April 14, 1959 LE ROY F. CARKHUFF ET AL 2,881,938

CARTON CLOSING AND SEALING APPARATUS

Filed Oct. 11, 1955 6 Sheets-Sheet 1

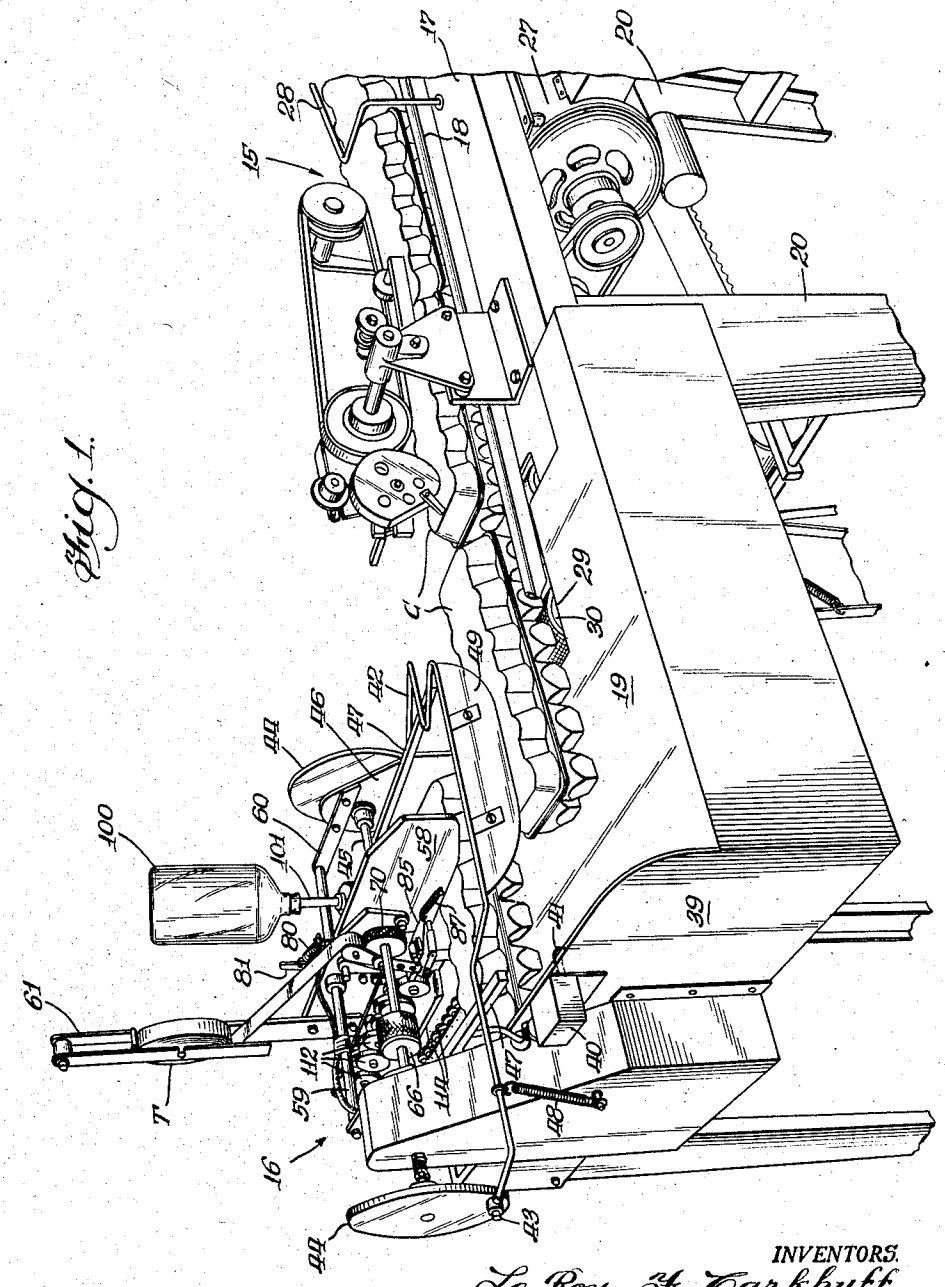

Fig. 1.

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CARTON CLOSING AND SEALING APPARATUS

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Fig. 2

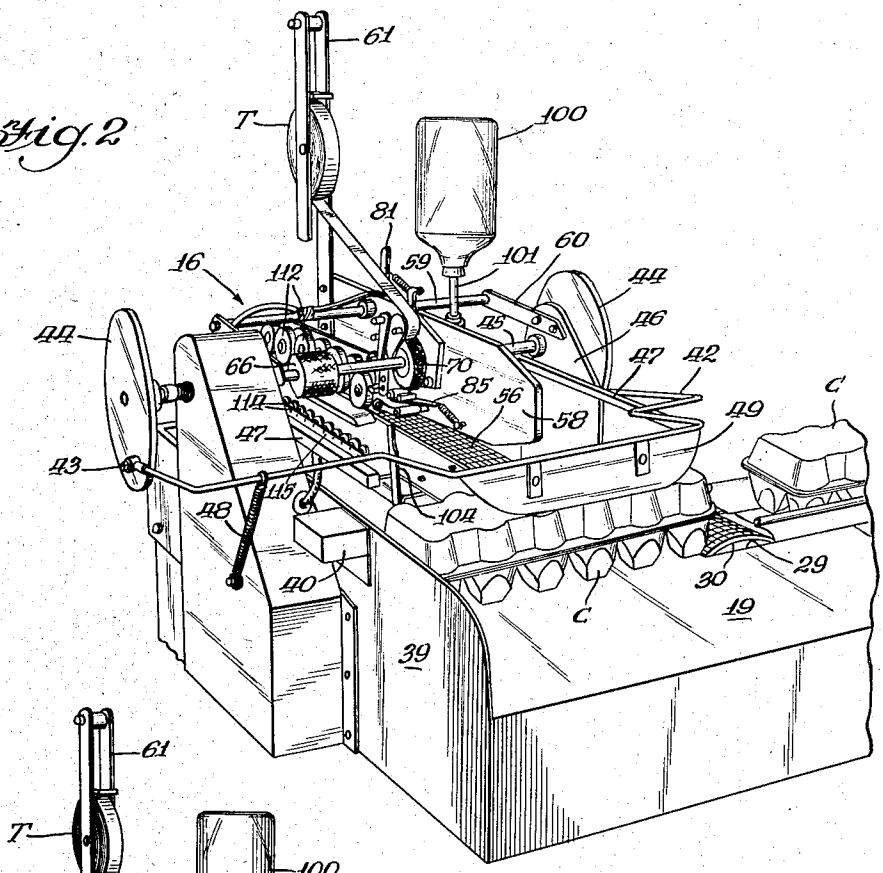
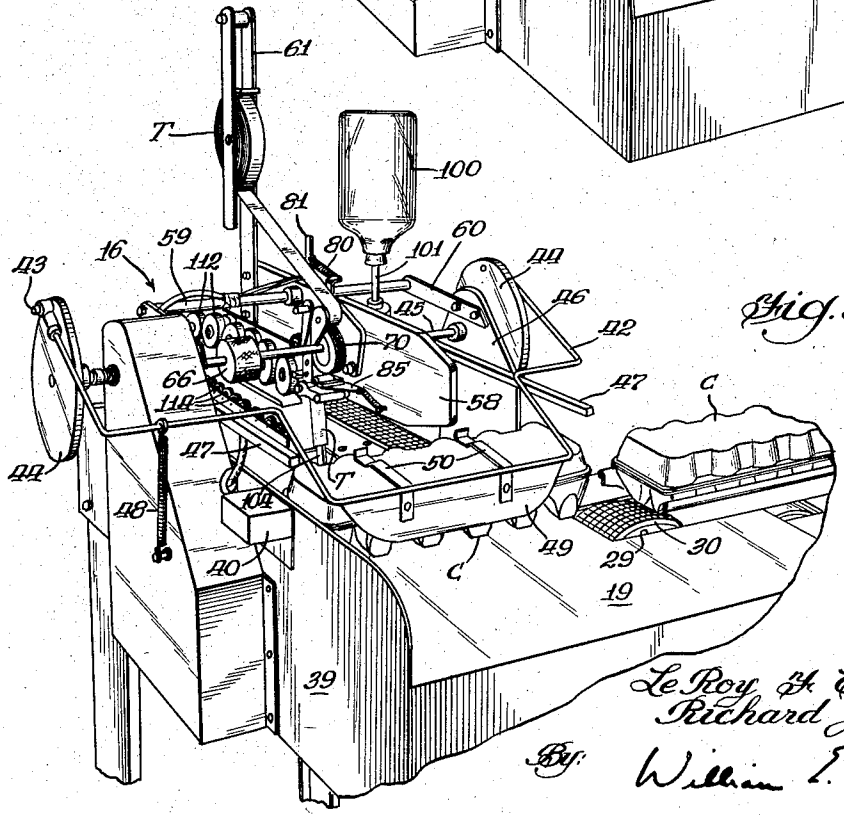


