

Jan. 26, 1954

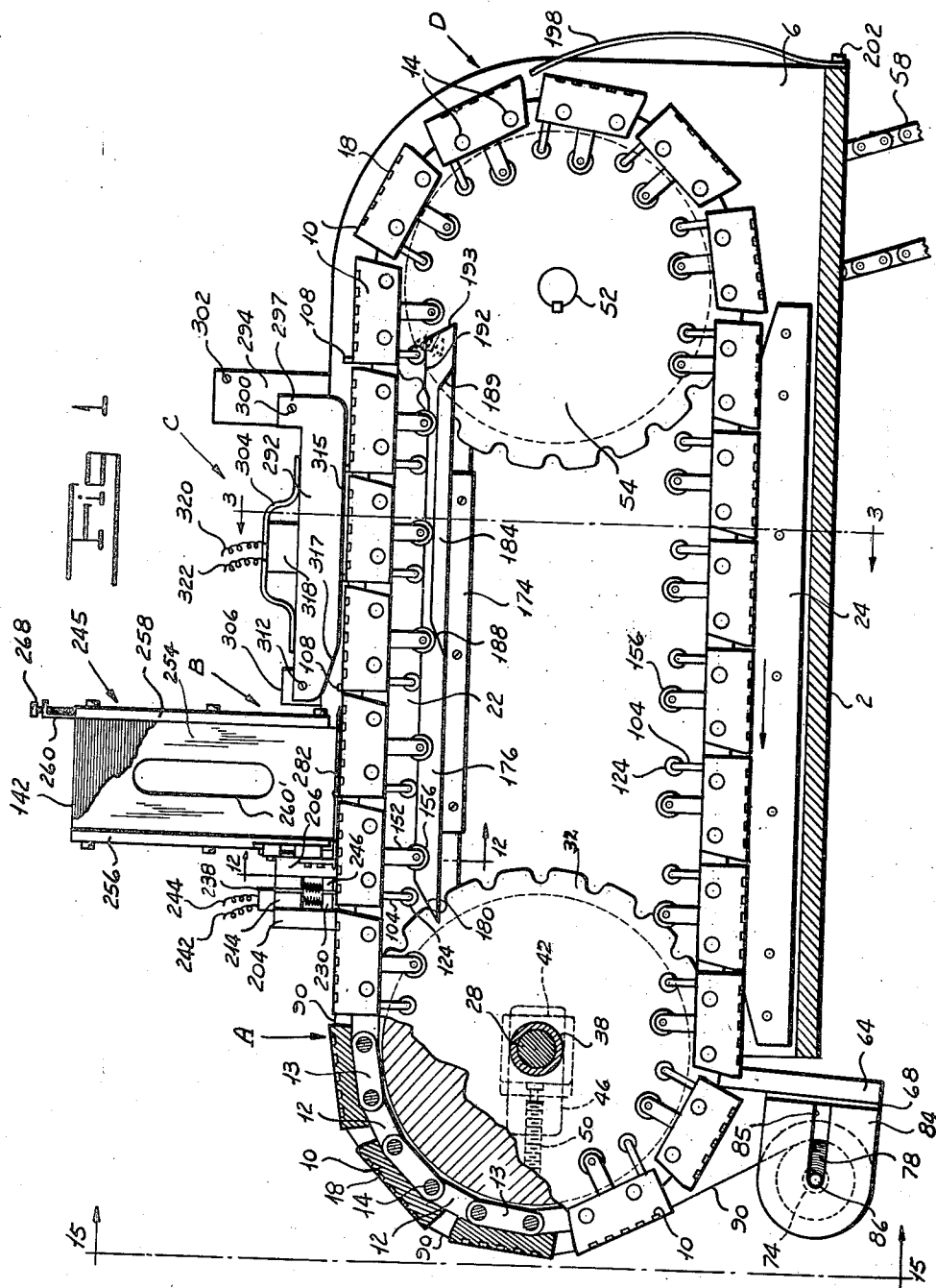
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2,667,019

PACKAGING APPARATUS AND METHOD OF PACKAGING

Filed Feb. 12, 1949

9 Sheets-Sheet 1



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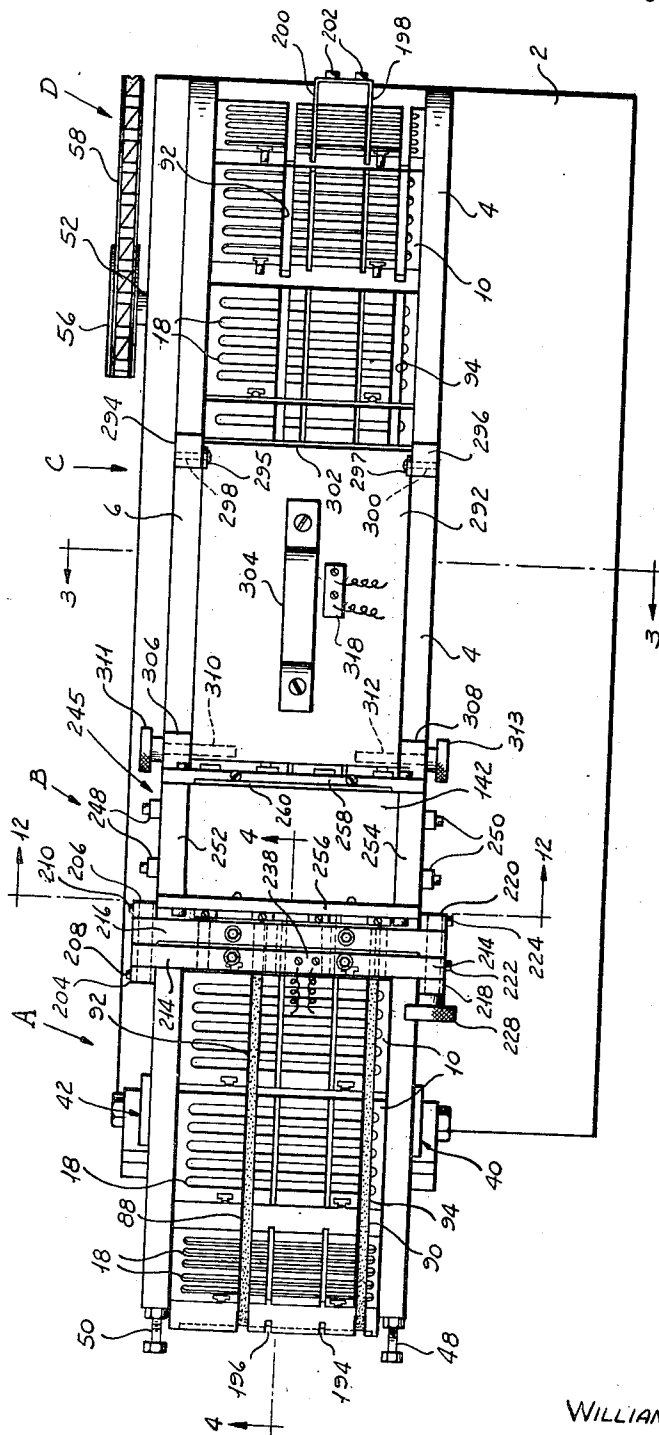
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PACKAGING APPARATUS AND METHOD OF PACKAGING

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Fig. 2



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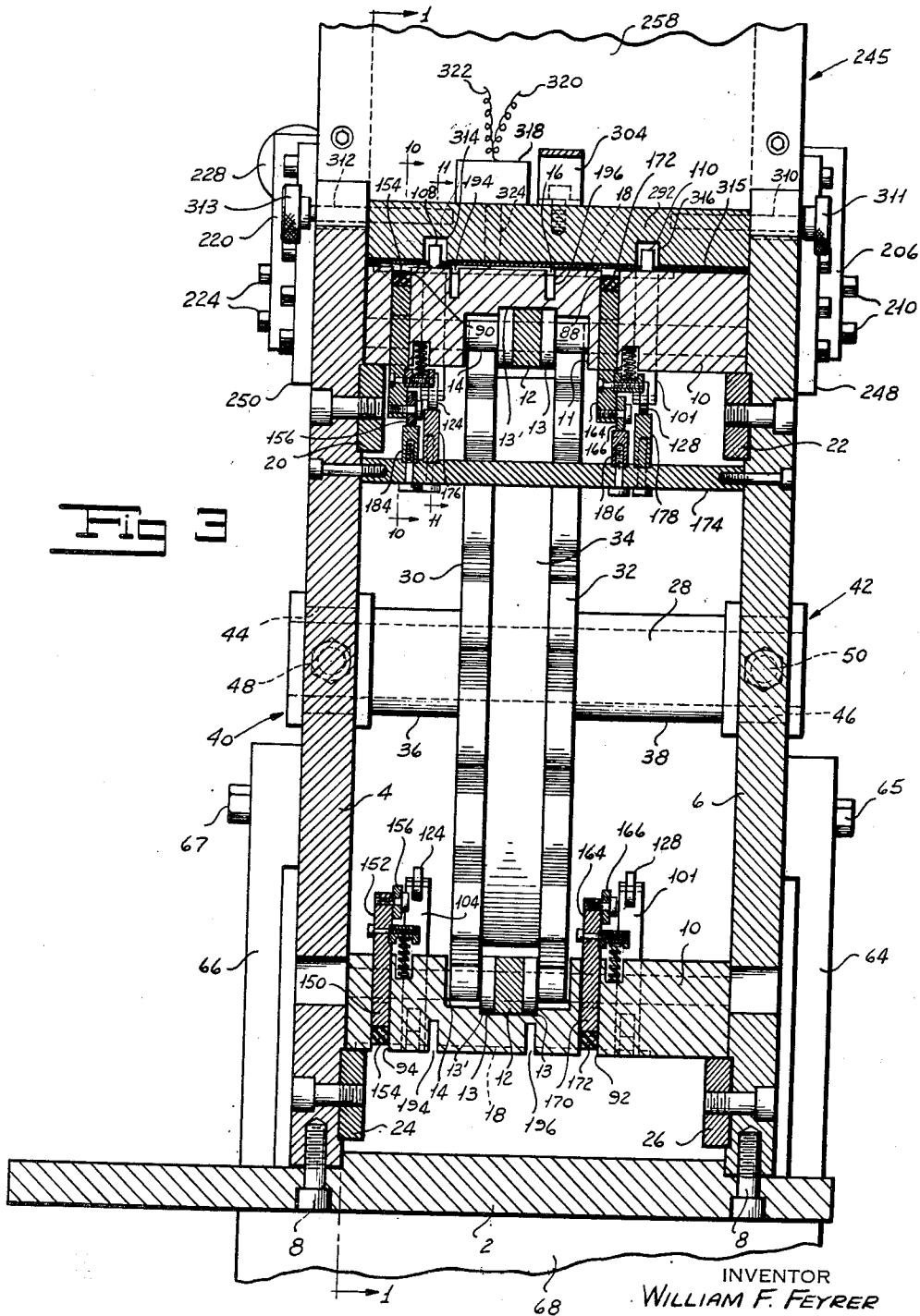
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PACKAGING APPARATUS AND METHOD OF PACKAGING

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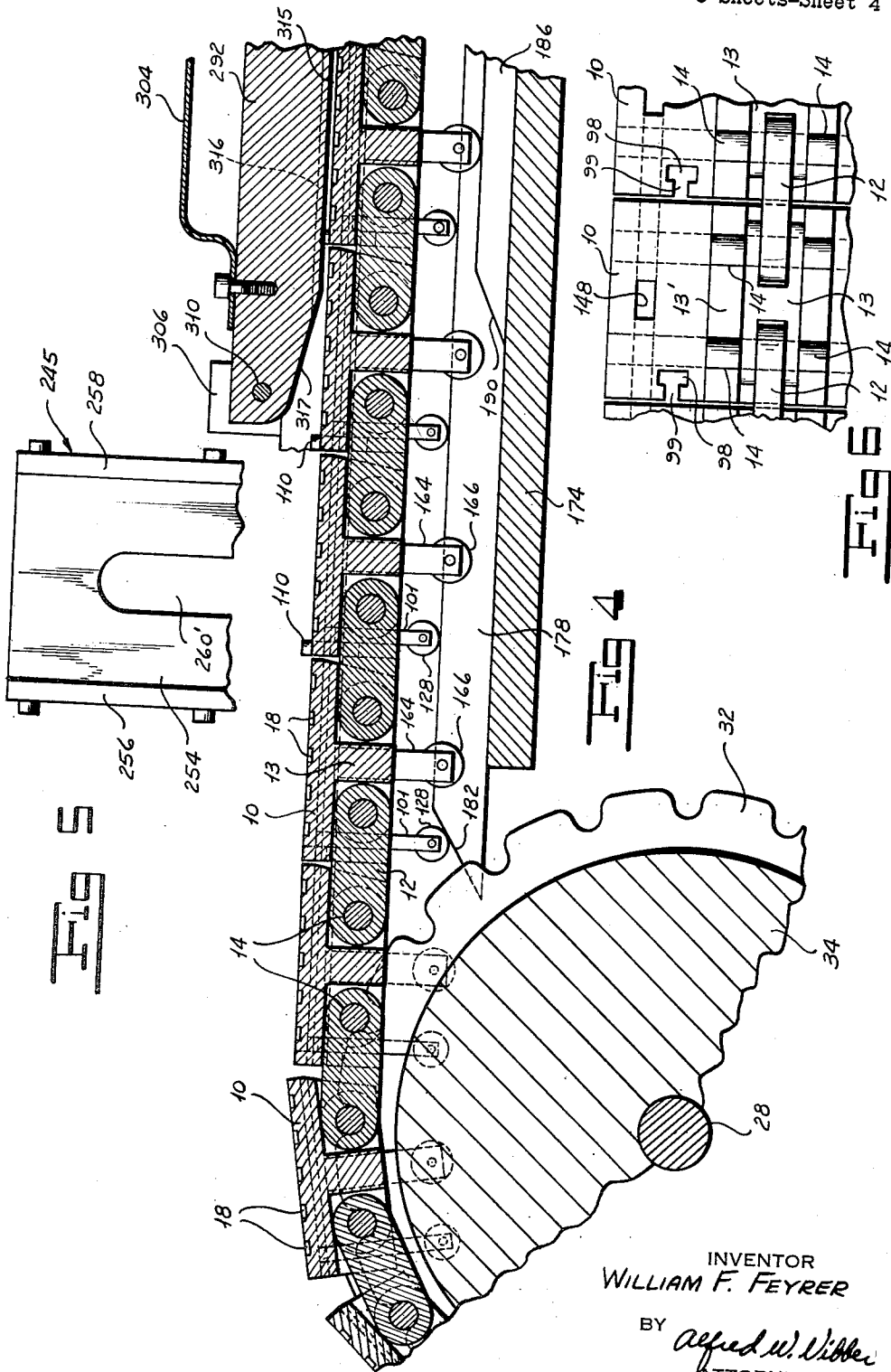
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PACKAGING APPARATUS AND METHOD OF PACKAGING

