

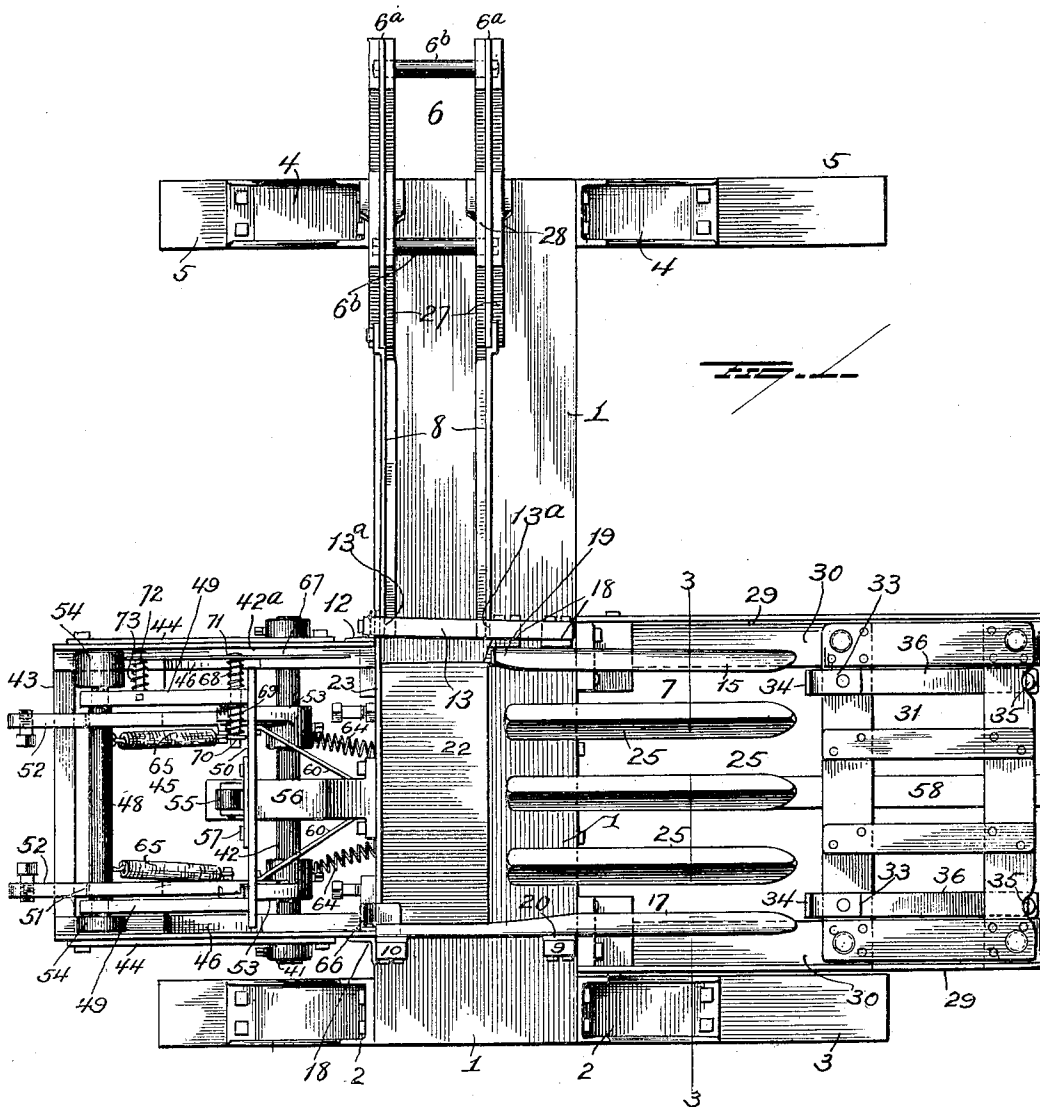
Sept. 2, 1924.

