

April 16, 1929.

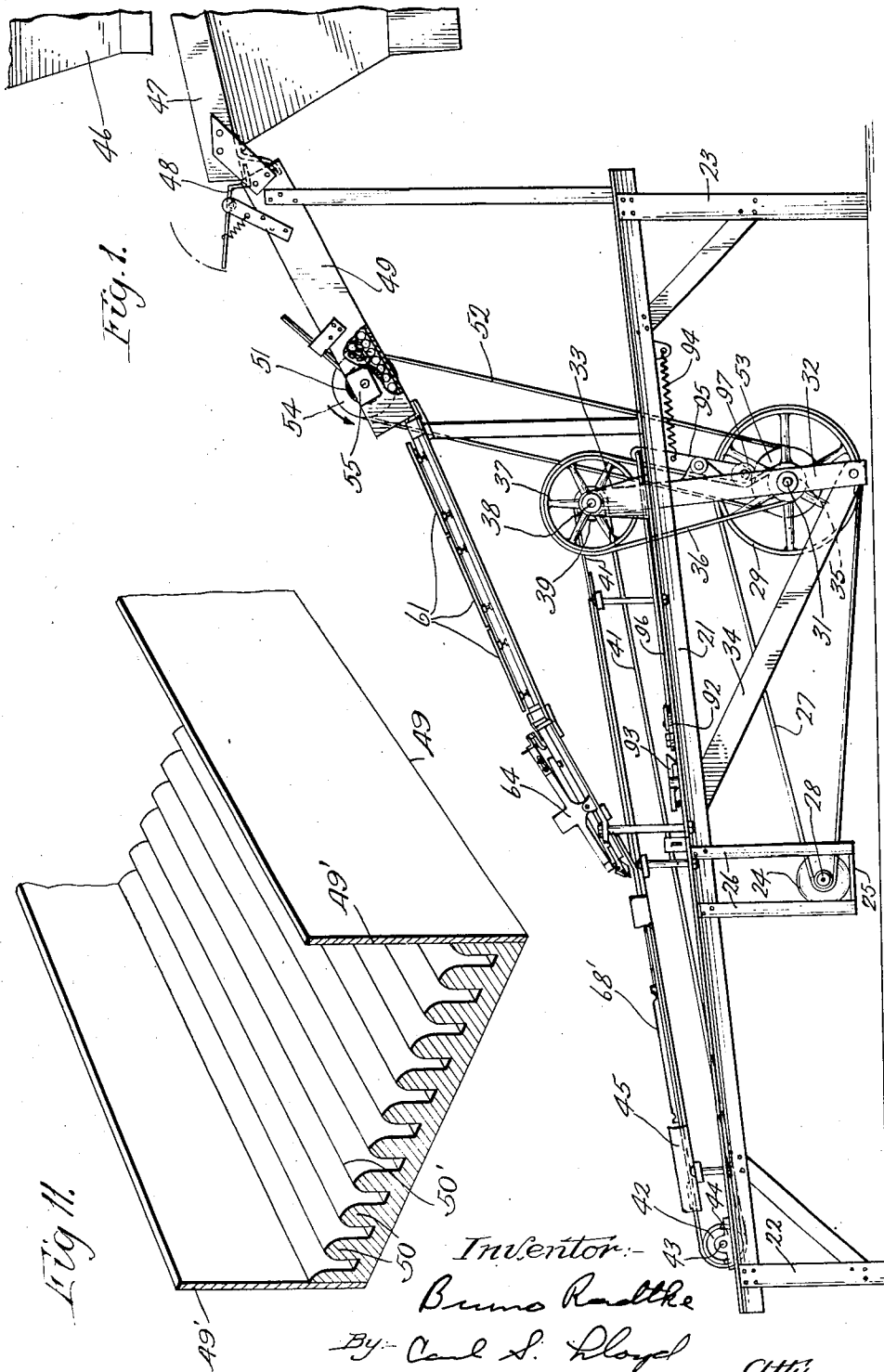
B. RADTKE

1,709,189

ASSEMBLING MACHINE FOR MINTS OR THE LIKE

Filed Aug. 25, 1927

4 Sheets-Sheet 1



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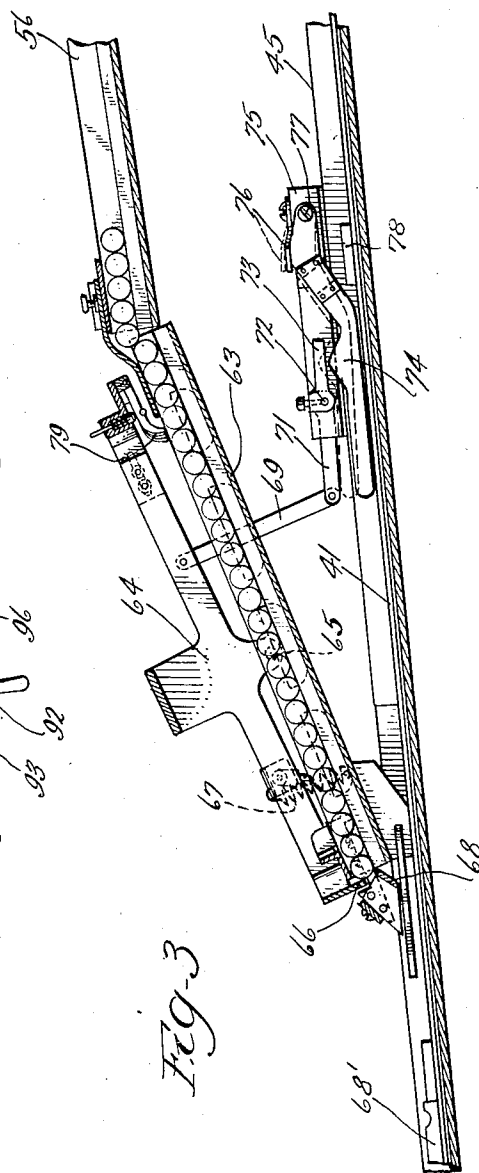