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9 Sheets-Sheet 4



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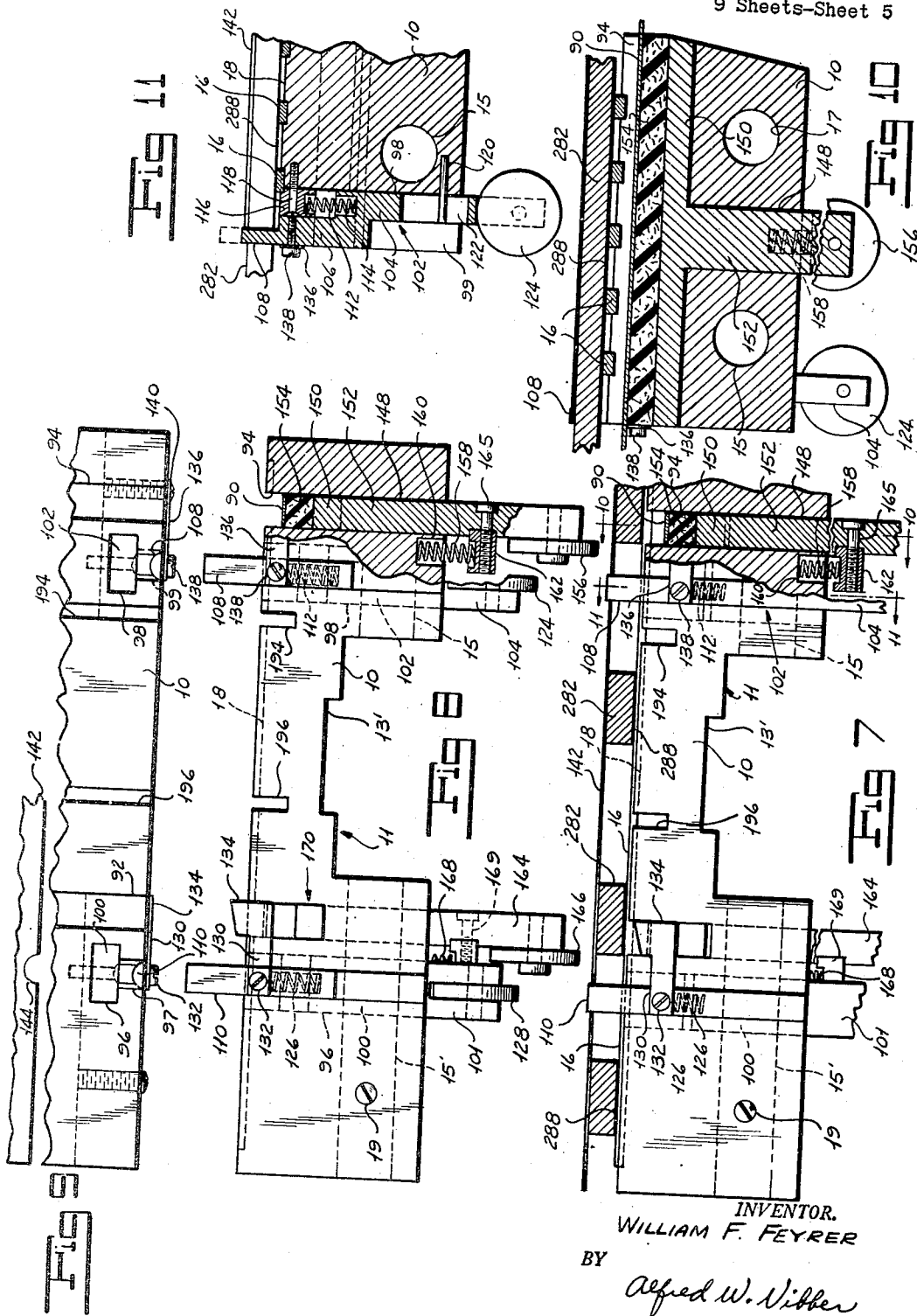
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PACKAGING APPARATUS AND METHOD OF PACKAGING

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9 Sheets-Sheet 5



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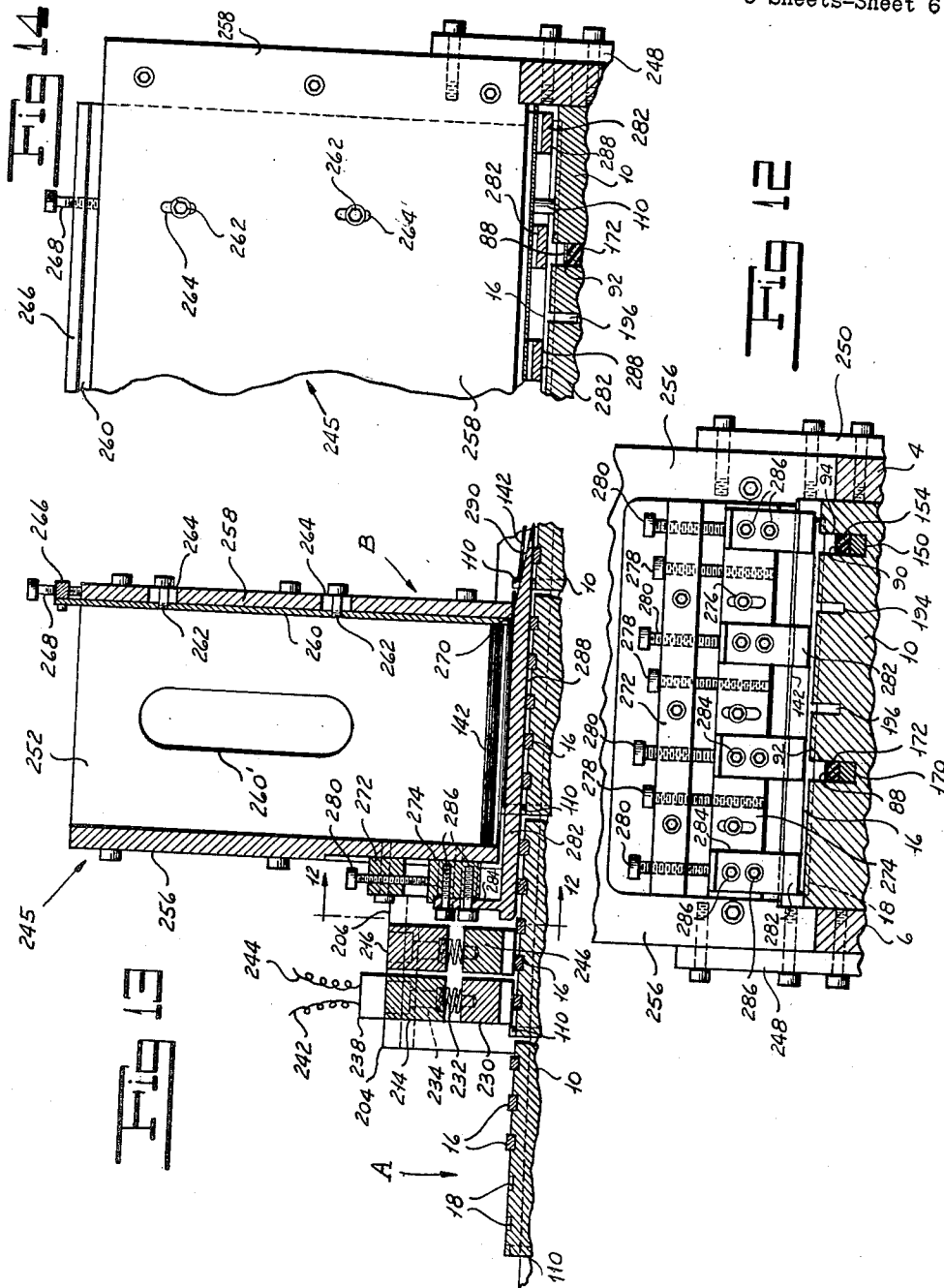
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PACKAGING APPARATUS AND METHOD OF PACKAGING

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9 Sheets-Sheet 6



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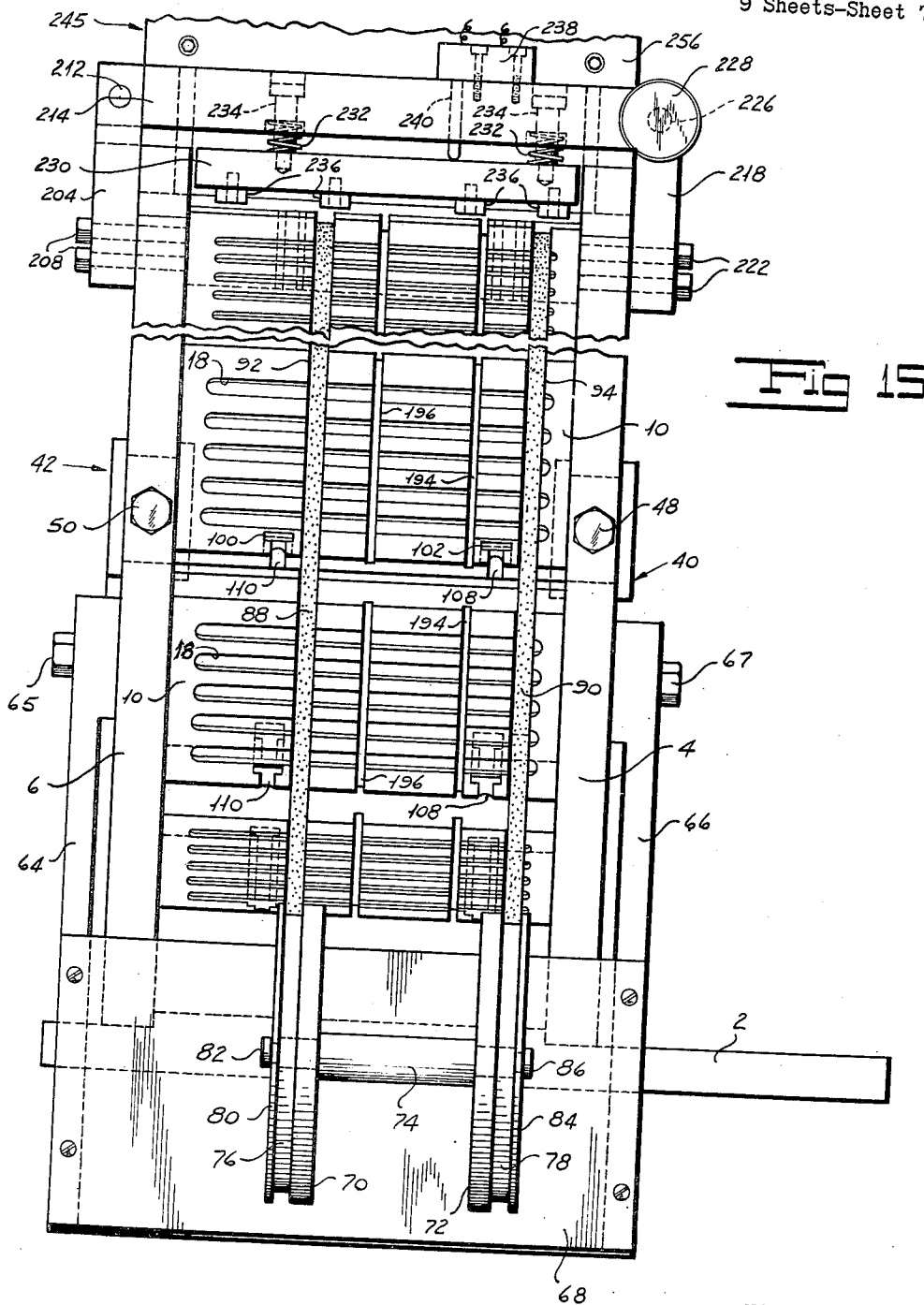
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PACKAGING APPARATUS AND METHOD OF PACKAGING

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9 Sheets-Sheet 7



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PACKAGING APPARATUS AND METHOD OF PACKAGING

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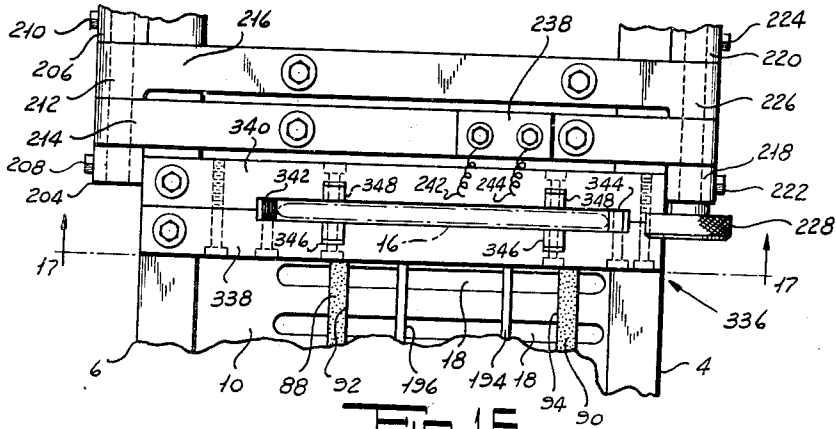