1,507,387

A. H. KYLER

MACHINE FOR BOXING OR CASING CANS

Filed March 20, 1923 4 Sheets-Sheet 1



Inventor

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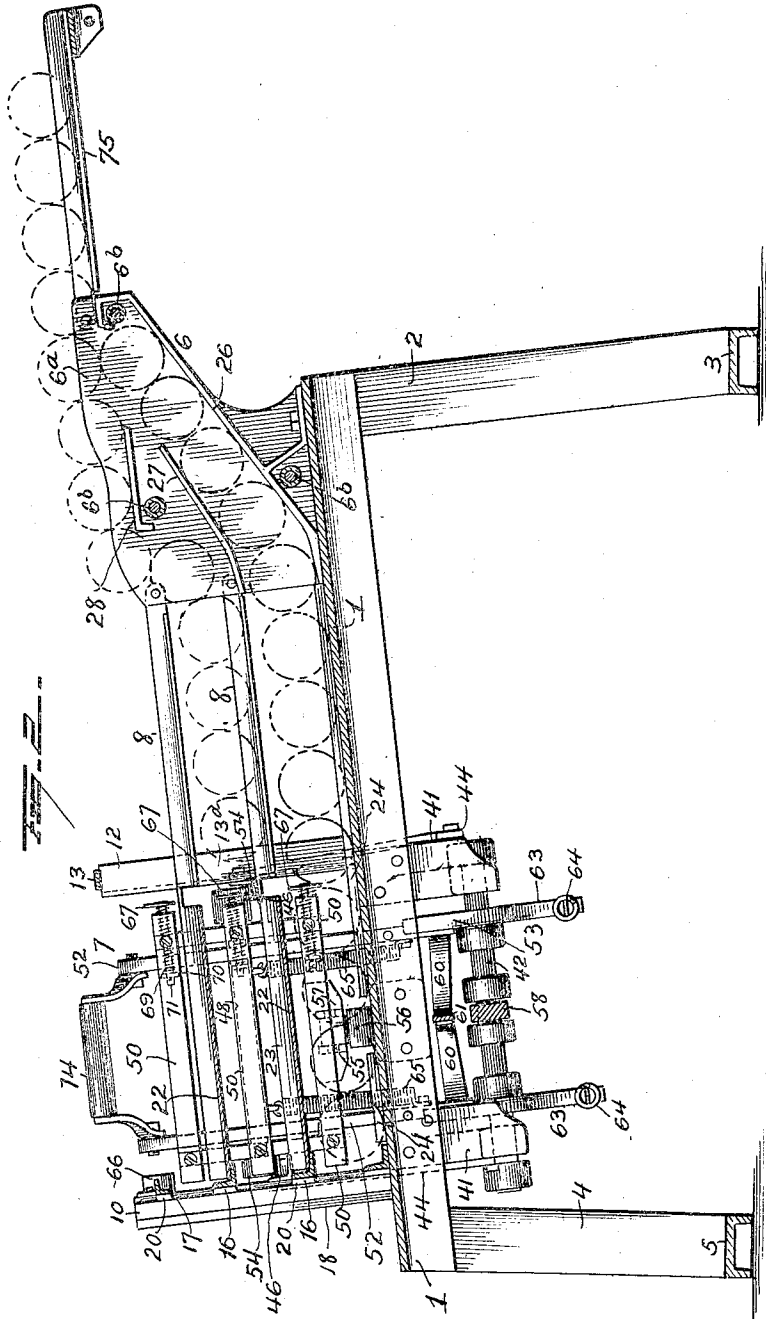
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4 Sheets-Sheet 2



