor, that is, by hand. This method, it will be obvious, is not efficient, and is naturally slow inasmuch as it necessitates in large plants the employment of considerable labor, and materially adds to the overhead cost of manufacturing the product. Therefore, in order to reduce this expense, and at the same time to more expeditiously accomplish this result, I employ a relatively simple, yet efficient machine for automatically packing soap and similar merchandise into a receptacle. The machine in its preferred embodiment has been illustrated in the accompanying drawings, and its operation and construction will be fully set forth in the following description. However, while it has been specifically stated that the machine is employed for soap packing purposes, it will, of course, be appreciated that the same may be placed into other similar uses, and such analogous uses of the invention is contemplated by this application. Referring more particularly to the details of improved packing machine, the same will be indicated in its entirety in the accompanying drawings by the letter "B." The machine in this instance, consists of a metallic frame 10, having substantially cubical outlines; the frame may be of any suitable size or construction, but generally comprises a braced angle-iron structure, which imparts to the frame a desired degree of strength, lightness and durability with economy of manufacture. Upon one of the angle-irons 11 of the frame is a bearing 12 in which is journaled the outer

extremities of a power receiving shaft 13, the latter having a sprocket wheel 14 secured to its outer end, a chain 15 passes over the sprocket wheel, and is adapted to extend to any suitable source of power (not shown), in order to effect the rotation of the shaft 13. Incidentally, other equivalent means may be resorted to in order to revolve the shaft 13, as will be clearly understood. The opposite end of the shaft 13 is journaled and supported within a second bearing 16, secured to and depending from an angle bar 17, forming a part of the frame 10.

Rotatable with shaft 13 is a second sprocket wheel 17', over which is trained an endless chain 18 which extends to a sprocket 19, keyed or otherwise secured to a crank-shaft 20, the latter being revoluble in bearings 21 protruding from an upper cross bar 22 of the frame 10. Thus, it will be seen that the rotation of the shaft 13 will impart synchronous movement to the crank-shaft 20. Said crank-shaft is formed with parallel crank portions 21, to which are secured the outer extremities of reciprocating or connecting links 22', the latter having their inner extremities swiveled to reciprocating pushing plates 23 whereby the rotation of the crank-shaft will impart a back and forth movement to the pushing plates. The plates 23 are movably positioned within fixed soap receiving guides 24 mounted upon the frame 10, said guides being located in parallel relation and disposed on opposite sides of the center line of the machine.

Soap is deposited upon the guides 24 through the medium of magazines 26, which are positioned directly above the guides 24 and are adapted to receive a plurality of bars of soap 27, the soap being placed within the magazines and is fed downwardly toward the guides 24 by gravity. Attention is directed to the action of the pressing plates 23, which are adapted to reciprocate upon the rotation of the crank-shaft 20. The plates are provided with shelf portions 28, which are adapted to cover the open lower extremities of the magazines 26 when the plates are advanced to their innermost positions so as to support the body of soap contained within the magazines. However, when the plates are withdrawn, the shelf portions 28 will lie outside of the magazines 26, thus permitting a single cake of soap to be deposited by each magazine upon their respective guides 24, and this soap will be moved forwardly or inwardly along said guides upon the next inward operation of the pressing plates. It will thus be seen that there is provided mechanism for intermittently controlling the admittance of soap or the deposit thereof upon the guides and for advancing the soap by stages of steps along said guides. It will be appreciated that numerous methods may be devised for effecting the feeding of soap to the machine. The magazine structure 26 which has been disclosed is merely used for purposes of illustration; that is, if convenient, the soap may be placed by hand upon the guides 24 or may be formed a part or a continuation of a soap wrapping machine (not shown).

Immediately adjacent to the inner extremities of the guides 24, there is pivotally mounted, as at 30 to the frame 10, a plurality of what will be termed for purposes of description carrier elements 31, which are employed to conduct soap from the guides to a position in contiguity with soap receiving receptacles to be hereinafter described. The carriers normally assume the horizontal position in direct alinement with each of the guides 24, so that soap pushed off of said guides by the action of the plates 23 will be caught within the substantially U-shaped carriers 31. Means have been provided, when the plates 23 are being withdrawn, to conduct the soap from this horizontal position to a substantially vertical position. To this end, the shaft 13 is provided with a sprocket 33, over which is trained a chain 34, which leads to a similar sprocket 35 mounted upon a cam shaft 36. The shaft 36 is rotatably mounted in bearings 37 pending from the frame 10, thus the rotation of the shaft 13 will impart similar movement to the cam shaft through the medium of the chain connection disclosed.

Secured to one extremity of the shaft 36 is a cam 40 which operates between rollers 41 fixed upon a vertically extending arm 42, integrally formed with a U-shaped rack element 43. The carrier elements 31 are provided with off-set arms 44, to which are fixed pinions 45 which are adapted to mesh with the rack element 43 so that the rotation of the pinions will result in revolving the carriers 31 from either a horizontal position to a vertical position or vice versa. A coiled spring 46 is connected with the arm 42 and with a part of the frame 10 and normally serves to regulate the movement of the carriers, that is to assist in retaining the carriers in their several positions.