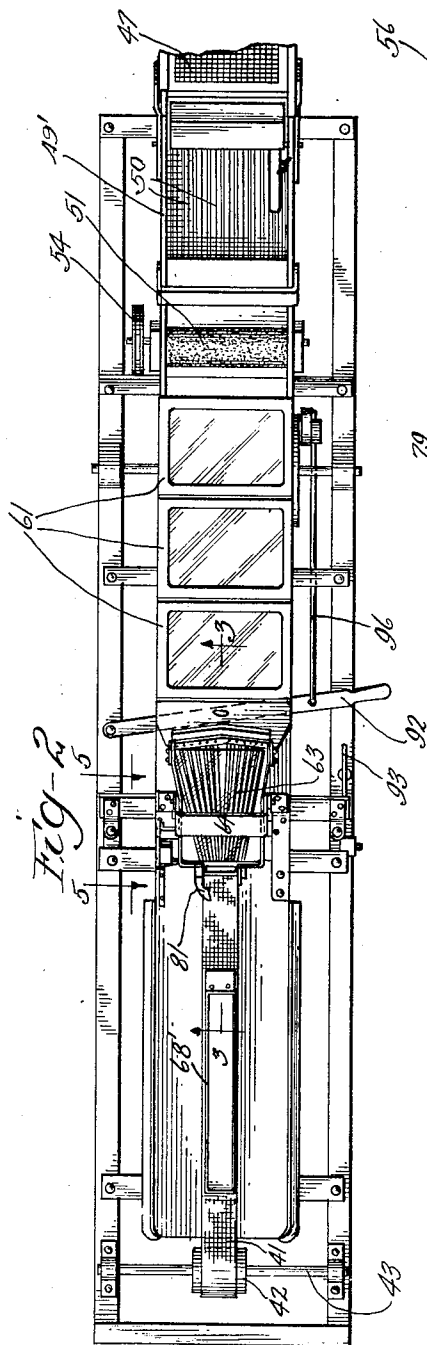
B. RADTKE

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4 Sheets-Sheet 2



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April 16, 1929.