Fig. 3.



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CARTON CLOSING AND SEALING APPARATUS

Filed Oct. 11, 1955 6 Sheets-Sheet 3

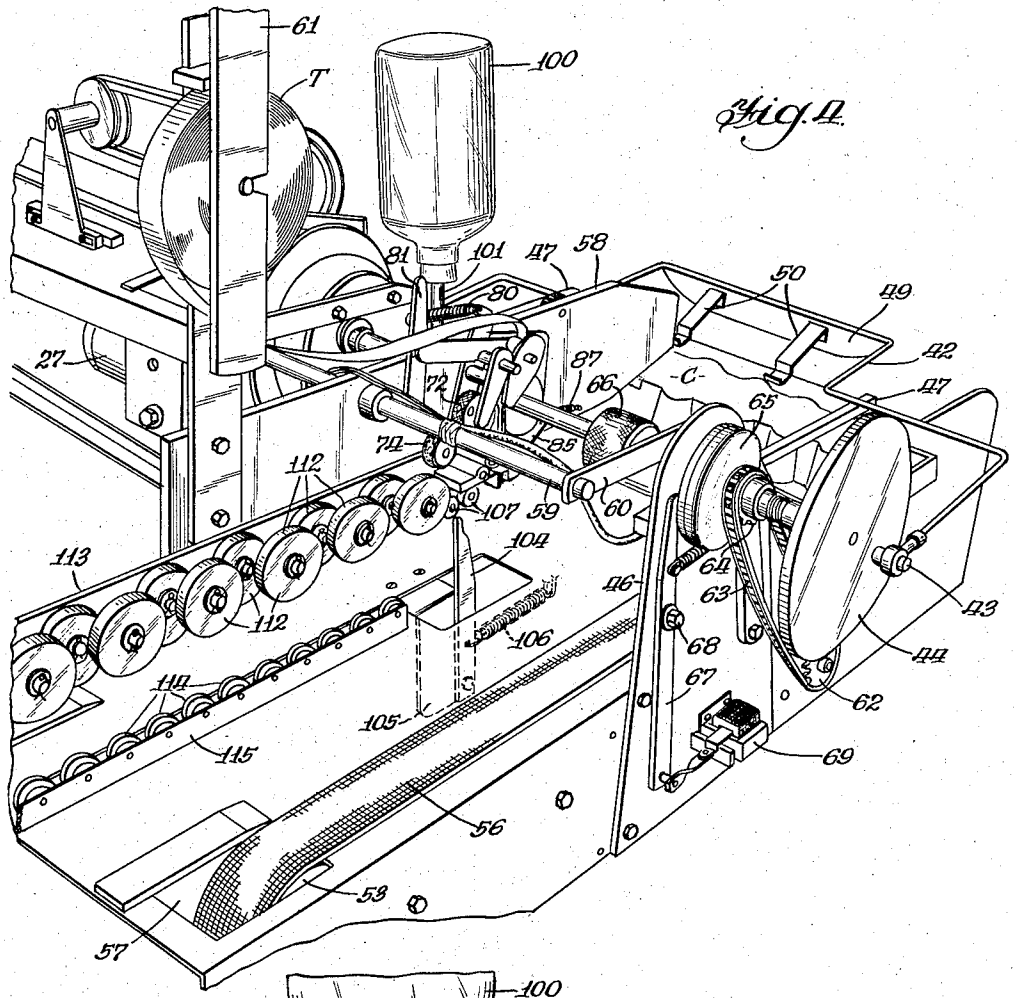

Fig. 4.

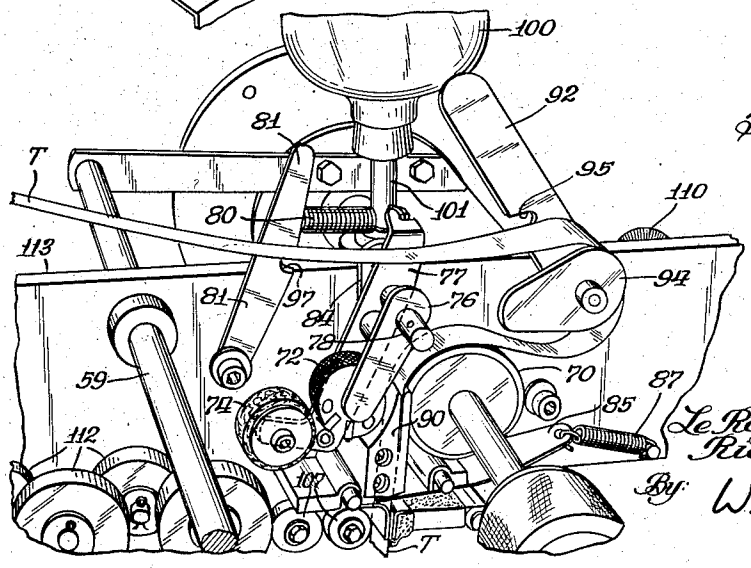

Fig. 5.