The inner extremity of the shaft 13 is provided with a crank 50 which carries at its outer end a roller 51, said roller being operable in a slot 52 formed in an oscillating arm 53, the latter being pivoted as at 54 to a depending bracket 55 secured to the frame 10. Thus the rotation of the crank 50 will impart an oscillating movement to the arm 53, and it will be noted that by the position of the roller 51 within the slot 52 of the arm that the forward or inward movement of the oscillating arm will be relatively slow but that the return or outward movement of the arm will be relatively fast, by virtue of the location of the roller with respect to the pivotal point 54 of the oscillating arm.

Pivotally connected to the upper extremity of the arm 53 is a throw rod 56, which extends inwardly and is pivotally connected as in 57 to a pressing plate 58, the latter being mounted for reciprocating between fixed guides 59 which are secured to the frame 10. Rigidly connected with the plate 58 is an extension 60 which has its inner extremity fixed to an ejecting plate 61, the plate 61 being adapted to enter the carrier elements 31 and to traverse their thickness, when said elements are in a vertical position, so that the soap carried by said carrier elements will be discharged therefrom into other mechanism to be hereinafter described, so that the carriers may again resume their horizontal positions for the reception of soap discharged from the guides 24. Fixed upon a movable receptacle receiving table 65 are a plurality of soap guiding frames 66, which are alternately positioned immediately adjacent to the carriers 31 when the latter are in their vertical positions and the frames 66 are adapted to receive the soap immediately after the same is ejected from the carriers the sides of the frame 66 are slightly flared as at 67 to receive the folding wings 68 of suitable receptacles or cartons 69 into which soap is adapted to be packed. It will be noted that the table 65 is adapted to receive a plurality of the receptacles 69, this being done in order that after the filling of one receptacle, an empty receptacle may be substituted in place of the filled one in an automatic manner, so that the removal of the filled receptacle may be facilitated as well as the insertion of an empty one. The movement of the table 65 is effected by providing the shaft 13 with a roller carrying plate 70 which plate carries a single roller or an equivalent 71. The roller 71 is adapted to engage with a star wheel 72 keyed upon a shaft 73 journaled in bearings 73'. Thus every complete cycle of movement on part of the plate 70 will result in rotating the star wheel 72 a distance equal to the space between each of the toothed elements 74 comprising the star wheel. It will be clearly understood that this movement will be correspondingly imparted to the shaft 73. While not engaged by the roller 71, the wheel 72 will remain locked against rotation, this being accomplished through the provision of a lever 75 pivotally mounted as at 76 upon a fixed bracket 77. Portions of the lever 75 are arranged to be in the path of movement of the roller 71 so that when the roller strikes the lever, the same will be oscillated about its pivot 76. The opposite end of the lever 75 is provided with a fixed stud 78 which is adapted to engage with the notches 79 formed in the toothed elements 74 of the star wheel, and the retention of the studs within the notches 79 is insured by having the lever 75 connected with a contractile spring 80. Fixed to the intermittently rotatable shaft 73 is a cam element 81 in the periphery of which is formed a cam slot 82 and operable in the slot 82 is a roller 83 carried by the outer extremity of a fixed arm 84, the arm 84 being integrally formed with a rack segment 85. Said segment is pivotally secured to the frame 10 through the agency of a bolt 86 passing through the bearing 87 mounted upon said frame. It will thus be seen that the oscillation of the segment 85 will be regulated in accordance to the position of the roller 83 within the slot 82. The table 65 is provided with a horizontally extending rack bar 88, the teeth of which being adapted to mesh with the segment 85, thus the movement of the cam element 81 will directly control the position of the table 65 upon the frame 10, that is the table 65 will be alternately reciprocated by the element 81 so that the frame 66 may be positioned in alinement with the carriers 32, when the latter are in a vertical position. The frames 66 are provided in order that the receptacle 69 may be readily positioned upon the reciprocating table 65 and positioned in back of one of the receptacles, and carried by the table 65, is a holding plate 90, said plate being employed to prevent the receptacle from slipping when soap is being inserted therein. The table 65 is adapted to accommodate a plurality of receptacles in order that the packing process may be expeditiously accomplished; that is when a receptacle is being filled, an empty receptacle may be placed in position, so that when the first named receptacle has been entirely filled to its capacity with soap, an empty one may be substituted in place thereof by the automatically shifting table 65. This action permits the filled receptacle to be removed from the machine in order that an empty receptacle may be substituted in its place.