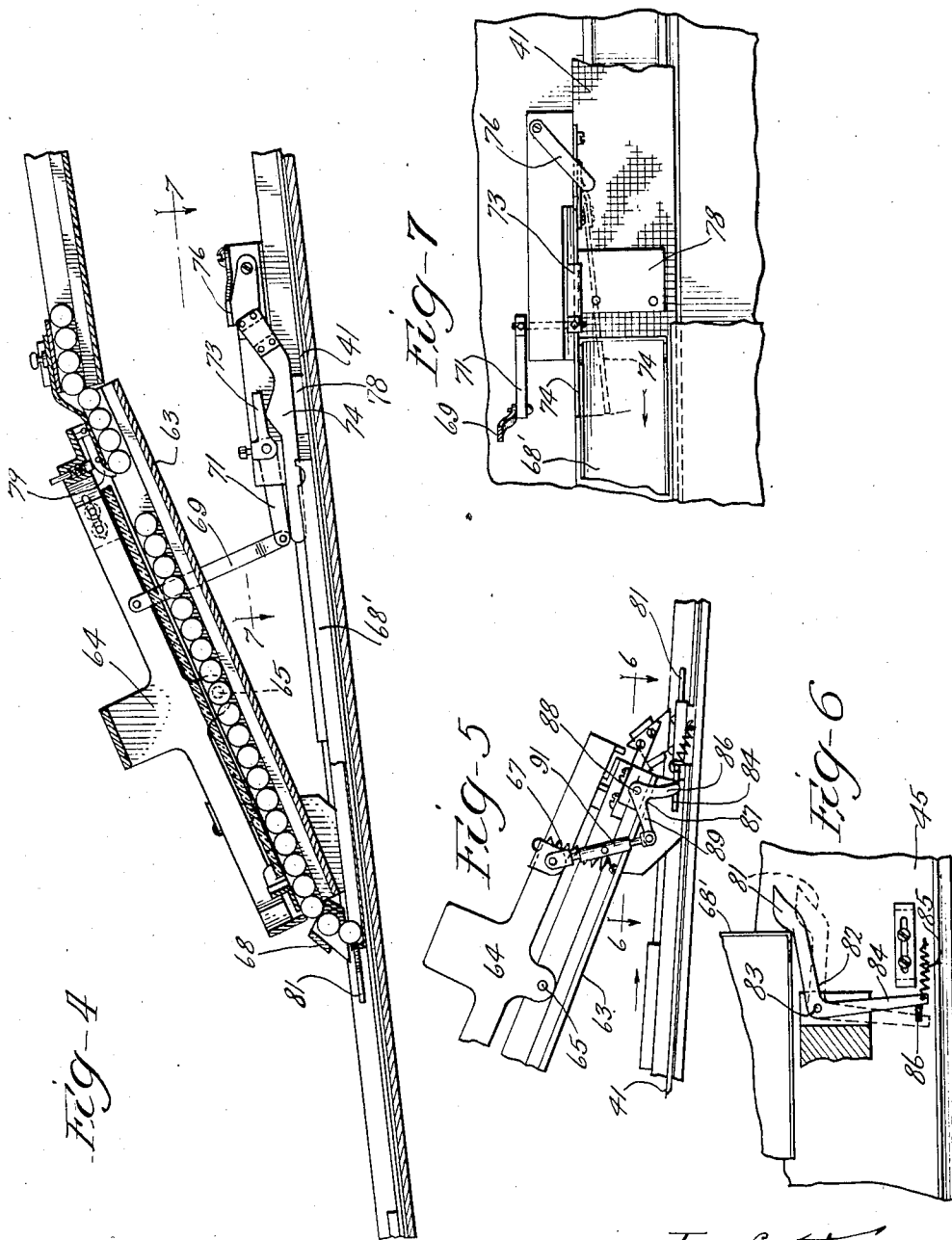
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ASSEMBLING MACHINE FOR MINTS OR THE LIKE

