June 5, 1962 L. McGIHON 3,037,431

CARTON FEEDING, ERECTING AND FILLING MECHANISM

Original Filed Feb. 3, 1955 8 Sheets-Sheet 1

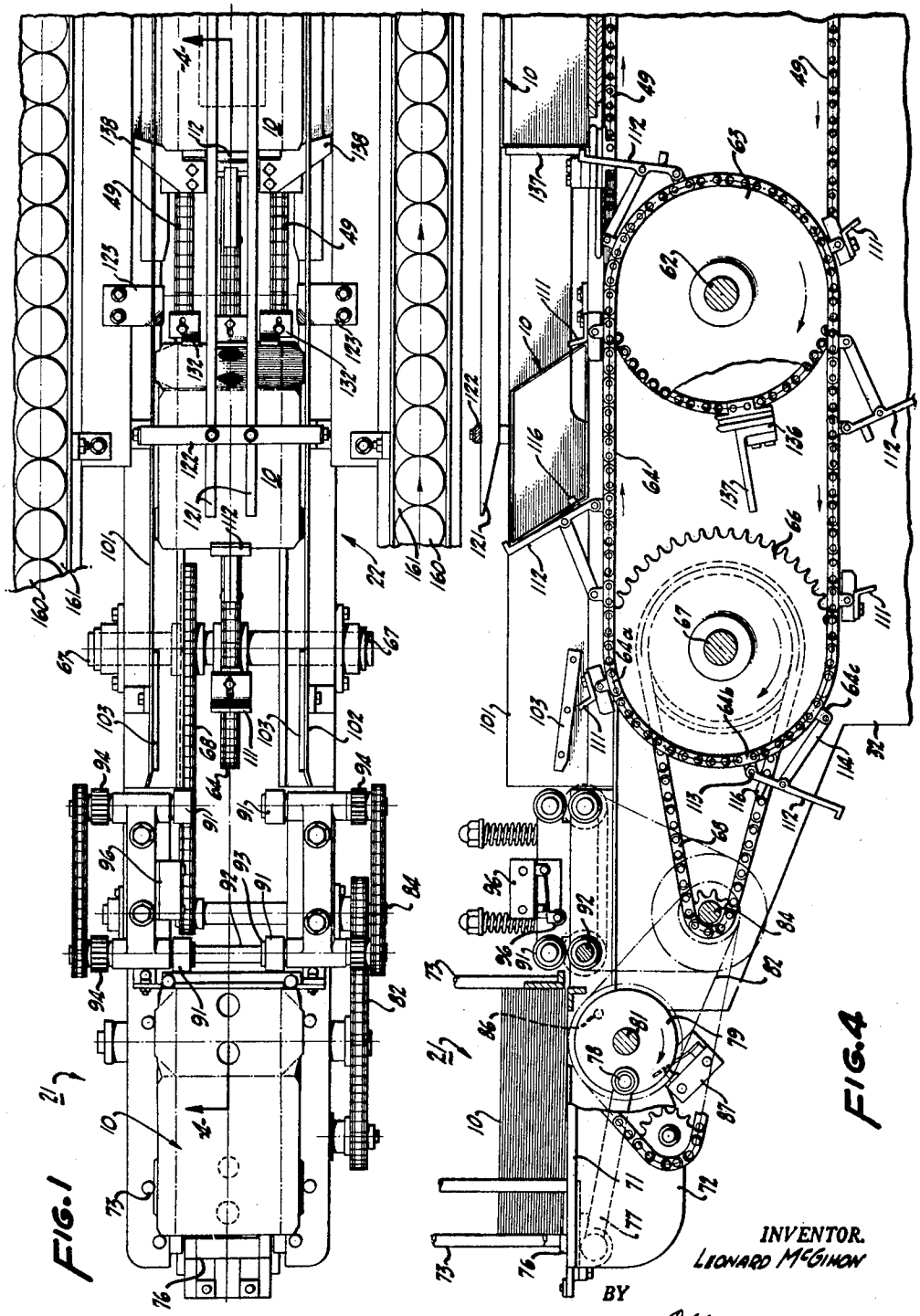


FIG. 1

FIG. 4

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CARTON FEEDING, ERECTING AND FILLING MECHANISM

Original Filed Feb. 3, 1955 8 Sheets-Sheet 2

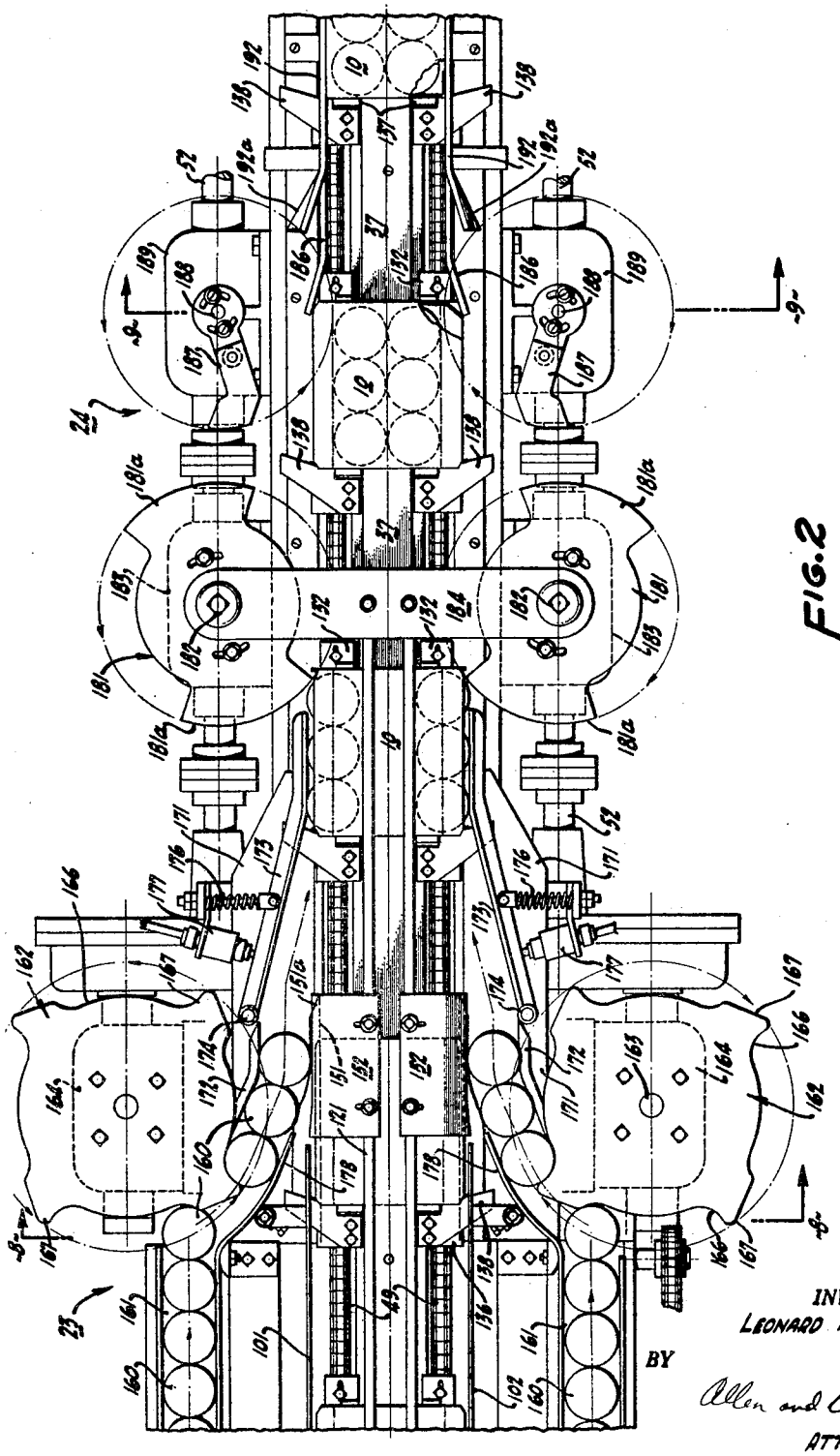


FIG. 2

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CARTON FEEDING, ERECTING AND FILLING MECHANISM

