Feb. 16, 1937. L. BENOIT ET AL 2,071,247

CARTON CLOSING MACHINE

Filed Jan. 8, 1936 8 Sheets-Sheet 1

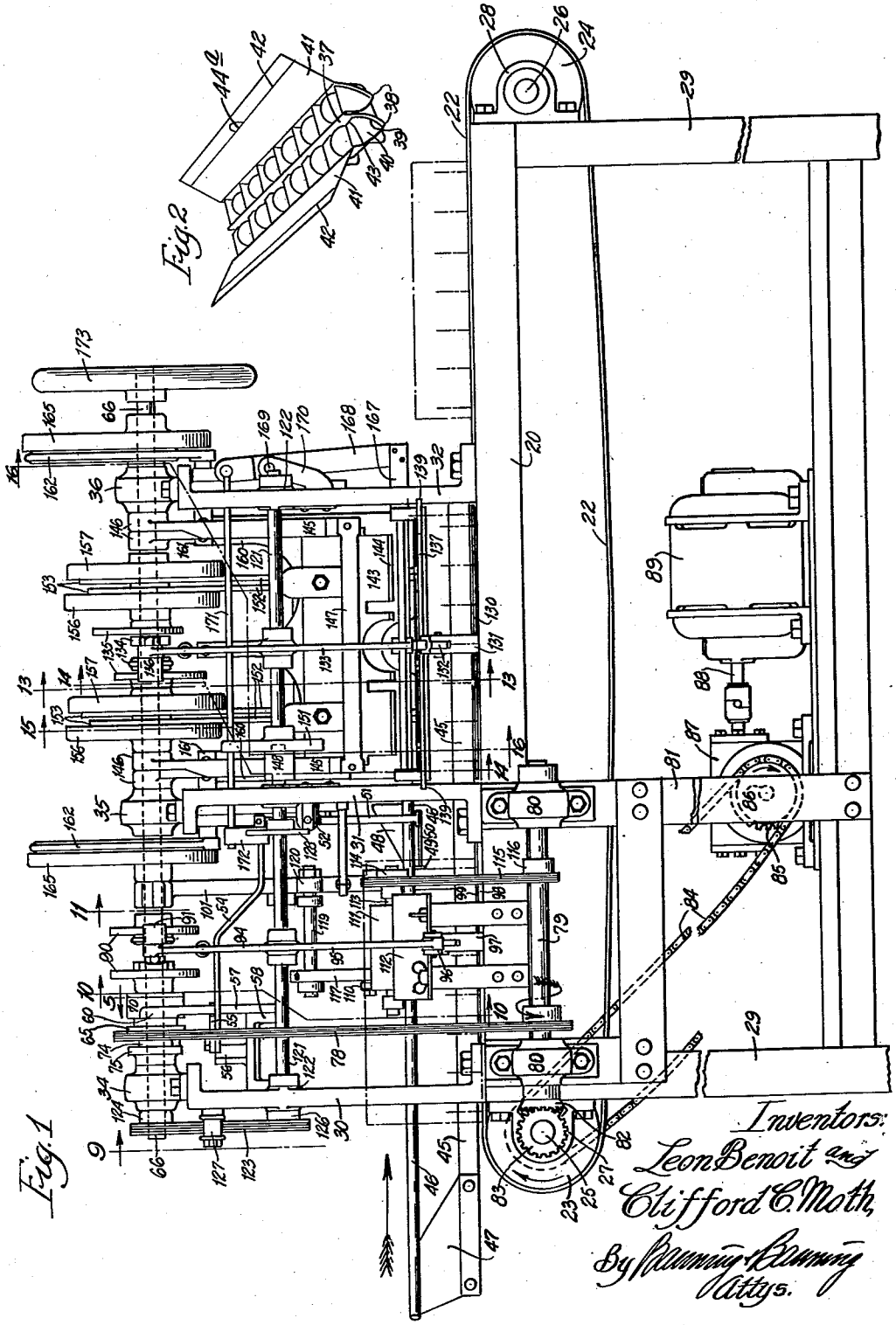


Fig. 1

Fig. 2

Inventors:
Leon Benoit and
Clifford C. Moth,
By Banning & Banning
Attys.

Feb. 16, 1937. L. BENOIT ET AL 2,071,247

CARTON CLOSING MACHINE

Filed Jan. 8, 1936 8 Sheets-Sheet 2

Fig. 3

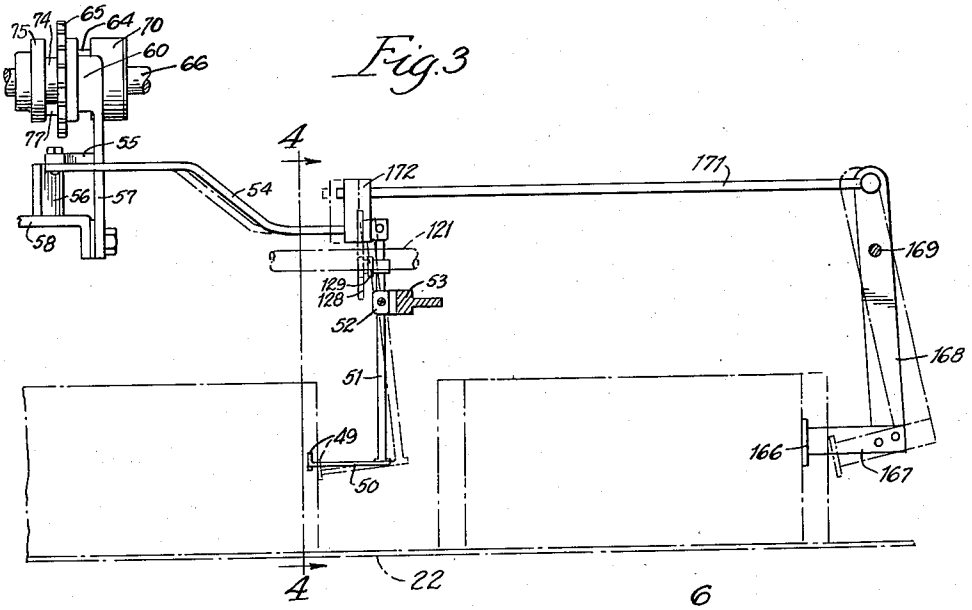


Fig. 4

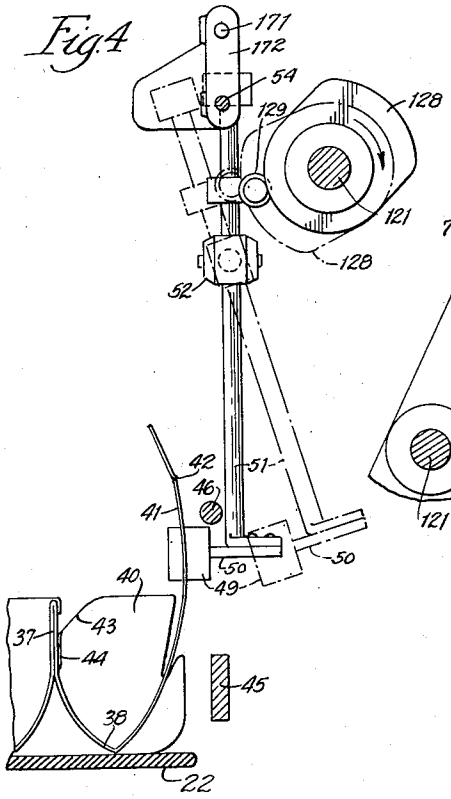
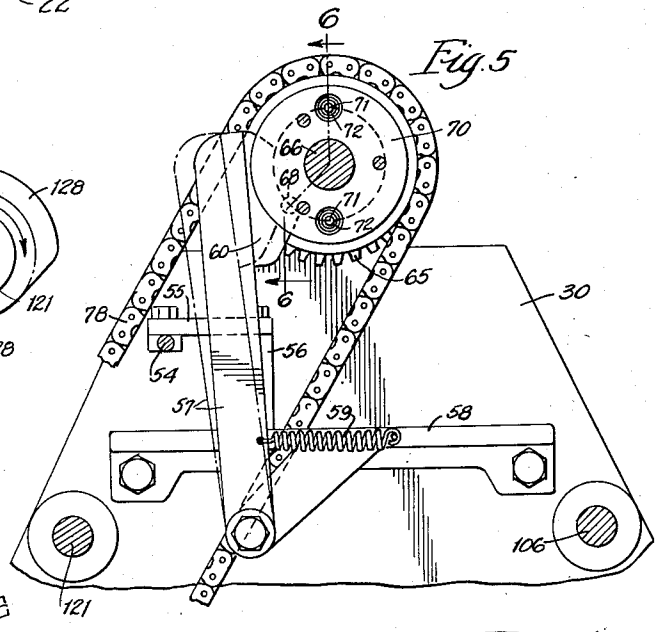


Fig. 5



Inventors:
Leon Benoit and
Clifford C. Moth,
By Banning & Banning
Attys.