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4 Sheets-Sheet 3



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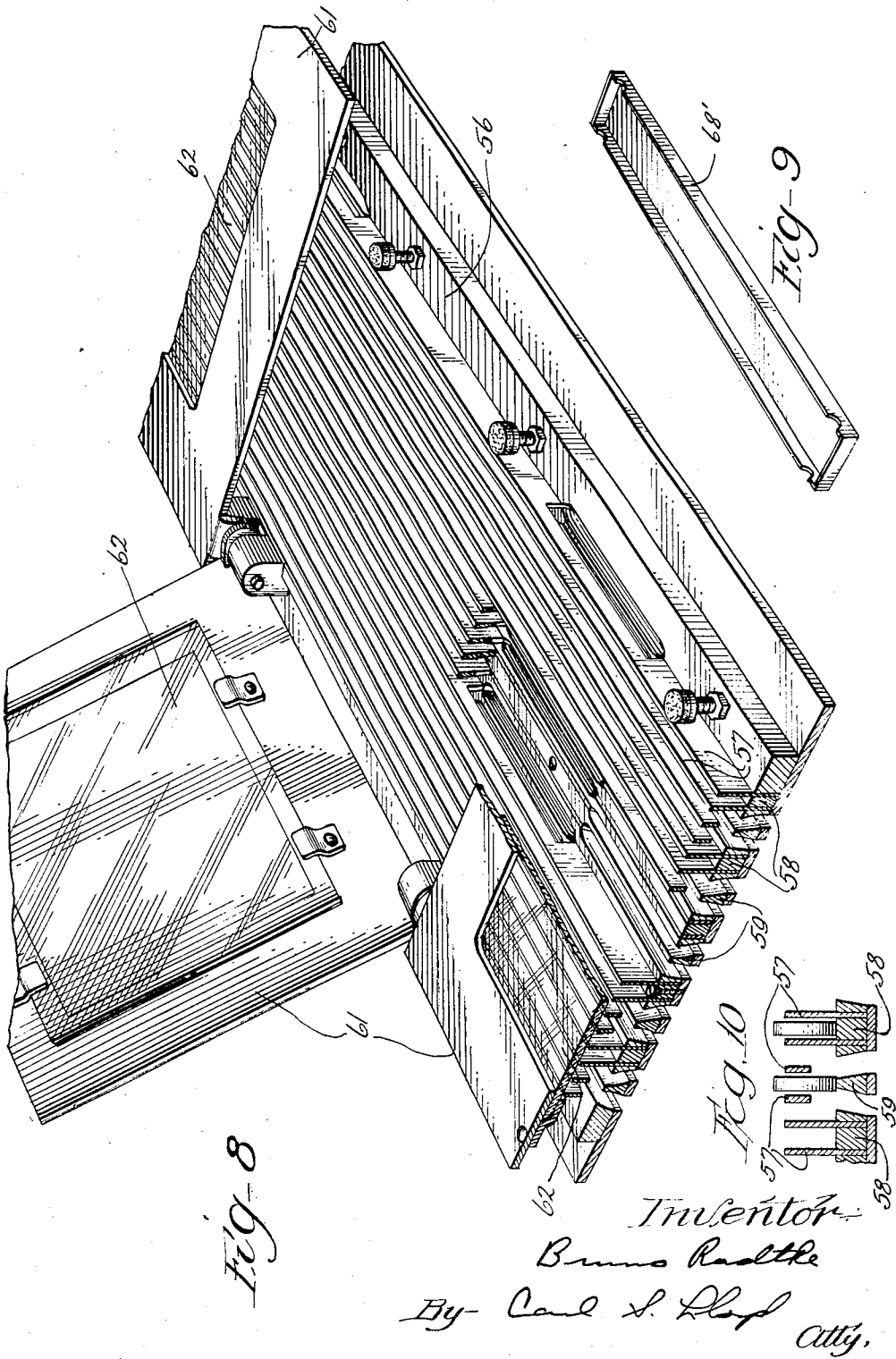
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1,709,189

ASSEMBLING MACHINE FOR MINTS OR THE LIKE

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4 Sheets-Sheet 4



UNITED STATES PATENT OFFICE.

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ASSEMBLING MACHINE FOR MINTS OR THE LIKE.

Application filed August 25, 1927. Serial No. 215,289.

This invention relates to apparatus for packaging articles, such as pieces of mint candy, the machine provided by the invention being for the purpose of assembling the mints into rows containing a predetermined number of pieces and arranging them in a tray, or other receptacle, for delivery to a wrapping station or machine.