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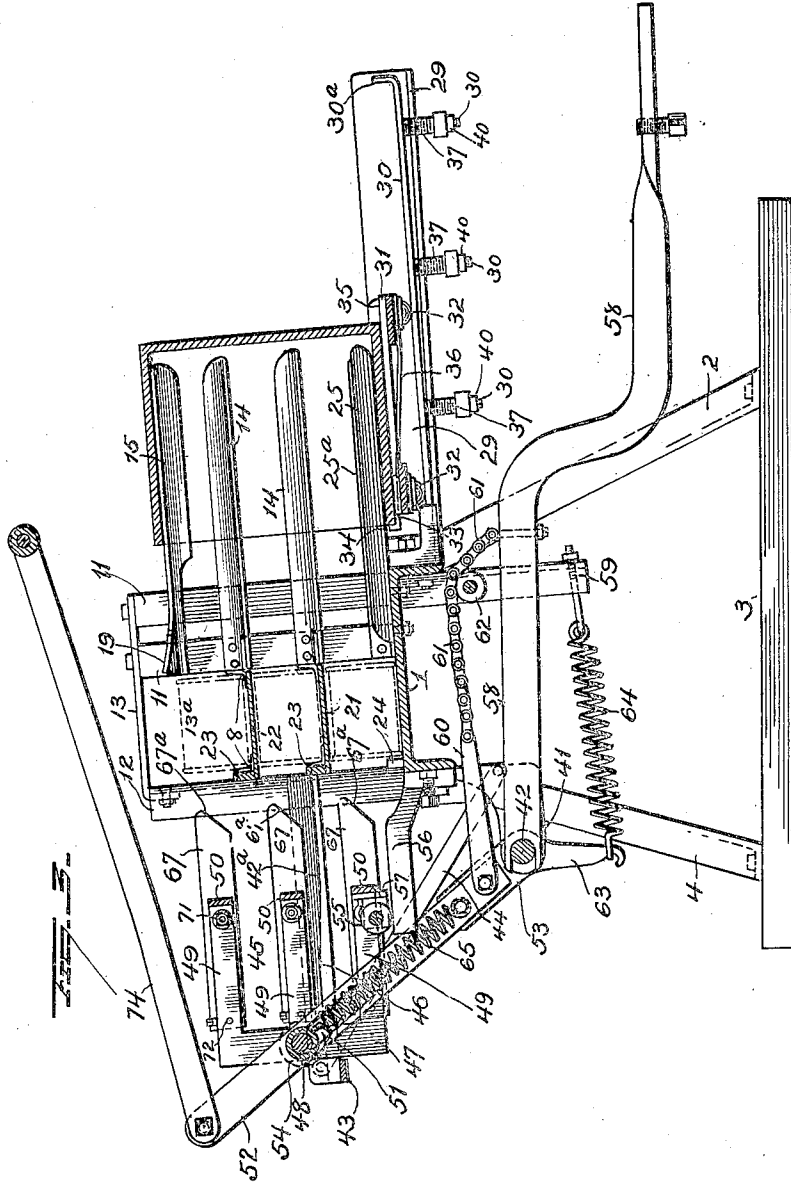
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4 Sheets-Sheet 3



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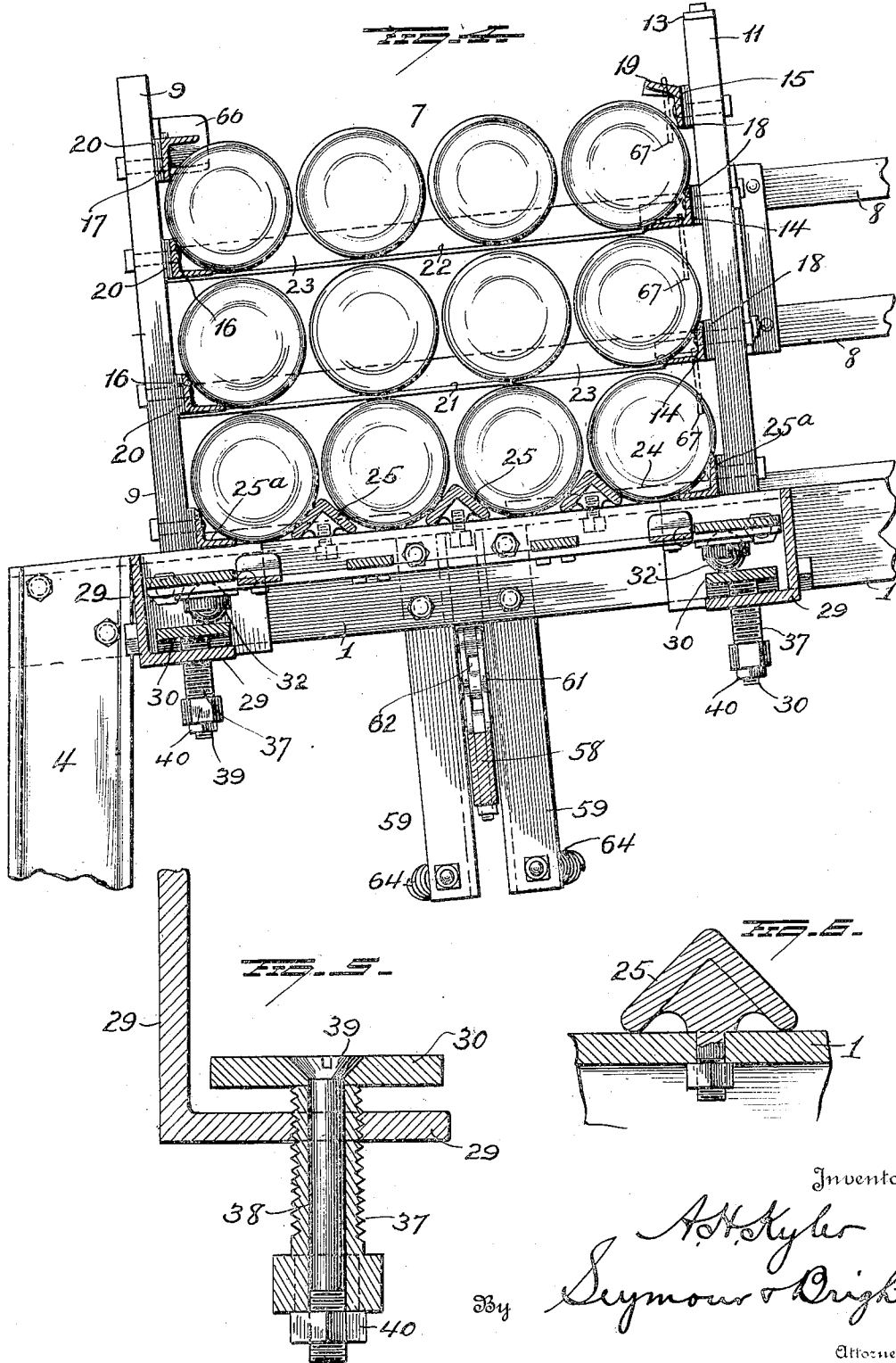
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MACHINE FOR BOXING OR CASING CANS