Fig 16

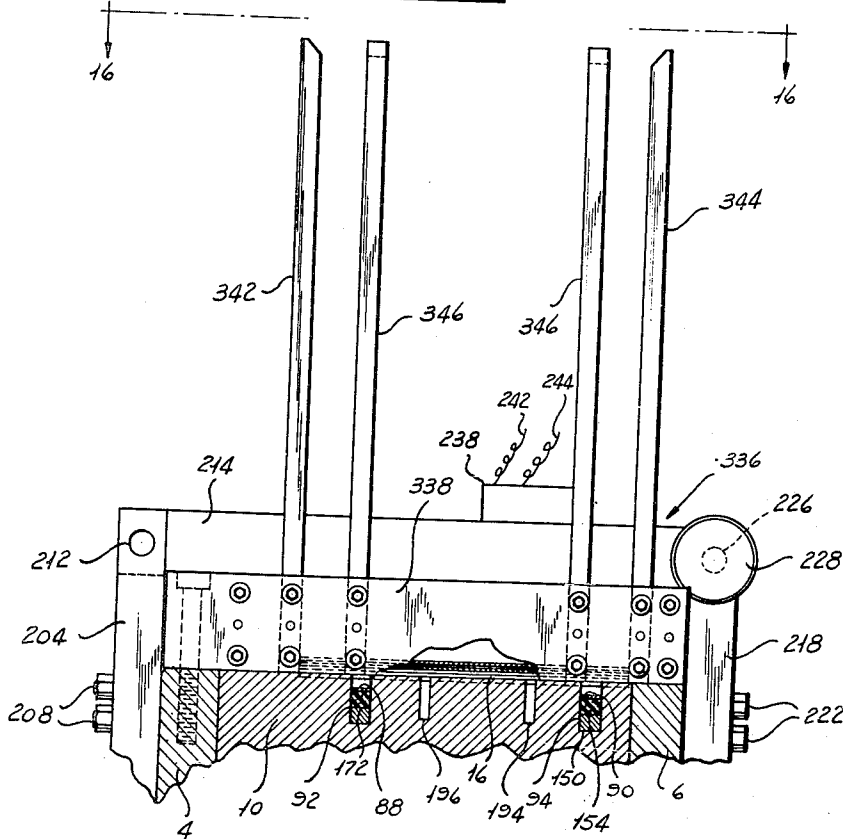


Fig 17

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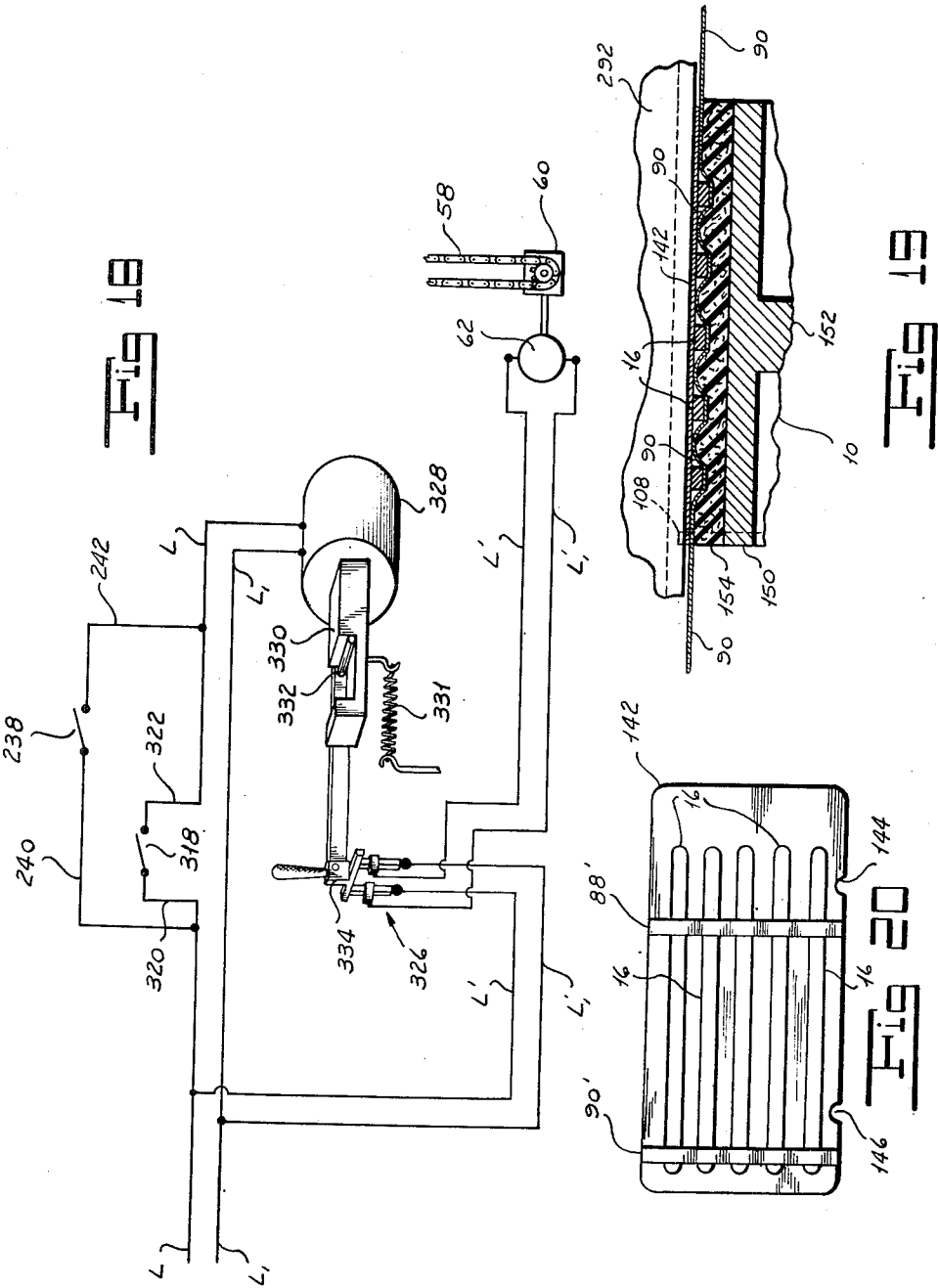
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PACKAGING APPARATUS AND METHOD OF PACKAGING

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9 Sheets-Sheet 9



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UNITED STATES PATENT OFFICE

2,667,019

PACKAGING APPARATUS AND METHOD
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Application February 12, 1949, Serial No. 76,116

33 Claims. (Cl. 53—11)

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This invention relates to packaging apparatus, method of packaging, and product thereof, and more particularly to an apparatus and method for automatically mounting one or more work pieces or products on cards, or similar mounting members, with one or more adhesive tapes, and to the product of such method.

Among the objects of the invention is the provision of an apparatus for effecting fast, high quality, production of so-called "flat pack" articles, the apparatus being of such character that it requires a minimum of care and attention during its operation.

Another object of the invention is the provision of apparatus for securely mounting products or work pieces upon cards with one or more adhesive tapes in such manner that the operator need not soil his hands with gummy tape or the like, the apparatus being of such character and construction that the adhesive tape will not cause the cards to stick together.

Another object of the invention resides in the provision of a novel method of packaging articles by mounting them upon cards by adhesive tape or tapes.

A further object of the invention lies in the novel package resulting from practice of the packaging method of the invention.

Yet a further object of the invention, in one of the preferred embodiments described herein, is the provision of a machine of the type indicated in which the articles to be mounted on the cards are fed automatically to the machine and thence to the assembly station.

A still further object of the invention, in preferred embodiments thereof, is the provision in the control circuit for the driving means for the packaging machine of safety devices which automatically stop the machine should the articles to be packaged not be seated correctly on the conveying platens, and also stop the machine should the cards upon which such articles are to be mounted not be fed correctly to the assembly station.

In its preferred embodiments illustrated herein the apparatus of the invention includes a plurality of connected platens, each provided with a plurality of article receiving recesses in the top surface thereof. The connected platens are driven in such direction that they travel sequentially beneath a card dispensing hopper, which deposits one card on top of the articles on each platen as the latter passes the card feeding hopper. The apparatus also includes means whereby one or more adhesive tapes, the ad-

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hesive coated side facing upwardly, are positioned beneath the articles seated on the platens. The thus superimposed adhesive tape, articles to be packaged, and the cards are then carried by the platens to an assembling station, at which point in its travel a presser member mounted in each platen beneath each adhesive tape is impelled upwardly to press such tape against the articles to be packaged and into contact with the card at points between the articles. After the platen has left the assembling station, a cutter means is brought into action to cut the tape or tapes in the locations between successive cards, after which each card, with its articles mounted thereon, is ejected from the end of the machine. As above indicated safety control means are provided, the first such control being in the nature of a feeler which insures that the articles are securely seated in the recesses on the platens before the platens pass beneath the card dispensing hopper, the second safety control means being a feeler member at the assembling station, which insures that the card is superimposed correctly upon the platen and thus upon the articles to be packaged as they are fed through the assembling station. Should either safety control means be actuated the machine is immediately automatically stopped.

The invention will be more readily understood by reference to the accompanying drawings which show preferred embodiments thereof.

In the drawings:

Fig. 1 is a view in side elevation of the first described embodiment of the machine, in which the articles to be packaged are fed thereto manually, the machine being shown with the side plate nearer the viewer being largely removed;

Fig. 2 is a view in plan of the machine shown in Fig. 1, the machine being shown in Figs. 1 and 2 threaded with the two adhesive tapes employed but before any articles to be packaged have been loaded onto the platens thereof;

Fig. 3 is a view in vertical cross-section through the machine of the first embodiment, the machine being shown loaded with articles to be packaged and in working condition, the section being taken through the machine along the lines 3—3 in Figs. 1 and 2;

Fig. 4 is a fragmentary longitudinal sectional view of the machine with the article receiving recesses on the platens of the conveyor empty, and with no adhesive tape threaded through the machine, the section being taken along the line 4—4 in Fig. 2;

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Fig. 5 is a fragmentary view in side elevation of the card feeding hopper of the apparatus, Figs. 4 and 5 illustrating the location of the hopper relative to the conveyor longitudinally of the latter;

Fig. 6 is a fragmentary view in bottom plan of the connected chain of platens forming the conveyor of the apparatus;

Fig. 7 is a fragmentary rear view partially in section and partially in elevation of a platen of the conveyor with the card pusher fingers or pins in their intermediate, card engaging, positions, and with the tape pressing members in their lowered, retracted positions, the platen being shown in that portion of its travel in which it cooperates with the slats on the bottom of the card dispensing hopper;

Fig. 8 is a view of the platen per se, taken in a manner similar to that in Fig. 7, but with the card pusher pins and the tape cutters carried thereby in their fully extended, raised, positions;

Fig. 9 is a fragmentary view in plan of the rear portion of the platen shown in Figs. 7 and 8, and of a portion of a card cooperating therewith;

Fig. 10 is a view in vertical section through the platen, the section being taken along the lines 10—10 in Figs. 7 and 8;

Fig. 11 is a fragmentary view in vertical section of the platen and the card pusher mechanism of the platen, the view being taken along the line 11—11 in Fig. 7, the platen being shown with its recesses loaded with articles to be packaged;

Fig. 12 is a fragmentary view in elevation of the feed-in side of the card dispensing hopper, the view being taken from the line 12—12 in Figs. 1, 2, and 13;

Fig. 13 is a view in longitudinal vertical section through the rear safety mechanism and the card feeding hopper, the platens being shown loaded with articles to be packaged, the section being taken through the machine along the line 4—4 in Fig. 2;

Fig. 14 is a fragmentary view in elevation of the feed-out side of the card hopper;

Fig. 15 is a view in end elevation of the packaging apparatus, the view being taken from the line 15—15 in Fig. 1;

Fig. 16 is a fragmentary view in plan of a second embodiment of the machine, such embodiment incorporating an automatic feeding means for the articles to be packaged, the view being taken in the vicinity of the article feeding hopper from the line 16—16 in Fig. 17;

Fig. 17 is a view in vertical section through the apparatus of the second embodiment, the section being taken along the line 17—17 in Fig. 16;

Fig. 18 is a somewhat schematic wiring diagram of the electrical controls and safety devices of the machine;

Fig. 19 is a fragmentary view in vertical section through the platen and the upper pressing member at the assembling station when the two are juxtaposed, the section being taken through the platen in the same manner as that of Fig. 10; and

Fig. 20 is a view in plan of a card with a series of similar objects mounted or packaged thereon, such card resulting from operation of the machine of the invention.

As has been indicated above, Figs. 1 to 15, inclusive, 18, and 19 illustrate a first embodiment of the machine in which the articles to be packaged are loaded onto the platens of the work conveyor manually. Figs. 16 and 17 show the second embodiment of the machine, which is identical with that of the first embodiment except for the provision therein of a hopper for auto-

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matically loading the articles to be packaged into the recesses on the platens of the machine. Fig. 20 shows the final assembly of articles on a card resulting from operation of either embodiment of the machine.

The machine is shown mounted upon a horizontal foundation plate 2, from which rise the parallel spaced side plates 4 and 6 which are attached thereto by screws 8, as shown in Fig. 3. The work piece or article 15 and card carrying platens 10 of the packaging conveyor, are connected serially together to form an endless conveyor chain, as indicated in Fig. 1. Such platens, which in vertical cross section have the shape indicated in Figs. 7 and 8, are each provided with a longitudinally extending bottom recess 11 within which fit the links for attaching the successive platens together. As shown most clearly in Fig. 6, such connecting links consist of the double ended bifurcated links 13, between which are fitted the narrow straight links 12. A series of transverse connecting pins 14 extend through openings in links 12 and 13, as shown, the ends of pins 14 extending into bores in the bottom portion of platen 10 on either side of the recess 11, as indicated in Figs. 3, 7, and 8. The right and left hand end bores of the rear of the platen are designated 15 and 15', respectively, as shown in Figs. 7 and 8. Similar bores are provided in the forward portion of the platens, one such bore being shown at 17 in Fig. 10. Longitudinal bottom recess 11 in each platen has a smaller, deeper portion in the mid-point thereof, such portion being designated 13'. As shown in Fig. 3, recess 13' has the function of receiving the outer edge of links 13 between the side walls thereof and of maintaining links 12 and 13 centrally located in recess 11. Each platen 10 is provided with set screws which retain the cross pins 14 from movement transversely of the platen, one such set screw 19 being shown in Figs. 7, 8, and 9.

Each platen is provided on its upper surface with a plurality of spaced transverse recesses 18 receiving the articles 16 to be packaged. In this instance the articles to be packaged are elongated hair curlers which have a thickness, or vertical height when lying horizontally in recesses 18, slightly in excess of the depth of the recesses. The articles 16 to be packaged are shown mounted in recesses 18 in Figs. 3, 13, 14 etc., and are shown in Fig. 20 in the final package, articles 16 being there shown mounted on card 142.

