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2,296,802

MACHINE FOR LOADING AND DISCHARGING CONTAINERS

Original Filed June 18, 1938

2 Sheets-Sheet 1

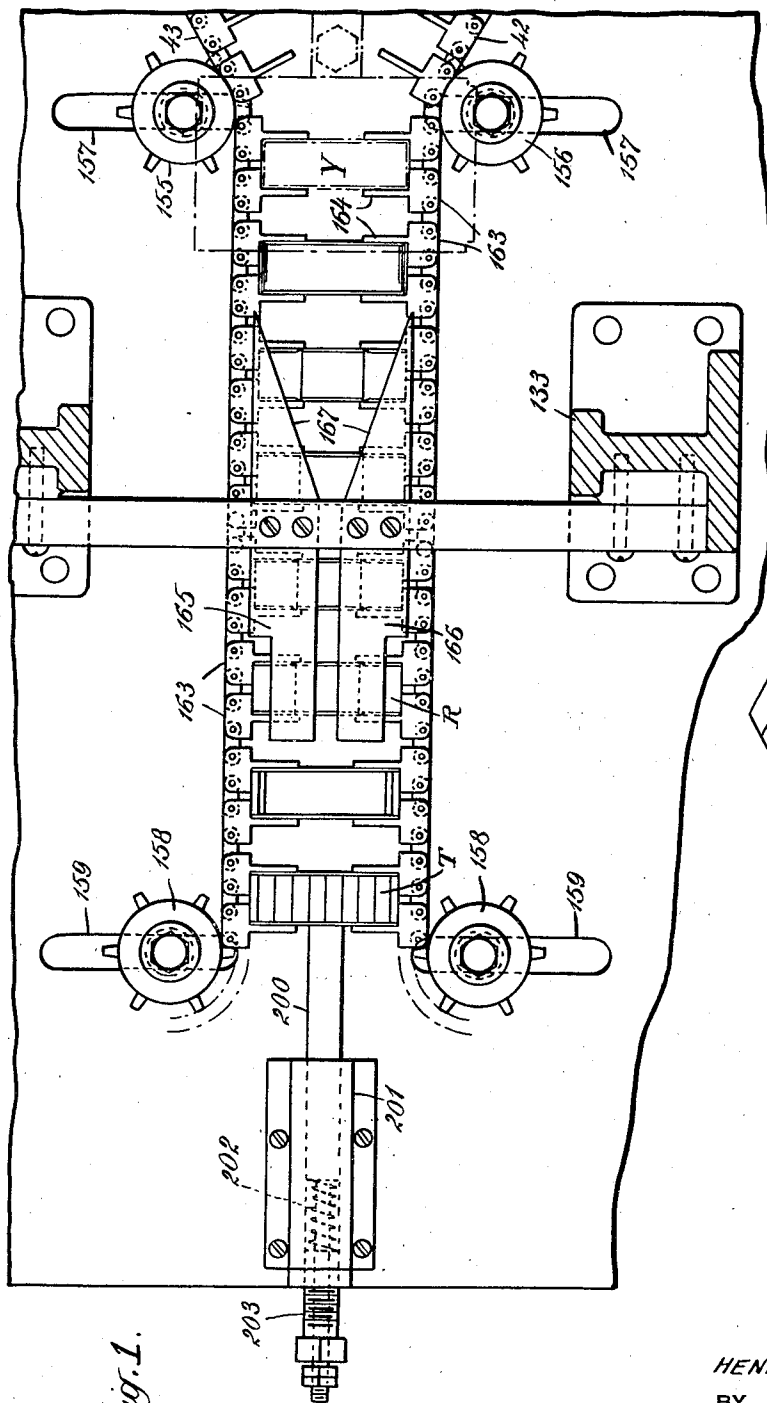


Fig. 1.

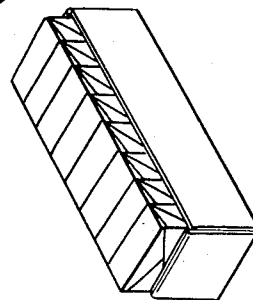


Fig. 2.