Feb. 16, 1937. L. BENOIT ET AL 2,071,247

CARTON CLOSING MACHINE

Filed Jan. 8, 1936 8 Sheets-Sheet 3

Fig. 6

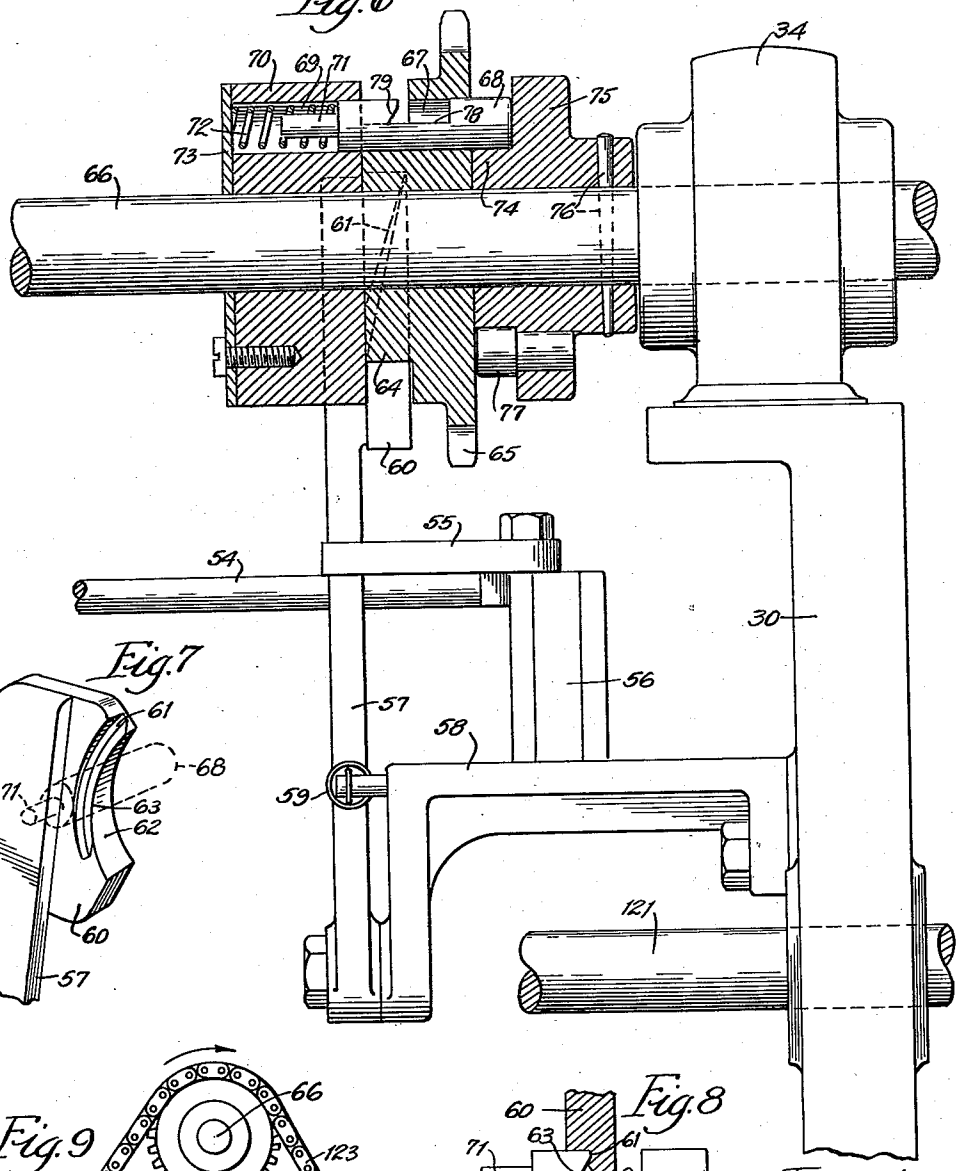


Fig. 7

Fig. 9

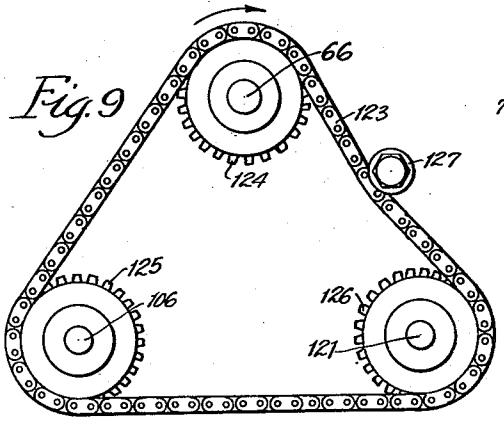


Fig. 8

Inventors:
Leon Benoit and
Clifford C. Moth,
By Banning & Banning
Attys.

Feb. 16, 1937. L. BENOIT ET AL 2,071,247

CARTON CLOSING MACHINE

Filed Jan. 8, 1936 8 Sheets-Sheet 4

Fig. 10

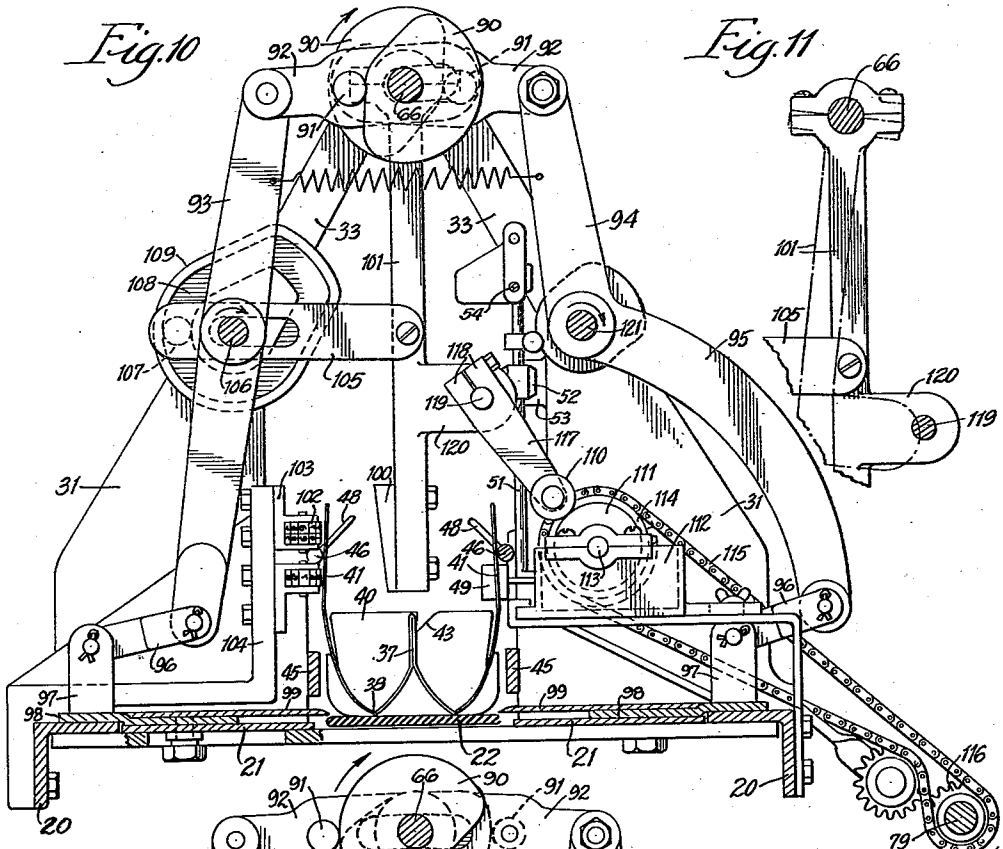
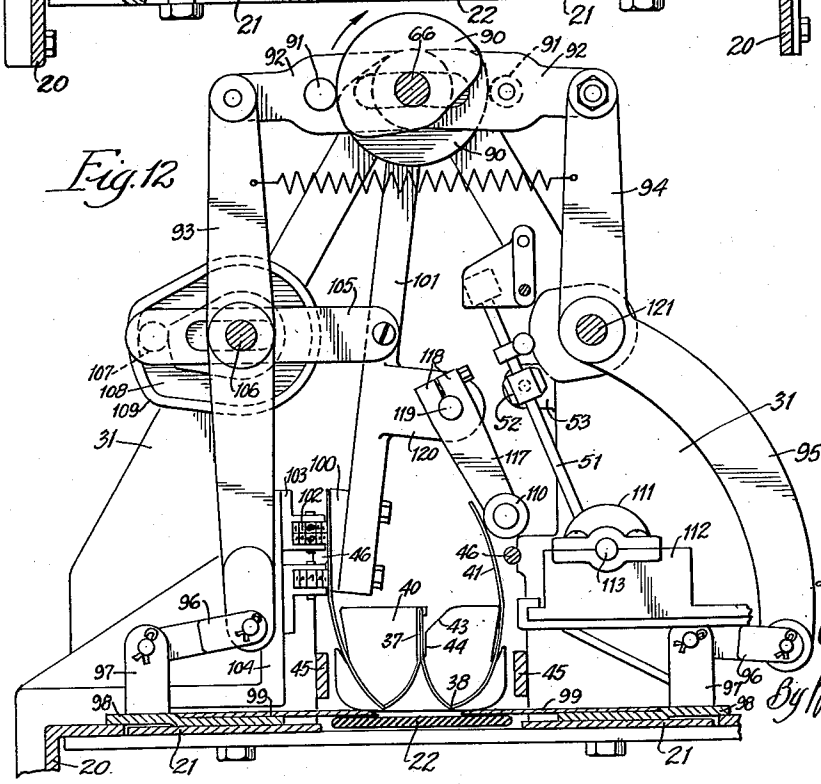


Fig. 11

Fig. 12



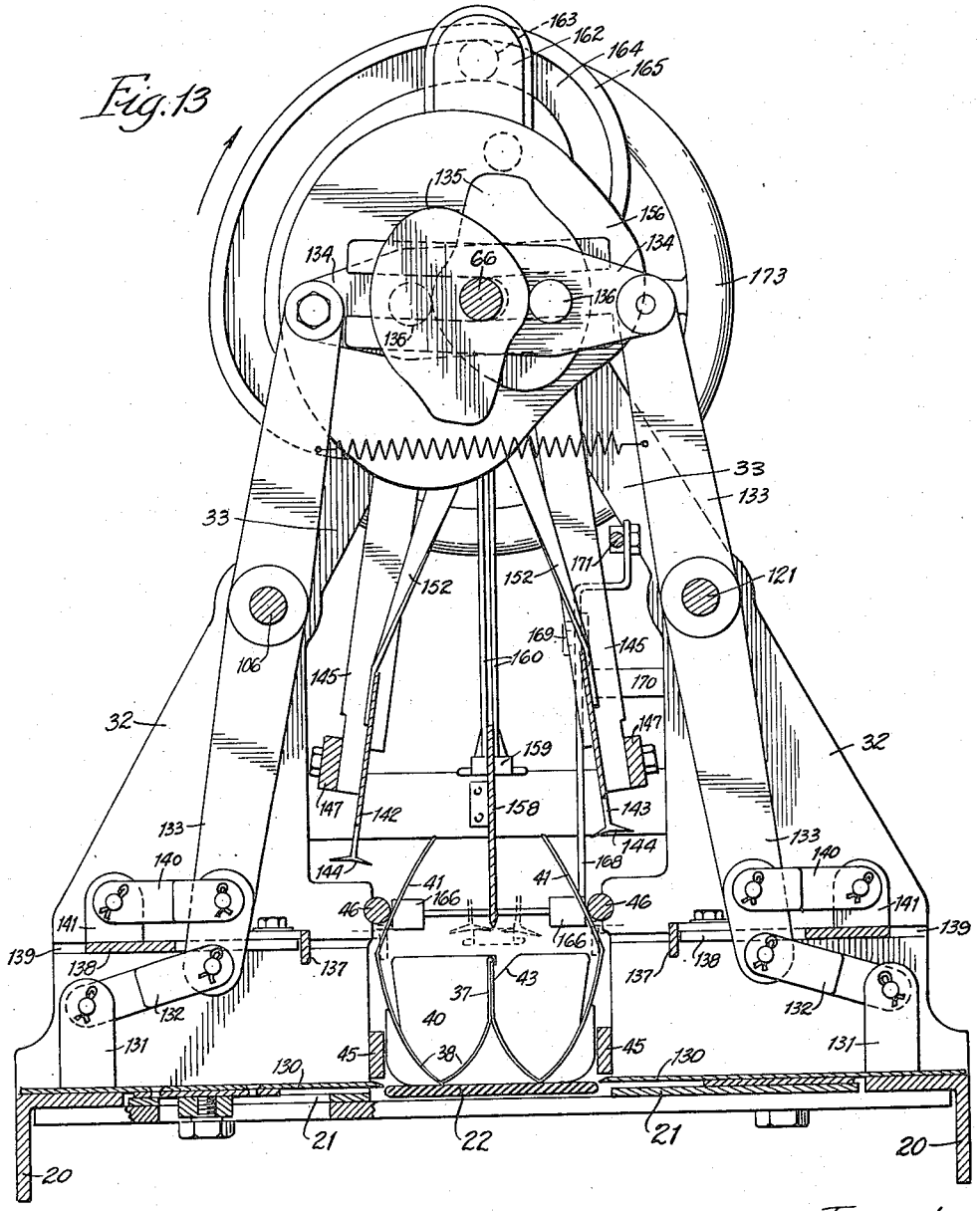
Inventors:
Leon Benoit and
Clifford C. Moth,
By Manning & Manning
Attys.