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CARTON CLOSING AND SEALING APPARATUS

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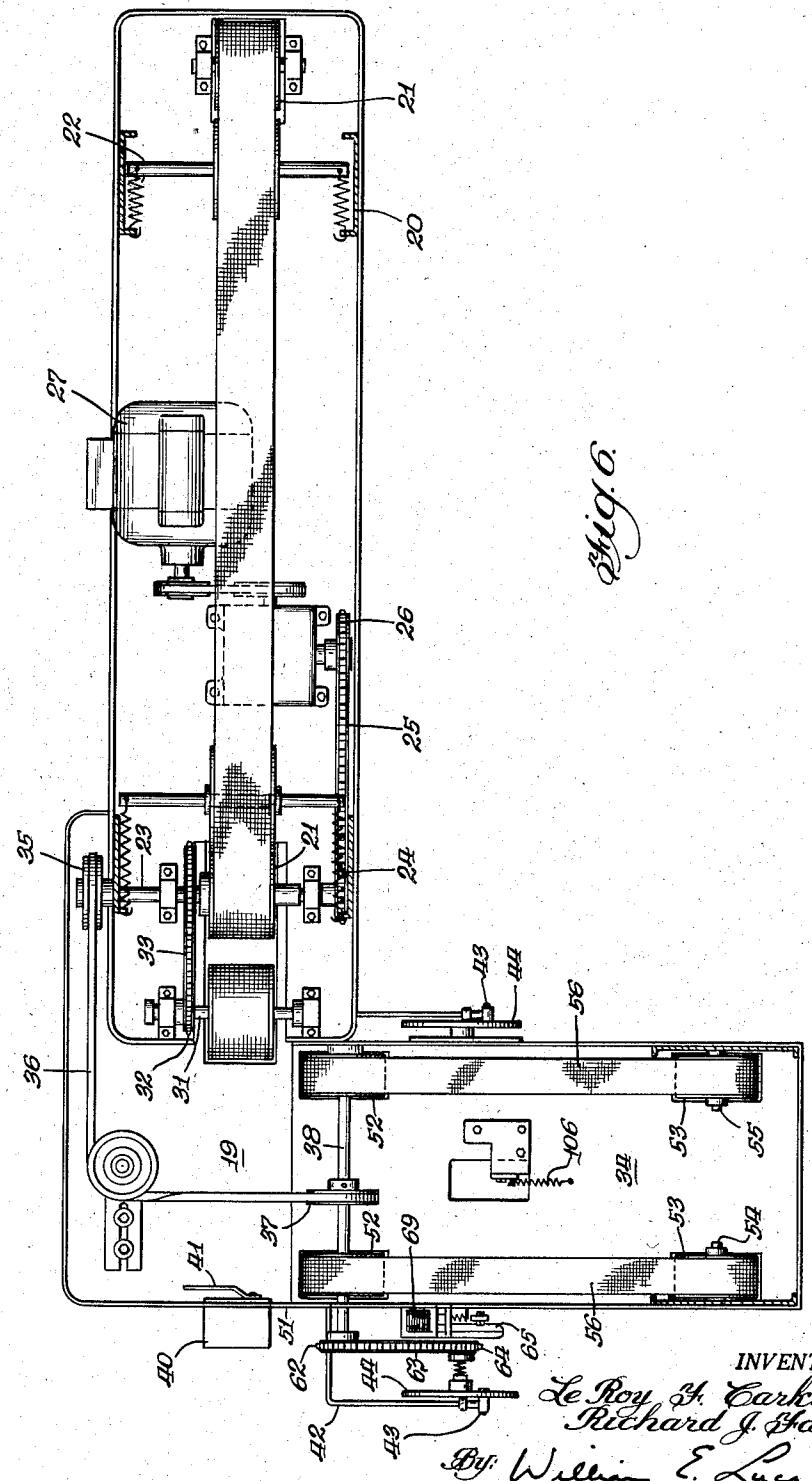

Fig. 6.

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CARTON CLOSING AND SEALING APPARATUS

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Fig. 7.

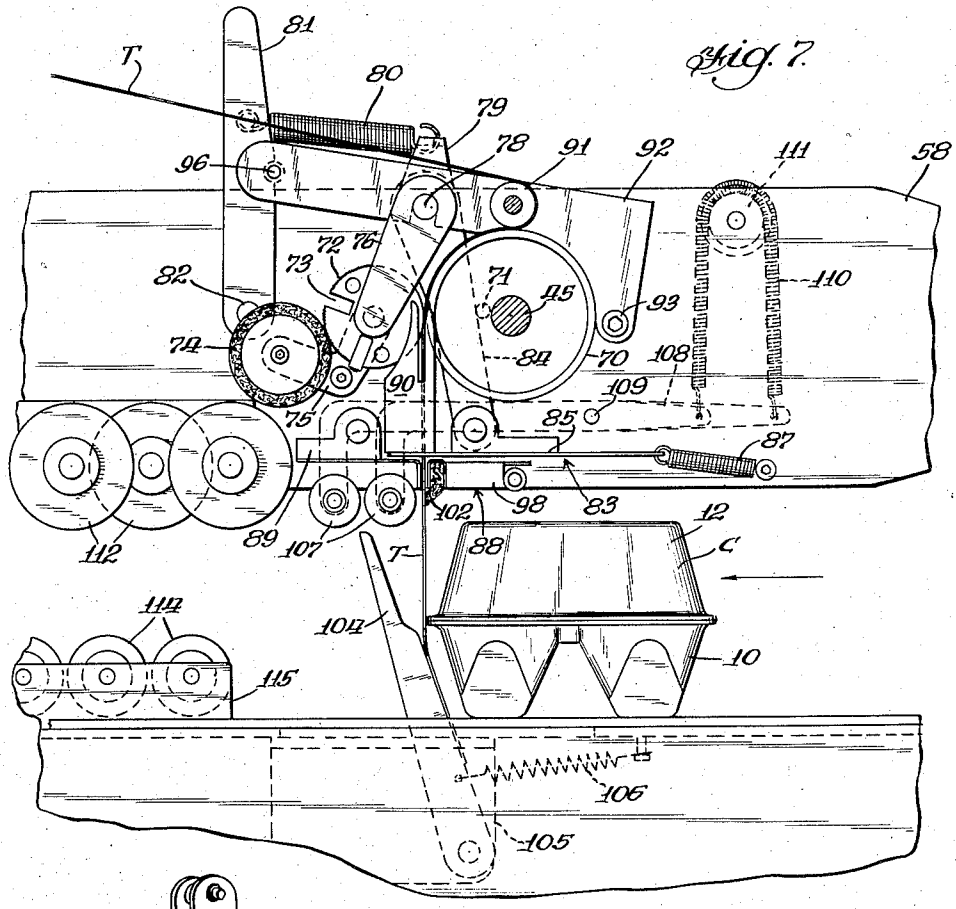
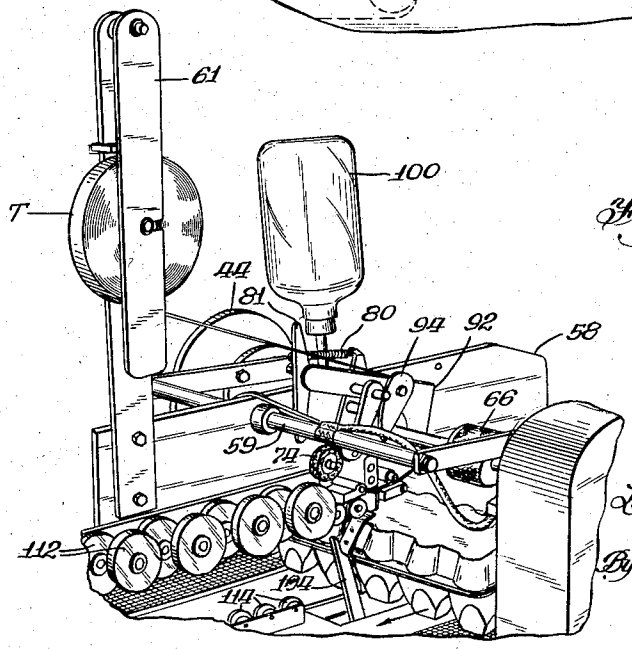


Fig. 8.