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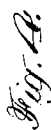
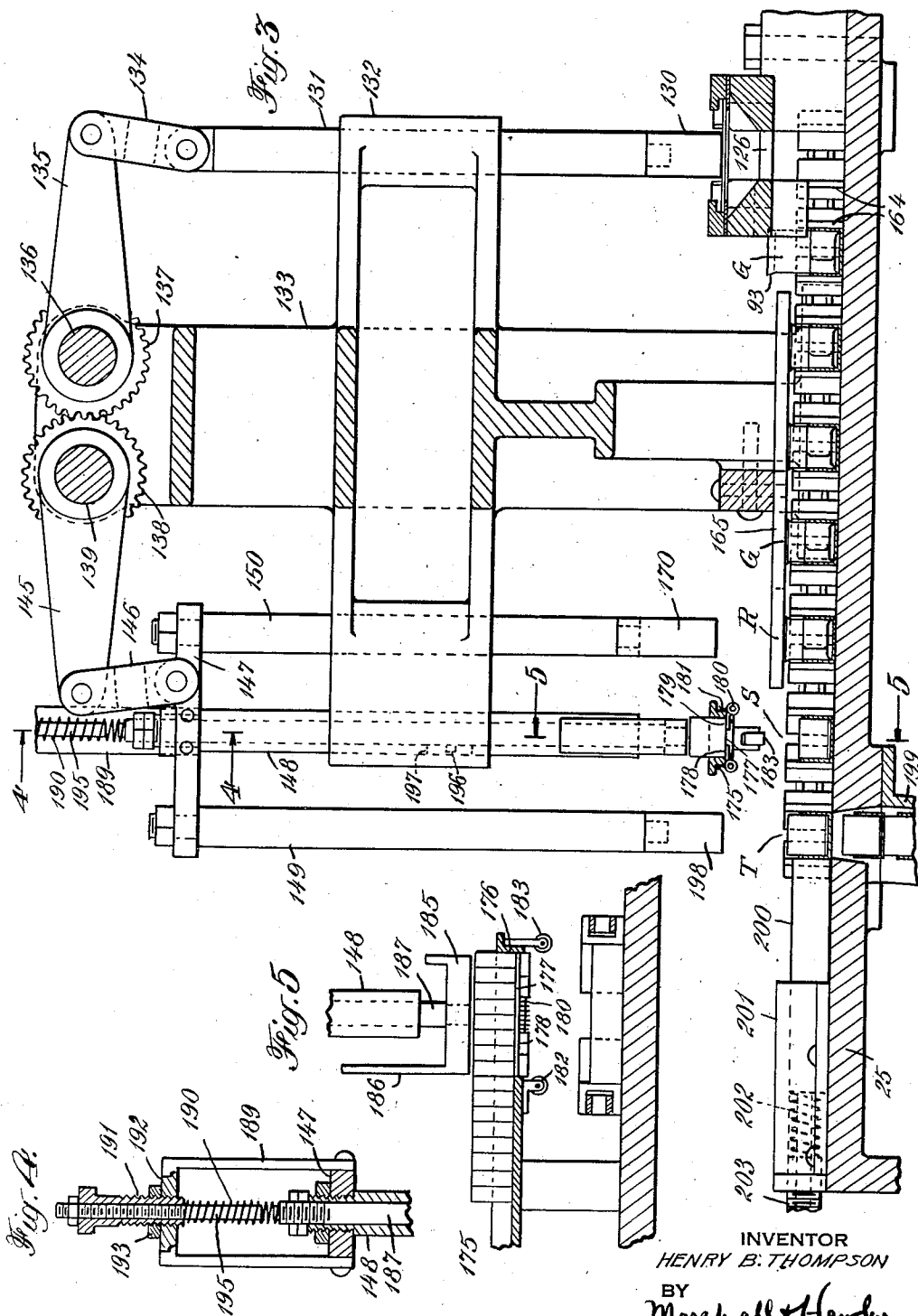
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## UNITED STATES PATENT OFFICE

2,296,802

## MACHINE FOR LOADING AND DISCHARGING CONTAINERS

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tion of Delaware

Original application June 18, 1938, Serial No.  
214,470. Divided and this application Decem-  
ber 6, 1940, Serial No. 368,961

## 1 Claim. (Cl. 228—14)

This invention relates to machines for load-  
ing and discharging containers.