Feb. 16, 1937. L. BENOIT ET AL 2,071,247

CARTON CLOSING MACHINE

Filed Jan. 8, 1936 8 Sheets-Sheet 5

Fig. 13



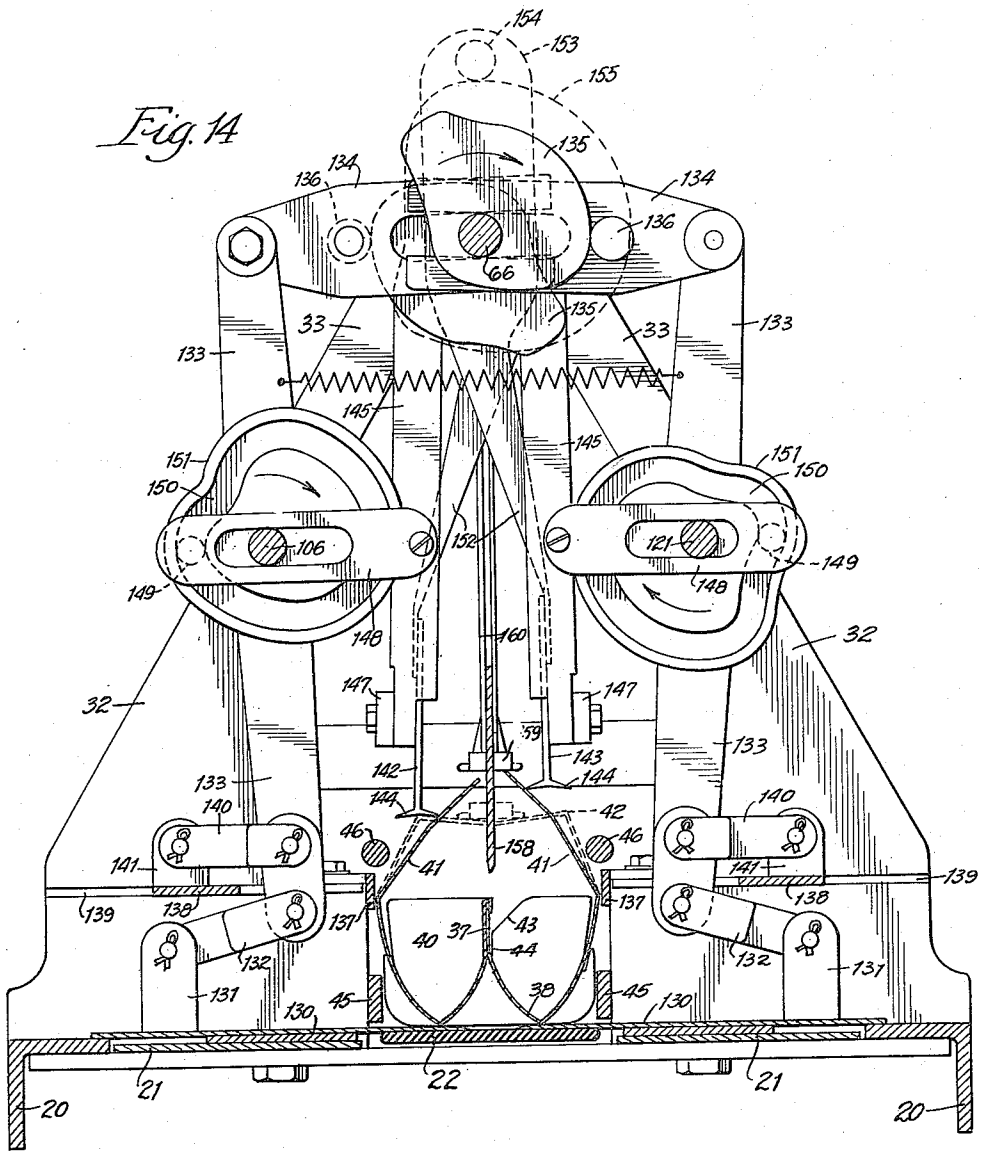
Inventors:
Leon Benoit and
Clifford C. Moth,
By Banning & Banning
Attys.

Feb. 16, 1937. L. BENOIT ET AL 2,071,247

CARTON CLOSING MACHINE

Filed Jan. 8, 1936 8 Sheets-Sheet 6

Fig. 14



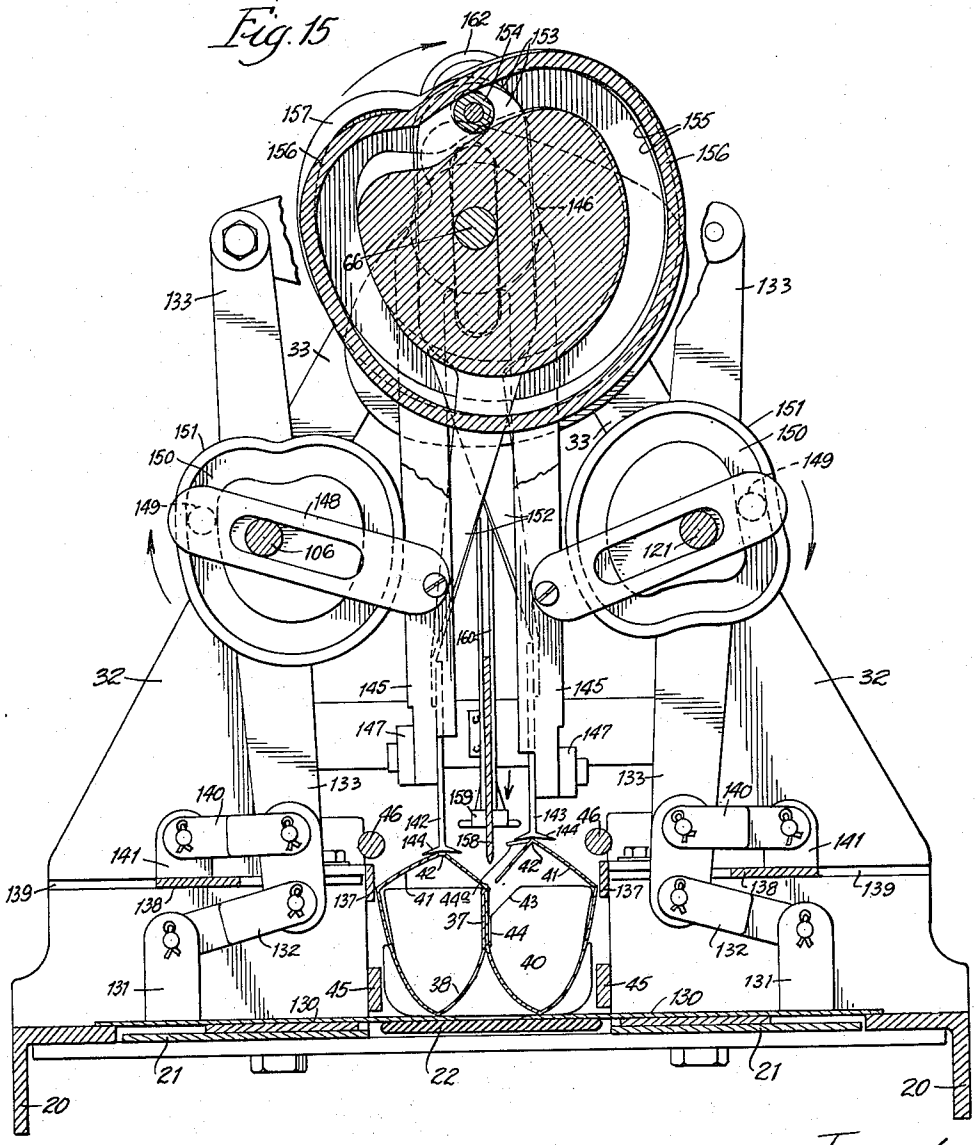
Inventors:
Leon Benoit and
Clifford C. Moth,
By Banning & Banning
Attys.