The series of platens 10, connected as shown in Figs. 1 and 2, are traversed sequentially through the various stations of the machine. Such chain of connected platens is supported at the top of the machine on the horizontal parallel track members 20, at the left in Fig. 3, and 22, at the right, in Fig. 3. The platens travel in the direction indicated by the arrows in Fig. 1, being supported and driven in arcuate paths at the ends of the machine by sprockets, to be described, and in its bottom, return, run on the parallel horizontal track members 24, at the left in Fig. 3, and 26, at the right. At the left in Figs. 1 and 2 the machine is provided with an idle sprocket shaft 28 which carries thereon a double sprocket consisting of the sprocket flange 30, the intermediate hub member 34, and the sprocket flange 32, as shown in Fig. 3. Sprocket flanges 30 and 32 lie on opposite sides of links 13, and, as shown in Fig. 3, receive within their peripheral recesses the portions of pins 14 between links 13 and the sidewalls of recesses 11 in the platens 10.

Shaft 28 is provided at the left in Fig. 3 with

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a spacer sleeve 36 and at the right with a spacer sleeve 38, such sleeves having connected thereto the flanged slide members 40 and 42, respectively. Members 40 and 42 are received in horizontal guideways in their respective supporting plates 4 and 6, the guideway in plate 4 being designated 44, and that in plate 6 being denoted 46. As shown more clearly in Figs. 1 and 2, shaft 28 and thus the double sprocket mounted thereon, are adjustable longitudinally of the machine frame to tighten or loosen the conveyor made up of the platens 10. Such adjustment is provided by the screws 48 and 50, shown in Fig. 2, the inner end of each such screw being swivelly connected to its respective slide member 40 and 42, whereby the shaft 28 may be adjusted either to the right or to the left in Figs. 1 and 2, to loosen or tighten the conveyor chain, respectively, and may also be brought into parallelism with shaft 52 by relative adjustment of screws 48 and 50.

At the right in Figs. 1 and 2 the apparatus is provided with a driven shaft 52 spaced from and parallel to shaft 28. Shaft 52 carries keyed thereon a similar double sprocket of which one toothed flange 54 is shown in Fig. 1. Shaft 52 is provided on its outer end with a sprocket 56 over which is entrained a driving chain 58. Chain 58 is driven by any suitable means. In Fig. 18 there is diagrammatically indicated an electric motor 62 connected to a speed reducer 60, from the latter of which chain 58 is driven.

The packaging apparatus of the invention may be generally described as comprising four zones or stations, indicated by the letters A, B, C, and D in Figs. 1 and 2. Station A is the loading station wherein the articles to be packaged are loaded into the recesses on the platen. In the first described embodiment of the apparatus such articles are loaded manually; in the second embodiment of the apparatus, to be subsequently described, such articles are loaded automatically. Station B is the position in the apparatus wherein the cards on which the articles are to be mounted are fed automatically to the platens of the conveyor passing thereunder. Station C is the zone of the machine in which the adhesive tapes, fed through the machine under the cards and the articles to be mounted on the cards are automatically pressed up into contact with the articles and the cards. At the forward end of the assembling station C there is a sub-zone wherein the tapes between adjacent cards are severed. Station D, at the right in Figs. 1 and 2, is the point at which the separated, finally assembled, cards and articles are discharged from the machine.

The two adhesive tapes 88 and 90 employed in the apparatus described are pulled from supply reels at the left hand end of the apparatus as shown in Figs. 1 and 2, the driven conveyor consisting of the connected platens 10 performing such pulling of the tapes once operation of the machine has been begun. As a preliminary to such operation the tapes are threaded through the platens at least to the vicinity of assembly of the articles thereon, that is, station A, by hand.

The tape supply means is shown in detail in Figs. 1 and 15. In such figures, the rear end of the machine frame is shown provided with a pair of parallel depending adhesive tape reel supporting members 64 and 66, member 64 being attached to plate 6 by means of the stud 65, and member 66 being attached to the plate 4 by means of stud 67. Members 64 and 66 are connected together by vertical plate 68, which is shown at-

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tached to such members by machine screws. Mounted upon the rear face of member 68 is a pair of parallel spaced adhesive tape reel supporting members 70 and 72, such members carrying between them the cross shaft 74. The ends of shaft 74, beyond their respective supporting members, are reduced in diameter, that at the left in Fig. 15 being shown at 82 and that at the right being shown at 86. On ends 82 and 86, respectively, of the shaft 74 are supported the rolls 76 and 78 of adhesive tape. The rolls are so coiled, and they are so mounted on the machine that, when the tapes are pulled off them onto the conveyor in the manner shown in Fig. 1, the adhesive coated side of each of the tapes lies outwardly and upwardly of the conveyor.

The rolls 76 and 78 of adhesive tape are retained upon the ends of shaft 74 by means of the identical retaining members 80 and 84, respectively. The ends 82 and 86 of shaft 74 are flattened at the top and bottom inwardly of their tips, as indicated in Fig. 15. Each retaining member is slotted, the slot in member 84 being shown at 85, Fig. 1. The width of slot 85 is such that the flattened and thus narrower portion of end 86 is snugly received within it, whereby member 84 is retained on the shaft against both endwise and rotative movement but may be readily removed to allow replacement of the roll of adhesive tape.

The rolls 76 and 78 of adhesive tape are so located on their supporting means, and the widths of the tapes are such, that the stretches of tape 98 and 92, respectively, delivered therefrom are in line with, and fit within the grooves 92 and 94, respectively, which extend longitudinally of the top surface of each of the platens 10. The adhesive tapes preferably employed in the machine are of the type employing a regenerated cellulose backing and having a pressure sensitive adhesive coating thereon. A well known tape of this type, suitable for the operation of the machine, is that known as "Scotch" tape. It is obvious, however, that adhesive tapes of other characters may be employed in accordance with and in the use of the apparatus of the invention.

The construction of the platens 10, of the card pushing pins or fingers, and of the adhesive tape pressing members associated therewith, will be made plain by consideration of Figs. 7 to 11, inclusive. Each platen 10 is provided at its rear edge with two similar and simultaneously operated card pushing fingers, 108 and 110. The mounting mechanism for finger 110 is shown at the left in Figs. 7, 8, and 9, wherein platen 10 is provided at the left with a T-shaped guideway, the large portion of such guideway being designated 96 and the small, outer, central stem portion thereof communicating with the rear edge of the platen being designated 97. At the right, in these figures, platen 10 is provided with a similar guideway for finger 108, such guideway having a large inner portion 98 and a small, outer, central stem portion 99. Within the first named guideway is positioned a vertically reciprocable slide member 100, the bottom end of which, protruding below the bottom of the platen, is designated 101, as shown in Figs. 7 and 8. In the guideway at the right in Figs. 7, 8, and 9, there is positioned a vertically reciprocable slide member 102, the bottom portion of which is designated 104. The two slide members 100 and 102 are identical. The construction of both will be apparent from a consideration of Fig. 11, which shows the slide 102 and the parts thereof in cross

section. Slide 102 has an intermediate offset portion 106 above the bottom portion 104, portion 106 carrying on its outer upper edge the card pushing pin 108 which, as shown in Fig. 9, has an arcuate forward face and a flat rear face. The card pushing pin on slide 100 which corresponds to the pin 108 is, as indicated, designated 110.

Slides 100 and 102 are constantly urged toward their lowered, retracted positions, in which the tops of pins 108 and 110 lie beneath the top surface of platen 10. The slides 100 and 102 and the pins 108 and 110 are thus fully retracted at all times except for the period of their actuation by track members 176 and 178, to be described. The card pushing pins 108 and 110, as shown in Fig. 7 and, in full line, in Fig. 11, have been thrust by tracks 176 and 178 to their intermediate, card engaging, positions. Slide 102 is urged downwardly by the coil spring 112 which fits within a spring socket 114 in slide 102, as shown in Fig. 11, the upper end of such spring fitting within a socket in the abutment block 116. Block 116 is attached to platen 10 by means of the screw 118, as shown. A pin 120, the outer end of which protrudes from platen 10, extends into longitudinal slot 122 in the bottom portion 104 of slide 102, thus limiting the extent of vertical movement of the slide. The bottom end portions of slides 100 and 102, that is, portions 101 and 104, respectively, are bifurcated, as is indicated at the left in Fig. 8 where portion 101 is shown. On each slide, carried within the legs of such bifurcation on a transverse pivot pin, is a cam track following wheel. Such wheel on slide 101 is designated 128, and that on slide 102 is denoted 124. As is shown in Figs. 7 and 8, slide 100 is also provided with a coil spring, 126, which constantly urges it downwardly. The coil springs and the cam track following wheels of each of slides 100 and 102 cooperate with the longitudinally extending cam tracks 176 and 178 of the machine, subsequently to be described, to raise the card pushing pins 110 and 108, as the platens travel beneath the card dispensing hopper, to such height that the rear edge of the bottom card in the hopper is engaged thereby and the card is pushed from the stack in the hopper into the proper position on the platen. The slides are, subsequent to the assembling of the adhesive tapes and the articles on the cards, raised still further by the cam tracks to bring into operation the tape severing means now to be described.

The tape severing means on both slides 100 and 102 are identical, and so they will be described in detail in connection with slide 100 shown at the left in Figs. 7 and 8. The rear edge, which lies vertical in Figs. 7 and 8, of the card thrusting pin 110, which lies flush with the rear edge of the platen 10, is provided with a horizontal cross arm 130 attached thereto by the screw 132. On the outer end of the arm 130 there is attached the cutting blade 134, the upper edge of which is inclined, as shown. As shown, blade 134 lies vertically in line with the adhesive tape receiving groove in the top of the platen. The dimensions of the parts are such that the cutting blade 134 is normally positioned, except at the cutting station, with its upper edge at a position lower than the bottoms of recesses 18 in platen 10. Card pushing finger 110, and thus the cutting blade 134, remain in the position shown in Fig. 7 until the card, engaged by fingers 108 and 110, and the articles to be mounted thereon have been

assembled in the machine in station C. Thereupon the finger 110 is raised still further, carrying with it the blade 134 which severs the adhesive tape in that position between the rear edge of one card and the front edge of the other.

As indicated, the construction of the tape severing means associated with card pushing pin 108 is similar to that previously described. Slide 102 is provided on its rear edge with the transverse arm 136 attached thereto by the screw 138. On the outer end of arm 136 there is provided a cutting blade 140 which lies vertically in line with the longitudinal tape receiving groove 94 at the top of platen 10.

Grooves 92 and 94 in the platen 10 are, as shown in Figs. 7 and 8, as well as Fig. 10, of substantial vertical extent. Communicating with each such groove 92 and 94 is a central vertical guideway, that at the right in Figs. 7 and 8 being shown at 148. Within each thus provided T-shaped guideway in the platens is mounted a T-shaped slide or presser member. The presser member associated with groove 94 consists of an elongated top portion 150 and a central vertical stem member 152 which reciprocates in guideway 148. See Fig. 10. Positioned on top of, and cemented to, portion 150 of the presser member is the soft resilient pad 154, shown as made of rubber, which extends throughout substantially the entire length of the platen. The stem of each of the presser members is provided at its bottom with a cam track following wheel, that on stem 152 being designated 156, and that on stem 154, at the left in Figs. 7 and 8, being designated 166. The presser members or slides are normally urged into their lowermost positions, shown in Figs. 7 and 8, in which the top surface of each of the resilient presser pads lies below the bottoms of recesses 18 in the platens, by means of spring members acting between them and the body of the platen. For slide 150 there is provided a coil spring 158 seated within a seat 160 on the bottom of the platen, as shown, the other end of spring 158 being retained by abutment member 162 attached to stem 152 of slide 150 by means of stud 165. The construction of the presser slide at the left in Figs. 7 and 8 is similar to that previously described, the slide 170 (Fig. 12) carrying resilient pad 172 being provided with a central stem 164 which carries on the bottom thereof the wheel 166. Slide 170 is urged constantly toward its lowermost position by means of the coil spring 168 cooperating with a spring abutment 169 mounted on stem 164.

As above indicated, the card pushing pins, the tape severing cutters, and the assembling presser members or slides are actuated by cam track members positioned on the frame of the machine and along which the rollers on the bottoms of the slides run. Such tracks are shown in Figs. 1, 3, and 4. Extending between plates 4 and 6 and attached thereto is the horizontal plate 174, upon which are positioned the cam tracks. In Fig. 3 there is shown a longer, higher track 176, at the left, and a track 178 identical therewith, positioned at the right. The rear ends of both such tracks, at the left as shown in Fig. 1, are inclined so that as the platens travel therepast the wheels on the bottoms of the pusher finger slides travel up such inclines and thence along the top surface of each of the respective tracks. The inclined entering end of track 176 is designated 180, and such inclined entering end of track 178 is designated 182.

The adhesive tape pressing and assembling

members are actuated by means of the identical short lower tracks, such tracks being designated 184 at the left in Fig. 3, and 186 at the right. The entering ends of such tracks are also inclined, the inclined entering end of track 184 being designated 193, and such end of track 186 being shown at 199. As indicated in Fig. 1, tracks 176 and 178 have their inclined entering ends located just to the rear of the card dispensing hopper, and the shorter, lower, tracks 184 and 186 have their entering ends just under the entering end of the upper platen member 292 to be described. It will thus be evident that the card pushing fingers 108 and 110 on each platen are raised from a position in which the tops of the fingers lie beneath the top surface of the platen 10 to the position which they occupy in Fig. 7, in that portion of the travel of the platen beneath the card dispensing hopper, and that the presser slides on such platen are raised as the platen passes below the member 292. Tracks 184 and 186 terminate at the front of the machine at a location slightly beyond the front end of the upper presser member 292 but rearwardly of the location of termination of tracks 176 and 178. Tracks 184 and 186 are inclined downwardly at their forward termini, such forward end of track 184 being shown at 189 in Fig. 1. When the cam track following wheels 156 and 166 run down the inclined forward ends of tracks 184 and 186, the tape pressing pads on the slides to which such wheels are connected are retracted into the position which they occupy in Figs. 7, 8, and 10. The longer, higher, tracks are provided near their exit ends with a raised portion, such portion of track 176 being shown at 192 in Fig. 1. Portion 192 of track 176 and the corresponding portion (not shown) of track 178, have the function of raising the card pushing fingers until they reach the position shown in Fig. 8, wherein the tape severing blades are raised to cut the tape in the locations between the mounting cards on successive platens. Tracks 176 and 178 terminate at a location a short distance in front of the front, exit, end of the upper presser member 292, subsequently to be described. The front end of track 176 is shown at 193; such end is steeply inclined, to allow the rapid retraction of slides 100 and 102, and thus of pins 108 and 110, when the cam track following wheels 124 and 128 connected thereto run down such forward inclined ends of the tracks 176 and 178.