This application is a division of my copend-  
ing application Serial No. 214,470, filed June 18,  
1938, now Patent No. 2,228,932, issued January  
14, 1941, which discloses means for making open  
boxes for receiving articles, such as caramels.  
The present application covers the loading mech-  
anism for loading the boxes. The invention has  
for its salient object to provide simple, practical  
and efficient mechanism for feeding articles, such  
as caramels, into open boxes and for preventing  
rebound of the articles as the feeding mechanism  
is retracted.

Another object of the invention is to pro-  
vide simple, practical and efficient means for  
discharging the loaded boxes from the machine.

Further objects of the invention will appear  
from the following specification taken in con-  
nection with the drawings which form a part of  
this application, and in which

Fig. 1 is a top plan view of a portion of the  
receptacle feeding conveyor and parts associ-  
ated therewith;

Fig. 2 is a perspective view of one of the filled  
or loaded boxes;

Fig. 3 is a longitudinal sectional elevation of  
the structure shown in Fig. 1 showing the re-  
ceptacle feeding chain and plungers which push  
the blank through the folding mechanism, fill  
the receptacles and discharge the receptacles  
from the machine;

Fig. 4 is an enlarged vertical sectional eleva-  
tion taken substantially on line 4—4 of Fig. 3;  
and

Fig. 5 is an enlarged vertical sectional eleva-  
tion taken substantially on line 5—5 of Fig. 3.

In the particular embodiment of the invention  
illustrated there is shown in Fig. 1 receptacle  
feeding mechanism comprising a pair of feed  
chains 42 and 43. The chains 42 and 43 are  
driven in any suitable manner and are main-  
tained in parallel relation by means of idler  
sprockets 156 and 158 which guide the chain 42  
and 155 and 153 which guide the chain 43. The  
sprocket wheels are adjustably mounted in slots  
157 and 159 so that the distance between the  
parallel lengths of chains can be adjusted.

Each of the chains 42, 43 has secured to its  
links a plurality of blocks 163 and each block  
has a plate or web 164 formed thereon. The  
blocks and webs are so relatively located on the  
two chains that a web 164 on one chain will be  
disposed opposite a web 164 on the other chain  
and the two adjacent webs on one chain will form

with the two adjacent webs on the other chain  
a rectangular enclosure or pocket for receiving  
the folded receptacles, as shown in Fig. 1.

In Fig. 3 there is shown a forming block 126  
which receives a blank and through which the  
blank is forced downwardly into one of the  
receptacles formed in the receptacle feeding  
mechanism by means of a plunger 130 carried  
by a rod or post 131 slidably mounted in the  
guide or frame 132. The frame 132 is carried  
by a vertical frame 133.

The upper end of the rod 131 is connected by  
a link 134 to an arm 135 which is carried by  
a shaft 136 mounted to oscillate in the frame  
133. Shaft 136 also has mounted thereon a  
gear 137 which meshes with a gear 138 carried  
by a shaft 139 also rotatably mounted in the  
frame 133. The shaft 136 may be oscillated in  
any suitable manner, the driving connections be-  
ing fully illustrated in the parent application  
hereinbefore referred to.

As the gear 137 is oscillated the shaft 136 will  
also be oscillated, thus actuating the arm 135  
to raise and lower the plunger 130.

Shaft 139 has secured thereto an arm 145  
which is connected by a link 146 to a cross head  
or bar 147. This bar has secured thereto and  
extending downwardly therefrom three vertical  
posts 148, 149 and 150, the purpose of which  
will be hereinafter described.

It will be understood that the chains 42 and  
43 as they move around their paths are dis-  
posed with the webs 164 adjacent the upper sur-  
face of the bed plate of the machine so that  
the receptacles will be pressed downwardly into  
the feeding chains and will be supported by the  
bed plate during the feeding movement thereof.