Original Filed Feb. 3, 1955 8 Sheets-Sheet 3

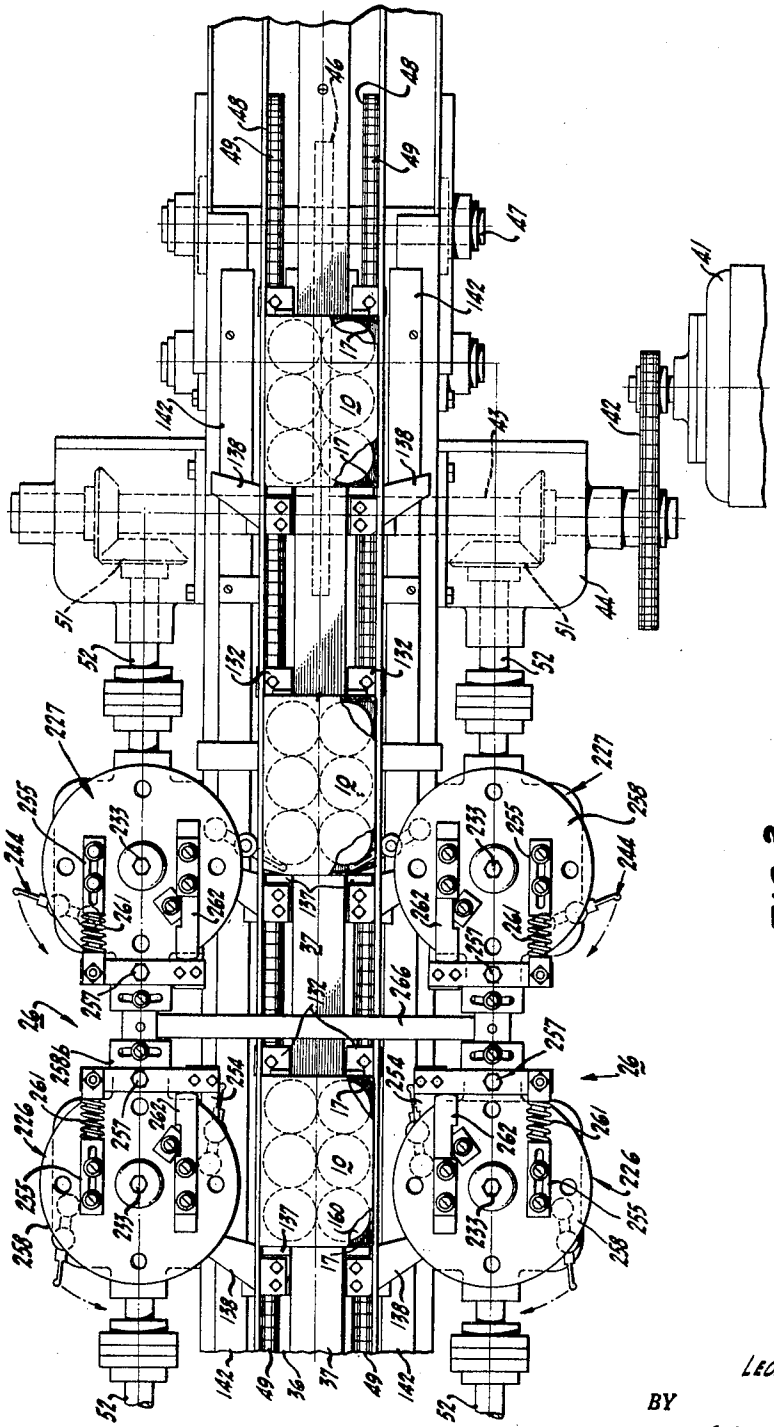


FIG. 3

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CARTON FEEDING, ERECTING AND FILLING MECHANISM

Original Filed Feb. 3, 1955 8 Sheets-Sheet 4

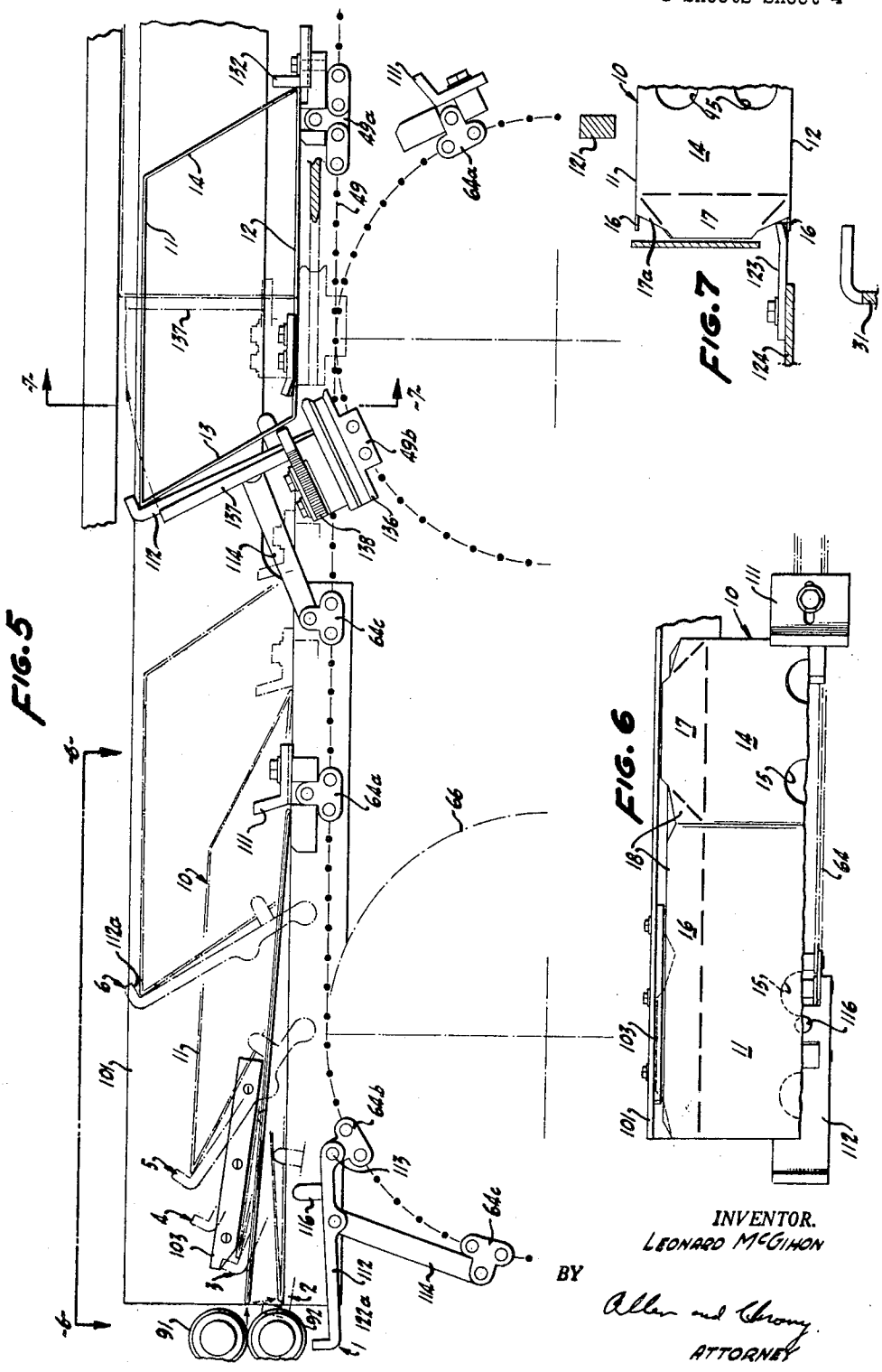


FIG. 5

FIG. 7

FIG. 6

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June 5, 1962 L. McGIHON 3,037,431