Each platen 10 is further provided with two longitudinally extending grooves 194 and 196, such grooves receiving the upper ends of stripper wires 198 and 200, respectively, within them at the zone D, as indicated in Fig. 1. Such stripper wires, which are attached to mounting plate 2 by means of the screws 202, have the function of removing from the tops of the platens any cards which may adhere thereto after the platens have tipped substantially in their travel around the sprocket 54.

In both embodiments of the machine shown, that is, that in which the articles 16 are placed in the recesses 18 on the platens 10 manually, and that in which they are fed thereto automatically, there are provided safety means whereby should the articles not seat in the desired manner in the recesses on the platens the machine is automatically stopped, thereby preventing any possible damage to the machine. The construction of such first safety control is shown in Figs. 1, 2, 13, and 16.

Attached to the plate 6 by studs 208 and 210, 75

respectively, immediately to the rear of the card feeding hopper, are two spaced vertically positioned supporting members 204 and 206. On the opposite side of the machine, similarly positioned, are a pair of similar members, 218 and 220, attached to plate 4 by studs 222 and 224, respectively. Pivotaly attached by pivot pin 212 between members 204 and 206 are the two parallel bridge members 214 and 216 which extend across the machine above the chain of platens. Members 214 and 216, which carry mounted beneath them the detecting feeler and presser members to be described, may be latched in horizontal position between members 218 and 220 by means of the latch pin 226, which may be thrust through or withdrawn from the bridge members and the supporting members 218 and 220 by means of the knob 228.

Suspended below member 214 and parallel thereto is the feeler member 230 which carries on its bottom surface the four detecting fingers 236 spaced transversely of the platens, as shown in Fig. 15. Member 230 is constantly urged away from supporting member 214 by means of the coil springs 232, which surround the floating headed stud members 234 the lower ends of which are threaded into member 230. The mounting of member 230 is such that it may float upward against the action of springs 232, should an article to be packaged become wedged between the upper surface of a platen 10 and one or more of the finger members 236. Mounted upon member 214 is a sensitive electrical switch 238, such as a "microswitch," provided with leads 242 and 244, such switch having an operating plunger 240 which protrudes through an opening in member 214 and into contact with the upper surface of member 230. When member 230 is moved upward to any substantial extent, as by the wedging of an article 16 between the feeler fingers 236 and the platens 10, the circuit through switch 238 is completed to operate the controls immediately to stop the driving motor for the machine, in a manner to be described in connection with the control circuit shown in Fig. 18.

The member 246, which is similar in all respects to the member 230, is also floatingly mounted beneath its transverse supporting member 216. Member 246 and the fingers on the bottom surface thereof (not shown), have the further function of maintaining articles 16 firmly in recesses 18 on the platens until they reach the underside of the slats 282 beneath the card feeding hopper.

The card feeding hopper, generally designated 245, which is shown in Figs. 1, 2, 12, 13, and 14, consists of the two side members 252 and 254, attached to frame members 6 and 4, respectively, by supporting members 248 and 250, respectively. Sides 252 and 254 are each provided with vertical slots 260' to allow the cards 142 stacked in the hopper to be manipulated, if necessary, within the hopper to insure their smooth downward feeding. The hopper has a rear wall member 256 and a forward wall member 258 connected to the hopper side members as shown. The forward wall member 258 is provided inwardly thereof with a vertically adjustable discharge gate 260, more clearly shown in Figs. 13 and 14. Gate 260 is attached to the forward wall 258 by means of the headed studs 262 mounted on the gate, such studs extending forwardly through the vertical slots 264 in member 258. Two laterally spaced vertical adjusting screws 268, of which one is shown in Figs. 1, 13, and 14, are provided between the overhang 266 on the upper edge of gate 260

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and the upper edge of the front hopper wall 258. As a result of such construction, the lower edge 270 of the adjustable gate 260 may be brought to a distance above the upper surface of the slat members 282, subsequently to be described, such that but one card at a time is released from the stack in the hopper 245 under the action of the pusher pins 108 and 110, the forward arcuate surfaces of which fit within the arcuate recesses 146 and 144, respectively (Fig. 20) in the rear edge of each of the cards as stacked in the hopper.

The laterally spaced slats 282, shown as four in number in Fig. 12, are attached to the rear wall of the card feed hopper in the manner shown in Figs. 12 and 13. As there shown, a cross bar 272 is affixed to the rear wall 256 of the hopper 245. Suspended from member 272 is a vertically adjustable cross member 274 which supports the slats. The connection between members 272 and 274 is such that the latter may be adjusted vertically to produce the desired spacing of the slats 282 from the bottom of the card feed hopper. The adjusting means takes the form of a plurality of studs 278 freely rotatable in bores in member 272 and threaded into member 274, and a plurality of studs 280 threaded into bores in member 272, the forward ends of studs 280 abutting the upper edge of cross member 274. Member 274 is additionally secured in adjusted position by means of a plurality of studs 276 extending there-through and into the wall 256 of the feed hopper.

Adjustment of member 274 is accomplished by loosening slightly the studs 276 and by threading up or down, as the case may be, studs 280 in the desired locations accompanied by the necessary or required tightening up or loosening of the studs 278. When the desired adjusted position of member 274 is reached, the studs 276 are, as explained, tightened to retain the member 274 in such position.

Each of the slat members 282 is provided on its rear end with the upstanding portion 284, which is secured as shown in Fig. 12 to the rear face of member 274 by means of the studs 286. The holes through portion 284 of the slat members receive studs 286 sufficiently loosely so that the individual slat members may be adjusted to some extent, if desired, upon member 274. Slat members 282 have the dual function of retaining the articles 16 securely in the recesses 18 on the tops of the platens 10, and also of functioning with gate 260 to form the previously mentioned discharge opening in the forward bottom wall of the card hopper. The rear edges of slats 282 are rounded, as shown, so that they smoothly receive the incoming articles 16 on the platens. The card pushing fingers 108 and 110 are located laterally of the platens so that they lie between pairs of slats 282, as is indicated in the case of finger 110 in Fig. 14. The card pushing fingers which, as indicated in Fig. 13, have been raised to their intermediate card pushing position, thus ride between the slats and engage the bottommost card in the hopper at its rear edge. The card thus engaged travels from the hopper in the desired position with and above the platen. The forward upper surface of each of slats 282 is inclined downwardly at 290. The card engaged by fingers 108 and 110 rides down the inclined forward surface 290 of the slats so as to fall in accurate position upon the top of its platen.

After leaving the card feeding station B each platen, carrying the articles to be mounted, with the card upon which the articles are to be mounted located above them, and with the adhesive tape

which is to mount the articles running in the grooves longitudinally of the platens below the articles and the cards, is presented to the pressing and assembling station C. At such station there is positioned an upper platen or presser member 292 which spans the platens and lies immediately above the upper surfaces of the cards carried on the platens. Member 292 is carried upon the upright 294, which is attached to plate 6 of the machine, and the upright 296, which is attached to plate 4 of the machine, as shown. The forward edge of member 292 is provided with the two spaced upstanding ears 295 and 297, shown in Figs. 1 and 2, which fit immediately within and beside the supports 296 and 294, respectively. Such upright ears are pivotally connected to the upright supporting members by means of the pivot pin 298 through members 294 and 295 and the pivot pin 300 through members 296 and 297. Preferably the holes in ears 295 and 297 are made slightly larger than the pivot pins so that member 292 may move freely in a vertical direction to some extent at its forward end. Member 292, which is provided with the handle 304, may be latched in horizontal position so that its bottom surface confronts the top surfaces of the cards carried by the platens by means of the latch pins 310 and 312, such pins passing, respectively, through the vertical member 306 and through the member 308, both pins extending into the rear end of member 292. Members 306 and 308 are attached to the side plates of the machine frame, as shown. The latch pins are provided with knobs 311 and 313, respectively, to allow their insertion into or retraction from the member 292. When the latter member is unlatched, as, for instance, when the machine is being threaded, or should a card jam thereunder, it may be swung somewhat past vertical position against the horizontal stop rod 302, which extends between supporting members 294 and 296, where member 292 remains in stable condition until it is swung down into horizontal, operative, position.

The bottom surface of upper presser member 292 is flat throughout most of its area, as indicated at 315. The entering portion thereof, 317, at the rear, gradually inclines downwardly to meet surface 315, to insure the introduction of the platens and the cards and articles to be packaged carried thereby smoothly beneath member 292. The bottom surface of member 292 is provided with two grooves 314 and 316, extending longitudinally thereof, which are of sufficient width and height, and are so located laterally of the platens travelling thereunder, as to allow the free passage of card pushing pins 108 and 110, respectively, as shown in Fig. 3. Pins 108 and 110 are in their intermediate positions, shown in Fig. 7, when travelling beneath member 292.

Positioned on top of member 292 is a sensitive electrical switch 318, such as a "microswitch," the leads from which are designated 320 and 322. Switch 318 is of the type in which the circuit therethrough is open when the plunger 324, which extends downwardly through a bore in member 292, is thrust upwardly, the circuit being closed when the plunger 324 falls appreciably. Thus the circuit in which switch 318 is interposed is closed to stop the driving motor 62 for the machine unless cards are continually presented to the lower end of its plunger on the platens travelling therepast.

The manner of control of the machine and the operation of the safety devices in its control circuit will be more clearly apparent from a con-

sideration of the wiring diagram shown in Fig. 18. The main lead wires L and L₁, which are connected to a source of current, not shown, are carried to the winding of a solenoid 328, there being interposed in one side of the circuit to the solenoid the switches 238 and 318, connected in parallel, as shown. The solenoid 328 is normally de-energized, and when in such condition, has its plunger 330 which is connected to the handle of switch 326, in the manner shown, urged into the position shown by means of the spring 331 so that its stop shoulder lies against the stop pin 332, thereby closing the main switch 326, which is interposed in the branch supply lines L'—L'₁ to the motor 62. If, however, either one or both of switches 238 and 318, which are normally open, are closed, solenoid 328 is energized. Its plunger 330 thereupon travels inwardly thereof and pulls the handle 334 of switch 326 to the right in Fig. 18, thereby breaking the circuit through leads L' and L'₁, immediately stopping motor 62 and thus travel of the connected chain of platens 10.

The packaging machine described above functions as follows. After the adhesive tapes 88 and 90 have been threaded into the grooves 92 and 94 in the platens 10 and have been temporarily secured to the conveyor, as by adhering them to one or more articles 16 in recesses 18, the machine is placed in operation, the card feeding hopper having, of course, previously been supplied with a stack of cards 142 and cards having been fed therefrom so that switch 318 is opened and remains open. The operator of the machine, in its first described embodiment, continually places the articles 16 to be packaged in the recesses 18 of the platens as they travel by him at station A. The thus loaded platens travel to the right in Figs. 1 and 2, carrying the articles 16 beneath the first presser member 230, which, as described, has the additional detecting function and thence under the second presser member 246, from which point they travel beneath the slats 282, the slats being adjusted so that the bottom surfaces 288 thereof snugly engage the upper surfaces of articles 16. By this time, as above described, the card engaging pins 108 and 110 on a platen entering under slats 282 have been raised sufficiently by tracks 176 and 178 so that they protrude about the thickness of a card 142 above the upper surface of slats 282, as shown most clearly in Fig. 7, and so that the pins engage the bottommost card in the card feeding hopper 245 and push it to the right down the inclined forward faces 290 of slats 282 and onto the top of the platen. The card pushing fingers 108 and 110 continue at the same height during this portion of the travel of the platen, the tape cutting members 134 and 140 carried thereby thus being below the level of the tapes in the grooves 92 and 94.

The thus superimposed tapes, articles, and cards carried on the platens are then presented to the assembling station C where, as explained, the tape presser members are impelled upwardly by the short low cam tracks 184 and 186, which begin at the downwardly inclined, rear, entering end of the upper presser member 292. The dimension of the cards and the adjustments are such that when the bottom presser members are advanced to their topmost position the articles 16 to be packaged are pressed firmly against the card 142 and the card is pressed against the upper presser member 292, the soft resilient pad members 154 and 172 carried by the movable bottom presser members being deformed so that they temporarily partially "flow" about the articles

16 in the manner shown in Fig. 19. Thus the adhesive tape is pressed firmly into contact with the card 142 at its sides, and in those portions between the articles 16, as well as with the outer faces of the articles 16 spanned by such tape.

Just after each platen emerges from beneath the upper presser member 292, the slides carrying the card pushing fingers 108 and 110 are impelled further upwardly by the raised portions at the forward ends of the longer, higher, tracks 176 and 178 of which the raised portion 192 of track 176 is shown in Fig. 1. The pushing finger carrying slides are then, as explained, in the position shown in Fig. 8. Such rising of the slides causes the cutters attached thereto to travel across and through the path of travel of the adhesive tapes 88 and 90 in those locations between adjacent platens, and thus between adjacent cards carried thereby, thereby cutting the cards apart. The resulting short lengths of tape, adhered to the articles 16 and the card 142 in the finished assembly shown in Fig. 20, are designated 88' and 90'. The platens are located sufficiently closely together so that after the severing of the tapes there remains but little exposed tape on each side of the card.

Upon continued travel of the platens, the tape presser slides are retracted when their actuating wheels run down the inclined ends of tracks 184 and 186, such retraction beginning, as is evident in Fig. 1, at about the same time when the further raising of slides 100 and 102 to cut the tapes between cards takes place. When the platens have travelled further to the right, in Fig. 1, the pusher pin and cutting blade carrying slides 100 and 102 are retracted as their actuating wheels run down the forward ends of the tracks 176 and 178, the pins 108 and 110 sinking beneath the top of the platen when such wheels leave the ends of the tracks. Thus at the discharge station D of the machine the card pushing pins are entirely disengaged from the cards.

The platens then continue on down over the sprocket 54 into the discharge station D. Such tipping of the platens is normally sufficient to discharge the cards with the assembled articles thereon from the tops of the platens, since pins 108 and 110 have been retracted from engagement therewith. Should a card stick to a platen, however, it is removed by the stripper wires 198 and 200 which enter the grooves 194 and 196, respectively, on the tops of the platens beneath the forward edge of the card, thereby camming it off the platen and lifting articles 16 from recesses 18 without injury to the card or its contents.