Feb. 16, 1937. L. BENOIT ET AL 2,071,247

CARTON CLOSING MACHINE

Filed Jan. 8, 1936 8 Sheets-Sheet 7

Fig. 15



Inventors:
Leon Benoit and
Clifford C. Moth,
By Banning & Banning
Attys

Feb. 16, 1937. L. BENOIT ET AL 2,071,247

CARTON CLOSING MACHINE

Filed Jan. 8, 1936 8 Sheets-Sheet 8

Fig. 16

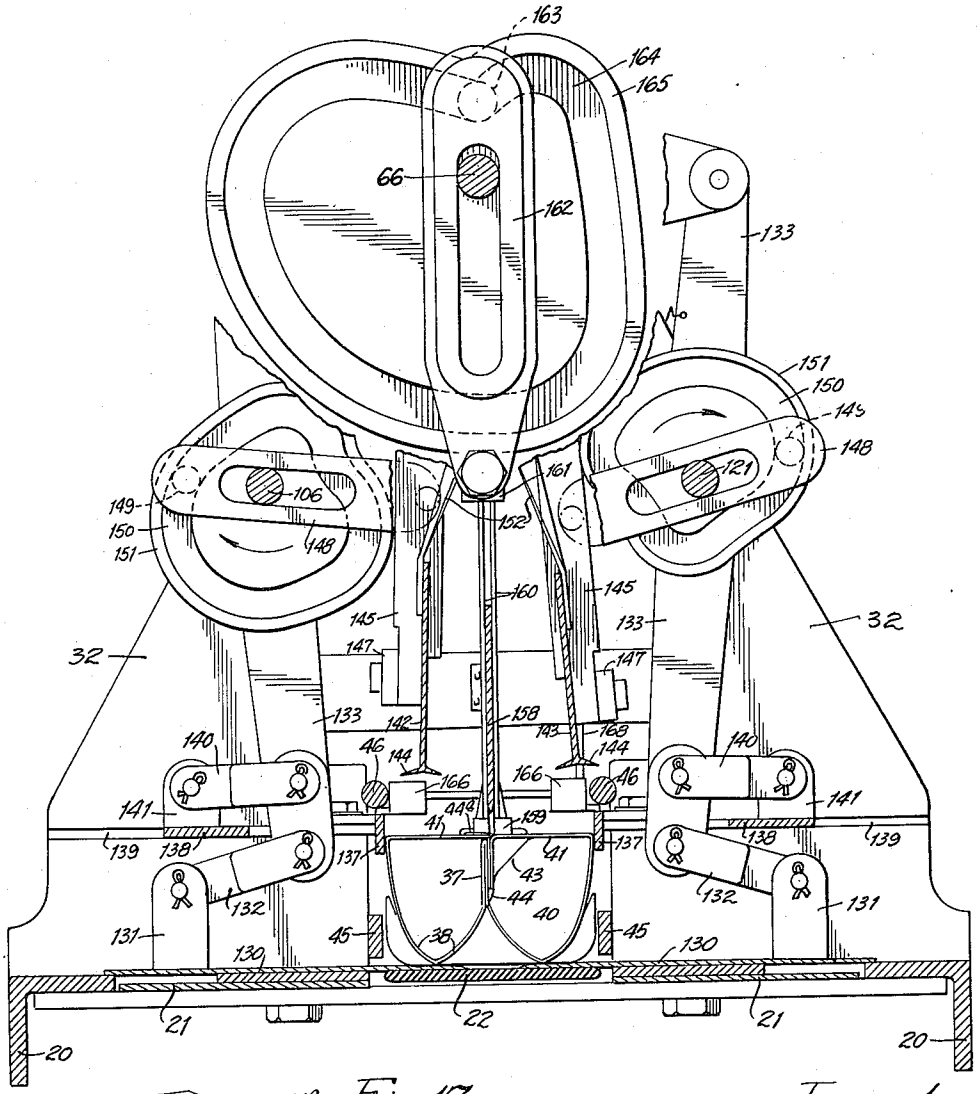
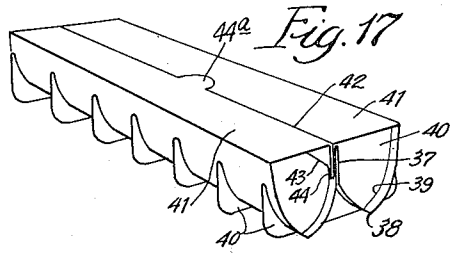


Fig. 17



Inventors:
Leon Benoit and
Clifford C. Moth,
By Banning & Banning
Attys.

Patented Feb. 16, 1937 2,071,247

UNITED STATES PATENT OFFICE

2,071,247

CARTON CLOSING MACHINE

Leon Benoit, New York, N. Y., and Clifford C. Moth, Tenafly, N. J.; said Moth assignor to said Benoit

Application January 8, 1936, Serial No. 58,106

40 Claims. (Cl. 93—2)

The machine of the present invention has been designed primarily with a view of closing and tucking in the flaps of an egg carton after the same has been filled, with additional provision for marking and sealing the carton if so desired.

The egg carton which the present machine is designed primarily to handle provides two rows of egg cells separated by a longitudinal partition, together with body walls terminating in flaps adapted to be folded over the top of the carton and tucked in along the longitudinal center partition during the closing operation.

Although the carton in question is divided into cells by cross partitions, the functioning of the machine is not affected by the presence of such partitions, so that the same operations might be performed with equal advantage upon a carton which lacked such cross partitions, for which reason we do not desire it to be understood that the present machine is to be necessarily limited to the closing of a cellular carton designed for the reception of eggs or the like.

The machine is designed to provide an endless continuously traveling conveyor upon which the filled cartons are deposited with the closing flap extending vertically upward. The cartons thus deposited are carried to the first position within the machine, at which point each carton in turn is momentarily elevated slightly from the traveling conveyor and its progress halted during the operation of stamping one of the closing flaps and applying glue to the other, after which the carton is redeposited upon the continuously traveling conveyor and advanced to the second position, where it is again elevated and halted during the operation of bending the closing flaps inwardly and tucking the free edges downwardly along the center partition and bringing the top closed over sections into horizontal alignment, which completes the closing operation, after which the closed carton is redeposited and again carried forward to the discharging position.

The various operations are properly timed, and clutch mechanism is provided which acts to initiate the sequence of operations through the tripping of stop mechanism actuated by the arrival of a carton, so that the machine will operate only when filled cartons are deposited upon the conveyor and arrive at the initial stopping position within the machine, and after a cycle of operations the clutch will be disconnected and the machine will remain idle until the arrival of additional cartons again initiates the sequence of operations.

Further objects and details will appear from a description of the invention in conjunction with the accompanying drawings, wherein,—

Figure 1 is a side elevation of the complete machine;

Fig. 2 is a perspective view of one of the egg cartons;

Fig. 3 is a detail showing the clutch trip mechanism and associated parts;

Fig. 4 is an enlarged sectional detail taken on line 4 of Fig. 3;

Fig. 5 is a sectional view of the clutch, and means for actuating the same, taken on line 5 of Fig. 1;

Fig. 6 is a sectional elevation through the clutch, taken on line 6 of Fig. 5;

Fig. 7 is a perspective view of the clutch operating knife;

Fig. 8 is a sectional detail showing the relation of the clutch operating knife to the clutch pin;

Fig. 9 is an end view of the drive connections, taken on line 9 of Fig. 1;

Fig. 10 is a sectional elevation taken on line 10 of Fig. 1, showing the gluing and date stamping mechanisms;

Fig. 11 is a detail taken on line 11 of Fig. 1, showing a portion of the gluing and date stamping mechanisms;

Fig. 12 is a view identical with Fig. 10, showing the parts during a different stage in the gluing and stamping operations;

Fig. 13 is a sectional elevation taken on line 13 of Fig. 1, showing the cover folding mechanisms in their initial positions prior to the beginning of the folding operation;

Fig. 14 is a similar view taken on line 14 of Fig. 1, showing the same mechanisms at an intermediate stage in the folding operation;

Fig. 15 is a similar view, sectioned through one of the cams and taken on line 15 of Fig. 1, showing the same mechanisms in a third position;

Fig. 16 is a similar view taken on line 16 of Fig. 1, showing said mechanisms in the final cover closing position; and

Fig. 17 is a perspective view showing the carton fully closed in position for delivery from the machine.

The machine as a whole is built within a frame comprising spaced side rails 20, 20 of angle bar formation which are connected by suitable cross connections to afford support for table plates 21 which are spaced to afford a center gap for

the travel of the upper turn of an endless conveyor belt 22 which runs over forward and rear rollers 23 and 24, mounted upon shafts 25 and 26, respectively, which shafts are carried within journal brackets 27 and 28, mounted upon legs or uprights 29 located at the corners of the frame, giving to the frame as a whole the formation of an elongated table with a traveling conveyor passing through the center thereof.

Near the forward or feeding end of the machine (at the left in Fig. 1) is located a forward standard 30 which is mounted upon the table top immediately above the corner legs at that end of the table, which standard cooperates with a center standard 31 and a rear standard 32, all of the configuration best shown in Fig. 13, which illustrates the rearmost standard 32. Each of said standards is of inverted V-shaped formation comprising downwardly diverging legs 33 which rest upon the table top and in conjunction afford support for aligned journal mountings 34, 35 and 36, which carry the shafting presently to be described. The three standards in conjunction furnish a super-structure for the machine, which affords an open clearance through the machine from end to end thereof, for the center travel of the cartons, and for the operation of the mechanisms presently to be described.

The cartons for which the present machine is particularly designed comprise an integrally formed body section which is folded in the center to afford a longitudinal partition 37, and on each side of the center fold the body of the carton is bent to afford laterally disposed troughs 38 which are provided with slots 39 at spaced intervals through the trough walls to afford entrance for the cross walls 40, the lower portions of which project exteriorly through the troughs and present their lower edges in alignment to afford a base for the carton, which elevates the troughs out of direct contact with the surface upon which the carton is supported.

The sides of the carton are extended to afford closing flaps 41 which are preferably scored along the lines 42 to permit the free edges of the flaps to be tucked inwardly into the space adjacent the center partition, as indicated in Figs. 16 and 17. In order to facilitate the tucking operation, the edges of the cross walls along one side of the center partition are beveled, as at 43 in Fig. 16, which beveling affords a throated entrance to a center slot 44 into which the edges are ultimately tucked in the final closing operation. A sealing tongue 44a is cut in one of the flaps with its base on the score line 42.

Cartons of the character described are deposited upon the endless conveyor, which travels in the direction indicated by the arrow in Fig. 1, and in order to facilitate the positioning of the cartons, the machine is provided with guide bars 45 which stand edgewise and extend throughout that portion of the table occupied by the upper frame or super-structure.

The guide bars are spaced apart a distance substantially equal to the width of the conveyor, which is a space slightly greater than the width of the cartons, as well shown in Figs. 10 and 12, so as to afford a trackway for the advance of the cartons resting upon the conveyor. The guide bars extend upward to a point slightly below the middle of the cartons, leaving the upper portions thereof projecting above the guide bars, with the flaps standing upwardly, as shown in Fig. 10, and resting against a pair of upper guide rods 46 which stand in parallel relation to the guide bars 45 at a higher level. The guide bars and guide rods at the entering end of the machine are connected by plates 47, which hold the ends in properly spaced relation and facilitate the deposit of the filled cartons on the traveling conveyor.

It will be observed by comparison of Fig. 10 with Fig. 13 that the spacing of the guide rods 46 is reduced toward the middle portion of the machine, so that as the cartons approach the second position where the folding is performed, the upstanding flaps will be deflected inwardly to a slight extent, which deflection, however, is initiated by short triangular fins 48 (Figs. 1 and 10) which are secured to the guide rods 46 at a point adjacent the middle standards 31.