CARTON FEEDING, ERECTING AND FILLING MECHANISM

Original Filed Feb. 3, 1955 8 Sheets-Sheet 5

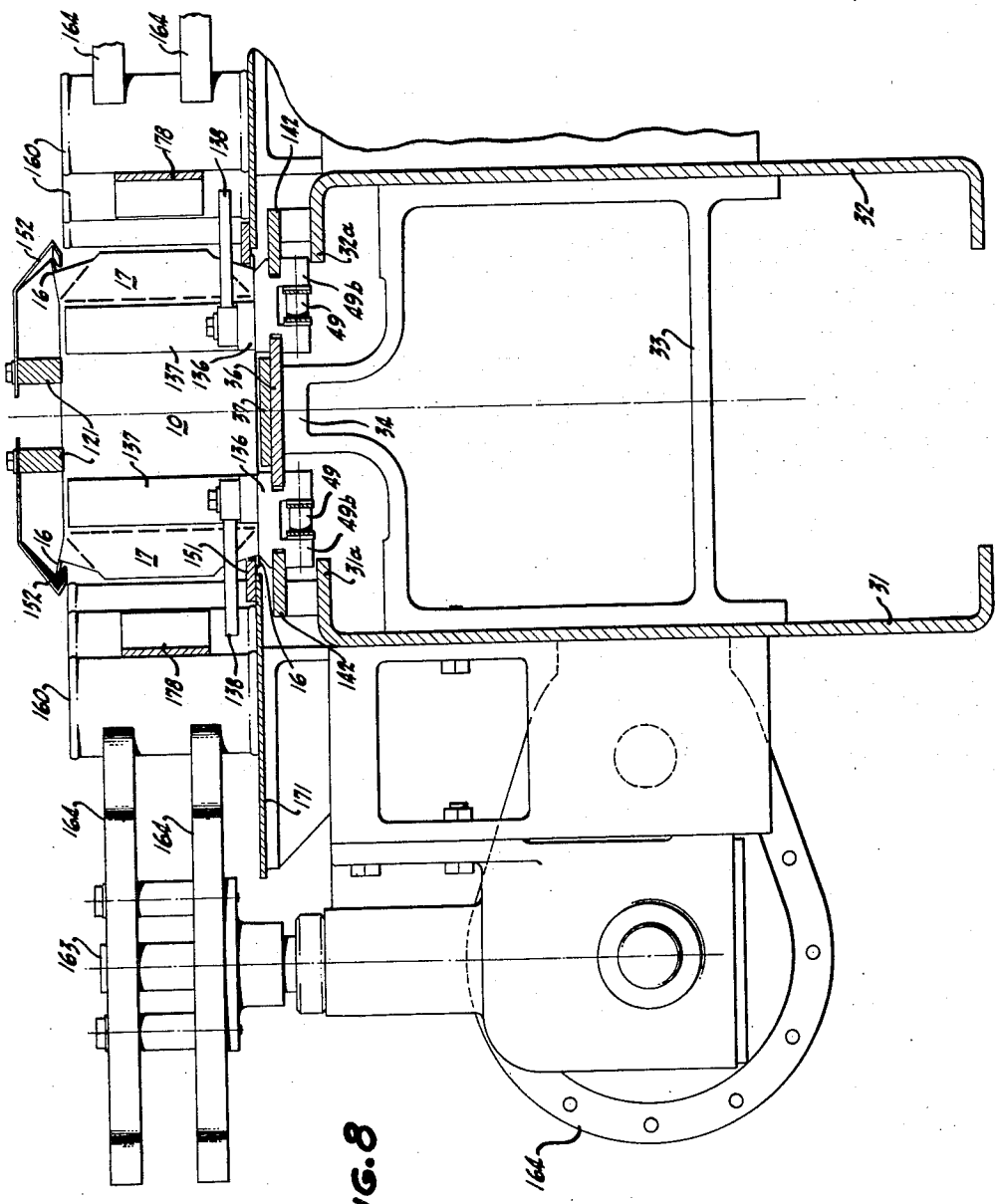


FIG. 8

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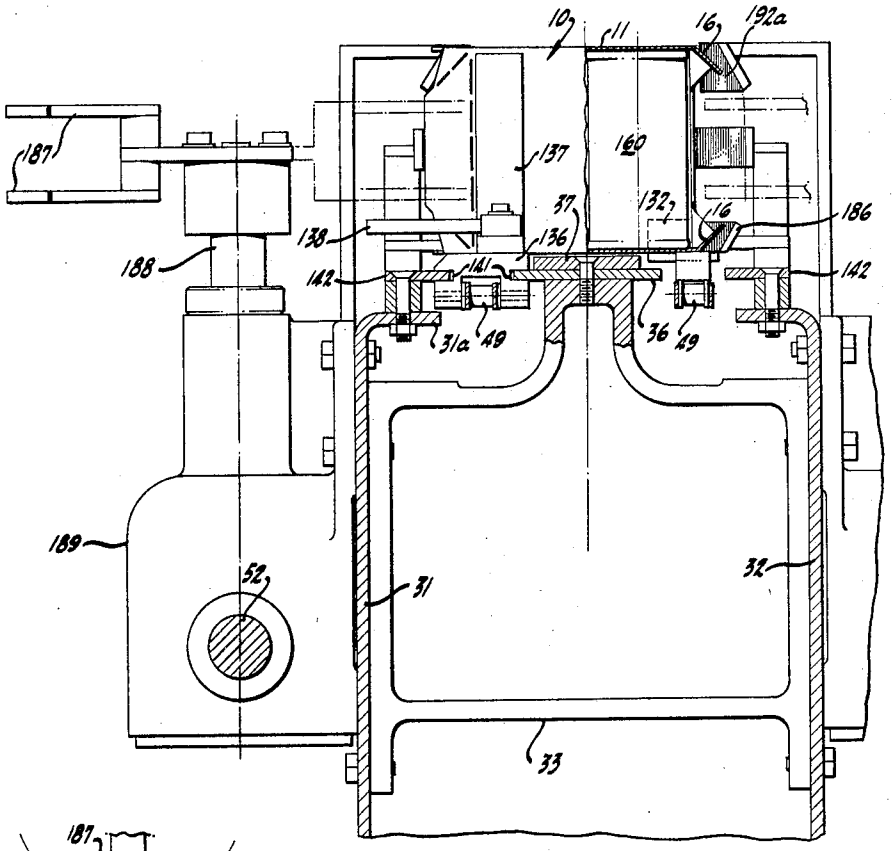
Allen and Allen.
ATTORNEY