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CARTON CLOSING AND SEALING APPARATUS

Filed Oct. 11, 1955 6 Sheets-Sheet 6

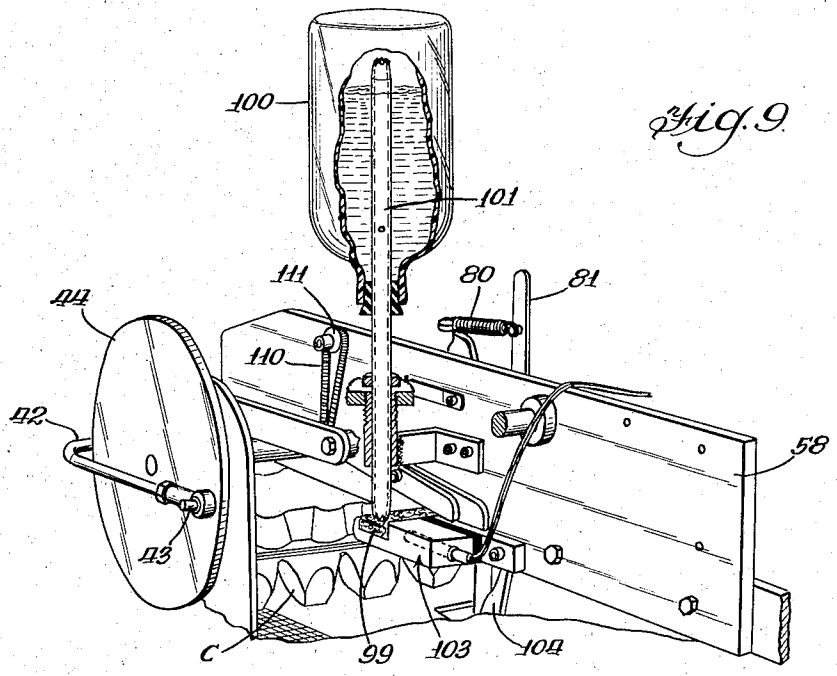

Fig. 9.

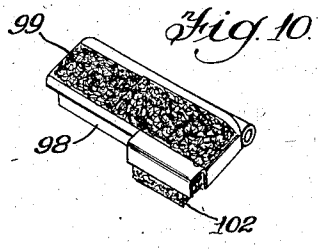

Fig. 10.

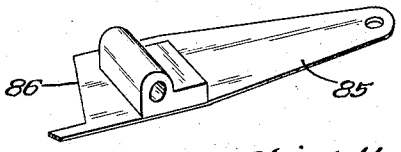

Fig. 11.

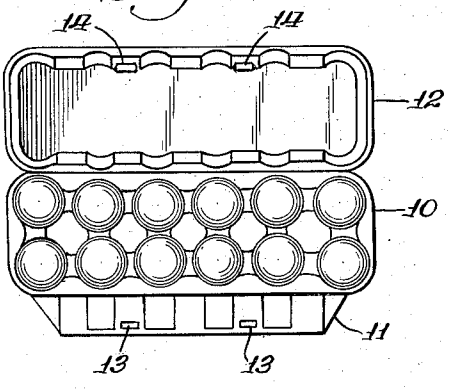

Fig. 12.

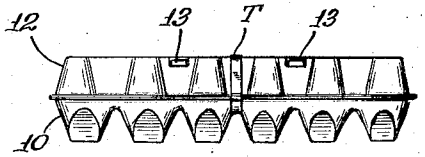

Fig. 13.

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United States Patent Office 2,881,938 Patented Apr. 14, 1959

2,881,938

CARTON CLOSING AND SEALING APPARATUS

Le Roy F. Carkhuff, Morris, and Richard J. Fahey, Chicago, Ill., assignors to Diamond Gardner Corporation, a corporation of Delaware

Application October 11, 1955, Serial No. 539,890

9 Claims. (Cl. 216—29)

This invention relates to a wholly automatic machine for closing and sealing cartons of the type commonly used for packaging eggs and the like. While the invention is applicable to cartons of this general type, the embodiment of the invention herein disclosed is particularly devised for closing and sealing molded pulp cartons embodying an improvement on the carton shown and described in the patent to Cox No. 2,529,140, issued November 7, 1950. The improvement comprises an integral snap-locking arrangement to hold top and bottom sections of the carton in closed relation, as more fully disclosed in our copending application Serial No. 458,239, filed September 24, 1954, now Patent No. 2,842,920, issued July 15, 1958.

This particular type of carton consists of three integral sections: First, a cellular bottom section which is subdivided internally by transverse and longitudinal partitions to define twelve egg-receiving cells, disposed in parallel rows of six each. Second, a tray-like cover section with a top panel and downwardly inclined front, rear and side walls, the rear wall being integrally hinged to the rear wall of the bottom section so that the cover may be readily moved from open to closed position. Third, a reinforcing flange integrally hinged to the front wall of the bottom section, this flange being disposed so as to be in upstanding, reinforcing relation inwardly of the front wall of the cover section when the carton is closed. Locking apertures are molded in the front wall of the cover section, and are so arranged as to snap over and interengage correspondingly aligned outwardly projecting buttons or lugs molded in the flange when the cover is closed, thus holding the cover in locked engagement with the bottom section.

In the modern egg grading and packaging room, it has been common practice to utilize an automatic conveyor for advancing egg-filled cartons successively through a device for closing and locking the cover sections of each carton. In addition, it is frequently desirable to apply a length of tape across the front walls of each closed carton. This tape serves not only to reinforce the locking means on the flange and top section, but provides a seal which, if broken, exposes any unauthorized opening of the carton. Furthermore, the tape serves as a convenient, easily visible dating and code marking surface. Since the closing and sealing of the egg-filled cartons are commonly successive operations in the egg packaging room, it is frequently desirable that the closing and sealing apparatus be combined into a single machine, which carries out the closing and sealing operations in synchronized relation. Thus, without any intermediate handling, the filled carton will be closed and sealed in one wholly automatic operation, at great saving of labor and time. The continuity of the automatic operations performed by the apparatus results in a high output rate, which obviously is a significant factor in the modern packaging establishment.

In closing units which have commonly been utilized in the egg packaging industry, a conveyor belt advances successively a series of cartons in an endwise direction

longitudinally of the cover hinge. As each carton, filled with eggs, enters the intake side of the closer, the cover and flange extend horizontally outwardly from the bottom section of the carton. Arms or plow elements alongside the conveyor belt turn the flange into upright position and move the cover upwardly and over the flange into closed position, with the lugs on the flange engaging the openings in the front wall of the cover to lock the top and bottom sections of the carton in closed position.