As above explained the construction of the second modification of the machine and the manner in which it functions are identical with the machine and its function above described except for the fact that in such second embodiment mechanism is provided for feeding the articles to be packaged automatically to the platens. The article feeding hopper, designated generally by the reference character 336, shown in Figs. 16 and 17, is secured to the frame of the machine in a position immediately to the rear of the feeler and presser members 230 and 246, as shown. The article feeding hopper is supported by a first cross member 338, which extends across the machine and is secured to the plates 4 and 6, and a second cross member 340, parallel thereto, secured to the machine frame in the same manner. The inner confronting faces of members 338 and 340 are cut away in their central

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portions to provide a vertical passage there-through generally conforming to the shape in plan of the articles to be fed. Extensions to the thus provided hopper are formed by the two end slat members 342 and 344 extending vertically from, and secured to, member 338, and by the rear, side slats 346 and the front slide slats 348, secured to the cross supporting members 338 and 340, respectively. Slat 342, 344, 346, and 348 thus define a hopper accurately fitting in plan the articles to be fed to the machine. Such articles are thus merely stacked in the hopper 336, their weight usually being sufficient to feed them one at a time into the recesses 18 on the tops of the platens as the platens travel beneath such hopper, as shown in Fig. 17. It is desirable in some cases, for more positive feeding, to provide a plunger (not shown) in the form of a weight fitting within the upper portion of the hopper on top of the stack of articles, to insure their smooth and continuous feeding into the openings in the platens.

Both the described embodiments of the packaging machine of the invention are particularly rugged, so that their maintenance requirements are low. Such machines are fully protected against faulty feeding of articles to be packaged thereby, and also against faulty feeding of the cards on which the articles are to be mounted. Thus the machine is fully protected from damage from either of such two possible causes. The machine, particularly in that embodiment shown in Figs. 16 and 17, requires but little attention, practically all that is required being the keeping of the article feeding and the card feeding hoppers full of such respective articles, and the replacement of the rolls of adhesive tape as they become exhausted.

The packaged articles resulting from use of the machine are attractive, because of the symmetry of mounting of the articles on the card. The lower portions of articles 16 remain within recesses 18 during their passage through the pressing and assembling station C, and thus the articles are regularly spaced on the card 142. The increased length of adhesive tape required as it is carried down between the articles by the resilient presser pad (Fig. 19) is readily provided by the tape feeding means, since the adhesively coated faces of the tapes remain spaced from and thus free from contact with the bottom faces of the articles until the assembling station is reached. Thus the pressing operation shown in Fig. 19 does not tend to alter the spacing of the articles or to dislodge them from the recesses 18.

Further, when the preferred transparent adhesive tape is employed to secure the articles, each of the latter is visible over its entire outer area. Although the articles are firmly secured to the card so that they will not become dislodged accidentally, they are not so strongly attached to the card that their removal is difficult when they are to be used. The fact that the resilient presser pad in "flowing" around the lower portions of the articles does not conform exactly to the sides of the articles causes the tape spanning an article to contact the card on both sides thereof at points spaced from the sides of the article, as shown in Fig. 20. This makes the removal of one or more articles from the card easily accomplished by any one of various methods, such as by cutting the tape on both sides of the articles to be removed, as with the finger nail, by running a pointed article along the side of the article and under the tape, there-

by raising and/or cutting it, or by lifting the article from the card at a point spaced from the tape, the tape thus being pulled free from the card and the article.

Although I have disclosed preferred embodiments of the packaging machine of my invention, it is to be understood that the invention is not limited thereto since such embodiments are illustrative only and the invention is capable of considerable variation as to details. The invention is, therefore, defined by the scope of the claims appended hereto.

I claim as new the following:

1. Apparatus for packaging a plurality of articles on a supporting card comprising an assembling platen, a channel in a first face of the platen for holding therein in generally flat position an adhesive tape with the adhesively coated side thereof facing outwardly of the platen, a series of spaced recesses in said first face of the platen crossing the tape holding channel to hold a plurality of articles to be packaged spaced in the desired relationship facing the adhesively coated side of the adhesive tape and in such relationship to the tape as to be spanned thereby, means on the platen to locate a supporting card overlying the articles and confronting the articles and tape with a broad surface of the card generally parallel to the adhesively coated side of the tape, and means to press the tape, articles, and card together in a direction normal to the latter so that the tape adheres to the tape confronting faces of the articles and to the card at locations on both sides of each article.

2. Apparatus for packaging a plurality of articles on a supporting card comprising an assembling platen, a channel in a first face of the platen for holding therein in generally flat position an adhesive tape with the adhesively coated side thereof facing outwardly of the platen, a series of spaced recesses in said first face of the platen crossing the tape holding channel to hold a plurality of articles to be packaged spaced in the desired relationship facing the adhesively coated side of the adhesive tape and in such relationship to the tape as to be spanned thereby, the tape holding channel being deeper than the recesses, means on the platen to locate a supporting card overlying the articles and confronting the articles and tape with a broad surface of the card generally parallel to the adhesively coated side of the tape, and means in the channel to press the tape, articles, and card together in a direction normal to the latter so that the tape adheres to the tape confronting faces of the articles and to the card at locations on both sides of each article.

3. Apparatus for packaging a plurality of articles on a supporting card comprising an assembling platen, a channel in a first face of the platen for holding therein in generally flat position an adhesive tape with the adhesively coated side thereof facing outwardly of the platen, a series of spaced recesses in said first face of the platen crossing the tape holding channel to hold a plurality of articles to be packaged spaced in the relationship in which they are to be mounted with a first face of each article facing the adhesively coated side of the tape and in such relationship to the tape as to be spanned thereby, means on the platen to locate a supporting card overlying and confronting the articles and tape and with a first broad surface of the card generally parallel and close to the second face of each article, a first presser member overlying

and close to the second broad face of the card on the platen, a guideway in the platen extending normal to the first face of the platen, the guideway directly communicating with the tape receiving channel in the platen, a second presser member mounted for reciprocation in the guideway, the outer surface of the second presser member constituting the bottom, tape supporting, surface of the channel, and means to impel the second presser member toward the first presser member to press the tape, the articles, and the card together so that the tape adheres to the first face of each article and to the first face of the card at locations on both sides of each article.

4. Apparatus for packaging a plurality of articles on a supporting card comprising an assembling platen, a channel in a first face of the platen for holding therein in generally flat position an adhesive tape with the adhesively coated side thereof facing outwardly of the platen, a series of spaced recesses in said first face of the platen crossing the tape holding channel to hold a plurality of articles to be packaged spaced in the relationship in which they are to be mounted with a first face of each article facing the adhesively coated side of the tape and in such relationship to the tape as to be spanned thereby, means on the platen to locate a supporting card overlying and confronting the articles and tape and with a first broad surface of the card generally parallel and close to the second face of each article, a first broad presser member overlying and close to the second broad face of the card on the platen, a guideway in the platen extending normal to the first face of the platen, the guideway directly communicating with the tape receiving channel in the platen, a second presser member mounted for reciprocation in the guideway, the outer surface of the second presser member constituting the bottom, tape supporting, surface of the channel, the outer surface of the second presser member normally lying below the bottom surfaces of the recesses, and means to impel the second presser member toward the first presser member to press the tape, the articles, and the card together so that the tape adheres to the first face of each article and to the first face of the card at locations on both sides of each article.

5. Apparatus for packaging a plurality of articles on a supporting card comprising a platen, means to traverse the platen from a loading station to an assembling station, a channel in a first face of the platen for holding therein in generally flat position an adhesive tape with the adhesively coated side thereof facing outwardly of the platen, a series of spaced recesses in said first face of the platen crossing the tape holding channel to hold a plurality of articles to be packaged spaced in the relationship in which they are to be mounted with a first face of each article facing the adhesively coated side of the tape and in such relationship to the tape as to be spanned thereby, means on the platen to locate a supporting card overlying and confronting the articles and tape and with a first broad surface of the card generally parallel and close to the second face of each article, a first broad presser member at the assembling station beneath which the loaded platen is movable overlying and close to the second broad face of the card on the platen, a guideway in the platen extending normal to the first face of the platen, the guideway directly communicating with the tape receiving channel

in the platen, a second presser member mounted for reciprocation in the guideway, the outer surface of the second presser member constituting the bottom, tape supporting, surface of the channel, the outer portion of the second presser member being made of yieldable, resilient, material, and means responsive to travel of the platen into the assembly station to impel the second presser member toward the first presser member to press the tape, the articles, and the card together so that the tape adheres to the first face of each article and to the first face of the card at locations on both sides of each article.

6. Apparatus for packaging a plurality of articles on a supporting card comprising a platen, means to traverse the platen repeatedly from a loading station to an assembling station, a channel in a first face of the platen for holding therein in generally flat position an adhesive tape with the adhesively coated side thereof facing outwardly of the platen, a series of spaced recesses in said first face of the platen crossing the tape holding channel to hold a plurality of articles to be packaged spaced in the relationship in which they are to be mounted with a first face of each article facing the adhesively coated side of the tape and in such relationship to the tape as to be spanned thereby, means including a card thrusting pin on the platen to locate a supporting card overlying and confronting the articles and tape and with a first broad surface of the card generally parallel and close to the second face of each article, the pin being impelled upwardly above the first face of the platen into card engaging position by means responsive to the travel of the platen into the loading station, a first broad presser member at the assembling station beneath which the loaded platen is movable overlying and close to the second broad face of the card on the platen, a guideway in the platen extending normal to the first face of the platen, the guideway directly communicating with the tape receiving channel in the platen, a second presser member mounted for reciprocation in the guideway, the outer surface of the second presser member constituting the bottom, tape supporting, surface of the channel, the outer portion of the second presser member being made of yieldable, resilient, material, means responsive to travel of the platen into the assembling station to impel the second presser member toward the first presser member to press the tape, the articles, and the card together so that the tape adheres to the first face of each article and to the first face of the card at locations on both sides of each article, and means responsive to the travel of the platen out of the assembling station to retract the card thrusting pin and the second presser member.

7. Apparatus for packaging a plurality of articles on each one of a plurality of supporting cards comprising a series of platens, means to traverse the platens sequentially and repeatedly from a loading station to an assembling station, a channel in a first face of each of the platens for holding therein in generally flat position the front end of an adhesive tape fed from a continuous source, with the adhesively coated side thereof facing outwardly of the platen, the channels in successive platens being aligned, a series of spaced recesses in said first face of each of the platens crossing the tape holding channel therein to hold a plurality of articles to be packaged spaced in the relationship in which they are to be mounted with a first face of each article facing

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the adhesively coated side of the tape and in such relationship to the tape as to be spanned thereby, means on each of the platens to locate a supporting card overlying and confronting the articles and tape and with a first broad surface of the card generally parallel and close to the second face of each article on the platen, a first broad presser member overlying and close to the second broad face of each of the cards on the platens as the platens travel therepast, a guideway in each of the platens extending normal to the first face of the platen, the guideway directly communicating with the tape receiving channel in the platen, a second presser member mounted for reciprocation in the guideway, the outer surface of the second presser member constituting the bottom, tape supporting, surface of the channel, the outer portion of the second presser member being made of yieldable, resilient, material, and means responsive to travel of each of the platens into the assembly station to impel the second presser member of such platen toward the first presser member to press the tape, the articles, and the card on such platen together so that the tape adheres to the first face of each article and to the first face of the card at locations on both sides of each article.

8. Apparatus for packaging a plurality of articles on each one of a plurality of supporting cards comprising a series of platens, means to traverse the platens sequentially and repeatedly from a loading station to an assembling station, a channel in a first face of each of the platens for holding therein in generally flat position the front end of an adhesive tape fed from a continuous source with the adhesively coated side thereof facing outwardly of the platen, the channels in successive platens being aligned, a series of spaced recesses in said first face of each of the platens crossing the tape holding channel therein to hold a plurality of articles to be packaged spaced in the relationship in which they are to be mounted with a first face of each article facing the adhesively coated side of the tape and in such relationship to the tape as to be spanned thereby, means including a card thrusting pin on each of the platens to locate a supporting card overlying and confronting the articles and tape and with a first broad surface of the card generally parallel and close to the second face of each article on the platen, the pin being impelled upwardly above the first face of the platen into card engaging position by means responsive to the travel of the platen into the loading station, a first broad presser member at the assembling station beneath which the loaded platen is movable overlying and close to the second broad face of the card on the platen, a guideway in the platen extending normal to the first face of the platen, the guideway directly communicating with the tape receiving channel in the platen, a second presser member mounted for reciprocation in the guideway, the outer surface of the second presser member constituting the bottom, tape supporting, surface of the channel, the top surface of the second presser member normally lying below the bottom surfaces of the recesses, the outer portion of the second presser member being made of yieldable, resilient, material, means responsive to travel of the platen into the assembling station to impel the second presser member toward the first presser member to press the tape, the articles, and the card together so that the tape adheres to the first face of each article and to the first face of the card at locations on both sides of each article, and means responsive to the travel of a platen out of the assembling station to retract the card thrusting pins of such platen and to retract the second presser member of such platen.

face of the card at locations on both sides of each article, and means responsive to the travel of a platen out of the assembling station to retract the card thrusting pin of such platen and to retract the second presser member of such platen.

9. Apparatus for packaging a plurality of articles on each one of a plurality of supporting cards comprising a series of serially connected platens, means to traverse the platens sequentially and repeatedly from a loading station to an assembling station, a channel in a first face of each of the platens for holding therein in generally flat position the front end of an adhesive tape fed from a continuous source with the adhesively coated side thereof facing outwardly of the platen, the channels in successive platens being aligned, a series of spaced recesses in said first face of each of the platens crossing the tape holding channel therein to hold a plurality of articles to be packaged spaced in the relationship in which they are to be mounted with a first face of each article facing the adhesively coated side of the tape and in such relationship to the tape as to be spanned thereby, means including a plurality of card thrusting pins spaced laterally of the platen on each of the platens to locate a supporting card overlying and confronting the articles and tape and with a first broad surface of the card generally parallel and close to the second face of each article on the platen, the pins being impelled upwardly above the first face of the platen into card engaging position by means responsive to the travel of the platen into the loading station, a first broad presser member at the assembling station beneath which the loaded platen is movable overlying and close to the second broad face of the card on the platen, a guideway in the platen extending normal to the first face of the platen, the guideway directly communicating with the tape receiving channel in the platen, a second presser member mounted for reciprocation in the guideway, the outer surface of the second presser member being normally flat and constituting the bottom, tape supporting, surface of the channel, the top surface of the second presser member normally lying below the bottom surfaces of the recesses, the outer portion of the second presser member being made of yieldable, resilient, material, means responsive to travel of the platen into the assembling station to impel the second presser member toward the first presser member to press the tape, the articles, and the card together so that the tape adheres to the first face of each article and to the first face of the card at locations on both sides of each article, and means responsive to the travel of a platen out of the assembling station to retract the card thrusting pins of such platen and to retract the second presser member of such platen.