June 5, 1962 L. McGIHON 3,037,431

CARTON FEEDING, ERECTING AND FILLING MECHANISM

Original Filed Feb. 3, 1955 8 Sheets-Sheet 6

FIG. 9



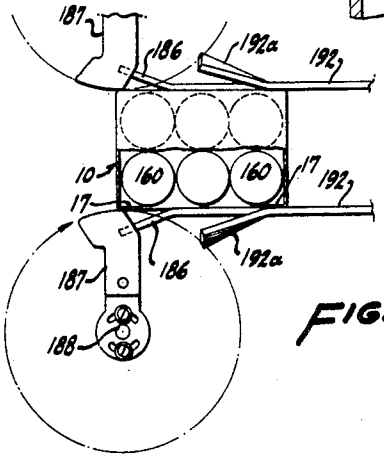


FIG. 10

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CARTON FEEDING, ERECTING AND FILLING MECHANISM

Original Filed Feb. 3, 1955 8 Sheets-Sheet 7

FIG. 11

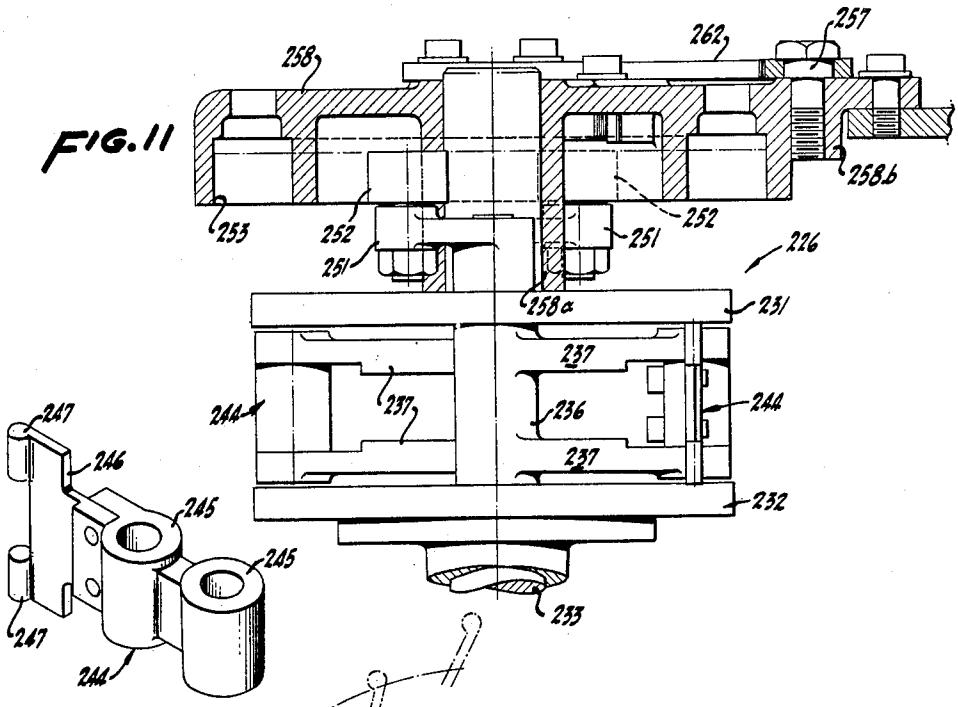


FIG. 13

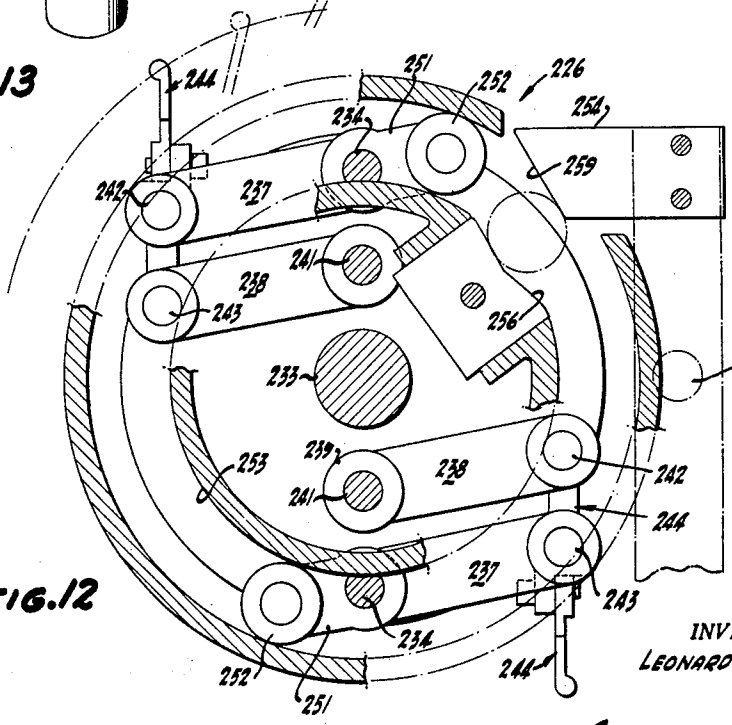


FIG. 12

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CARTON FEEDING, ERECTING AND FILLING MECHANISM

Original Filed Feb. 3, 1955 8 Sheets-Sheet 8

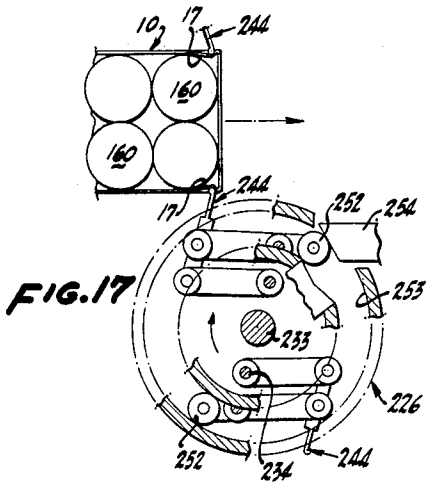


FIG. 17

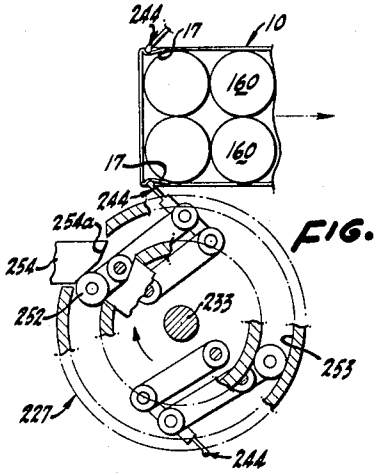


FIG. 14

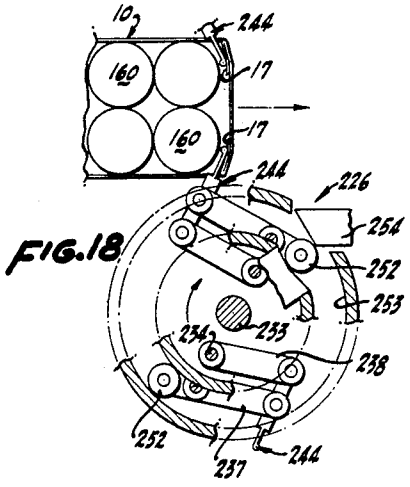


FIG. 18

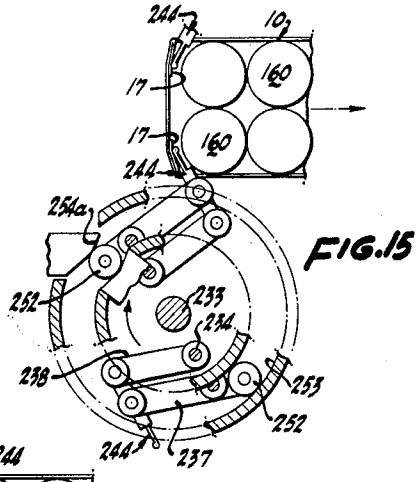


FIG. 15

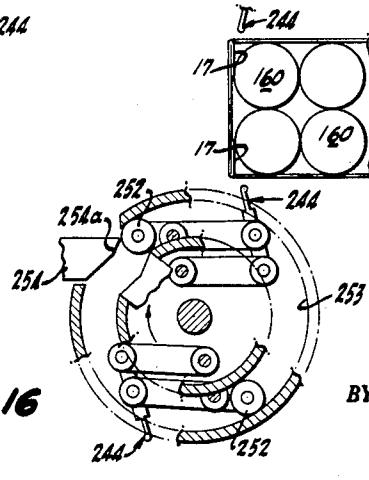


FIG. 16

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United States Patent Office

3,037,431

Patented June 5, 1962

3,037,431
CARTON FEEDING, ERECTING AND FILLING MECHANISM

Leonard McGihon, San Leandro, Calif., assignor, by mesne assignments, to King-O-Matic Equipment Corp., San Francisco, Calif., a corporation of California

Original application Feb. 3, 1955, Ser. No. 485,943, now Patent No. 2,849,846, dated Sept. 2, 1958. Divided and this application Sept. 17, 1959, Ser. No. 840,682

2 Claims. (Cl. 93—53)

This application is a division of my co-pending application, Serial No. 485,943, filed February 3, 1955 for Carton Feeding, Erecting, Filling and Closing Mechanism.

The present invention relates to mechanism for taking respective folded cartons, successively from a stack, opening these cartons to a box-like form with open sides, feeding cans or other containers in groups into the carton through the open sides thereof, and then closing the cartons so as to provide a carry-home pack of the containers in the carton. The various operations take place in sequence and continuously to provide a rapid and efficient method of packing containers in cartons, for example beer cans packed in the familiar