From the foregoing, it will be apparent that there has been provided mechanism in which the objects of this invention have been achieved, and all of the advantageous features above mentioned are, among others, present. The machine is relatively simple in construction, of comparatively few parts and positive and reliable in operation. The timing of the movements of the various parts may be readily controlled so that their operation at proper periods will be insured. The invention is presented as including all such modifications and changes as properly come within the scope of the following claims:

With regard to the operation of the machine, it is thought that the following succinct remarks relative to the general mode of operation thereof, will be clearly understood. Uniform size bars of soap, contained

by the magazines 26, are intermittently discharged from the latter and are deposited upon the guides 24 by the action of the reciprocatory plates 23, which also serve to advance the soap along the guides and to ultimately deposit the same upon the oscillatory carrier elements 31. After receiving the guide discharged soap, the carriers are revolved to assume a vertical juxtaposed position this being effected by the action of the mechanism 40 and 43 and their coöperating elements, in order that soap supported thereby will be positioned within the path of movement of the reciprocating ejecting plate, when the latter element travels inwardly. Thus when the ejecting plate 61 engages with the carrier supported soap, the latter will be thrust out of the carrier elements and forced into the packing carton 69, carried by the movable table 65 and located in alinement with the plate 61. After said carton has been filled to its capacity, the table 65 is shifted, through the agency of the cam and segment mechanism 81 and 85, respectively, so that the removal of the soap filled carton from the machine may be readily accomplished by an attendant, and to, also, permit of the substitution of a carton in place of the filled one, these functions being performed while the machine is in active operation.

Having described the invention what is claimed as new and patentable, is—

1. In a packing machine, the combination with an article receiving frame, of means for intermittently discharging articles from said frame, a movable carrier operable to receive frame discharged articles, means for moving said carrier and an article carried thereby to a position in communication with an article receiving receptacle, and means for ejecting an article from the carrier into the said receptacle.

2. In a packing machine, the combination with an article receiving frame, of means for supplying articles to said frame, mechanism for discharging said articles from the frame at intermittent periods and to deposit the same upon a movable carrier, mechanism for moving said carrier and an article carried thereby to a position substantially in alinement with an article receiving receptacle, and means for ejecting the article from the carrier into said receptacle.

3. In a packing machine, the combination with an article supplying magazine, of means for intermittently discharging articles from said magazine upon a frame carried guideway, mechanism for effecting the discharge of articles from said guideway upon an oscillating carrier at intermittent periods, means for revolving said carrier and an associated article to a position substantially in alinement with an article receiving container, and means for ejecting an article from the oscillating carrier into said container.

4. In a packing machine, the combination with a plurality of article receiving guides of means for intermittently advancing articles along said guides and for effecting a discharge of the articles therefrom, of a plurality of oscillating carriers operable when in a substantially horizontal position to receive articles discharged from said guides, means for revolving said carriers and associated articles to an approximately vertical position whereby said carriers will be substantially juxtaposed, and a reciprocating mechanism for ejecting said articles from the carriers into a receptacle when the carriers are in said vertical position.

5. In a packing machine of the class described, the combination with a plurality of soap containing magazines, of guides located beneath said magazines and adapted to receive soap discharged from said magazines, reciprocating pressing elements opable to advance soap along said guides and to intermittently discharge the soap therefrom, of a plurality of oscillating carriers coöperating with the said guides and adapted to receive soap after the latter is ejected from said guides, means for revolving said carriers and associated soap into contiguous vertical relation, and a plunger for expelling the soap for said carriers into a container, when the soap is in the last mentioned position.

6. In a soap packing machine, the combination with a frame, of a power shaft journaled in said frame, a crank-shaft driven by said power shaft, soap guides mounted upon said frame, reciprocating pressing elements connected with said crank shaft and adapted to advance and discharge soap along and from said guides, oscillating carriers coöperating with said guides in order to receive soap discharged therefrom, means for revolving said carriers and soap carried thereby to a substantially vertical and juxtaposed position, a receptacle carrying table, means for ejecting soap from said carriers when the latter are in said vertical position into a receptacle carried by a said table.

7. In a soap packing machine, the combination with a frame, of a power shaft journaled in said frame, a crankshaft driven by said power shaft, soap guides mounted upon said frame and adapted to receive a quantity of soap, means for intermittently ejecting soap from said guides, oscillating carriers coöperating with said guides and adapted to receive said soap discharged therefrom, means for revolving said carriers and soap carried thereby to a substantially vertical and juxtaposed position, a movable receptacle carrying table, means for ejecting soap from the vertically posi-

tioned carriers into receptacles supported upon said movable table, and means for effecting the movement of said table to aline an empty receptacle with said carriers subsequent to the filling of a receptacle.

8. In a soap packing machine, in combination, a guideway, means for intermittently discharging cakes of soap from the guideway a movable carrier operable to receive the guide discharged soap, means for moving said carrier and an associated cake of soap to a position in communication with a container, and means for ejecting the soap from said carrier into said container.

9. In a soap packing machine, the combination with a soap feeding mechanism, of oscillating carriers adapted to receive soap after the latter is discharged from the feeding mechanism, means for oscillating the carriers from soap receiving to soap discharging positions, and mechanism operable to eject soap from said carriers, when the latter are in a discharging position into a packing receptacle.

10. In a machine of the class described, in combination, a frame, soap guides mounted upon said frame for the reception of horizontally alined bars of soap, means for intermittently discharging soap from said guide-ways, mechanism for receiving soap discharged from said guideways for conveying the same to a position in contiguity with a packing receptacle, and reciprocating pressing elements operable to eject the soap into said receptacles.

In testimony whereof I affix my signature.

CHARLES DROLET, SR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."