Referring particularly to Figs. 3, 10 and 12, as the cartons are carried inwardly to the first position, one of the upstanding flaps 41 will be moved into contact with a trip plate 49 on the forward end of a finger 50 extending forward from a swinging arm 51 journaled at an intermediate point through a double pivot block 52 carried by a fixed bracket 53. The movement of the carton, from front to rear, swings the arm 51 backwardly to the dotted line position, which advances a thrust rod 54 to the dotted line position. The thrust rod, through the medium of a bell crank lever 55 pivoted upon a block 56 (Fig. 6), operates to impart an outward swinging movement to a cam arm 57 pivoted at its lower end to a bracket 58 projecting inwardly from the forward V-shaped standard 30.

The cam arm 57 acts against the tension of a spring 59, and its upper end carries a cam block 60 which is provided with an obliquely disposed arcuate groove 61 which in conjunction with the concavely curved inner face 62 of the block provides a knife edge 63 along the outer margin of the groove. The obliquity of the groove causes the knife edge to run from the narrowest portion of the face 62 at its upper end to the broadest portion of said face which is at its lower end.

The curved inner face of the cam block 60 is adapted when the arm is swung inwardly to embrace the cylindrical face of the hub 64 of a sprocket wheel 65 which is freely mounted upon the driven cam shaft 66 journaled through the journal mountings 34, 35 and 36, and which extends from end to end of the operating portion of the machine.

The constantly rotating sprocket wheel 65 is provided with a cross bore 67 through which is entered a clutch pin 68, the outer end of which is anchored within a bore 69 in a cylindrical block 70 freely mounted upon the shaft, which rotates in conjunction with the sprocket wheel and abuts against the hub thereof. The pin terminates in a stem 71 which is encircled by a coil spring 72 bearing against a face plate 73 bolted to the block 70.

The inner end of the clutch pin 68 rides around the hub 74 of a clutch block 75 secured to the shaft 66 by a tapering cross pin 76 and provided with a stop pin 77, which when the clutch pin 68 is projected, as in Fig. 6, will lie within the path of the clutch pin, so that the rotation thereof will be imparted to the shaft 66.

The clutch pin 68 is provided with a cross groove 78 which is beveled at its outer end 79 and is adapted to coact with the obliquely disposed knife edged groove in the cam block 60, so that when the block is drawn inwardly by the spring 59 to rest upon the hub 64 of the rotating sprocket the knife edge, upon each revolution, will enter the cross groove 78 in the clutch pin and cause

the same to ride up along the obliquely disposed knife edge of the cam block and thus be retracted against the tension of the spring 72 to clear the stop pin 77, so that no rotation will be imparted to the shaft 66. If, however, the cam block 60 is drawn outwardly against the tension of the spring 59, there will be nothing present to retract the clutch pin 68, which in this adjustment will engage the stop pin 77 and impart rotation therethrough to the shaft 66, thereby initiating the operations to be presently described.

The sprocket 65 is driven by a sprocket chain 78 which in turn is driven from a sprocket on a countershaft 79 journaled through journal mountings 80, the outermost of which is bolted to the forward outer leg 29 and the inner of which is bolted to an intermediate leg 81. The countershaft 79 is provided with a bevel pinion 82 meshing with a bevel pinion 83 on the shaft 25, which is provided with a sprocket (not shown) which is driven by a sprocket chain 84 leading to a sprocket wheel 85 carried by a shaft 86 leading outwardly from a reduction gear box 87, the gears of which are rotated by a motor shaft 88 carried by a motor 89 mounted in the base of the machine.

Referring again to Fig. 10, the arrival of a carton in position to retract the trip plate 49 serves to initiate the operations last described, by retracting the cam block 60, which allows the clutch elements to engage and impart rotation to the cam shaft 66. The cam shaft has mounted thereon a pair of companion oppositely facing cams 90, each of which coacts with a roller 91 on a slotted arm 92 which embraces the shaft 66, the arms extending in opposite directions therefrom. The respective arms 92 have pivoted thereto levers 93 and 94, which levers are companions but differ in shape, the lever 94 being outwardly bowed at its lower end 95 to afford the required clearance.

Each of the arms 93 and 94 has pivoted to its lower end a link 96, the inner end of which is pivoted to an upstanding lug 97 carried by a slide plate 98 fitted to slide upon the surface of the contiguous table plate 21. Each of the slide plates 98 carries a blade 99 which projects inwardly and at the level of the upper surface of the traveling conveyor belt, and in position when the two blades are projected inwardly to slide under the carton deposited upon the belt and lift the same momentarily therefrom to thus arrest its advance during the stamping and gluing operations.

The stamping operation is performed by an anvil block 100 carried at the lower end of a swinging arm 101, which is pivoted upon the cam shaft 66 and is adapted to coact with a series of dating wheels 102 carried by a counter 103 secured to an upstanding bracket 104 in position to bring one of the closing flaps of the carton into interposed relation between the anvil and the dating wheels, so that the date may be embossed upon the carton.

The arm 101 is actuated by a slotted link 105 which rides upon a cam shaft 106, and is provided at its outer end with a roller 107 which rides within the cam groove 108 of a cam 109 carried by the shaft 106. The rotation of the cam causes the arm 101 to swing outwardly from the position shown in Fig. 10 to the position shown in Fig. 12 to emboss the date upon the carton. Simultaneously a spot of glue is applied to the other upstanding carton flap by the action of a gluing roller 110 which normally rides upon a glue roller 111, the lower portion of which is immersed within a glue bath contained in a tank 112.

The roller 111 is carried by a shaft 113 having a sprocket 114 driven by a sprocket chain 115, which in turn is carried upon a sprocket wheel 116 mounted upon the shaft 79. The glue roller 110 is carried by an arm 117, split at its upper end 118 to clamp upon a pin 119 carried by a lug 120 outstanding from the arm 101, so that as the arm is swung to the left, as in Fig. 12, to emboss the date, it will also carry the glue roller 110 inwardly to bring it into contact with the outer surface of the adjacent flap of the carton, so that a spot of glue will be applied thereto, in preparation for the subsequent folding and tucking operations, which bring the sealing tongue 44a into contact therewith.

The arm 94 is pivoted upon a cam shaft 121 located on the front side of the machine in a position corresponding to that of the cam shaft 106 which is located on the rear side of the machine, both of said shafts extending from end to end of the operative portions of the machine and being journaled respectively within journal mountings 122 carried by the front and rear legs of the standards 30, 31 and 32.

The shafts 106 and 121 are driven from the upper cam shaft 66 by a triangularly disposed sprocket chain 123 carried around sprockets 124, 125 and 126 upon the respective shafts, as indicated in Fig. 9, a tension roller 127 being provided to maintain the proper tension. By this arrangement, as soon as rotation is imparted through the action of the clutch mechanism to the upper cam shaft 66, like rotation will be imparted to the front and rear cam shafts 121 and 106, respectively.

The shaft 121 carries a cam 128 which bears upon a roller 129 carried by the swinging arm 51 (Fig. 4), the parts being so disposed that as the high point of the cam engages the roller the arm 51 will be swung back from the engaging position shown in full lines to the retracted position shown in dotted lines, which removes the stop plate 49 from the path of the carton in preparation for the advance of the carton to the next position. The sequence of operations is such that when the upstanding flap of the carton first engages the stop plate 49 it will move the doubly pivoted arm 51 rearwardly, which causes the retraction of the knife edge on the cam block 60 and the subsequent engaging of the clutch elements which impart rotation to the shaft 66.

The rotation of the shaft causes the lower ends of the levers 93 and 94 to move inwardly toward one another, carrying with them the blades 99 which elevate the carton and hold it stationary in position to permit the embossing and gluing operations to be performed in the manner above described. As the cycle of operations is completed, the blades 99 will again be drawn outwardly, thereby redepositing the carton upon the advancing conveyor, and at this stage in the cycle the trip plate 49 will be withdrawn by the action of the cam 128. After the carton has been carried forwardly beyond the first position, the trip plate 49 will be free to return to the normal advanced position indicated in full lines in Fig. 3, which will permit the cam block 60 to bear upon the hub of the sprocket wheel which carries the clutch pin, and in position to retract the clutch pin and suspend operations pending the arrival of another carton, subject, however, to the means hereinafter described for repeating the tripping operation by the arrival of a carton in the second position.

The carton, having been stamped and glued, is carried forward to the position indicated in

Figs. 13, 14, 15, 16, where the folding and tucking operations are performed. At this point its advance is again interrupted by the inthrust of blades 130 which are slidably mounted for edgewise reciprocation above the plane of the traveling conveyor, each of the blades being provided with an upstanding lug 131 which pivots a link 132 pivotally secured to the lower end of a lever 133, one of the levers 133 being pivoted upon the shaft 121 and the other lever on the shaft 106.

Each of the levers at its upper end is pivoted to a bifurcated cam yoke 134 slidable upon the cam shaft 66 and actuated by a cam 135 operating upon a roller 136, the two cams being oppositely disposed to cause the levers to advance toward and recede from one another in unison. The levers 133 also serve to actuate a pair of presser bars 137 carried by a slide plate 138, the ends of which are guided within grooves 139 in the inner faces of the standards 31 and 32. The levers 133 are connected to the plates by links 140, the outer ends of which are pivoted to lugs 141 upstanding from the respective slide plates.

The deflection of the upstanding carton flaps is effected by the action of swinging forming plates 142 and 143, each of which is provided on its lower edge with a laterally extended presser head 144, giving to the forming plates an inverted T-shaped configuration. The forming plates are of a length substantially equal to the length of the carton and are slidably mounted in each end in hangers 145, the upper ends of which terminate in pivot heads 146 mounted upon the cam shaft 66. It will be noted that the hangers are arranged in pairs with the pivot heads in closely contiguous relation to one another.

The two companion hangers on the same side of the machine are connected by a rigid brace bar 147, giving to the structure the formation of an open swinging frame pivoted at widely spaced points on the shaft 66 to insure rigidity and accurate swinging movements. The swinging movements are effected through the medium of slotted links 148 which ride upon the shafts 121 and 106 respectively, each link being pivoted at its inner end to the cooperating hanger 145, and being provided at its outer end with a roller 149 which enters a cam groove 150 in a cam 151, which cams are respectively fixed upon and rotate with the shafts 121 and 106, thereby swinging the forming plates from the outermost position indicated in Fig. 13 to the innermost position indicated in Fig. 15.