six-pack cartons as now commonly on the market. More particularly, the instant mechanism is designed to operate on a carton of a character having a closed rectangular shape with partially open sides, the open sides being provided with connected or continuous side flap portions, the respective adjacent side flaps of each corner being connected by a gusset type fold. In this type of carton, the folding of the flaps attached to the end panels of the carton tucks these flaps behind the containers or cans in the carton and effectively holds the carton closed during shipment and handling, but provides for easy opening by the user.

The above and other objects of the invention are attained as described in connection with a preferred embodiment of the invention, as illustrated in the accompanying drawings, in which:

FIGURES 1, 2 and 3 represent a composite plan view of the machine.

FIGURE 4 is a longitudinal sectional view partially in elevation, of the mechanism shown in FIGURE 1, the view being taken as indicated by the line **4—4** in FIGURE 1.

FIGURE 5 is a schematic enlarged view of a portion of FIGURE 4, illustrating the operation of the carton erecting mechanism.

FIGURE 6 is a fragmentary plan view taken as indicated by the line **6—6** in FIGURE 5.

FIGURE 7 is a fragmentary sectional view taken as indicated by the line **7—7** in FIGURE 5.

FIGURE 8 is a transverse sectional view taken as indicated by the line **8—8** in FIGURE 2.

FIGURE 9 is a transverse sectional view taken in a plane indicated by the line **9—9** in FIGURE 2.

FIGURE 10 is a fragmentary plan view showing a portion of FIGURE 2 of the preliminary flap closing mechanism, the parts being shown in a different operating position.

FIGURE 11 is an elevational view of one of the carton-tucking or flap-tucking mechanisms, with certain portions broken away and showing sections to illustrate details of construction.

FIGURE 12 is a plan view, partially in section, of the mechanism shown in FIGURE 6.

FIGURE 13 is a perspective view of one of the flap-tucking blades of the machine.