10. Apparatus for packaging a plurality of articles on each one of a plurality of supporting cards comprising a series of platens connected in an endless chain, means to drive the chain to traverse the platens sequentially and repeatedly from a loading station to an assembling station, a channel in a first face of each of the platens for holding therein in generally flat position the front end of an adhesive tape fed from a continuous source with the adhesively coated side thereof facing outwardly of the platen, the channels in successive platens being aligned, a series of spaced recesses in said first face of each of

the platens crossing the tape holding channel therein to hold a plurality of articles to be packaged spaced in the relationship in which they are to be mounted with a first face of each article facing the adhesively coated side of the tape and in such relationship to the tape as to be spanned thereby, means including a plurality of card thrusting pins spaced laterally of the platen on the rear edge thereof on each of the platens to locate a supporting card overlying and confronting the articles and tape and with a first broad surface of the card generally parallel and close to the second face of each article on the platen, the pins being impelled upwardly above the first face of the platen into card engaging position by means responsive to the travel of the platen into the loading station, a first broad presser member at the assembling station beneath which the loaded platen is movable overlying and close to the second broad face of the card on the platen, a guideway in the platen extending normal to the first face of the platen, the guideway directly communicating with the tape receiving channel in the platen, a second presser member mounted for reciprocation in the guideway, the outer surface of the second presser member being normally flat and constituting the bottom, tape supporting, surface of the channel, the top surface of the second presser member normally lying below the bottom surfaces of the recesses, the outer portion of the second presser member being made of yieldable, resilient, material, means responsive to travel of the platen into the assembling station to impel the second presser member toward the first presser member to press the tape, the articles, and the card together so that the tape adheres to the first face of each article and to the first face of the card at locations on both sides of each article, and means responsive to the travel of a platen out of the assembling station to retract the card thrusting pins of such platen and to retract the second presser member of such platen.

11. Apparatus for packaging a plurality of articles on each one of a plurality of supporting cards comprising a series of platens, means to traverse the platens sequentially and repeatedly from an article loading station, to a card loading station, and thence to an assembling station, a channel in a first face of each of the platens for holding therein in generally flat position the front end of an adhesive tape fed from a continuous source with the adhesively coated side thereof facing outwardly of the platen, the channels in successive platens being aligned, a series of spaced recesses in said first face of each of the platens crossing the tape holding channel therein to hold a plurality of articles to be packaged spaced in the relationship in which they are to be mounted with a first face of each article facing the adhesively coated side of the tape and in such relationship to the tape as to be spanned thereby, means on each of the platens to feed a supporting card onto each platen from the card loading station and to locate it overlying and confronting the articles and tape and with a first broad surface of the card generally parallel and close to the second face of each article on the platen, a first, broad presser member at the assembling station beneath which the platen loaded with tape, articles, and a card is movable overlying and close to the second broad face of the card on the platen, a guideway in the platen extending normal to the first face of the platen, the guideway directly communicating with the

tape receiving channel in the platen, a second presser member mounted for reciprocation in the guideway, the outer surface of the second presser member constituting the bottom, tape supporting, surface of the channel, the top surface of the second presser member normally lying below the bottom surfaces of the recesses, the outer portion of the second presser member being made of yieldable, resilient, material, means responsive to travel of the platen into the assembling station to impel the second presser member toward the first presser member to press the tape, the articles, and the card together so that the tape adheres to the first face of each article and to the first face of the card at locations on both sides of each article, and means responsive to the travel of a platen out of the assembling station to retract the second presser member of such platen.

12. Apparatus for packaging a plurality of articles on each one of a plurality of supporting cards comprising a series of platens, means to traverse the platens sequentially and repeatedly from an article loading station, to a card loading station, and thence to an assembling station, a channel in a first face of each of the platens for holding therein in generally flat position the front end of an adhesive tape fed from a continuous source with the adhesively coated side thereof facing outwardly of the platen, the channels in successive platens being aligned, a series of spaced recesses in said first face of each of the platens crossing the tape holding channel therein to hold a plurality of articles to be packaged spaced in the relationship in which they are to be mounted with a first face of each article facing the adhesively coated side of the tape and in such relationship to the tape as to be spanned thereby, means including a card thrusting pin on the rear edge of the platen on each of the platens to feed a supporting card onto each platen from the card loading station and to locate it overlying and confronting the articles and tape and with a first broad surface of the card generally parallel and close to the second face of each article on the platen, the pin being impelled upwardly above the first face of the platen into card engaging position by means responsive to the travel of the platen into the card loading station, a first broad presser member as the assembling station beneath which the platen loaded with tape, articles, and a card is movable overlying and close to the second broad face of the card on the platen, a guideway in the platen extending normal to the first face of the platen, the guideway directly communicating with the tape receiving channel in the platen, a second presser member mounted for reciprocation in the guideway, the outer surface of the second presser member being normally flat and constituting the bottom, tape supporting, surface of the channel, the top surface of the second presser member normally lying below the bottom surfaces of the recesses, means responsive to travel of the platen into the assembling station to impel the second presser member toward the first presser member to press the tape, the articles, and the card together so that the tape adheres to the first face of each article and to the first face of the card at locations on both sides of each article, and means responsive to the travel of a platen out of the assembling station to retract the card thrusting pin of such platen and to retract the second presser member of such platen.

13. Apparatus for packaging a plurality of articles on each one of a plurality of supporting

cards comprising a series of platens, means to traverse the platens sequentially and repeatedly from an article loading station, to a card loading station, and thence to an assembling station, a channel in a first face of each of the platens for holding therein in generally flat position the front end of an adhesive tape fed from a continuous source with the adhesively coated side thereof facing outwardly of the platen, the channels in successive platens being aligned, a series of spaced recesses in said first face of each of the platens crossing the tape holding channel therein to hold a plurality of articles to be packaged spaced in the relationship in which they are to be mounted with a first face of each article facing the adhesively coated side of the tape and in such relationship to the tape as to be spanned thereby, means including a card thrusting pin on the rear edge of the platen on each of the platens to feed a supporting card onto each platen from the card loading station and to locate it overlying and confronting the articles and tape and with a first broad surface of the card generally parallel and close to the second face of each article on the platen, the pin being impelled upwardly above the first face of the platen into card engaging position by means responsive to the travel of the platen into the loading station, a first broad presser member at the assembling station beneath which the platen loaded with tape, articles, and a card is movable overlying and close to the second broad face of the card on the platen, a guideway in the platen extending normal to the first face of the platen, the guideway directly communicating with the tape receiving channel in the platen, a second presser member mounted for reciprocation in the guideway, the outer surface of the second presser member constituting the bottom, tape supporting, surface of the channel, the top surface of the second presser member normally lying below the bottom surfaces of the recesses, the outer portion of the second presser member being made of yieldable, resilient, material, means responsive to travel of the platen into the assembling station to impel the second presser member toward the first presser member to press the tape, the articles, and the card together so that the tape adheres to the first face of each article and to the first face of the card at locations on both sides of each article, means to cut the adhesive tape at the rear edge of the assembled card after such card on its supporting platen has traveled out of the assembling station, means to retract the card thrusting pin of such platen, and means to retract the second presser member of such platen.

14. In the combination set forth in claim 13, the means to cut the adhesive tape comprising a blade connected to the card thrusting pin and operable upon further advance of the pin from the platen.

15. In the combination set forth in claim 13, the means to cut the adhesive tape comprising a blade connected to the card thrusting pin, the blade lying beneath the tape when the card thrusting pin is advanced into its first, card engaging and feeding position, and means further to advance the pin from the platen to carry the blade through and above the line of travel of the adhesive tape.

16. In the combination set forth in claim 13, means to strip the assembled and separated card from its supporting platen comprising a stripper receiving groove in the first face of each platen, and an elongated stripper member curved away

from the path of travel of the platens, the forward end of the stripper member entering the stripper receiving groove in each platen successively at a location beyond the point of cutting of the tape to cam the assembled cards off the platens.

17. Apparatus for packaging a plurality of articles on each one of a plurality of supporting cards comprising a series of platens, means to traverse the platens sequentially and repeatedly from an article loading station, to a card loading station, and thence to an assembling station, a channel in a first face of each of the platens for holding therein in generally flat position the front end of an adhesive tape fed from a continuous source with the adhesively coated side thereof facing outwardly of the platen, the channels in successive platens being aligned, a series of spaced recesses in said first face of each of the platens crossing the tape holding channel therein to hold a plurality of articles to be packaged spaced in the relationship in which they are to be mounted with a first face of each article facing the adhesively coated side of the tape and in such relationship to the tape as to be spanned thereby, means between the article loading and the card loading stations responsive to improper seating of the articles in the recesses in the platens to stop the movement of the platens, means on each of the platens to feed a card from the card loading station and to locate it overlying and confronting the articles and tape and with a first broad surface of the card generally parallel and close to the second face of each article on the platen, a first broad presser member overlying and close to the second broad face of each of the cards on the platens as the platens travel therewith, a guideway in each of the platens extending normal to the first face of the platen, the guideway directly communicating with the tape receiving channel in the platen, a second presser member mounted for reciprocation in the guideway, the outer surface of the second presser member constituting the bottom, tape supporting, surface of the channel, the outer portion of the second presser member being made of yieldable, resilient, material, and means responsive to travel of each of the platens into the assembly station to impel the second presser member of such platen toward the first presser member to press the tape, the articles, and the card on such platen together so that the tape adheres to the first face of each article and to the first face of the card at locations on both sides of each article.

18. Apparatus for packaging a plurality of articles on each one of a plurality of supporting cards comprising a series of contiguous platens, means to traverse the platens sequentially and repeatedly from an article loading station, to a card loading station, and thence to an assembling station, a channel in a first face of each of the platens for holding therein in generally flat position the front end of an adhesive tape fed from a continuous source with the adhesively coated side thereof facing outwardly of the platen, the channels in successive platens being aligned, a series of spaced recesses in said first face of each of the platens crossing the tape holding channel therein to hold a plurality of articles to be packaged spaced in the relationship in which they are to be mounted with a first face of each article facing the adhesively coated side of the tape and in such relationship to the tape as to be spanned thereby, means on each of the platens to feed a card from the card loading station and to locate it overlying

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and confronting the articles and tape and with a first broad surface of the card generally parallel and close to the second face of each article on the platen, a first broad presser member overlying and close to the second broad face of each of the cards on the platens as the platens travel therepast, a guideway in each of the platens extending normal to the first face of the platen, the guideway directly communicating with the tape receiving channel in the platen, a second presser member mounted for reciprocation in the guideway, the outer surface of the second presser member being normally flat and constituting the bottom, tape supporting, surface of the channel, the outer portion of the second presser member being made of yieldable, resilient, material, means responsive to travel of each of the platens into the assembly station to impel the second presser member of such platen toward the first presser member to press the tape, the articles, and the card on such platen together so that the tape adheres to the first face of each article and to the first face of the card at locations on both sides of each article, and means at the assembling station responsive to the failure of continuous delivery thereto of cards on the platens traveling therepast to stop the movement of the platens.

19. Apparatus for packaging a plurality of articles on each one of a plurality of supporting cards comprising a series of contiguous platens, means to traverse the platens sequentially and repeatedly from an article loading station, to a card loading station, and thence to an assembling station, a channel in a first face of each of the platens for holding therein in generally flat position the front end of an adhesive tape fed from a continuous source with the adhesively coated side thereof facing outwardly of the platen, the channels in successive platens being aligned, a series of spaced recesses in said first face of each of the platens crossing the tape holding channel therein to hold a plurality of articles to be packaged spaced in the relationship in which they are to be mounted with a first face of each article facing the adhesively coated side of the tape and in such relationship to the tape as to be spanned thereby, means between the article loading and the card loading stations responsive to improper seating of the articles in the recesses in the platens to stop the movement of the platens, means on each of the platens to feed a card from the card loading station and to locate it overlying and confronting the articles and tape and with a first broad surface of the card generally parallel and close to the second face of each article on the platen, a first broad presser member overlying and close to the second broad face of each of the cards on the platens as the platens travel therepast, a guideway in each of the platens extending normal to the first face of the platen, the guideway directly communicating with the tape receiving channel in the platen, a second presser member mounted for reciprocation in the guideway, the outer surface of the second presser member constituting the bottom, tape supporting, surface of the channel, the outer portion of the second presser member being made of yieldable, resilient, material, and means responsive to travel of each of the platens into the assembly station to impel the second presser member of such platen toward the first presser member to press the tape, the articles, and the card on such platen together so that the tape adheres to the first face of each article and to the first face of the card at locations on both sides of each article, and means at

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the assembling station responsive to the failure of continuous delivery thereto of cards on the platens traveling therepast to stop the movement of the platens.

20. Apparatus for automatically packaging a plurality of articles on each one of a plurality of supporting cards comprising a series of platens, an article loading hopper, a card loading hopper, and an assembling station, means to traverse the platens sequentially and repeatedly from the article loading hopper, to the card loading hopper, and thence to the assembling station, a channel in a first face of each of the platens for holding therein in generally flat position the front end of an adhesive tape fed from a continuous source with the adhesively coated side thereof facing outwardly of the platen, the channels in successive platens being aligned, a series of spaced recesses in said first face of each of the platens crossing the tape holding channel therein to receive from the article loading hopper and to hold a plurality of articles to be packaged spaced in the relationship in which they are to be mounted with a first face of each article facing the adhesively coated side of the tape and in such relationship to the tape as to be spanned thereby, means including a card feeding pin on each of the platens to feed a supporting card from the card loading hopper and to locate it overlying and confronting the articles and tape and with a first broad surface of the card generally parallel and close to the second face of each article on the platen, a first broad presser member overlying and close to the second broad face of each of the cards on the platens as the platens travel therepast, a guideway in each of the platens extending normal to the first face of the platen, the guideway directly communicating with the tape receiving channel in the platen, a second presser member mounted for reciprocation in the guideway, the outer surface of the second presser member constituting the bottom, tape supporting, surface of the channel, the outer portion of the second presser member being made of yieldable, resilient, material, and means responsive to travel of each of the platens into the assembly station to impel the second presser member of such platen toward the first presser member to press the tape, the articles, and the card on such platen together so that the tape adheres to the first face of each article and to the first face of the card at locations on both sides of each article.