An object of the invention is the provision of an automatic control for the feeding of the mints into the trays.

Another object is the provision of a device which prevents delivery of the mints when there is no tray in position to receive them.

A further object is the provision of a sorting and grouping mechanism adapted to accurately arrange the mints in rows for packaging and to eliminate broken or imperfect pieces so that the rows will be uniform and contain only whole, unmutilated pieces.

Other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

Referring to the drawings,

Figure 1 is a side elevation of an apparatus in which my invention is embodied, certain parts being broken away for clearer illustration;

Fig. 2 is a plan view thereof;

Fig. 3 is an enlarged sectional view, taken substantially on the section line 3—3 of Fig. 2;

Fig. 4 is a similar view, showing a different position of the parts;

Fig. 5 is a detail elevational view taken substantially on the plane 5—5 in Fig. 2;

Fig. 6 is a fragmentary plan view, taken substantially on the plane 6—6 of Fig. 5;

Fig. 7 is a similar view, taken substantially on the plane 7—7 in Fig. 4;

Fig. 8 is a perspective view of the sorting runway of the machine;

Fig. 9 is a perspective view of one of the trays into which the completed rows of mints are deposited; and

Fig. 10 is a detail sectional view showing the construction of the sorting runway illustrated in Fig. 8.

Fig. 11 is a perspective view of the chute from which the mints are delivered to the assembling mechanism, the view showing the guide strips in said chute by means of which the mints are arranged in courses.

The illustrative embodiment of the invention shown in the drawings comprises a framework 21, supported at opposite ends by uprights 22 and 23 and carrying a motor 24, supported from the frame 21 by means of a base 25 carried at the lower end of depending bars 26. A belt 27, taking over the motor shaft 28 and a pulley 29 on a shaft 31, journaled in vertical bars 32, extending downwardly from brackets 33 on the frame and held in place by braces 34, drives said shaft 31, which in turn imparts power to the other operative elements of the machine, as will presently be described. Said shaft 31 carries a small pulley 35, adapted to drive a belt 36, which in turn drives a pulley 37 on a conveyor shaft 38, which carries a pulley 39 adapted to drive an endless belt conveyor 41, which, at its opposite end, takes over a pulley or idle roller 42, journaled at 43 in a bracket 44 at the lower end of the frame element 21. The upper course of said conveyor runs through a chute or guideway 45, in which there is disposed certain controlling mechanism, which will be hereinafter more fully described. The conveyor 41 is adapted to carry trays, or other suitable receptacles, beneath the grouping and delivery mechanism, as will presently appear.

The mints are adapted to be delivered from a hopper 46, above the upper end of the apparatus, into an inclined chute 47, at the lower end of which is a spring-held gate 48, adapted to be opened, as indicated by the dotted line in Fig. 1, to permit the mints to enter a chute 49, in the lower part of which a brush 51 is rotatably mounted at a sufficient distance from the bottom of the chute so as to permit but a single row of mints to pass thereunder, said brush being rotated in counter-clockwise direction, viewing Fig. 1, so as to force the descending mints back and permit only a single layer thereof to pass beneath the brush. Said brush is adapted to be driven by means of a belt 52, taking over a pulley 53 on the shaft 31 and a pulley 54 on a

brush shaft journaled in bearings 55 in the side walls 49' of the chute 49. The bottom of said chute is formed with a series of guide strips 50 which are rounded at the top as indicated at 50' so that as the mints pass through said chute they will be arranged in upright position between said guide strips, in manner which will be readily apparent.