As the blanks are pushed into the feeding  
chain the end flaps G having flared ends 93  
will be disposed in the position shown at the  
right in Fig. 3 or extending upwardly from the  
open upper ends of the receptacle. These end  
flaps are folded downwardly by engagement with  
inclined edges 167 of plates 165 and 166 which  
are mounted above the parallel flaps of the chains  
42 and 43. When the feeding chains have ad-  
vanced the receptacles to the position shown at  
R in Figs. 1 and 3, the flaps G will be engaged  
by bifurcated ends 170 of a yoke mounted at  
the lower end of the post 150 and will be folded  
downwardly into the receptacle.

After the completion of the folding of the end  
flaps of the receptacles the receptacles move  
successively to the position indicated on Figs.  
1 and 3 at S in which the receptacles are loaded.

The articles to be loaded are fed along a chute 175 (see Fig. 5) having an end wall 176 at the discharge end thereof. The chute has an opening 177 in the bottom thereof at the discharge end of the chute and has hinged plates 178 and 179 which are pivoted at 180 and partially bridge the opening 177. These plates are spring pressed in an upward direction by springs 181 and are limited in their upward movement by the engagement of their upper surfaces with the lower edges of the side walls of the chute.

Thus, the articles, which in this embodiment of the invention are illustrated as caramels, disposed above the opening 177 will be supported by the hinged plates 178 and 179 until they are forced downwardly and discharged into the receptacle disposed therebelow. The chute has secured to the bottom surface thereof and extending below the under surface rollers 182 and 183 which engage the outer surface of the end caramels of the load after the caramels are fed downwardly and guide them into the receptacle during the downward feeding movement.

Each load of caramels is discharged into a receptacle by means of a plunger 185 having an upwardly extending flange 186 at one end thereof, the outer surface of which engages the advance end of the caramel disposed in the rear of the last caramel fed downwardly.

The plunger 185 is carried by a rod 187 which is slidably mounted in the post or sleeve 148 carried by the cross head or bar 147. The upper end of the rod 187 is engaged by a spring 190 disposed in the yoke 189 and held under the desired compression by a threaded sleeve 191 which is threaded into the top 192 of the yoke and is locked in adjusted position by a lock nut 193. The spring surrounds a rod 195 which is threaded into the sleeve 191.

The relative movement between the rod 187 and the post or sleeve 148 is limited by a pin and slot connection consisting of a pin 196 which extends through the rod and into the slot 197 in the sleeve.

The object of the resilient connection between the rod 187 and sleeve 148 is to provide a resilient pressure downwardly on the caramels being discharged from the chute into the receptacle and to prevent a rebound as the plunger 185 leaves the upper surface of the loaded caramels on the

return movement. By means of this resilient connection a slight dwell is provided on the return movement of the post or rod 187.

After the caramels or other articles have been loaded into the receptacle at the position S, the feeding chains move to the next position of movement indicated at T in which position the loaded receptacle is disposed beneath the lower end of a plunger 198 carried by the lower end of the rod or post 149. The loaded receptacle is then discharged downwardly into the discharge chute 199.

In order to provide a slight friction on the loaded receptacle after it reaches the position T and to prevent its dropping by gravity into the discharge chute, a spring pressed plunger 200 is slidably mounted in a guideway 201 and is resiliently actuated by a spring 202 to engage the front wall of the loaded receptacle disposed by the position T. The spring 202 can be adjusted to any desired tension by an adjustment shown at 203.

From the foregoing specification it will be seen that simple, practical and efficient mechanism has been provided for loading and discharging receptacles.

Although certain specific embodiments of the invention have been particularly shown and described, it will be understood that the invention is capable of modification and that changes in the construction and in the arrangement of the various cooperating parts may be made without departing from the spirit or scope of the invention, as expressed in the following claim.

What I claim is:

In combination, a support for receptacles to be loaded, means for intermittently feeding the receptacles along said support, means disposed above one position of feeding movement of said receptacles for feeding articles into the receptacle so positioned, means disposed above the next successive position of feeding movement for discharging the loaded receptacle from said receptacle support and feeding means, said support having an opening through which the loaded receptacle is discharged, and means for releasably holding the loaded receptacle above said opening prior to the discharging operation.

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