Filed March 20, 1923 4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE.

ALBERT H. KYLER, OF WESTMINSTER, MARYLAND.

MACHINE FOR BOXING OR CASING CANS.

Application filed March 20, 1923. Serial No. 626,433.

To all whom it may concern:

Be it known that I, ALBERT H. KYLER, a citizen of the United States, and a resident of Westminster, in the county of Carroll and State of Maryland, have invented certain new and useful Improvements in Machines for Boxing or Casing Cans; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in machines for boxing or casing cans and more particularly to machines of the general type disclosed in the patent to E. W. Cornell No. 560,058, May 12th, 1896.

Efforts have been made since the grant of the above-mentioned patent to improve the construction of the same, with a view to overcoming objectionable features incident thereto, and it is an object of my invention to so construct a can boxing or casing machine that objectionable characteristics incident to such machines as heretofore constructed shall be effectually overcome, and so that the machine shall be capable of rapid and accurate operation without danger of injury to labels on the cans.

A further object is to so construct, mount and arrange the can separating blades that the same will be prevented from marring labels on the cans during the operation of the machine.

A further object is to provide means which will insure the proper operation of the ejecting plunger and cause the latter to move in a horizontal plane on trackways during the ejecting operation.

A further object is to provide simple and efficient means for so operating the ejecting plunger as to insure proper and accurate lowering and raising of the separating blades.

A further object is to so construct the machine that the various parts thereof shall be substantial and not liable to bend or break.

A further object is to construct the machine in such manner that the cans sufficient in number to fill a box or case shall be held in such locked relation to the parts which

hold them, that the box or casing may be freely slid over them without binding.

A further object is to construct a can casing or boxing machine that the labels on the cans will never come into contact with metal during the operation of the machine.

With these and other objects in view, the invention consists in certain novel features of construction and combinations of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings;

Figure 1 is a plan view of a boxing or casing machine embodying my improvements;

Figure 2 is a sectional view;

Figure 3 is a sectional view taken at right angles to Figure 2;

Figure 4 is an enlarged sectional view on the line 3—3 of Figure 1, and

Figures 5 and 6 are detail views.

The machine includes an inclined table 1 which consists, preferably, of a wide inverted channel iron supported at the higher end by inclined channel-iron legs 2 secured at their upper ends to the depending flanges of the table 1 and at their lower ends, said legs are secured upon a base channel bar 3. The inclined table 1 is supported at its other end by channel iron legs 4, shorter than the legs 2, and secured to the flanges of the table and to a base channel bar 5.

Upon the higher end portion of the table 1 an inclined chute 6 is secured and at the other end portion of said table, an assembling frame 7 is located,—the chute and assembling frame being connected by angle-iron guide rails 8.