It is advantageous to apply the length of sealing tape at the longitudinal center of the carton, because of the reinforcements provided by the tape in this location, and also because of the visibility of dating and code markings on the tape in this position. Therefore, it is desirable that the carton be advanced through the sealing unit with its front walls leading. This requires that the angle of advance of the moving carton must be changed from an endwise direction longitudinally of the hinge to a direction at an angle to the hinge, preferably a right angle, so that the front walls of the carton lead as it advances into the sealer unit.

In the past, various attempts have been made to provide adequate means for thus re-orienting the closed carton as it is transported through the closing unit into the sealer unit. However, so far as the present inventors are aware, all the solutions proposed to overcome this problem have been unsatisfactory in one respect or another. One of the principal difficulties has been the lack of positive and firm control of the carton as its angle of advance is changed, with resultant skewing and twisting of the carton in the guide channel of the conveyor system, and the clogging and blocking of the conveyor channel through the piling up of successively advancing cartons. The problem is further magnified because, despite the necessity for positive and firm control, the carton and its contents are fragile and easily damaged. While positive control is essential, at the same time the carton must be gently handled. Any harsh, rough gripping and handling of the carton will result in gouging, cutting or tearing of the carton and breakage of the eggs. A further complication arises because of the desirability of having the entire operation automatic, so that no manual operations by attendants are required.

After the carton has been re-oriented and moved into the sealing unit with its front walls leading, the adhesive-backed tape which is to be applied thereto must be unreeled, marked, moistened and cut into sections of appropriate length. Each section of tape must be properly positioned on the advancing carton in timed relation to the movement of the carton, and firmly and permanently adhered to the carton wall.

It has been found that the tape may be most satisfactorily applied by extending it a short distance of about ⅝ inch across the cover of the carton at its longitudinal center, thence downwardly across the front wall of the cover, across the two lips at the center of the carton, and continuing downward to a termination point where the egg cells in the bottom section form an inverted V.

Accordingly, it is an object of the present invention to provide a wholly automatic carton closing and sealing machine having means for positively and firmly engaging each of a series of cartons advancing in an endwise direction from the discharge end of the closing unit, re-orienting the carton, and further transporting it through the sealing unit with its hinge at an angle to the path of travel, so that a length of tape may be applied to the front walls of the cover and top sections of the carton. The mechanism herein disclosed accomplishes the foregoing automatically, and each successively advancing carton is transported and taped in synchronized, timed relationship. While the engagement of the carton is firm and positive so as to prevent skewing and turning

of the carton, nevertheless the engagement is such that the paper carton and its contents will not be gouged, broken or damaged.

A further object is to provide a sealer unit which is adapted to receive a succession of cartons traveling in an endwise direction, the unit having associated therewith means for interrupting the movement of each carton, such means including an electrical switch which is actuated by the movement of the carton to control the operation of a tape-applying unit, and a positively-engaging, electrically-controlled sweep for controlling the angle of advance of the carton, so that it enters the tape-applying unit with its rear hinged side at an angle to the path of advance.

It is a further aim of our invention to provide a tape-applying device which automatically, and in timed sequence, moistens and cuts appropriate lengths of adhesive-backed tape, positions each such length of tape on the leading walls of each of a series of advancing cartons, and permanently adheres each section of tape in place. These operations are accomplished by a relatively simple, durable, low-cost machine, which at the same time is efficient and produces the desired results.

A preferred embodiment of the invention is illustrated in the drawings of the present specification, wherein:

Figure 1 is a perspective view showing the discharge end of the closer unit with cartons emerging therefrom onto the receiving table of the sealer unit, with the sweep in upraised position for receiving cartons onto the table;

Figure 2 is a perspective view of the sealer unit, showing the sweep as it moves toward engagement with a carton;

Figure 3 is also a perspective view of the sealer unit, with the sweep in engagement with the carton to move it onto the sealer conveyor belts;

Figure 4 is another perspective view of the sealer unit;

Figure 5 is a perspective view of the tape-applying mechanism of the sealer unit;

Figure 6 is a plan view of the underside of the bed of the closer and sealer apparatus, showing the driving means;

Figure 7 is a side elevational view, partly in cross-section, of the tape-applying device;

Figure 8 is a perspective view showing the discharge end of the sealer unit;

Figure 9 is a perspective view, partly in cross-section; showing the details of the tape-moistening apparatus;

Figure 10 is a perspective view of the water tray and wick;

Figure 11 is a perspective of the tape-cutting knife;

Figure 12 is a top plan view of a molded pulp egg carton in open condition; and

Figure 13 is a front elevational view of an egg carton, with the cover locked in closed position, and a length of sealing tape applied vertically across the longitudinal center of the front walls.

The carton for which the machine herein disclosed is primarily designed is shown in Figures 12 and 13. The bottom section **10** is composed of twelve egg-receiving cells aligned in two rows of six cells each. Transverse and longitudinal partitions within the bottom section define the individual cells. A reinforcing flange **11** extends from the front wall of the bottom section, and when the cover is closed this flange is disposed in upstanding reinforcing relation inwardly of the front wall of the cover section. The bottom section is integrally hinged along the top of its rear side wall to the cover section **12**, which is in the form of an open tray with a top panel and downwardly and outwardly inclined rear, front and side walls.

Outwardly projecting lugs **13** are molded in the flange of the bottom section near its outer longitudinal margin. The front wall of the cover is provided with a pair of longitudinally spaced, generally rectangular locking apertures **14**, which are in alignment with the projecting lugs. When the carton is closed, the lugs **13** snap outwardly into the apertures **14** and afford a positive interlock between the cover and bottom sections of the carton.

Referring now to Fig. 1, the closer unit, indicated generally by the numeral **15**, is in operative relation with the sealer unit **16**. The closer unit receives successive cartons filled with eggs which are carried along the bed **17** by the conveyor belt **18**. As the cartons emerge from the closer unit, each carton is separated from the following cartons, passed onto the receiving table **19** of the sealer unit and thence moved along the bed of the sealer unit through the tape applying mechanism.

The closer unit is supported by upright legs **20** of channel or angle iron construction, which support a rigid sheet metal bed **17** of rectangular shape. An endless carton advancing belt **18** passes over the bed and is vertically supported thereby. As best shown in Figure 6, the bed is provided with rectangular belt drum openings through which pulleys **21** are exposed. These pulleys are mounted on transverse shafts **22** and **23** appropriately journaled by brackets depending from bed **17**. Shaft **23** has a chain sprocket **24** attached thereto adjacent one end, and a continuous horizontal drive chain **25** is trained about this sprocket. The drive chain is driven by a sprocket **26**, which in turn is driven by motor **27** through appropriate gearing. The motor is supported by brackets depending from the bed **17**.

Conventional plow arms, such as indicated generally at **28**, in Figure 1, are located adjacent the path of conveyor belt **18** for moving the cover and flange into closed position.