FIGURES 14, 15 and 16, respectively, are schematic plan views showing different phases of the operation of the tucking of the rear or trailing flaps of a carton.

FIGURES 17 and 18 are similar schematic plan views

showing successive operations in the tucking of the front or leading flaps of the carton.

This application is a continuation-in-part of my co-pending application Serial No. 392,158, filed November 16, 1953, issued as Patent No. 2,849,846, September 2, 1958.

To enable a better understanding of the invention, a brief description of the carton preferably employed with the machine will be described, this carton being of the type shown in my co-pending application Serial No. 402,872, filed January 8, 1954, issued as Patent No. 2,931,490, April 5, 1960 for Carton. In general, the carton **10**, which is symmetrical from side to side, includes (FIGURES 6, 7 and 8) a top panel **11**, a bottom panel **12**, and respective end panels **13**, one of the end panels comprising overlapped and glued portions. These four panels are connected by respective bend lines so that they form a continuous series. Respective top panel **11** has side flaps or panel portions **16** at either side, and the bottom panel **12** has similar side flaps or panel portions **16**, and end panels **13** and **14** have respective side tuck-in flaps **17** of similar construction, the respective flaps **16** and **17** being connected at each corner by a gusset type corner or fold joint **18**. As seen more particularly in FIGURE 7, the side flaps **17** are cut away as at **17***a* and are wider than the flap **16** for purposes later described.

In general, the machine comprises a carton feed station **21** (FIGURES 1 and 4) which is adapted to receive a stack of folded cartons, and inject these cartons one by one to a carton erecting mechanism **22** which is the next mechanism in the line of operation. From the carton erecting mechanism **22**, the erected cartons are fed past a can feed station **23** (FIGURE 2) by means of which a group of three cans are introduced from each side into the carton, and then the carton with the cans therein is carried past a carton flap closing station **24**, which performs a preliminary folding of the side flaps to prepare them for the subsequent tucking operation, and then the cartons are fed to a flap-tucking station **26** where the tucking of the flaps completes the carton-closing operation.

These various mechanisms will be described in sequence following the description of the frame and the drive mechanism.

Frame and Drive Mechanism

The frame comprises respective similar opposed U-shaped sheet metal frame portions or side members **31** and **32** (FIGURES 4 and 8) which are joined at a plurality of points along their length by similar center frame castings **33** (FIGURE 8). The frame castings **33** in addition to providing a rigid connection for the side frame members **31** and **32**, has a raised central pad portion **34** on which respective longitudinal track members or plates **36** and **37** are secured as will be pointed out later in detail.

The drive for the machine includes a motor **41** (FIGURE 3) connected by a suitable chain and sprocket mechanism **42** with a transverse shaft **43** suitably journaled in housing members **44** bolted to the respective side members **31** and **32**. At its center the shaft **43** is connected by suitable chain and sprocket mechanism **46** with a drive shaft **47** carrying suitable sprockets **48** thereon to drive the two main conveyor chains **49** for a purpose later described. The shaft **43** is also connected at either side of the frame by a set of bevel gearing **51** with longitudinal shafting **52** which extends through the flap-tucking mechanism, the flap folding mechanism, and the can feeding mechanism **23** (FIGURE 2).

Referring to FIGURES 1 and 2, the conveyor chains **49** are trained about respective idler sprockets carried by a shaft **62** suitably journaled on the frame. This shaft **62** also carries a center sprocket **63** which provides a drive for a conveyor chain **64** (FIGURES 1 and 4) of the

carton erecting mechanism, this chain being supported by sprockets **63** and **66**. The sprocket **66** is mounted on a shaft **67** which also provides a drive through a suitable chain and sprocket mechanism **68** for the carton feed mechanism **21** in a manner later described.

Carton Feed Mechanism

The carton feed mechanism includes a platform **71** carried by an auxiliary frame member **72** on the main side frame members **31** and **32** and having eight upright rods **73** (FIGURES 1 and 4) and these eight upright rods engage the respective sides and ends of a stack of cartons **10** in folded condition. Suitably guided on the platform **71** in position to engage the lowermost carton **16** of the stack, is a feed slide **76** of conventional construction connected by a connecting rod **77** with a pin or eccentric **78** carried by a disc **79** on a transverse shaft **81**. The shaft **81** is connected by suitable sprocket and chain means **82** to a shaft **84**, the shaft **84** being driven by a chain and sprocket mechanism **68** previously referred to. The disc **79** carries a pin **86** which once during each cycle opens a normally closed switch **87** for a purpose later described.

From the above description it is believed apparent that the slide **76** once for each revolution of the shaft **81** will eject the lowermost carton **10** from the stack, at least begin the ejection, and bring it into engagement with a set of ejecting or draw out rolls now to be described.

These rubber rolls **91** (FIGURES 1 and 4) carried by respective upper shaft **93** and lower shaft **92** and arranged in opposed pairs so as to move a carton rapidly from underneath the stack once the carton feed is initiated by the feed plate **76**. The shaft **92** is a cross shaft and serves to connect the respective sets of rolls **91**, and the shafts **92** and **93** have meshing gears **94**.

As a carton is being withdrawn from the stack and passing between the respective sets of rolls **92** and **93**, it closes a normally open switch **96**, to maintain the circuit closed during the interval that the switch **87** is open, these two switches being connected in parallel relation with each other and in series in the circuit of motor **41**. As long as there is continuous carton feed the circuit for the motor **41** will be maintained, but if there is no carton fed past the switch **96**, it will not be closed, and the opening of the switch **87** will interrupt the motor circuit so that the operation of the machine will stop.

A carton **10** (FIGURES 1, 4 and 5) ejected by the rollers **91** and **92** is fed between a pair of side rails **101** and **102** and beneath respective inclined bars or guides **103** on the rails **101** and **102** to hold the carton down and to direct it into engagement with respective progressing and erecting means carried by the chain **64**. The carton erecting means includes a leading element **111** which is secured on a special link **64***a* of the chain **64** and a trailing or lifting arm **112** which is pivoted at **113** on a link **64***b* of the chain **64** and is connected by a supporting link **114** to another link **64***c* of the chain. From the above description it will be seen that when link **64***b* and **64***c* are reversely operated the lifting arm **112** will be in lowered position, this condition operating as the links **64***b* and **64***c* travel around the sprocket. Conversely when these links are closer together, i.e., when the chain is driven on a straight line the lifting arm **112** will be in its upright carton erecting position. This trailing carton lifting or erecting element **112** also carries a projection **116** for a purpose later described.

Referring to FIGURE 5, the initial carton erecting operation of the mechanism will be described, starting with a position marked "1" of the various parts, the successive operating positions illustrated in phantom lines being shown at 2, 3, 4, 5 and 6 respectively. It will be noted that the carton in its flat folded condition comprises an upper layer consisting of a top panel **11** and an end panel **14**, and a bottom layer consisting of an end panel **13** and a bottom panel **12**, the end panels being provided with finger apertures **15**.