The assembling frame 7 includes posts 9, 10, 11, 12 (the latter being made in the form of an angle bar), secured to the table 1 at a distance from the parts 9—10 somewhat more than sufficient to accommodate rows of cans (four cans in each row, for example), between the two sets of posts,—the posts 11, 11 and 12 being connected at their upper ends by a cross bar 13, and the post 12 being spaced laterally from one of the posts 11, a sufficient distance to form a gate-

way 13^a through which cans may freely pass. The assembling frame (which may be considered as a whole to be disposed at right angles to the can feeding portion of the machine) also includes sides composed each of a plurality of arms or rails which project laterally from one side of the table 1 and preferably rounded at their free ends. The arms or rails forming one side of the assembling frame are designated 14 and 15 and the arms or rails forming the other side of said frame are designated 16 and 17. The arms or rails 14 and 16 are made in the form of angle irons with their lower flanges projecting inwardly to form runways for cans and the upper arms or rails 15 and 17 at respective sides of the assembling frame are also made in the form of angle irons but are so disposed that their inwardly projecting members will be located at the upper edges of their vertical members, for a purpose hereinafter explained. The side arms or rails 14, 15 are secured at their inner ends to the posts 11, 11 and spaced somewhat inwardly therefrom by blocks 18—said arms or rails terminating at their inner ends at one side of the gateway 13^a, and the inner end of the horizontal flange of the upper arm or rail 15 is bent upwardly as at 19 to facilitate entrance of a can under the same. The arms or rails 16—17 at the opposite side of the assembling frame are secured to the posts 9 and 10 and extend over the table 1,—said arms or rails being spaced inwardly from the posts 9 and 10 by blocks 20.

The assembling frame also includes pans or platforms 21, 22 disposed one above the other to receive rows of cans entering said frame,—two such pans or platforms being shown in the drawing and the table is adapted to receive a lowermost row of cans. The pans or platforms 21, 22 are supported by the arms or rails 14 and 16 and also by rear cross bar 23, secured to the posts 10 and 12 and these bars form rear guides for cans entering upon said pans or platforms. The lowermost row of cans entering the assembling frame will be guided by strips 24 near the rear edge of the table 1.

The assembling frame also includes a plurality of bottom arms or rails 25 and 25^a secured upon a portion of the table 1 and projecting from the latter a distance equal to the distance which the arms or rails 14, 15, 16 and 17 project. The bottom arms or rails 25 consist of angle irons, inverted V-shape in cross section and rounded at their free ends, and they are spaced apart in such manner as to form a series of trough-like guides for the cans when the latter are forced outwardly in the manner hereinafter explained, and the arms or rails 25^a at the sides may consist of angle irons and may

be secured to the parts 9 and 11, and spaced inwardly therefrom.

The chute 6 hereinbefore referred to, comprises two plates 6^a, 6^a suitably spaced apart and secured by bolts 6^b against relative movement, and the two plates comprising the chute are securely bolted to the table 1. Each plate 6^a is provided on each face with ribs 26, 27 and 28,—the ribs on the inner face of one plate cooperating with like ribs on the inner face of the other plate, to guide cans in successive rows to the runway leading to the assembling frame, so that the cans will be assembled in said frame in a vertical series of rows. By providing each chute plate 6^a on both sides with can-guiding ribs, said plates may be employed interchangeably,—each plate serving to form either side of the chute.

Angle-iron rails 29, 29 are secured to the table 1 and project laterally from one side thereof below respective sides of the assembling frame 7. The lower inwardly projecting members of the angle iron rails 29 have secured thereto, trackways 30 for the accommodation of a carriage 31 which receives the box or case 32 to be filled and the rear ends of these tracks may be upturned to form stops 30^a. The carriage 31 may conveniently consist of a rectangular metal frame provided at or near its four corners with suitably mounted balls 32, to run on the trackways 30. The carriage is provided with arms 33 having lugs forming forward stops 34 for the box or case, and rear stops 35 are provided, the latter being carried by spring arms 36 so that they may yield. When a box or case is placed upon the carrier, and moved forwardly, the carriage will travel on the trackways 30, and the box or case caused to move over the projecting arms or rails of the assembling frame, so that said arms or rails will be caused to project into said box or case.