The mints, upon passing beneath the brush or roller 51, are arranged in courses in a runway 56, consisting of a plurality of guides 57 between which the mints are adapted to pass in upright position, as shown in Figs. 8 and 10. It will be noted that said guides and the bases 58 and 59 upon which the candy is supported, are so formed that broken or defective pieces may fall through the runway and thus be prevented from entering the trays. The construction whereby this is accomplished will be apparent from Figs. 8 and 10, from which it will be seen that each guideway, for part of its length, is formed as shown at the right in Fig. 10 and for a part of its length as shown at the center in Fig. 10, so that the mints between each pair of guides during part of their travel pass through a runway such as that shown at the center of Fig. 10, permitting broken and defective pieces to fall through the runway. Hinged top sections 61, having central glass panels 62, are provided for covering the runway just described and it will be apparent that they may be readily opened in the event that the runways should become clogged or for any reason access thereto should be required. At the lower end of the runway 56, there is provided a tapered runway 63, into which the mints are directed from the sorting runway 56 and in passing through this runway, the mints are brought together so that a row of predetermined number may be delivered from the lower end of the runway into trays carried by the belt conveyor 41.

Mechanism is provided for controlling the delivery of the completed rows of mints into the trays and this includes a bracket 64 centrally pivoted at 65 and having a downwardly extending guard 66 at the front end thereof, normally obstructing passage of the mints, as shown in Fig. 3. Said bracket is normally held in the position shown in said Fig. 3 by means of a spring 67, connecting the same with the chute or runway 63. A guide 68 is provided at the lower end of said runway 63, so that the mints may pass there-through in grouped relation and into the trays indicated by the reference character 68' when permitted by the guard 66.

The rear part of said bracket is connected by a link 69 with a lever 71, which is pivoted at 72 and has a rearward extension 73 adapted to be elevated under certain conditions by means of a lifting cam 74, which is secured to a side bracket 75 on the conveyor guide 45. Said lifting cam is normally disposed toward

the center of the conveyor, as indicated by dotted lines in Fig. 7, this being accomplished by means of the spring construction of the cam itself, or by a suitable spring projecting means. A leaf spring 76 is used to hold said cam normally in down position, the same being pivoted at 77. A plurality of blocks 78 are provided on the conveyor 41 and when they pass beneath the member 74, the latter is elevated, as shown in Fig. 4 of the drawings. If, however, there is no tray present, this has no effect upon the lever 71, since it is out of line with the latter and does not engage the same when lifted. However, if there be a tray on the conveyor, it forces the cam member 74 toward the side wall of the guideway 45 so that when lifted by a block 78 it will engage the tail-piece 73 of the lever 71, lifting the same and pulling down the link 69, with the result that the bracket 64 is turned on its pivot and the guard 66 raised sufficiently to permit the mints to pass through the guide 68 and into the tray 68'. It will be noted that spring-pressed stop fingers 79 are provided at the upper end of the bracket 64 and when the latter is arranged in the position shown in said Fig. 4, so that the mints are being delivered into the tray, said fingers engage the incoming mints and prevent further feeding into the runway 63 until the bracket 64 is again moved to the position shown in Fig. 3. The capacity of the runway 63, below the fingers 79, corresponds to the capacity of the tray, so that in this manner the feeding of a greater number of mints than can be received by the tray is prevented.

As the tray passes downwardly, it engages one arm 81 of a bellcrank lever 82, pivoted on a vertical pivot at 83, the other arm 84 thereof being connected by a spring 85 with the base of the conveyor guideway 45. This spring normally tends to hold the lever arm in the position shown in full lines in Fig. 6, but when a tray comes in contact therewith it moves said lever to the dotted line position shown in said Fig. 6 and this causes the arm 84 of the lever to engage a downwardly extending arm 86 of a bellcrank 87, pivoted on a horizontal pivot at 88, the other arm 89 of said lever being connected by a link 91 with the lower part of the bracket 64. By means of this mechanism the bracket 64 is held in the position shown in Fig. 4 until the tray has passed beyond the lever 82, whereupon the spring 67 draws the front end of the bracket down to the position shown in Fig. 3.