Receiving table **19** of the sealer unit **16** is cut away at **29** to expose the upper portion of a frictional speed-up drum **30**, which is over-speeded in relation to the closer conveyor. This drum separates each closed carton issuing from the discharge end of the closer unit **15** from the following cartons, and propels it across receiving table **19** and, as hereinafter described, thereby actuates the sealer unit's electrically operated carton-engaging mechanism. The shaft **31** of the speed-up drum has a sprocket **32** driven by a chain **33** from a like sprocket on belt shaft **23** of the closer unit **15**, and hence is drivingly coupled with that unit.

The bed **34** of the sealer unit extends from the receiving table **19** in a direction at right angles to the longitudinal axis of the bed **17** of the closer unit. As shown particularly in Figure 6, pulley **35** on shaft **23** of the closer unit is drivingly connected by belt **36** to pulley **37** on shaft **38**, which is journaled in brackets beneath the bed of the sealer unit. As will be pointed out, shaft **38** provides the drive for the sealer unit. By the foregoing arrangement, it is unnecessary to provide separate drive means for the sealer unit. The sealer may be quickly and easily coupled to the closer unit when desired. The closer and sealer units can be thus combined into one machine for a single, continuous operation, or either unit may be operated independently.

As the cartons are discharged from the closer unit, they are traveling in an endwise direction longitudinally of the cover hinge. The speed-up roll **30** separates and continues them in the same path of travel across the receiving table **19** of the sealer unit. Side wall **39** is fixed to the sealer bed opposite the discharge end of the closer unit and supports microswitch **40** and its control finger **41** in a position directly in the path of a carton advanced by speed-up roll **30**. As the carton strikes the control finger **41** on the side wall **39**, the movement of the carton is stopped. The closing of the switch by the cartons striking the control finger closes a conventional electrical circuit which operates the carton sweep arm and the tape-applying unit, as will be hereinafter described.

The carton is next moved onto the sealer bed, thus its path of travel is changed 90°. Also, its angle of advance is changed so that its hinge is at right angles to the path of movement and its front walls constitute the leading

surfaces. This change in the direction of movement and the angle of advance is accomplished by means of a sweep arm which comprises a crank bar **42** which is pivotally mounted on pins **43** at the edges of paired discs **44**, fixed on the opposite ends of shaft **45**. This shaft is journaled in side plates **46** which are mounted on each side of the sealer bed **34**. The crank arm **42** is supported by guide bars **47** by which it is held in rocking position under tension of spring **48**. Mounted on the central portion of crank arm **42** and overhanging the sealing table **19** is fixed a carton engaging plate **49** which extends downwardly from the crank arm. A pair of fingers **50** are bolted to the plate **49** and extend forwardly at right angles to the plate, so that when the plate engages the rear side walls of the carton, the fingers will firmly rest upon and engage the cover of the carton. As shown in Figures 1, 2, 3 and 4, upon rotation of the discs **44**, the crank arm **42** is rocked upon the guide bars **47** against the tension of spring **48**, which causes the plate **49** and fingers **50** to swing from an upward position, as shown in Figure 1, downwardly and forwardly to a carton-engaging position, as shown in Figures 2 and 3. Further rotation of the discs **44** causes the plate **49** and fingers **50** to advance the carton onto the bed of the sealer unit. Still further rotation of the discs moves the carton-engaging plate and fingers rearwardly and upwardly to the position shown in Figure 4.

Shaft **38** is journaled in the side members **51** of the sealer bed **34** and a pair of forward belt pulleys or drums **52** are secured to shaft **38**. Similar aligned drums **53** are secured on shafts **54** and **55** to the rear, and a pair of carton advancing belts **56** are trained about the respective drums **52, 53**. The upper reaches of these belts are exposed above the surface of sealer bed **34** through elongated slots **57** formed in the latter, and the belts travel over the intervening bed surface.

The pair of upwardly extending supporting plates **46** are secured on opposite side members **51** of the sealer bed. They serve as sustaining members for the tape supply, dating, gluing, cut-off and applying unit of sealer **16**. This unit comprises a central, longitudinally extending and vertically disposed carton hold-down plate **58** appropriately supported on a transversely extending rod **59**, which extends between and is secured to rigid forwardly extending bars **60** welded on plates **46** adjacent the top thereof. A tape holder **61** is bolted to one side of the hold-down plate **58**, and a supply roll of paper sealing tape T is disposed within this holder, the tape being progressively unreeled from the roll under the action of feeding, dating, wetting and cut-off means now to be described.

The drive for these instrumentalities is derived from shaft **38** through a sprocket **62** secured to that shaft outwardly of one side of the sealer, as illustrated in Figures 4 and 6. A chain **63** is trained about this sprocket and about a further sprocket **64** which is adapted to be drivingly connected to shaft **45** extending transversely through hold-down plate **58** and appropriately journaled in the side support plates **46**. This connection is effected through the agency of a conventional single revolution clutch **65**. A knurled hand wheel **66** is secured to one end of shaft **45** for manual operation of the tape-applying unit, when desired.

The operation of single revolution clutch **65** is controlled through a vertically extending latch arm **67** pivoted in one of the side members **46** at **68**, and arm **67** is operated by a solenoid **69**, which is in turn controlled by a normally open microswitch **40**. The microswitch and solenoid are wired in an electrical energizing circuit by provisions not deemed necessary to illustrate or describe, being entirely conventional in nature, with the result that when contact finger **41** of the microswitch is actuated by a carton, solenoid **69** is energized, tripping arm **67**. A 360° rotation of shaft **45** ensues.

As shown in Figure 7, a platen roller **70** is secured on shaft **45** to one side of the hold-down plate **58**, this roller having an appropriate frictional surface for driving engagement with tape T issuing from tape holder **61**. One surface of roller **70** has an eccentric actuating lug **71** extending therefrom, for a purpose to be described.

A conventional type of dating roll **72** coacts with platen roll **70**, the dating roll being provided with notches **73** to hold an appropriate printing element on its periphery; and an inking roll **74** is held in inking engagement with these indicia. Roll **74** is journaled on an arm **75** secured to one of two parallel arms **76, 77** between which dating roller **72** is journaled.

Arms **76, 77** are pivotally mounted on a transverse pin **78** projecting from a side of hold-down plate **58** and an upward extension **79** of one of these arms receives one end of a coil tension spring **80**, by which the dating and inking assembly is urged in counterclockwise direction about pivot pin **78**. The opposite end of spring **80** is anchored on an upwardly extending arm **81** pivoted at **82** on plate **58**, the arm **81** having a further function to be hereinafter referred to.

A tape cut-off unit, generally designated **83**, is associated with the mounting means for the dating assembly so as to move with the latter as a unit. A downwardly extending arm **84** is pivoted on pin **78**. A cutter head **85** is pivotally mounted on the lower end of arm **84** and has a horizontally arranged cut-off blade **86** thereon. (See Figure 11). The head is urged rearwardly by a coil spring **87** anchored on hold-down plate **58**, and blade **86** is adapted to be advanced horizontally, above the upper surface of a tape moistening pad unit **88** to be hereinafter referred to, and to coact with a suitable shear member **89** secured on plate **58** in severing a length of tape T.

Such actuation of the blade **86** occurs when its pivot arm **84** is engaged by the eccentric lug **71** on platen roller **70**, during the single revolution operation of shaft **45**. As this occurs, a length of tape forwarded downwardly between fixed guide member **90** on plate **58** and appropriately dated by roll **72**, is cut off by blade **86**; it is then applied to a transversely arranged carton advancing on belts **56** by the provisions to be described.