The walls of packing boxes are not always the same in thickness and hence it is desirable to provide means to place the box over the arms of the assembling frame without conflict with or binding against said arms in the event of boxes having thick walls being used, and also to insure the proper relation of the box to the bottom arms when boxes having thin walls are being used. In order that the above mentioned objects may be attained, the trackways 30 on which the carriage 31 runs are vertically adjustable. In the present instance, adjustability of the trackways 30 may be effected by devices such as shown in Figure 5. Each of the adjusting devices may comprise an exteriorly threaded tubular bolt 37 passing through one of the rails 29 and engaging, at its upper end, the under face of the superimposed trackway 30, and a bolt 38 passing through the tubu-

lar bolt 37,—the upper end of said bolt 38 having a head 39 countersunk into the trackway and projecting at its lower end beyond the lower end of the tubular bolt 37 and threaded for the reception of a nut 40, whereby the parts may be secured in adjusted position.

It is desirable that the trackways 30 shall be lower at the end nearest the table 1 so that as the box or case is being withdrawn, the box will be raised slightly and its bottom wall caused to raise the cans from the ends of the bottom trough-arms of the assembling frame, and thus prevent said arms from scraping labels on the bottom row of cans. The desired inclination of the trackways for the purpose above described may be effected with the use of the adjusting devices above described.

Brackets 41 are secured to rear portion of the table 1 adjacent to the assembling frame 7 and provide bearings for a shaft 42. Angle-iron rails 42^a are secured to the posts 10, 12 and project rearwardly therefrom and are approximately in line with the lower pan or platform 21. The free rear ends of the rails 42^a are connected by a cross bar 43 and diagonal braces 44 extend from the rear end portions of said rails to the brackets 41. The rails 42^a provide trackways for a pusher frame 45, and the rear portions of such track-ways are provided with cam-ways 46, for a purpose presently explained.

The pusher frame includes vertical side bars 47 connected by a cross bar 48 and from each of said vertical bars, a plurality of horizontal arms 49 (three being shown in the drawings) project and the arms of one series are connected with the arms of the other series, by horizontal pusher bars 50. The cross bar 48 is recessed near its connections with the vertical bars of the pusher frame and these recessed portions of said cross bar pass through elongated slots 51 in levers 52, the lower ends of the latter being secured to brackets 53 fixed to the shaft 42. The pusher frame is provided at its rear end with rollers 54 which run on the track-ways on the rails 42^a and the forward end of the pusher frame is provided with a roller 55 to run on a cam block 56 secured to and projecting rearwardly from the table 1,—said roller 55 being carried by a bracket 57 secured to the lower pusher bar centrally between the ends of the latter. Movement of the pusher frame may be effected by a foot lever 58 guided between its ends by a bracket 59 depending from the table 1 and loosely and removably mounted at one end on the shaft 42. In effecting connection between the pusher moving-levers 52 and the foot levers 58, a bail 60 is pivotally connected with the lower portions of said levers and to this bail, one end of a

chain 61 is connected, said chain passing over a pulley 62 mounted in the bracket 59 and connected with the foot lever 58 forwardly of said bracket.

The brackets 53 on the shaft 42 are provided with depending arms 63, with which the rear ends of springs 64 are connected, the other ends of said springs being connected with the bracket 59 and operate normally to move the pusher frame rearwardly to the position shown in Figure 3. Springs 65 may be attached at one end to the rear cross bar of the pusher frame and at their other ends to the lower portions of the levers 52,—these springs tending to retain the pusher frame properly on the trackways on the rails 42^a and on the cam block 56.

In order to compel the pusher frame to descend as it moves forwardly and it is about to enter the assembling frame (in the event that for any reason the forward portion of the pusher frame fails properly to descend), a cam arm 66 is secured to the post 10 or an angle iron post 10^a to be engaged by the upper forward cross bar of said pusher frame.

The pusher frame 45 carries, at one side a plurality of separating blades 67, each having its forward end 67^a beveled rearwardly from its upper edge and adapted, when the pusher frame moves forwardly, to move across the gateway 13^a and separate the supply of cans from those which have entered the assembling frame 7. By beveling the forward ends of the blades as above described, danger of said blades engaging the ends of cans will be prevented, and the blades will be caused to properly enter between cans. For accommodation of the lower two blades, the cross bars 23 at the rear edges of the can pans or platforms are provided with notches 23^a so that said blades may move forwardly without conflict with said cross bars. The blades 67 are mounted in such manner that they may yield laterally and thus permit them to properly find their way between cans without bending thereby avoiding the possibility of the free ends of the blades from engaging and scraping labels on the cans as might occur if the blades were rigidly secured to the pusher frame. In the embodiment of the invention shown in the drawings, each blade has secured thereto, intermediate of its ends, a rod or pin 68 which projects laterally therefrom and passes freely through a hole in the adjacent horizontal pusher frame arm 49. A spring 69 encircles said rod between the arm 49 and a disk 70 at the free end of said rod, and another spring 71 encircles said rod between the arm 49 and the blade. A rod or pin 72 adjustably secured to each pusher-frame arm 49, projects outwardly therefrom and freely through a hole near the rear end of the adjacent blade, said rod or pin hav-

ing a head at its free outer end. A spring 73 encircles the rod or pin 72 and bears at its ends against the blade and arm 49 respectively.