As the carton erecting assembly **112** and **116** starts from the position 1 in FIGURE 5, the finger **116** penetrates an aperture **15** and engages the top panel **11** at the time the arm **112** engages the end panel **13**, the flaps **16** of the bottom panel are held against rising by the stops **103** on the side wall portions **101** and **102** so that the carton breaks at its hinged joints. As the chain progresses, and as the lifting arm **112** is raised around its arcuate course in passing around the sprocket **66**, operation proceeds through the positions 3, 4 and 5, the angle end **112***a* on the lifting arm **112** engaging the end of the carton and the carton finally being erected to the position shown in dotted lines in FIGURE 5, the other end of the carton being engaged with the stop **111**.

The carton is conveyed along in this condition until it is picked up by the carton feed mechanism, which completes the erecting operation. During the latter portion of this travel it passes beneath but clears a pair of top rails **121** (FIGURES 1 and 4) suitably supported on the frame by a U-shaped bracket structure **122** at one end and at the other end by a crosspiece **184** (FIGURE 2). Also the bottom pair of side flaps **16** of the carton pass beneath a pair of opposite hold-down fingers or plates **123** (FIGURE 1) mounted on suitable side frame members **124** attached to the side plates **31** and **32**. The flaps **16** being held down are relatively stationary with respect to the chain **64** and the erecting parts **112** and **111** which hold the carton and are traveling therewith, so that during subsequent carton erecting mechanism, a stationary part of the carton is used to hold it down and insure against its lifting out of place.

From the above description it will be seen that the conveyor or chain **64** includes a series of equally spaced apart carton receiving and erecting stations at each of which a stop **111** is provided and a lifting arm **112**. These stations serve to partially erect the carton during its travel and to transfer a partially erected carton to a series of equally spaced apart carton erecting and holding stations on the conveyor or chains **49**. Each chain **49** (FIGURE 5) at each carton erecting and holding station carries a block **131** secured to a link **49***a* upon which there is adjustably mounted an L-shaped stop **132** for engaging the leading end of the carton. Each chain **49** also carries on a link **49***b* a plate **136** which carries an upright carton-erecting and propelling portion **137**, and respective side extensions **138**, for a purpose later described.

As seen in FIGURE 9 the plate **136** is provided with respective side recesses **141**, one of which engages a side guide plate **142** on the flange **31***a* of the side frame **31** and the other of which engages the center guide plate **36** previously referred to. The carton is supported and carried along by the stops **132** and the plate **136**, and the upper center plate **37** (FIGURE 8) at a lower level forms a steady rest for engaging the bottom of the fully erected carton **10**, whose top is engaged with the rails **121** so that the carton is carried along fully opened in rectangular fashion with its sides open, and the side flanges **16** and **17** are extended. This condition is illustrated at the extreme right of FIGURE 4 and in FIGURE 8.

As the carton thus held enters the can filling zone shown at the left of FIGURE 2, and also illustrated in FIGURE 8, the lower flanges **16** engaged beneath hold-down plates **151** suitably mounted on the side platforms or frames **124**, and the upper flanges **17** are engaged by V-shaped hold-up guides **152** (FIGURE 8) secured to the top rails **121** which bend up and lift slightly the top edges of the carton.

Can Feed Mechanism

The can feed mechanism comprises generally a pair of opposite single file can conveyors **161** (FIGURES 1 and 2), which may be mounted and driven in any suitable manner, on which the cans **160** are progressed in two parallel files at opposite sides of the machine until they

are separated into groups and introduced as groups into the open sides of the carton **10**.

At the end of each of the respective single file conveyors **161**, a can segregating member or disc **162** is provided. Each disc or can segregator **162** is carried by a shaft **163** journaled in a housing **164** and is driven through suitable gear mechanism from the shafting **52**. Each disc **162** has four can receiving pockets or sections **166** which are separated by respective can separating projections **167** having inclined outer surfaces. The pockets **166** and projections **167** serve to segregate the single file of cans **160** into sets of three each by the action of the leading high end of each projection **167** which enters between adjacent cans **160** and retards the cans following the group of three cans segregated. Because of the inclined can engaging edge of each projection **167** a slow progressing action of the following file of cans continues, so that no abrupt stopping and starting is involved. The similar can segregating discs **162** operate similarly on the two files of cans **160** so that two groups of three cans each are segregated and travel over a platform **171** in timed relation with respect to a container **10**, on opposite sides thereof, and in timed relation to the progressing fingers **138** projecting out at either side of the respective blocks **136**. The cans separated and conveyed by the discs **164** are carried out over the platforms **171**, and past inclined guide rails **178** and **172**, rail **172** having a section **173** hinged thereto at **174** and spring urged inwardly by a spring **176**. This yieldable section **173** serves to introduce the upright cans sidewise into the open sides of the carton, and if a jam should occur, outward movement of the section **173** will open a limit switch **177** for motor **41**.

As seen in FIGURE 2, the groups of cans are propelled by projection **167** and fingers **138** along a converging course leading to the cartons being guided by the inner rails **178** and outer rails **172, 173**. Each can ultimately engages the outer edge of the hold-down plate **151** for the lower flaps **16**, and this hold-down plate **151** has a terminal sharpened edge **151***a* off of which each can successively passes and into the carton **10**. One set of cans **160** are shown approaching the terminal edge **151***a*, and the other sets are shown partially entered into the carton.

Thus it is seen that inclined guide section **173** partially introduces the cans **160** into the carton as shown at the first segregated group in relation to the carton in FIGURE 2, and means is provided for subsequently completing the entry of the cans into the carton.

This means comprises a pair of opposite cam members **181** (FIGURE 2), each carried by a shaft **182** journaled in a gear box **183** through which the shafting **52** passes and provides a drive. The shafts **182** are also journaled in a cross piece **184**. Each of the cams **181** has two full sections **181***a* spaced 180 degrees apart, and one of these sections as shown in FIGURE 2 is just beginning to engage a group of cans partially entered in the carton **10**, and it will complete the entry of the cans into the carton as shown at the next position to the right in FIGURE 2. The next operation is the flap folding.

Flap Folding Means

As previously explained, the flap folding is effected by first folding in the side flaps **17** attached to the end panels **13** and **14** of the carton through 90 degrees, then folding the side flaps **16** through 90 degrees, and subsequently a tuck-in folding of the side flaps **17** for another 90 degrees. In the preliminary folding of the flaps **17**, the leading flaps **17** of a carton are folded by respective opposite stationary folding arms or guides **186** (FIGURES 2 and 9) found at either side of the carton. The rear flap folding means for flaps **17** comprises a pair of flap folding arms **187** arranged in pairs at either side of the machine, these arms being carried by a shaft **188** mounted in a gear box **189** and suitably driven from the shafting **52**. These arms **187** are driven at a higher rate of speed than the linear travel of the carton and serve to engage the rear flaps **17** as shown in FIGURE 10 and fold these flaps inwardly for 90 degrees.