In issuing from tape roll holder **61** the tape T is threaded to the rear and downwardly around a transverse guide rod **91** carried by a releasable, L-shaped arm **92**. This arm is pivotally mounted at its short rear angular extremity on the hold-down plate **58**, as at **93**, and guide rod **91** has an eccentric mounting **94** on an angularly forwardly and upwardly extending portion of arm **92**, the eccentric provision enabling the rotative adjustment of guide rod **91**, as desired. By this means the tape is properly positioned in relation to the surface of platen roller **70** about which the tape is to be drawn in the dating cycle.

A clearance notch **95** is provided in an intermediate portion of arm **92**, simply to accommodate pivot pin **78**, and the forward extremity of the arm has a pin **96** thereon which is receivable in a notch **97** intermediate the length of the pivoted arm **81**. Arm **81**, as stated above, acts as an anchor for the urging of arms **76, 77** in a counterclockwise direction and also serves as a latch or detent member for tape guide arm **92**, maintaining the transverse guide rod **91** of the latter in proper relation to platen roll **70**. Arm **92** is readily released by backing off arm **81** when it is desired to thread new tape between rod **91** and the platen roll **70**. It is restored to holding position with equal facility.

The tape moistening pad unit **88** referred to above simply consists of an appropriate tray **98**, removably mounted on hold-down plate **58**, in which an absorbent pad **99** is removably received with a transverse sliding movement. The pad extends to one side of hold-down plate **58**, and the latter has provision to removably support a gravity type liquid dispensing container **100**,

in the form of an up-ended bottle having a dispensing tube **101** positioned to discharge to the moistening pad. A wick **102** projects laterally from the pad adjacent the discharge path of tape T, which is caused to be fed in frictional engagement with the wick, thereby moistening an adhesive coating on the same for application to an advancing carton. By means of a heating element generally designated **103** mounted on hold-down plate **58**, the water in the tray **98** is maintained at the desired temperature.

Upon initiation of a cycle of the dating and cut-off instrumentalities by the tripping of microswitch **40**, cartons C are advanced beneath the hold-down plate **58** by parallel feed belts **56**, by which they are carried beneath the tape feed, dating and moistening and cut-off provisions described above. The forward side of the carton engages the depending tape against an upright wiper finger **104**, which is pivoted by a depending bracket **105** on the sealer bed and is urged in counterclockwise direction by a coil tension spring **106**, whereupon cut-off blade **86** operates to sever the tape.

Secured initially to the carton by finger **104**, in a portion of the carton face below the meeting line of its coacting cover and bottom sections, the tape is next ironed upwardly and rearwardly about the face and over the top panel of the cover section by a pair of spring urged rollers **107**, under which the cover of the carton passes. These rollers are each mounted in a bearing on the shorter arms of a pair of horizontally elongated, L-shaped supports **108**, supports **108** being in turn pivoted at **109** on hold-down plate **58**. The ends of a single coil tension spring **110** are secured to the respective arms, and this spring is brought upwardly over an anti-friction idler **111** on plate **58**, thus urging rollers **107** downwardly against the carton cover and tape applied thereto. Suitable stops limit the downward swing of arms **108**.

This completes the application of the sealing tape to the carton, and the latter progresses forwardly and outwardly of sealer **16**. As it does, it passes underneath a series of transversely and longitudinally staggered ironing rollers **112** located along the centerline of the apparatus and journaled on a support **113** mounted on the plate **58**. The alignment of the carton is maintained by a further series of longitudinal guide rollers **114**, journaled between side plates **115** which are mounted on sealer bed **34**. Pressure is thus maintained on the tape for a sufficient interval to insure its adhesive securement to the carton, and, thus sealed, the carton issues from the sealer onto an appropriate receiving table.

The operation of the apparatus, it is believed, is reasonably clear from the foregoing description. A series of 2 x 6 style cartons, filled with eggs, is moved onto the continuously moving closer mechanism conveyor belt **18**, each carton being successively advanced thereon in an endwise direction longitudinally of the cover hinge. Plow arms, such as indicated generally at **28**, operate to move the flange **11** and the cover **12** into closed and locked position as the cartons are advanced by the belt.

As each carton emerges from the discharge end of conveyor belt **18**, its forward movement is speeded up by its passing over drum **30**, and thus each carton is separated from the following cartons. Drum **30** propels the carton in the same direction and at the same angle of advance across receiving table **19**. The carton strikes control finger **41** on microswitch **40**, whereupon the movement of the carton is stopped and the switch closed. The closing of the switch causes solenoid **69** to be energized, which in turn trips latch arm **67**, causing a single revolution of shaft **45** under the control of clutch **65**. The revolution of shaft **45** causes the operation of sweep arm **42** and of the tape-applying mechanism.

Sweep **42** rocks under tension of spring **48** to engage the stopped carton, the sweep plate **49** and spring fingers **50** firmly and positively engaging the rear side wall and top panel of the carton so as to stabilize it and move it evenly onto the pair of continuously moving conveyor belts **56**.

As the carton advances on these belts, roll **70** feeds a length of tape in the path of the carton, the tape being printed with appropriate code markings by roll **72** and moistened by wick **102** of the moistening unit.

Upon engagement of cut-off arm **84** by lug **71** on roll **70**, blade **86** is advanced to sever the tape, which is wiped about the carton by finger **104**, projecting through the sealer bed, and by rolls **107**, under tension of spring **110**. Ironer rolls **112** and **114** further press the tape against the carton, as it is carried by the conveyor belts to the discharge end of the apparatus.

It is apparent that the mechanism for closing and locking the carton cover necessarily subjects the carton, particularly its cover, to thrust and frictional drags, which tend to cause the carton to skew and twist. It is essential that, after this operation, each carton, with its fragile contents, be separated and stabilized, and then advanced smoothly and evenly, at the proper angle, into the tape-applying mechanism. Each end of the carton must be placed on its respective sealer conveyor belt at the same time, so that the carton will be advanced evenly and will not be in a twisted position when it reaches the tape-applying finger and rolls. This positive and firm control must be exercised without damage to the paper carton or the eggs therein. Our apparatus accomplishes this control in one continuous, entirely automatic, high-speed operation.

In addition, we provide a tape feeding, moistening, marking, cutting, and applying mechanism, which operates in timed relation with the carton control means, and quickly and firmly seals each carton.

We claim:

1. In an apparatus for closing and sealing hinged-cover type cartons including a conveyor for continuously advancing a succession of such cartons past a closer mechanism which successively closes the covers of the cartons, the improvement which comprises means mounted near the end of said conveyor for speeding up the movement of successive cartons thereby separating and advancing them further in a direction away from the closer mechanism, a stop mounted in the path of the cartons for halting their movement in said direction, a sealer mechanism having a bed mounted adjacent the stop at an angle with respect to the path of the cartons toward the stop, sweep means mounted adjacent to said stop for successively advancing the cartons from the stop onto the bed of the sealer mechanism, guide means provided along said bed for orienting the cartons in a predetermined position as they advance therealong to the sealer mechanism, said sealer mechanism having a feeding means for advancing a length of sealing tape into the path of the cartons, said mechanism also having means for pressing each length of tape onto the successive cartons, and means associated with the stop and actuated by a carton arriving at the stop for actuating said feeding means and said sweep means.