5 If desired, the pusher frame may be operated by hand, in which case a handle-bail 74 may be attached to the levers 52 and made to project forwardly therefrom as shown in Figures 2 and 3. When the hand
10 operating device is used, the foot mechanism may be removed if desired.

Any suitable means, such as indicated at 75, may be connected with the chute 6 for conveying cans thereto from a labeling machine or other source of supply and the
15 cans will be directed, by the means previously explained to the assembling frame where they will become disposed in a tier of rows on the pans or platforms 21, 22 and the
20 table 1. The operator will place a box or case in position as previously explained, and he will operate the foot lever (or the handle-bail) to cause forward movement of the pusher frame. As the pusher frame moves
25 forwardly on the trackways, its forward end will be permitted to descend somewhat by riding over the cam block and this will cause the blades 67 to be moved downwardly as they pass across the gateway 13^a and separate
30 the rows of cans in the assembling frame from those in the feeding guideways and without liability of scraping labels on the cans between which the blades pass. When the blades shall have operated to separate
35 the cans in the assembling frame from the can supply, the forward end of the pusher frame will have arrived at the rear ends of the cans in the assembling frame. Continued forward movement of the pusher
40 frame will cause the first tier of cans in the assembling frame to move forwardly. The pusher frame will then be permitted to move back and permit another tier of cans to enter the assembling frame, and as the
45 pusher frame moves backwardly it will be tilted to raise the separating blades and the rear part of the pusher frame will be slightly raised by the cam trackways 46 to prevent the blades from being raised too high.
50 Another forward movement of the pusher frame will force the second and first tiers of cans forwardly, and these operations of the pusher frame will be continued until, a full complement of cans shall have been
55 supplied to the box or case, causing the box and its carriage to move back. To fill the assembling frame and supply the proper number of cans into a box, five forward movements of the pusher frame will be
60 necessary, but after the assembling frame shall have been once filled, only two forward movements of the pusher frame will suffice to fill a box with cans.

It will be observed that the movement of
65 the pusher frame during the pushing opera-

tion will be in a substantially horizontal plane thus avoiding disadvantages incident to so mounting the pusher frame that it would be caused to move in the arc of a circle.

70 It will be observed that when the assembling frame is filled with cans, the angular formation of the arms or rails comprised in said frame and the proper spacing of said
75 arms or rails, and by the disposition of the upper arms or rails 15—17, the cans will be locked against displacement while contained in said frame, and the external dimensions of the latter will be substantially the same
80 as the external dimensions of the mass of cans in the assembling frame.

By constructing the assembling frame of angle iron arms or rails, the same will be substantial and not liable to be distorted or
85 its members to become bent.

Various changes might be made in the details of construction of my invention without departing from the spirit thereof or
90 limiting its scope and hence I do not wish to restrict myself to the precise details herein set forth.

Having fully described my invention what I claim as new and desire to secure by Letters Patent, is:—

1. In a machine of the character described, the combination with a table, an
95 assembling frame disposed at substantially right angles to said table and having a gateway at one side thereof, and guiding means for cans communicating with the assembling
100 frame at said gateway, of a pusher to enter said frame, separating blades carried by said pusher and movable across said gateway, means whereby said blades may yield
105 bodily in a lateral direction, means for causing vertical movement of the pusher to operate said blades, and means for operating said pusher.

2. In a machine of the character described, the combination with a table, an
110 assembling frame disposed at substantially right angles to said table and having a gateway at one side thereof, and guiding means for cans communicating with the assembling
115 frame at said gateway, of a pusher to enter said frame, rollers at the rear portion of said pusher, tracks secured to the table for said rollers separating blades carried by said
120 pusher and adapted to move across said gateway, said blades having their forward ends beveled rearwardly from their upper
125 edges, means permitting vertical movement of the forward end of the pusher to operate said blades, and means for operating said pusher.