It will be recalled that the side flaps **17** attached to the end panels are connected to the side flaps **16** attached to the top and bottom panels by gusset folds, so that the folding of the side flaps **17** into place parallel to the container will cause a partial downward folding of the upper side flaps **16** and partial upward folding of the lower side flaps **16**. To complete the folding of the flaps **16** and thereby place the carton in rectangular condition, the carton **10** enters between respective upper and lower side rails **192** (FIGURES 2 and 9) having tapered entrance portions **192***a* which engage flaps **16** to complete their fold through 90° to a vertical position. This conditions the carton and the containers therein for the flap tucking operation.

Flap Tucking

The conveyor **49** progresses each carton along in timed relation to the other cartons past four tucking mechanisms **226** and **227**. It will be noted that there are two carton tucking units **226** for engaging the side flaps **17** at the leading or front edge of the carton, and two carton tucking mechanisms **227** for engaging the trailing or rear flaps **17** of the carton. The pairs of mechanisms **226** and **227** need not be timed with respect to each other, but only with respect to the conveyor feeding the cartons therepast.

Because the various tucking mechanisms **226** and **227** are essentially identical in construction, only one will be described in detail.

Referring to FIGURES 11 and 12, one of the tucking units **226** is illustrated and includes a pair of opposed discs **231** and **232** which are carried by an upright drive shaft **233** and secured in spaced relation thereon. The discs **231** and **232** carry two similar tucking means spaced 180 degrees apart, and for each tucking means have pivotally journalled therein an upright shaft **234** which carries a boss **236** having a pair of arms **237** secured thereto in vertically spaced relation and carrying a pivot pin **240** between their outer ends. The arms **237** form a part of the parallel linkage including a second pair of parallel arms **238** having a boss **239** journalled on a pin **241** secured between the plates **231** and **232**. The arms **238** and **237** are parallel to each other and carry at their outer ends respective pins **242** and **243** on which a blade arm **244** is pivotally mounted by respective bosses **245**. The blade arm **244** has a tucking blade **246** extending therefrom, this tucking blade including a pair of vertically spaced, round fingers **247** to perform the actual tucking operation. The upper end of shaft **234**, carries a lever **251** having a cam follower roller **252** journalled therein and engaged with a cam track **253** formed in a cam member **258** which is journalled about the shaft **233** and has a hub **258***a* which rests on the upper disc **231**. The four cam members **258** (FIGURE 3) are interconnected by a crosspiece **266** carrying respective end plates **267** adjustably secured by screws **268** to slotted extensions **258***b* of the cam members **258**. Then each cam member **258** is mounted in stationary position above the related tucking assembly, and the cam track **253** thereof is circular in configuration except for a cam depression **256** opposite which a movable cam section **254** is mounted. The cam section **254** is pivotally secured by a pin **257** in a plate **258** mounted on the cam track **253** and has a cam portion **259** projecting into the cam track and spring urged into position by a spring **261** suitably engaged at its opposite end with an adjustable plate **255**. The opposite end of the cam member **254** engages an adjustable stop **262** so that the extent of penetration of the cam surface **259** can be adjusted. The yieldable mounting of the cam section **254** provides against breakage in the event of a jam in the operation of the tucking blade **246** so that no parts will be broken.

Referring to FIGURES 14, 15 and 16, three positions

of the tucker blade **246** in various stages of the operation are shown including a position in FIGURE 14 which is the normal position of the tucker blade **246** with the roller **252** riding on the long dwell of the cam track **253**. In this normal position of the tucker blade **246**, it moves in to engage the aligned flap **17** and makes an initial bend therein. The timing of the carton with respect to the tucker blade is such that this initial bend in the tuck-in flap is performed by the tucker blade along its normal path of travel and it will be noted that the cam follower roller **252** is just ahead of the depression **256** opposite the protuberance **259** of the outer cam section **254**. During the continued movement of the carton from the position shown in FIGURE 14 to that shown in FIGURE 15, the tucker blade **246** moves inwardly, and accelerates relative to the carton to place the flap **17** behind the adjacent container **160** and flat against the end wall of the carton, this wall being slightly flexed during the operation. As the carton is moving, it progresses from the relative position shown in FIGURE 15 to that shown in FIGURE 16, the tucker blade **246** being withdrawn, and the flap **17** being securely held in place by the adjacent container **160**.

It will be noted that the tucker blade **246** in its relation to the travel of the carton has three phases. During its normal rotating movement it is travelling at substantially the same speed as the carton (FIGURE 14) during its advance to the position shown in FIGURE 15, by virtue of the pivoting of the parallel linkage **237—238**, etc., it is accelerated with respect to its regular rate of travel, and during its withdrawal, i.e., to the position shown in FIGURE 16, it decelerates back to its normal rotating speed.

The operation of unit **227** is shown in FIGURES 17 and 18 and it is noted that the operation is generally similar to that shown with respect to the tucker blade **246**, except that the tucker blade **261** of unit **227** is oppositely angled with respect to the carton, being in trailing relation in its direction of rotation so that when it is projected, it is effectively decelerated with respect to its regular rate of travel, and when it is withdrawn it is effectively accelerated so as to leave the tucked-in flap in place and to clear the carton in leaving. Also the cam section **254** is bevelled at **254***a*. The opposite angle of the tucker blades is effected by inverting the tucking assemblies. It will be noted that as the tucking assemblies for the front and rear flaps are timed only with respect to the flaps, the machine is useful with cartons of varying length.

While I have shown a preferred form of the invention, it will be apparent that the invention is capable of variation and modification from the form shown, so that its scope should be limited only by the scope of the claims appended hereto.

I claim:

1. In a carton feeding and erecting mechanism, a first endless conveyor for receiving the cartons in flat folded condition, including a series of carton erecting stations, each station comprising a pair of spaced elements, the first of said elements occupying a trailing position on said conveyor and comprising a linkage attached to the conveyor at spaced points to cause pivoting of the linkage into a position perpendicular to the conveyor after receipt of a carton, thereby engaging the end of the carton and partially erecting a carton, the second of said elements forming a stop for the leading end of the carton, and a second endless conveyor including a plurality of carton erecting stations including respective elements mounted perpendicular to the conveyor, said second conveyor being disposed in overlapping relation to said first conveyor whereby the carton erecting elements of said second conveyor engage a carton as it is released from the carton erecting elements of the first conveyor, and whereby as the carton erecting elements of the second conveyor pass around a curved stretch of the conveyor and enter a straight stretch of the conveyor, the carton is erected into rectangular open condition.

2. A carton erecting mechanism as recited in claim 1, in which means is provided for engaging a bottom portion of the carton and holding it down during pivoting of the other portions of the carton into erected position.

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