2. In an apparatus for closing and sealing hinged-cover type cartons including a conveyor for continuously advancing a succession of such cartons past a closer mechanism which successively closes the covers of the cartons, the improvement which comprises a rotatable drum mounted near the end of said conveyor for speeding up the movement of successive cartons thereby separating and advancing them further in the same direction, a stop mounted in the path of the cartons for halting their movement in said direction, a sealer mechanism having a bed mounted adjacent the stop at an angle with respect to the path of the cartons toward the stop, a swingable bar carrying a carton-engaging plate mounted adjacent to said stop for successively sweeping the cartons from the stop onto the bed of the sealer mechanism, guide means provided along said bed for orienting the cartons in a

predetermined position as they advance therealong to the sealer mechanism, said sealer mechanism having a feeding means for advancing a length of sealing tape into the path of the cartons, cutting means associated with the feeding means for cutting a predetermined length of the tape, motor driven means for operating the feeding and cutting means and the swingable bar, said sealer mechanism also having means for pressing each length of tape onto the successive cartons, and means associated with the stop and actuated by a carton arriving at the stop for actuating the motor driven means.

3. In an apparatus for closing and sealing hinged-cover type cartons including a conveyor for continuously advancing a succession of such cartons past a closer mechanism which successively closes the covers of the cartons, the improvement which comprises a rotatable drum mounted near the end of said conveyor for speeding up the movement of successive cartons thereby separating and advancing them further in the same direction, a stop mounted in the path of the cartons for halting their movement in said direction, a sealer mechanism having a bed mounted adjacent the stop at an angle with respect to the path of the cartons toward the stop, sweep means mounted adjacent to said stop for successively advancing the cartons from the stop onto the bed of the sealer mechanism, said sweep means comprising a swingable bar pivotally joined eccentrically to a rotatable drive shaft, a carton-engaging plate carried by said bar, a one-revolution clutch connecting said drive shaft to a source of power, guide means provided along said bed for orienting the cartons in a predetermined position as they advance therealong to the sealer mechanism, said sealer mechanism having a feeding means powered by said drive shaft for advancing a length of sealing tape into the path of the cartons, cutting means associated with the feeding means for cutting a predetermined length of the tape, said mechanism also having means for pressing each length of tape onto the successive cartons, and a control finger associated with the stop and actuated successively by cartons arriving at the stop for engaging the clutch to operate the sweep means and the feeding means.

4. In an apparatus for closing and sealing hinged-cover type cartons including a conveyor for continuously advancing a succession of such cartons past a closer mechanism which successively closes the covers of the cartons, the improvement which comprises a rotatable drum mounted near the end of said conveyor for speeding up the movement of successive cartons thereby separating and advancing them further in the same direction, a stop mounted in the path of the cartons for halting their movement in said direction, a sealer mechanism having a bed mounted adjacent the stop at an angle with respect to the path of the cartons toward the stop, sweep means mounted adjacent to said stop for successively advancing the cartons from the stop onto the bed of the sealer mechanism, said sweep means including a swingable bar and a carton-engaging plate carried by said bar, one end of said bar being pivotally joined eccentrically to a rotatable drive shaft, a one-revolution clutch connecting said drive shaft to a source of power, guide means provided along said bed for orienting the cartons in a predetermined position as they advance therealong to the sealer mechanism, said sealer mechanism having a plurality of feeding rolls powered by said drive shaft for advancing a length of sealing tape into the path of the cartons, cutting means associated with the feeding rolls for cutting a predetermined length of the tape, said mechanism also having means for pressing each length of tape onto the successive cartons, and electrical means associated with the stop and actuated by a carton arriving at the stop for actuating the clutch to operate the sweep means and the feeding rolls.

5. Apparatus for feeding and applying lengths of sealing tape to cartons, comprising a sealing bed along which cartons are advanced successively, a rotatable drive shaft

mounted adjacent said bed and extending transversely thereacross, a pair of discs secured to opposite ends of said shaft and mounted at opposite sides of the bed, a sweep arm joined pivotally at opposite ends thereof to said discs, a carton-engaging plate carried by said arm for successively advancing cartons across the bed, a one-revolution clutch connecting said drive shaft to a source of power, a pair of feed rolls mounted adjacent to the bed and powered by said shaft for advancing a length of sealing tape into the path of the cartons, cutting means associated with the feeding rolls for cutting a predetermined length of the tape, and means responsive to successive cartons advancing across the bed for actuating the clutch to operate the sweep arm and the feed rolls.

6. The apparatus defined by claim 5, in which the pair of feed rolls includes a platen roll cooperating with a dating roll to advance the tape therebetween, said dating roll having printing indicia mounted on its periphery, an inking roll contacting the dating roll, and a moistening pad mounted adjacent to the path of the tape near said rolls.

7. Apparatus for feeding and applying lengths of sealing tape to cartons, comprising a sealing bed along which cartons are advanced successively, a conveyor belt disposed along the bed for advancing the cartons thereon, a rotatable drive shaft mounted on said bed, a pair of discs secured to opposite ends of said shaft, a sweep arm joined pivotally at opposite ends thereof to said discs, a carton-engaging plate carried by said arm for successively advancing cartons across the bed, a one-revolution clutch connecting said drive shaft to a source of power, a pair of feed rolls powered by said shaft for advancing a length of sealing tape into the path of the cartons, a moistening pad mounted adjacent to the path of the tape near the feed rolls, a cutter mounted adjacent to said pad for periodically cutting a predetermined length of the tape, said cutter being actuated by a lug projecting from one of the feed rolls whereby a length of tape is cut during each complete revolution of the drive shaft, and electrical means mounted in the path of the cartons responsive to successive cartons advancing across the bed for actuating the clutch to operate the sweep arm, the feed rolls, and the cutter.

8. The apparatus defined by claim 7, in which a presser arm is mounted pivotally in the sealing bed for pressing a cut length of the tape onto the front and bottom portion of each advancing carton, and a plurality of presser rolls are mounted above the bed along the path of the cartons for pressing said length of tape onto the top portion of each carton.

9. Apparatus for feeding and applying lengths of sealing tape to cartons, comprising a sealing bed along which cartons are advanced successively, a rotatable drive shaft mounted adjacent said bed, a pair of discs secured to opposite ends of said shaft, a sweep arm joined pivotally at opposite ends thereof to said discs, a carton-engaging plate carried by said arm for successively advancing cartons across the bed, a one-revolution clutch connecting said drive shaft to a source of power, a pair of feed rolls powered by said shaft for advancing a length of sealing tape into the path of the cartons, a cutter associated with the feed rolls for periodically cutting a predetermined length of the tape, one of said feed rolls being provided with actuating means for operating the cutter once during each complete revolution of the drive shaft, said actuating means comprising a projecting lug mounted eccentrically on one of the feed rolls, a pivoted arm secured to the cutter and disposed adjacent the drive shaft, a spring for urging said arm into the path of rotation of the lug, and a control finger actuated successively by cartons advancing across the bed for engaging the clutch to operate the sweep arm and the feed rolls.

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