3. In a machine of the character described, the combination with a table, an
130 assembling frame at substantially right angles thereto and having a gateway at one side, of trackways projecting rearwardly

from said table, a pusher having rollers near its rear end to run on said trackways, separating blades carried by said pusher and movable across said gateway, a cam with
 5 which the forward portion of the pusher is cooperable to cause vertical movement of said forward portion of the pusher to operate said separating blades, levers with which the rear portion of said pusher has
 10 pivotal and otherwise movable connection and means for operating said pusher.

4. In a machine of the character described, the combination with a table, an assembling frame at substantially right angles thereto and having a gateway at one side, of trackways projecting rearwardly from said table, a pusher having rollers near its rear end to run on said trackways, pivoted levers having slots, means whereby the rear portion of the pusher is pivotally mounted in said slots, a cam member secured to the table and projecting rearwardly therefrom, a roller carried by the forward portion of the pusher and movable on said cam member to effect vertical movement of the forward end of the pusher, separating blades carried by the pusher and movable across said gateway, spring means tending to press the pusher in toward said trackways, and
 20 means for operating said pusher.

5. In a machine of the character described, the combination with a table, an assembling frame at substantially right angles thereto and having a gateway at one side, of trackways projecting rearwardly from said table, a pusher having rollers near its rear end to run on said trackways, pivoted levers having slots, means whereby the rear portion of the pusher is pivotally mounted in said slots, a cam member secured to the table and projecting rearwardly therefrom, a roller carried by the forward portion of the pusher and movable on said cam member to effect vertical movement of the forward end of the pusher, separating blades carried by the pusher and movable across said gateway, spring means tending to press the pusher in toward said trackways, means for operating said pusher, and means to positively force the forward end of the pusher downwardly to insure downward movement of the separating blades.

6. In a machine of the character described, the combination with a table, an assembling frame at substantially right angles thereto and having a gateway at one side, of a pusher, trackways for said pusher, levers with which the rear portion of said pusher is pivotally and otherwise movably connected, separating blades carried by said pusher and movable across said gateway, a foot lever loosely supported at one end, a bail connected with said first-mentioned levers, a chain connected at one end with said foot lever and at the other end with said bail,

and a pulley supported under the table and over which said chain passes, and means permitting vertical movement of said pusher to operate the separating blades.

7. In a machine of the character described, the combination with a table and an assembling frame disposed at substantially right angles thereto and having a gateway at one side, of a pusher to enter said frame, means for operating said pusher in a horizontal direction, means for causing vertical movement of the forward portion of the pusher, separating blades carried by said pusher and movable across said gateway, and springs between said blades and the pusher permitting lateral yielding movement of said blades.

8. In a machine of the character described, the combination with a table and an assembling frame disposed at substantially right angles thereto, of a pusher to enter said frame, a shaft supported by the table, levers secured to said shaft and having pivotal connection with said pusher, a guide bracket depending from the table, arms depending from said shaft, springs connecting said arms and bracket, a foot lever loosely mounted on said shaft and passing through said guide bracket, a roller mounted in said guide bracket, a bail connected with the first-mentioned levers, and a chain connected at one end with said bail and at the other end with the foot lever, an intermediate portion of said chain passing over said roller.

9. In a machine of the character described, the combination with a table, an assembling frame, and a pusher, of trackways projecting from said table, and a carriage movable on said trackways and adapted to carry a box movable over a portion of said assembling frame.

10. In a machine of the character described, the combination with a table, an assembling frame, and a pusher, of trackways projecting from said table, and a carriage movable on said trackways adapted to carry a box movable over a portion of said assembling frame, and means for effecting vertical adjustment of said trackways.

11. In a machine of the character described, the combination with a table, an assembling frame substantially at right angles thereto, and a pusher, of angles iron rails secured to and projecting from said table approximately in line with said assembling frame, trackways on said rails, means for adjusting said trackways vertically, and a box carrying carriage movable on said trackways.

12. In a machine of the character described, the combination with a table, an assembling frame disposed substantially at right angles thereto, and a pusher, of trackways in front of said table approximately in line with said assembling frame, a car-

riage having rollers mounted on said track-
ways and adapted to support a box movable
over a portion of said assembling frame,
fixed stops for the box at the forward end of
5 said carriage, and yielding stops at the rear
end of said carriage.

In testimony whereof, I have signed this

specification in the presence of two subscri-
ing witnesses.

ALBERT H. KYLER.

Witnesses:

REVERDY N. SNADER,
N. B. BOYLE.