For the purpose of stopping the operation of the machine, I provide a control lever 92, adapted to be pulled forwardly, viewing Figs. 1 and 2, and engaged by a catch 93. Said lever 92 is normally held in the position shown in Figs. 1 and 2 by means of a spring 94, secured at one end to the frame and at the opposite end to the upper part of a centrally

pivoted lever 95, the upper end of which is connected by a rod 96 with said lever 92 and the lower end of which carries a tensioning roller 97, which is held by the spring 94 in engagement with the belt 36, as shown in Fig. 1. It will be apparent that when the lever 93 is released, the belt 36 is held taut by the tensioning roller 97 and drives the pulley 37, but when said lever 92 is pulled forwardly and engaged by the catch 93, the roller 97 is moved out of engagement with said belt 36 and the latter becomes idle, thus stopping the operation of the conveyor 41.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention, or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A machine for assembling mints or the like in groups for packaging, comprising a source of mints, means for arranging them in rows containing a predetermined number of pieces, a conveyor adapted to carry trays for receiving the completed rows, means for controlling delivery of the latter into the trays, and a device operable by a tray on the conveyor for operating said last-mentioned means so that the mints will be delivered only when a tray is in position to receive them.

2. A machine for assembling mints or the like in groups for packaging, comprising a source of mints, means for arranging them in rows containing a predetermined number of pieces, a conveyor adapted to carry trays for receiving completed rows, a no-tray no-mints delivery device, and means operable by said delivery device for preventing the feeding of more than a tray full of mints upon each operation of the delivery device.

3. A machine for assembling mints or the like in groups for packaging, comprising a source of mints, means for arranging them in rows containing a predetermined number of pieces, a conveyor adapted to carry trays for receiving the completed rows, means for controlling delivery of the latter into the trays, and a device for operating said last-mentioned means comprising a member normally disposed in inoperative position in the path of the trays carried by the conveyor and adapted to be moved by a tray on the conveyor to position for actuating said delivery means to cause the same to deliver the mints into said tray.

4. A machine for assembling mints or the like in groups for packaging, comprising a source of mints, means for arranging them in rows containing a predetermined number of pieces, a conveyor adapted to carry trays for

receiving the completed rows, means for controlling delivery of the latter into the trays, and a device for operating said last-mentioned means comprising a member normally disposed in inoperative position in the path of the trays carried by the conveyor and adapted to be moved by a tray on the conveyor to position for actuating said delivery means to cause the same to deliver the mints into said tray, and means on the conveyor for actuating said member.

5. A machine for assembling mints or the like in groups for packaging, comprising a source of mints, means for arranging them in rows containing a predetermined number of pieces, a conveyor adapted to carry trays for receiving the completed rows, a device operable by a tray on the conveyor for operating said last-mentioned means so that the mints will be delivered only when a tray is in position to receive them, and means also operable by the tray for holding said delivery means in position permitting the mints to be deposited in the tray until the latter has been filled.

6. A machine for assembling mints or the like in groups for packaging, comprising a source of mints, means for arranging them in rows containing a predetermined number of pieces, a conveyor adapted to carry trays for receiving the completed rows, a device operable by a tray on the conveyor for operating said last-mentioned means so that the mints will be delivered only when a tray is in position to receive them, means also operable by the tray for holding said delivery means in position permitting the mints to be deposited in the tray until the latter has been filled, and means for automatically operating said delivery means to cause the same to obstruct further delivery of the mints after the tray has been filled and until another tray is presented.

7. A machine for assembling mints or the like in groups for packaging, comprising a source of mints, a runway into which the mints are adapted to be fed and arranged in courses, the way for each course of mints being formed for part of its length as a closed passageway and for part of its length with openings permitting discharge of broken or malformed pieces of mints, the adjacent ways being arranged with the open and closed parts thereof in alternate relationship, means for bringing the mints from the different courses together and arranging them in rows, and means for delivering the completed rows for transfer from the machine.

8. A machine for assembling mints or the like in groups for packaging, comprising a source of mints, a chute in which said mints are arranged in rows containing a predetermined number of pieces, a pivoted control member having a guard normally closing the lower end of said chute, said tray being adapt-

ed to receive a plurality of rows of mints and
a conveyor passing beneath the chute and
adapted to carry receptacles for receiving the
rows of mints, and means rendered operative
5 by a tray on the conveyor for turning said
control member on its pivot to remove said
guard from obstructing position at the lower
end of the chute whereby the rows of mints
are delivered into the tray, the delivery of
the mints being automatically terminated 10
when the tray is filled.

In witness whereof, I hereunto subscribe
my name to this specification.

BRUNO RADTKE.