In addition to the swinging movements thus imparted the forming plates have vertical movements imparted thereto through the range indicated in Figs. 13 to 16 inclusive, which vertical movements are imparted to the forming plates by duplicate pairs of thrust bars 152, which are rigidly bolted or otherwise secured at their lower ends to the respective forming plates and terminate at their upper ends in slotted heads 153, each provided with a roller 154 fitted to ride within a cam groove 155 in a cam 156 (or a cam 157 as the case may be).

The cams 156 constitute a pair in duplicate arrangement to operate upon one of the forming plates, while the cams 157 likewise constitute a pair in duplicate arrangement to operate upon the other forming plate. This duplication enables the cam grooves of each pair of cams to face in the same direction.

The cams 156 (or 157) are formed to coact with the cams 150 which control the swinging movements imparted to the forming plates, so that the resultant movements will be those illustrated in the respective figures. That is to say, the forming plates will initially stand in the widely spaced elevated relation shown in Fig. 13, which permits the carton to move to the intended position with the flaps standing upwardly in slightly convergent relation due to the contact of the guide bars 46.

As the forming plates swing inwardly to the position indicated in Fig. 14, they will swing the carton flaps inwardly into close proximity to a fixed center plate 158 and immediately beneath a presser head 159. In this position the presser head will descend, causing the flaps to bend along the score lines 42 and assume the position indicated in dotted lines in Fig. 14. In this position the ridges formed by the bending of the free edges of the flaps will underlie the head ends 144 of the respective forming plates, after which the forming plates will continue to descend to the ultimate dotted line position indicated in Fig. 13, which movements are coordinated with vertical movements of the presser head 159, which applies the ultimate pressure required in tucking in the edges of the cover flaps.

The presser head 159 is carried by duplicate hangers 160 in spaced relation to one another to provide space for the mounting of the fixed center plate 158, which affords a partition against the opposite sides of which the free edges of the cover flaps are carried and guided downwardly beneath the center plate and into the aligned notches 43. The center plate is fixedly supported at its ends by connection with the main frame of the machine.

The hangers 160 are suspended at their upper ends from arms 161, each inwardly projecting from a slotted head 162 which embraces the cam shaft 66, each of said slotted heads having a roller 163 (Fig. 13) working in a cam groove 164 in a cam 165 keyed upon the cam shaft. The arrangement is duplicated at each end so that the spaced hangers 160 will operate as a unit in raising and lowering the presser head 159. These movements are so coordinated that after the forming plates have depressed the free edges of the flaps to the limit of their downward movements, the ridges formed in the flaps will be swung inwardly toward one another to a sufficient degree to both underlie the presser head 159, which has a range of movement sufficient to complete the tucking operation in conjunction with the clamping movements imparted to the presser bars 137, which ultimately move to the inward position indicated in dotted lines in Fig. 13. That is to say, as the presser head 159 is descending to its lowermost position, the clamping presser bars 137 are moving inwardly, with the result that as these two movements approach their ultimate limit, the sides of the carton will be clamped against distention while the free margins or tucking flaps of the carton will be forced downwardly along opposite sides of the center plate 158, with the result that the parts will ultimately assume the relative positions indicated in Fig. 16, with the tucking edges of the flaps extending down into the slots 44 and alongside the longitudinal partition wall of the carton.

It will be noted that the left hand forming plate 142 normally occupies a lower position than the companion forming plate 143, and that these relative positions are maintained throughout the movement of the parts, with the result that the left hand flap will at all times be moved slightly in advance of the right hand flap and will enter

the slot 44 slightly below the edge of the companion flap. The center plate will serve as a guiding surface along which the left hand flap will be guided until it enters the slots 44, while the right hand flap will lag slightly behind the advance of its companion, so that after it is forced below the edge of the center plate it will ride upon the side face of the companion flap in approaching its final position. By thus moving the flaps, one in advance of the other, interference is avoided and a more certain action attained in forcing down the tucking edges of the respective flaps into the restricted space afforded within the narrow center slot 44, which must necessarily be restricted to insure a tight closing fit. During this final operation, the sealing tongue 44a will be brought into overlapping relation with the glued surface of the companion cover flap (Fig. 17), so that the carton will thus be sealed in its closed condition, although such sealing is not indispensable in all cases, since the tightness of the closure will ordinarily prevent accidental opening of the flaps.

After the closing movements have been effected in the manner described, the cover flaps will lie flush with the tops of the cross partitions, and in this condition the blades 130 will be withdrawn, which redeposits the closed carton on the continuously traveling conveyor belt, so that thereafter the carton will move forward to the right hand end of the machine for removal.

During this final movement of the carton, it will clear a trip plate 166, which constitutes a relay for operating the clutch mechanism and corresponds in function to the stop plate 49. The trip plate 166 (see Fig. 3) is carried by an arm 167 at the lower end of a lever 168 pivoted at 169 to a bracket 170, the upper end of the lever being connected with a draw rod 171 running to a block 172 which is connected with the draw rod 54. The arrangement is such that the initial movement of a carton to the second or closing position, with the flaps upstanding, will effect contact with the trip plate 166, which will impart a thrust through the rod 171 to the rod 54, and thus effect a clutching of the driving mechanism in the manner first described.

If, therefore, a carton should be carried by the conveyor to the second position without being immediately followed by a succeeding carton, the arrival of the carton in the second position will initiate the train of operations required in folding and closing the cover flaps, although, in the normal operation of the machine, the filled open cartons will be deposited upon the conveyor at regular intervals, in so far as possible, so that the proper spacing between the cartons will be maintained and two cartons operated upon simultaneously in the first and second operating positions respectively. The presence of the relay system, however, insures continuity in the operations performed upon any individual carton, irrespective of the presence of additional cartons in processional relation. The cam shaft 66 is provided at its rear end with a hand wheel 173 to enable manual adjustment to be effected as occasion may require.

The machine as a whole is so constructed as to permit the filled cartons to be deposited, as filled, upon the continuously traveling conveyor, so that, irrespective of the time of deposit, the placing of the carton upon the conveyor will automatically initiate the operations required, first in stamping and gluing the carton, and thereafter tucking in and closing the flaps and delivering the carton to the final discharge position. Of course, if it is not deemed necessary to provide for the dating and gluing of the cartons, the portions of the machine provided for operating upon the cartons in the first position may be disabled or completely eliminated and the operations confined to the tucking in and closing of the cover flaps, which features of the machine, however, will operate in the manner described independently of the presence or absence of the mechanisms provided for the stamping and gluing operations.

The means provided for bodily lifting the carton from the constantly moving conveyor insures a correct positioning of each carton, without the provision of other feeding means, since the carton will continue to travel upon the conveyor until the trip mechanism is reached, which provides a stop for holding the carton in the intended position, and also initiates the operations required in first lifting the carton from the conveyor and in thereafter performing the work intended.

The machine as a whole is operated from a common source of power, and the arrangement of the cams and the means provided for the transmission of power insures a proper timing of all of the operations and a proper coordination of the movements required in swinging in the cover flaps and tucking their free edges into position and exerting the properly directed pressures to insure a complete closing of the cartons.

Although the invention has been described with particularity as to detail, it is not the intention, unless otherwise indicated in the claims, to limit the invention to the precise form shown, since modifications thereof are contemplated within the scope of the appended claims.

We claim:

1. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a continuously traveling conveyor adapted to carry cartons to the closing position, means for momentarily lifting a carton from said conveyor and holding it arrested in closing position, and combined mechanisms for folding the upstanding closing flaps inwardly and directing their free edges downwardly into the center of the carton.

2. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a continuously traveling conveyor adapted to carry cartons to the closing position, means for momentarily lifting a carton from said conveyor and holding it arrested in closing position, and combined mechanisms for folding the upstanding closing flaps inwardly and directing their free edges downwardly into the center of the carton, and automatic trip mechanism adapted to be actuated by the arrival of a carton at the closing position to initiate the operation of the carton arresting means and the closing mechanisms.

3. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of duplicate forming plates and a presser head located between the forming plates, and means for actuating the forming plates and the presser head in cooperative relation to swing the upstanding cover flaps inwardly and press their free edges downwardly into the center of the carton.

4. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of duplicate forming plates

and a presser head located between the forming plates, and means for actuating the forming plates and the presser head in cooperative relation to swing the upstanding cover flaps inwardly and press their free edges downwardly into the center of the carton, and a center plate associated with the presser head and positioned to occupy an interposed relation between the free edges of the cover flaps to guide the same downwardly during the closing operation.

5. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a pair of forming plates, means for swinging the forming plates inwardly toward the longitudinal center of a carton, means for moving the forming plates downwardly, and a vertically movable interposed presser head, the forming plates and the presser head being correlated to swing the carton flaps inwardly and turn their free edges downwardly and enter the same into the center of the carton.

6. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a pair of forming plates, means for swinging the forming plates inwardly toward the longitudinal center of a carton, means for moving the forming plates downwardly, and a vertically movable interposed presser head, the forming plates and the presser head being correlated to swing the carton flaps inwardly and turn their free edges downwardly and enter the same into the center of the carton, and a center plate associated with the presser head and positioned to occupy an interposed relation between the free edges of the cover flaps to guide the same downwardly during the closing operation.

7. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a pair of forming plates, means for swinging the forming plates inwardly toward the longitudinal center of a carton, means for moving the forming plates downwardly, and a vertically movable interposed presser head, the forming plates and the presser head being correlated to swing the carton flaps inwardly and turn their free edges downwardly and enter the same into the center of the carton, a continuously traveling conveyor adapted to carry cartons to the closing position, means for lifting the cartons from the conveyor to arrest their travel, and automatic trip mechanism adapted to be actuated by the arrival of a carton to effect the operation of the lifting means.

8. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a pair of forming plates, means for swinging the forming plates inwardly toward the longitudinal center of a carton, means for moving the forming plates downwardly, and a vertically movable interposed presser head, the forming plates and the presser head being correlated to swing the carton flaps inwardly and turn their free edges downwardly and enter the same into the center of the carton, and a center plate associated with the presser head and positioned to occupy an interposed relation between the free edges of the cover flaps to guide the same downwardly during the closing operation, a continuously traveling conveyor adapted to carry cartons to the closing position, means for lifting the cartons from the conveyor to arrest their travel, and automatic trip mechanism adapted to be actuated by the arrival of a carton to effect the operation of the lifting means.

9. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a pair of forming plates, means for swinging the forming plates inwardly toward the longitudinal center of a carton, means for moving the forming plates downwardly, and a vertical movable interposed presser head, the forming plates and the presser head being correlated to swing the carton flaps inwardly and turn their free edges downwardly and enter the same into the center of the carton, a continuously traveling conveyor adapted to carry cartons to the closing position, and a pair of lifting blades mounted to move inwardly across the surface of the traveling conveyor to lift cartons therefrom and momentarily hold them in closing position.

10. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a pair of forming plates, means for swinging the forming plates inwardly toward the longitudinal center of a carton, means for moving the forming plates downwardly, and a vertically movable interposed presser head, the forming plates and the presser head being correlated to swing the carton flaps inwardly and turn their free edges downwardly and enter the same into the center of the carton, and a center plate associated with the presser head and positioned to occupy an interposed relation between the free edges of the cover flaps to guide the same downwardly during the closing operation, a continuously traveling conveyor adapted to carry cartons to the closing position, and a pair of lifting blades mounted to move inwardly across the surface of the traveling conveyor to lift cartons therefrom and momentarily hold them in closing position.

11. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a pair of forming plates, means for swinging the forming plates inwardly toward the longitudinal center of a carton, means for moving the forming plates downwardly, and a vertically movable interposed presser head, the forming plates and the presser head being correlated to swing the carton flaps inwardly and turn their free edges downwardly and enter the same into the center of the carton, a continuously traveling conveyor adapted to carry cartons to the closing position, and a pair of lifting blades mounted to move inwardly across the surface of the traveling conveyor to lift cartons therefrom and momentarily hold them in closing position, and automatic trip mechanism adapted to be actuated by the arrival of a carton at the closing position to initiate the inward movements of the lifting blades.

12. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a pair of forming plates, means for swinging the forming plates inwardly toward the longitudinal center of a carton, means for moving the forming plates downwardly, and a vertically movable interposed presser head, the forming plates and the presser head being correlated to swing the carton flaps inwardly and turn their free edges downwardly and enter the same into the center of the carton, and a center plate associated with the presser head and positioned to occupy an interposed relation between the free edges of the cover flaps to guide the samed ownwardly during the closing operation, a continuously traveling conveyor adapted to carry cartons to the closing position, and a pair of lifting blades mounted to move inwardly across

the surface of the traveling conveyor to lift cartons therefrom and momentarily hold them in closing position, and automatic trip mechanism adapted to be actuated by the arrival of a carton at the closing position to initiate the inward movements of the lifting blades.

13. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a pair of swinging frames mounted to swing inwardly toward one another, a forming plate slidably mounted within each of the frames, means for swinging the frames toward and from one another and means for moving the forming plates vertically within the frames, and a vertically movable presser head centrally located between the swinging frames and means for moving the same, the movements of the forming plates and the presser head being correlated to swing the upstanding carton flaps inwardly and deflect their free edges downwardly and press the same into the center of the carton.

14. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a pair of swinging frames mounted to swing inwardly toward one another, a forming plate slidably mounted within each of the frames, means for swinging the frames toward and from one another and means for moving the forming plates vertically within the frames, and a vertically movable presser head centrally located between the swinging frames and means for moving the same, the movements of the forming plates and the presser head being correlated to swing the upstanding carton flaps inwardly and deflect their free edges downwardly and press the same into the center of the carton, and a center plate centrally mounted with relation to the presser head and positioned above the center of the carton in interposed relation between the free edges of the cover flaps to afford a surface to guide the free edges of the flaps inwardly and downwardly into closing position.

15. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a pair of swinging frames mounted to swing inwardly toward one another, a forming plate slidably mounted within each of the frames, means for swinging the frames toward and from one another and means for moving the forming plates vertically within the frames and a vertically movable presser head centrally located between the swinging frames and means for moving the same, the movements of the forming plates and the presser head being correlated to swing the upstanding carton flaps inwardly and deflect their free edges downwardly and press the same into the center of the carton, and a center plate fixedly positioned centrally of the presser head and adapted to overlie the center of the carton and furnish a guiding surface for the free edges of the carton closing flaps to direct the same downwardly and inwardly to closing position.

16. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a pair of forming plates mounted to swing inwardly toward one another and to move downwardly, a vertically movable presser head interposed between the forming plates and laterally movable clamping members positioned to engage the sides of the carton, and means for automatically moving said mechanisms in correlation to one another to cause the forming plates to swing the carton flaps inwardly and combine with the presser head in deflecting the free edges downwardly and into the body of the carton concurrently with the clamping of the sides of the carton by the clamping members.

17. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a pair of forming plates mounted to swing inwardly toward one another and to move downwardly, a vertically movable presser head interposed between the forming plates and laterally movable clamping members positioned to engage the sides of the carton, and means for automatically moving said mechanisms in correlation to one another to cause the forming plates to swing the carton flaps inwardly and combine with the presser head in deflecting the free edges downwardly and into the body of the carton concurrently with the clamping of the sides of the carton by the clamping members, and a center plate centrally positioned with relation to the presser head and adapted to afford a guiding surface for the free edges of the cover flaps during the closing operation.

18. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a pair of forming plates mounted to swing inwardly toward one another and to move downwardly, a vertically movable presser head interposed between the forming plates and laterally movable clamping members positioned to engage the sides of the carton, and means for automatically moving said mechanisms in correlation to one another to cause the forming plates to swing the carton flaps inwardly and combine with the presser head in deflecting the free edges downwardly and into the body of the carton concurrently with the clamping of the sides of the carton by the clamping members, and a continuously moving conveyor adapted to convey the cartons to the closing position and trip mechanism adapted to be actuated by the arrival of a carton to initiate the closing operation.

19. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a pair of forming plates mounted to swing inwardly toward one another and to move downwardly, a vertically movable presser head interposed between the forming plates and laterally movable clamping members positioned to engage the sides of the carton, and means for automatically moving said mechanisms in correlation to one another to cause the forming plates to swing the carton flaps inwardly and combine with the presser head in deflecting the free edges downwardly and into the body of the carton concurrently with the clamping of the sides of the carton by the clamping members, and a center plate associated with the presser head and positioned to overlie the interior of the carton to afford a guiding surface for the free edges of the cover flaps during the closing operation, and a continuously moving conveyor adapted to convey the cartons to the closing position and trip mechanism adapted to be actuated by the arrival of a carton to initiate the closing operation.

20. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a pair of forming plates mounted to swing inwardly toward one another and to move downwardly, a vertically movable presser head interposed between the forming plates, laterally movable clamping members positioned to engage the sides of the carton, and means for automatically moving said mecha-

nisms in correlation to one another to cause the forming plates to swing the carton flaps inwardly and combine with the presser head in deflecting the free edges downwardly and into the body of the carton concurrently with the clamping of the sides of the carton by the clamping members, a continuously moving conveyor, carton lifting means adapted to be moved inwardly across the surface of the conveyor to lift a carton therefrom, and trip mechanism adapted to be actuated by the arrival of a carton at the closing position to initiate the operation of the carton lifting means and the operation of the closing mechanisms.

21. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a pair of forming plates mounted to swing inwardly toward one another and to move downwardly, a vertically movable presser head interposed between the forming plates, laterally movable clamping members positioned to engage the sides of the carton, and means for automatically moving said mechanisms in correlation to one another to cause the forming plates to swing the carton flaps inwardly and combine with the presser head in deflecting the free edges downwardly and into the body of the carton concurrently with the clamping of the sides of the carton by the clamping members, and a center plate associated with the presser head and positioned to overlie the interior of the carton to afford a guiding surface for the free edges of the cover flaps during the closing operation, a continuously moving conveyor, carton lifting means adapted to be moved inwardly across the surface of the conveyor to lift a carton therefrom, and trip mechanism adapted to be actuated by the arrival of a carton at the closing position to initiate the operation of the carton lifting means and the operation of the closing mechanisms.

22. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a table, frame members extending upwardly from the table, a cam shaft journaled within the frame members above the table, a pair of swinging frames pivoted upon the cam shaft and movable toward and from one another, a forming plate slidably mounted in each of the swing frames, and cam devices on the cam shaft for imparting vertical movements to the forming plates, cam actuated mechanisms for swinging the swinging frames toward and from one another, a presser head vertically movable between the forming plates, means for suspending the presser head from the cam shaft, and cam mechanism on the cam shaft for actuating the same, the cam mechanisms being correlated to cause the forming plates to swing inwardly and move downwardly and the presser head to move downwardly in proper relation therewith to cause the closing flaps to be deflected inwardly and their free edges turned downwardly and tucked into the center of the carton.

23. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a table, frame members extending upwardly from the table, a cam shaft journaled within the frame members above the table, a pair of swinging frames pivoted upon the cam shaft and movable toward and from one another, a forming blade slidably mounted in each of the swinging frames, and cam devices on the cam shaft for imparting vertical movements to the forming plates, cam actuated mechanisms for swinging the swinging frames toward and from one another, a presser head vertically movable between the forming plates, means for suspending the presser head from the cam shaft, and cam mechanism on the cam shaft for actuating the same, the cam mechanisms being correlated to cause the forming plates to swing inwardly and move downwardly and the presser head to move downwardly in proper correlation therewith to cause the closing flaps to be deflected inwardly and their free edges turned downwardly and tucked into the center of the carton, a continuously moving conveyor adapted to carry cartons to a closing position, sliding lifting blades adapted to move transversely of the conveyor and beneath a carton to lift the same therefrom, and cam mechanism on the cam shaft and connecting members for imparting movements to the lifting blades.

24. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a table, frame members extending upwardly from the table, a cam shaft journaled within the frame members above the table, a pair of swinging frames pivoted upon the cam shaft and movable toward and from one another, a forming blade slidably mounted in each of the swinging frames, and cam devices on the cam shaft for imparting vertical movements to the forming plates, cam actuated mechanisms for swinging the swinging frames toward and from one another, a presser head vertically movable between the forming plates, means for suspending the presser head from the cam shaft, and cam mechanism on the cam shaft for actuating the same, the cam mechanisms being correlated to cause the forming plates to swing inwardly and move downwardly and the presser head to move downwardly in proper correlation therewith to cause the closing flaps to be deflected inwardly and their free edges turned downwardly and tucked into the center of the carton, a continuously moving conveyor adapted to carry cartons to a closing position, sliding lifting blades adapted to move transversely of the conveyor and beneath a carton to lift the same therefrom, and cam mechanism on the cam shaft and connecting members for imparting movements to the lifting blades, and automatic trip mechanism adapted to be actuated by the arrival of a carton at the closing position to initiate a cycle of carton arresting and carton closing movements.

25. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a table, an endless traveling conveyor moving longitudinally of the table, a pair of sliding blades adapted to move transversely above the surface of the endless conveyor to lift and arrest cartons in the first operating position, a like pair of blades adapted to lift and arrest the cartons in the second operating position, carton stamping means positioned to act upon one of the upstanding carton closing flaps while arrested in the first operating position, gluing means positioned to act upon the other carton flap while in the same position, carton closing means located adjacent the second arresting position and adapted to swing the carton flaps inwardly and deflect the free edges downwardly and tuck the same into the center of the carton body, and automatic trip mechanisms adapted to be actuated by the arrival of a carton in either of the two arresting positions for initiating the

operation of the arresting, stamping, gluing and closing mechanisms.

26. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a table, an endless conveyor moving longitudinally of the table, a pair of arresting blades mounted to move transversely of the conveyor and lift a carton therefrom in the first operating position, a like pair of blades adapted to lift a carton in the second operating position, a cam shaft extending longitudinally above the center of the conveyor, a swinging arm depending from the cam shaft and pivoted thereon and having an anvil at its lower end, a dating stamp positioned to coact with said anvil in making an imprint on the interposed surface of a carton closing flap, a gluing roll carried by said arm and adapted to impinge against the surface of the companion carton flap, gluing means for imparting glue to said roll, cams on the cam shaft and connections for actuating the carton arresting blades, cam mechanism for actuating the swinging arm, a pair of swinging frames located adjacent the second operating position and pivoted upon the cam shaft, a forming plate slidably mounted in each of said frames, means on the cam shafts for imparting vertical movements to the forming plates, a presser head suspended from the cam shaft and a cam thereon for actuating the presser head, cams for actuating the second pair of arresting blades, the closing mechanisms being operable to swing the forming plates inwardly to deflect the closing flaps inwardly and thereafter deflect the free edges thereof downwardly and in conjunction with the presser head to effect the tucking in of the free edges into the center of the carton.

27. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a table, an endless conveyor moving longitudinally of the table, a pair of arresting blades mounted to move transversely of the conveyor and lift a carton therefrom in the first operating position, a like pair of blades adapted to lift a carton in the second operating position, a cam shaft extending longitudinally above the center of the conveyor, a swinging arm depending from the cam shaft and pivoted thereon and having an anvil at its lower end, a dating stamp positioned to coact with said anvil in making an imprint on the interposed surface of a carton closing flap, a gluing roll carried by said arm and adapted to impinge against the surface of the companion carton flap, gluing means for imparting glue to said roll, cams on the cam shaft and connections for actuating the carton arresting blades, cam mechanism for actuating the swinging arm, a pair swinging frames located adjacent the second operating partition and pivoted upon the cam shaft, a forming plate slidably mounted in each of said frames, means on the cam shafts for imparting vertical movements to the forming plates, a presser head suspended from the cam shaft and a cam thereon for actuating the presser head, cams for actuating the second pair of arresting blades, clamping plates positioned to engage the sides of a carton, and connections actuated by said last named cams for actuating the clamping plates, the closing mechanisms being operable to swing the forming plates inwardly to deflect the closing flaps inwardly and thereafter deflect the free edges thereof downwardly and in conjunction with the presser head and clamping plates to effect the tucking in of the free edges into the center of the carton.

28. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a table, an endless conveyor moving longitudinally of the table, a pair of arresting blades mounted to move transversely of the conveyor and lift a carton therefrom in the first operating position, a pair of like blades adapted to lift a carton in the second operating position, a cam shaft extending longitudinally above the center of the conveyor, a swinging arm depending from the cam shaft and pivoted thereon and having an anvil at its lower end, a dating stamp positioned to coact with said anvil in making an imprint on the interposed surface of a carton closing flap, a gluing roll carried by said arm and adapted to impinge against the surface of the companion carton flap, gluing means for imparting glue to said roll, cams on the cam shaft and connections for actuating the carton arresting blades, cam mechanism for actuating the swinging arm, a pair of swinging frames located adjacent the second operating position and pivoted upon the cam shaft, a forming plate slidably mounted in each of said frames, means on the cam shafts for imparting vertical movements to the forming plates, a presser head suspended from the cam shaft and a cam thereon for actuating the presser head, cams and connecting members for actuating the second pair of arresting blades, the closing mechanisms being operable to swing the forming plates inwardly to deflect the closing flaps inwardly and thereafter deflect the free edges thereof downwardly and in conjunction with the presser head to effect the tucking in of the free edges into the center of the carton, and trip mechanisms adapted to be actuated by the arrival of a carton in either of the operating positions to initiate the carton arresting, gluing, stamping, and closing movements.

29. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of a table, an endless conveyor moving longitudinally of the table, a pair of arresting blades mounted to move transversely of the conveyor and lift a carton therefrom in the first operating position, a like pair of blades adapted to lift a carton in the second operating position, a cam shaft extending longitudinally above the center of the conveyor, a swinging arm depending from the center of the cam shaft and pivoted thereon and having an anvil at its lower end, a dating stamp positioned to coact with the anvil in making an imprint on the interposed surface of a carton closing flap, a gluing roll carried by said arm and adapted to impinge against the surface of the companion carton flap, gluing means for imparting glue to said roll, cams on the cam shaft and connections for actuating the carton arresting blades, cam mechanism for actuating the swinging arm, a pair of swinging frames located adjacent the second operating position and pivoted upon the cam shaft, a forming plate slidably mounted in each of said frames, cams on the cam shaft for imparting vertical movements to the forming plates, a presser head suspended from the cam shaft and a cam thereon for actuating the presser head, cams for actuating the second pair of arresting blades, clamping plates positioned to engage the sides of a carton, and connections actuated by said last named cams for actuating the clamping plates, the closing mechanisms being operable to swing the forming plates inwardly to deflect the closing

flaps inwardly and thereafter deflect the free edges thereof downwardly and in conjunction with the presser head and clamping plates to effect the tucking in of the free edges into the center of the carton, and trip mechanisms adapted to be actuated by the arrival of a carton in either of the operating positions to initiate the carton arresting, gluing, stamping and closing movements.

30. The combination of feeding mechanism for cartons or the like in the form of a continuously traveling conveyor upon which the cartons or the like are adapted normally to rest and means for momentarily lifting a carton or the like from the conveyor and holding it arrested and thereafter redepositing it upon the conveyor, and means for acting upon the carton or the like while arrested.

31. The combination of feeding mechanism for cartons or the like in the form of a continuously traveling conveyor upon which the cartons or the like are adapted normally to rest and means for momentarily lifting a carton or the like from the conveyor and holding it arrested and thereafter redepositing it upon the conveyor, means for acting upon the carton or the like while arrested, and trip mechanism actuated by the arrival of a carton or the like at the arresting position for initiating the cycle of operations performed by the above described mechanisms.

32. In a carton closing machine adapted to close the cover of a carton upon the body thereof, the combination of a continuously traveling conveyor adapted to carry cartons to the closing position, means for momentarily lifting a carton from said conveyor and holding it arrested in closing position, and mechanisms adapted to act upon the cover of a carton while in arrested position to close the cover upon the body of the carton.

33. In a carton closing machine adapted to close the cover of a carton upon the body thereof, the combination of a continuously traveling conveyor adapted to carry cartons to the closing position, means for momentarily lifting a carton from said conveyor and holding it arrested in closing position and mechanisms adapted to act upon the cover of a carton while in arrested position to close the cover upon the body of the carton, and trip mechanism actuated by the arrival of a carton at the arresting position for initiating the operation of the arresting and closing mechanisms.

34. In a carton closing machine adapted to close down the cover flap of a carton, a forming plate and a presser head associated therewith, means for swinging the forming plate inwardly to carry the cover flap across the open body of the carton, and means for vertically moving the presser head, the swinging means for the forming plate and the moving means for the presser head being correlated to swing the cover flap inwardly and press its free edge downwardly into closing relation with the body of the carton.

35. In a carton closing machine adapted to close down the cover flap of a carton, a forming plate and a presser head associated therewith, means for swinging the forming plate inwardly to carry the cover flap across the open body of the carton, and means for vertically moving the presser head, the swinging means for the forming plate and the moving means for the presser head being correlated to swing the cover flap inwardly and press its free edge downwardly into closing relation with the body of the carton, and a center plate associated with the presser head and adapted to overlie the body of the carton and guide the free edge of the cover flap thereinto.

36. In a carton closing machine adapted to close down the cover flap of a carton, a forming plate and a presser head associated therewith, means for swinging the forming plate inwardly to carry the cover flap across the open body of the carton and means for vertically moving the presser head, the swinging means for the forming plate and the moving means for the presser head being correlated to swing the cover flap inwardly and press its free edge downwardly into closing relation with the body of the carton, and a center plate mounted in contiguous relation to the presser head and in position to overlie the body of the carton upon descent of the presser head and guide the free edge of the cover flap thereinto.

37. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of presser members mounted to swing inwardly and move vertically and means for imparting said swinging and vertical movements thereto in the proper sequence to swing the closing flaps inwardly and thereafter move their free edges downwardly, and a center plate positioned to act in conjunction with said presser members in deflecting the free edges of the closing flaps downwardly, the means for actuating the presser members being operable to impart a final vertical movement to the free edges to cause the same to contact one another and enter downwardly into the body of the carton.

38. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of presser members mounted to swing inwardly and move vertically and means for imparting said swinging and vertical movements thereto in the proper sequence to swing the closing flaps inwardly and thereafter move their free edges downwardly, and a center plate positioned to act in conjunction with said presser plate in deflecting the free edges of the closing flaps downwardly, the means for actuating the presser members being operable to impart a final vertical movement to the free edges to cause the same to contact one another and enter downwardly into the body of the carton, clamping means adapted to engage the sides of the carton during the closing operation and prevent sidewise deflection of the closing flaps during the closing operation, and connections for actuating said clamping means.

39. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of presser members mounted to swing inwardly and move vertically and means for imparting said swinging and vertical movements thereto in the proper sequence to swing the closing flaps inwardly and thereafter move their free edges downwardly, and means acting in conjunction with the presser members for deflecting the free edges of the cartons downwardly, the means for actuating the presser members being operable to impart a final vertical movement to the free edges to cause the same to contact one another and enter downwardly into the body of the carton.

40. In a carton closing machine adapted to close duplicate upstanding cover flaps of a carton, the combination of presser members mounted to swing inwardly and move vertically and means for imparting said swinging and vertical movements thereto in the proper sequence to swing the closing flaps inwardly and thereafter move their free edges downwardly, and means

acting in conjunction with the presser members for deflecting the free edges of the cartons downwardly, the means for actuating the presser members being operable to impart a final vertical movement to the free edges to cause the same to contact one another and enter downwardly into the body of the carton, clamping means adapted to engage the sides of the carton during the closing operation and prevent sidewise deflection of the closing flaps during the closing operation, and connections for actuating said clamping means.

LEON BENOIT.
CLIFFORD C. MOTH.