21. Apparatus for automatically packaging a plurality of articles on each one of a plurality of supporting cards comprising a series of platens, an article loading hopper, a card loading hopper, and an assembling station, means to traverse the platens sequentially and repeatedly from the article loading hopper, to the card loading hopper, and thence to the assembling station, a channel in a first face of each of the platens for holding therein in generally flat position the front end of an adhesive tape fed from a continuous source with the adhesively coated side thereof facing outwardly of the platen, the channels in successive platens being aligned, a series of spaced recesses in said first face of each of the platens crossing the tape holding channel therein to receive from the article loading hopper and to hold a plurality of articles to be packaged spaced in the relationship in which they are to be mounted with a first face of each article facing the adhesively coated side of the tape and in such relationship to the tape as to be spanned thereby, means including a card feeding pin on each of

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the platens to feed a supporting card from the card loading hopper and to locate it overlying and confronting the articles and tape and with a first broad surface of the card generally parallel and close to the second face of each article on the platen, a first broad presser member overlying and close to the second broad face of each of the cards on the platens as the platens travel therepast, a guideway in each of the platens extending normal to the first face of the platen, the guideway directly communicating with the tape receiving channel in the platen, a second presser member mounted for reciprocation in the guideway, the outer surface of the second presser member being normally flat and constituting the bottom, tape supporting, surface of the channel, the outer portion of the second presser member being made of yieldable, resilient, material, means responsive to travel of each of the platens into the assembling station to impel the second presser member of such platen toward the first presser member to press the tape, the articles, and the card on such platen together so that the tape adheres to the first face of each article and to the first face of the card at locations on both sides of each article, and means automatically to cut the adhesive tape at the rear edge of the assembled card after such card on its supporting platen has traveled out of the assembling station.

22. Apparatus for packaging a plurality of similar elongated articles on a supporting card comprising a platen, means to traverse the platen repeatedly from a loading station to an assembling station, at least two spaced channels in a first face of the platen for holding in each in generally flat position an adhesive tape with the adhesively coated side thereof facing outwardly of the platen, a series of spaced recesses in said first face of the platen crossing the tape holding channels to hold a plurality of articles to be packaged spaced in the relationship in which they are to be mounted with a first face of each article facing the adhesively coated side of the tapes and in such relationship to the tapes as to be spanned by each, means including card thrusting pins on the platen to locate a supporting card overlying and confronting the articles and tapes and with a first broad surface of the card generally parallel and close to the second face of each article, the pins being impelled upwardly above the first face of the platen into card engaging position by means responsive to the travel of the platen into the loading station, a first broad presser member at the assembling station beneath which the loaded platen is movable overlying and close to the second broad face of the card on the platen, a plurality of guideways in the platen extending normal to the first face of the platen, each of the guideways directly communicating with its respective tape receiving channel in the platen, a second presser member mounted for reciprocation in each of the guideways, the outer surfaces of each of the second presser members being normally flat and constituting the bottom, tape supporting, surface of its channel, the outer portion of each of the second presser members being made of yieldable, resilient, material, means responsive to travel of the platen into the assembling station to impel the second presser members toward the first presser member to press the tapes, the articles, and the card together so that the tapes adhere to the first face of each article and to the first face of the card at locations on both sides of each article, and means responsive to the travel of the platen out of the assembling

station to retract the card thrusting pins and the second presser members.

23. Apparatus for packaging a plurality of similar elongated articles on a supporting card comprising a platen, means to traverse the platen repeatedly from a loading station to an assembling station, at least two spaced channels in a first face of the platen for holding in each in generally flat position an adhesive tape with the adhesively coated side thereof facing outwardly of the platen, a series of spaced recesses in said first face of the platen crossing the tape holding channels to hold a plurality of articles to be packaged spaced in the relationship in which they are to be mounted with a first face of each article facing the adhesively coated side of the tapes and in such relationship to the tapes as to be spanned by each, means including card thrusting pins on the platen to locate a supporting card overlying and confronting the articles and tapes and with a first broad surface of the card generally parallel and close to the second face of each article, the pins being impelled upwardly above the first face of the platen into card engaging position by means responsive to the travel of the platen into the loading station, a first broad presser member at the assembling station beneath which the loaded platen is movable overlying and close to the second broad face of the card on the platen, a plurality of guideways in the platen, each of the guideways directly communicating with its respective tape receiving channel in the platen, a second presser member mounted for reciprocation in each of the guideways, the outer surface of each of the second presser members being normally flat and constituting the bottom, tape supporting, surface of its channel, the outer portion of each of the second presser members being made of yieldable, resilient, material, means responsive to travel of the platen into the assembling station to impel the second presser members toward the first presser member to press the tapes, the articles, and the card together so that the tapes adhere to the first face of each article and to the first face of the card at locations on both sides of each article, means automatically to cut off each of the tapes at the rear edge of the card as the platen carrying the assembly moves out of the assembling station, and means responsive to the travel of the platen out of the assembling station to retract the card thrusting pins and the second presser members.

24. The method of packaging a plurality of similar articles on a supporting card which comprises feeding a continuous adhesive tape in the direction of its length at a predetermined speed, positioning the articles to be packaged with a first face of each in confronting relationship to the adhesively coated face of the tape, the articles being spaced generally in the relationship they are to have on the supporting card and being in a position relative to the tape to be spanned thereby, feeding such positioned articles parallel to and at the same speed as the adhesive tape, positioning a supporting card with one broad surface thereof in closely confronting, generally parallel relationship to a second, opposite, face of a plurality of thus positioned and moving articles, feeding the thus positioned card in the same direction as and at the same speed as the articles and tape, pressing the tape and articles toward and against the card in a direction normal to the latter by means of a normally flat surfaced, yieldable presser member engaging the rear, non-

adhesively coated surface of the tape over the length of the card, the presser member yielding sufficiently to press the tape simultaneously into contact with the tape confronting faces of the articles and with the card at locations on both sides of each article, and subsequent to the pressing operation cutting off the tape adjacent the rear edge of the supporting card facing the source of the tape.

25. The method of packaging a plurality of similar articles on a supporting card which comprises feeding a continuous adhesive tape in the direction of its length at a predetermined speed, positioning the articles to be packaged with a first face of each in confronting relationship to the adhesively coated face of the tape but spaced from such face, the articles being spaced generally in the relationship they are to have on the supporting card and being in a position relative to the tape to be spanned thereby, feeding such positioned articles parallel to and at the same speed as the adhesive tape, positioning a supporting card with one broad surface thereof in closely confronting, generally parallel relationship to a second, opposite, face of a plurality of thus positioned and moving articles, feeding the thus positioned card in the same direction as and at the same speed as the articles and tape, while such objects continue their travel simultaneously pressing the tape and articles toward and against the card in a direction normal to the latter by means of a normally flat surfaced, yieldable presser member engaging the rear, non-adhesively coated surface of the tape over the length of the card, the presser member yielding sufficiently to press the tape into contact with the tape confronting faces of the articles and with the card at locations on both sides of each article, and subsequent to the pressing operation and while the thus formed assembly continues its travel cutting off the tape adjacent the rear edge of the supporting card facing the source of the tape.

26. The method of packaging a plurality of similar articles on a supporting card, which comprises feeding at a predetermined speed a continuous adhesive tape in the direction of its length, positioning the articles to be packaged in an aligned row with a first face of each in confronting generally parallel relationship to the adhesively coated face of the tape but spaced from such face, such positioned articles being located, in the direction of travel of the tape, in the definite spaced relationship which they are to have on the supporting card and each being in position to be spanned by the tape, feeding such positioned articles parallel to and at the same speed as the adhesive tape, positioning a supporting card, with one broad surface thereof in closely confronting, generally parallel relationship to a second, opposite, face of the thus positioned and moving articles, the card being positioned to occupy a definite, fixed, position relative to the positioned articles and with the front and rear edges of the card protruding past the outer side edges of the first and last of the positioned articles, feeding the thus positioned cards in the same direction as and at the same speed as the articles and tape, after such superposition of the recited objects and while they continue their travel simultaneously pressing the tape and articles confronting each card toward and against the card in a direction normal to the latter by means of a normally flat surfaced, yieldable presser member engaging the rear, non-ad-

hesively coated surface of the tape over the length of the card, the presser member yielding sufficiently to press the tape into contact with the tape confronting faces of the articles and with the card at locations on both sides of each article, during such pressing operation positively maintaining the initial spacing of the articles from each other, and subsequent to the pressing operation, and while the thus formed assembly continues its travel, cutting off the tape outwardly of but adjacent to the rear edge of the supporting card facing the source of the tape.

27. The method of continuously and sequentially packaging groups of similar articles on supporting cards, each group being mounted on its own separate card, which comprises feeding at a predetermined speed a continuous adhesive tape in the direction of its length, sequentially positioning articles to be packaged in an aligned row with a first face of each in confronting generally parallel relationship to the adhesively coated face of the tape but spaced from such face, the articles in successive similar groups of such positioned articles being located, in the direction of travel of the tapes, in the definite spaced relationship which they are to have on the supporting card and each being in position to be spanned by such tape, feeding such positioned articles parallel to and at the same speed as the adhesive tape, successively positioning supporting cards, one for each group of articles, with one broad surface thereof in closely confronting, generally parallel relationship to a second, opposite, face of the thus positioned and moving articles of each group, each card being positioned to occupy a definite, fixed, position relative to the aligned ends of the articles of the group and with the front and rear edges of the card protruding past the outer side edges of the first and last articles of its group of articles, feeding the thus positioned cards in the same direction as and at the same speed as the articles and tape, after such superposition of the recited objects and while they continue their travel simultaneously pressing the tapes and articles confronting each card toward and against the card in a direction normal to the latter to press the tape into contact with the tape confronting faces of the articles and with the card at locations on both sides of each article, during such pressing operation positively maintaining the initial spacing of the articles in each group from each other, and subsequent to the pressing operation, and while the thus formed assembly continues its travel, cutting off the tape outwardly of but adjacent to the rear edge of each of the supporting cards facing the source of the tape.

28. The method of continuously and sequentially packaging groups of similar elongated articles on supporting cards, each group being mounted on its own separate card, which comprises feeding at a predetermined speed at least two continuous adhesive tapes in the direction of their lengths, the tapes being fed parallel to each other and in the same plane but substantially spaced from each other, the adhesively coated faces of both tapes facing in the same direction, sequentially positioning articles to be packaged in an aligned row with a first face of each in confronting, generally parallel, relationship to the adhesively coated faces of the tapes but spaced from such faces, the articles in successive similar groups of such positioned articles being located, in the direction of travel of the

tapes, in the definite spaced relationship which they are to have on the supporting card and each extending substantially transverse to the tapes and in position to be spanned by each tape, feeding such positioned articles parallel to and at the same speed as the adhesive tapes, successively positioning supporting cards, one for each group of articles, with one broad surface thereof in closely confronting, generally parallel, relationship to a second, opposite, face of the thus positioned and moving articles of each group, each card being positioned to occupy a definite, fixed, position relative to the aligned ends of the articles of the group and with the front and rear edges of the card protruding past the outer side edges of the first and last articles of its group of articles, feeding the thus positioned cards in the same direction as and at the same speed as the articles and tapes, after such superposition of the recited objects and while they continue their travel simultaneously pressing the tapes and articles confronting each card toward and against the card in a direction normal to the latter by means of separate, normally flat surfaced, yieldable presser members engaging the rear, non-adhesively coated surface of each tape over the length of the card, the presser members yielding sufficiently to press the tapes into contact with the tape confronting faces of the articles and with the card at locations on both sides of each article, during such pressing operation positively maintaining the initial spacing of the articles in each group from each other, and subsequent to the pressing operation, and while the thus formed assembly continues its travel, cutting off the tapes outwardly of but adjacent to the rear edge of each of the supporting cards facing the sources of the tapes.

29. In a packaging apparatus the combination of a frame; a plurality of intercoupled platens each having at least one tape channel and at least one article recess spaced outwardly from and transverse to said channel; card locating means; drive means for sequentially moving said platens to and from divers positions; and presser means, part of which is carried by said platens, adapted to press the tape, article and card together for a predetermined part of travel of the platens.

30. An apparatus for packaging a plurality of elongated articles on an elongated supporting card, comprising movable means for supporting an adhesive tape, spaced articles and an elongated supporting card, the tape transversing the card, the articles facing the adhesively coated side of said tape, the broad surface of the card confronting the articles and generally parallel to the adhesively coated side of the tape, and means to simultaneously press the tape, the articles and the card together on said movable supporting means so that the tape adheres to the faces of the articles and the card at locations on both sides of each article.

31. An apparatus for packaging a plurality of articles on an elongated supporting card, comprising a movable assembling platen, means on the platen for holding thereon an adhesive tape

with the adhesively coated side thereof facing outwardly, means on the platen to hold elongated articles in spaced relationship with respect to and transverse to the adhesive tape, means on the platen positively to locate a supporting card overlying the articles and confronting the articles and tape generally parallel to the adhesively coated side of the tape, and means to simultaneously press the tape, articles and card together on said movable platen in a direction normal to the card, so that the tape adheres to articles and to the card at locations on both sides of each article.

32. The method of packaging a plurality of articles on a supporting card, which consists in arranging a plurality of elongated articles in spaced parallel relationship to each other and longitudinally with respect to an elongated card with an adhesive tape disposed transversely of the card and articles with the adhesive surface of the tape facing the articles and a surface of said card, maintaining the card, articles and tape in a packaging relationship on a movable platen, and then applying pressure to the card, articles and tape while on said movable platen to secure the tape to exposed surfaces of the articles and to the card at opposed sides of the articles in producing the resulting package.

33. The method of packaging a plurality of articles on a supporting card, which consists in arranging a plurality of elongated articles in spaced parallel relationship to each other and longitudinally with respect to an elongated card with an adhesive tape disposed transversely of the card and articles with the adhesive surface of the tape facing the articles and a surface of said card, maintaining the card, articles and tape in a packaging relationship on movable intercoupled platens forming an endless conveyor, then applying pressure to the card, articles and tape to secure the tape to exposed surfaces of the articles and to the card at opposed sides of the articles in producing the resulting package, and supporting the articles and tape on grooved surfaces of said platens and feeding the tape in synchronism with conveyor feed.

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