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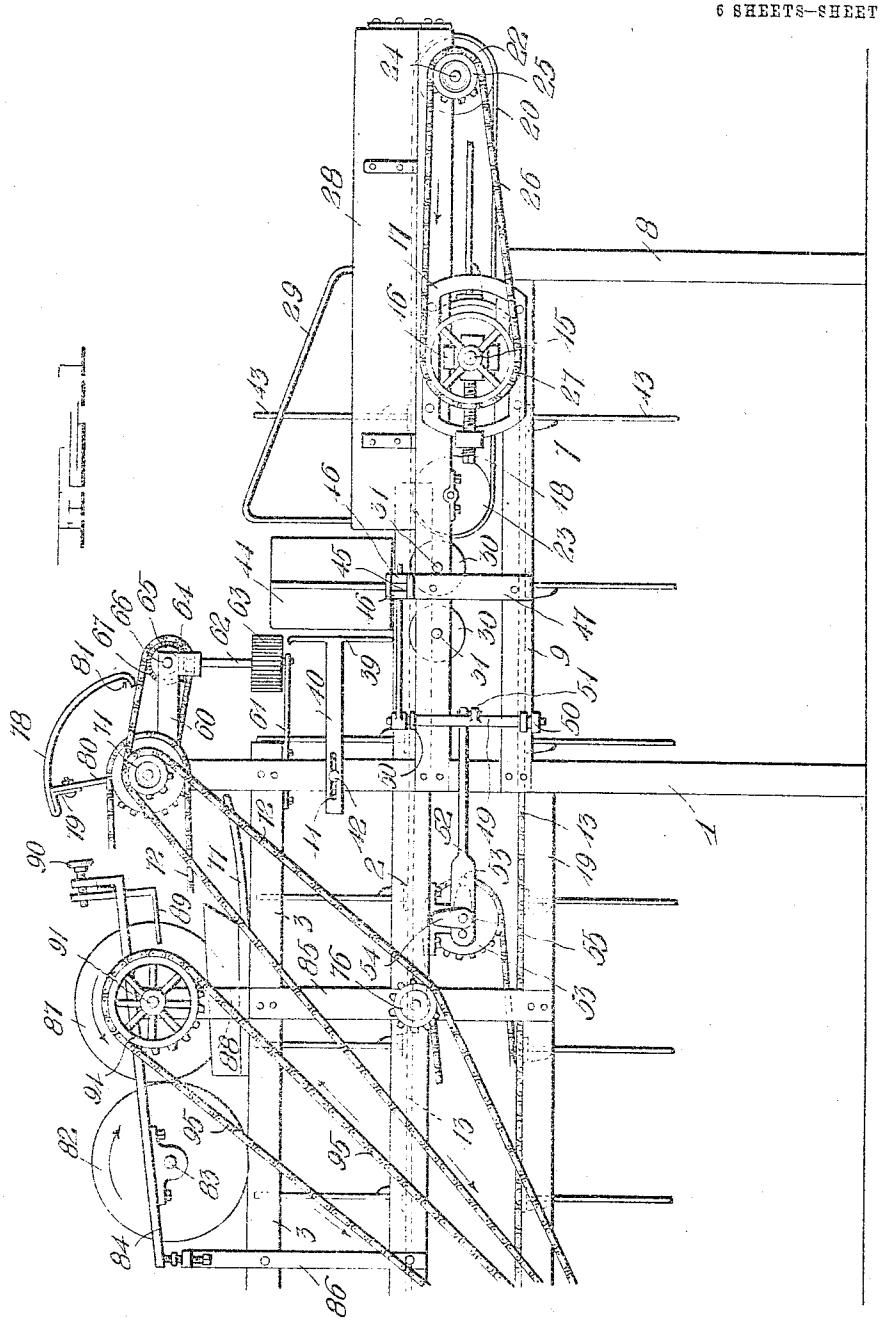
TOP FLAP SEALING MACHINE FOR SEALED CARTONS.

APPLICATION FILED JULY 22, 1909.

1,134,476.

Patented Apr. 6, 1915.

6 SHEETS—SHEET 1.



Witnesses

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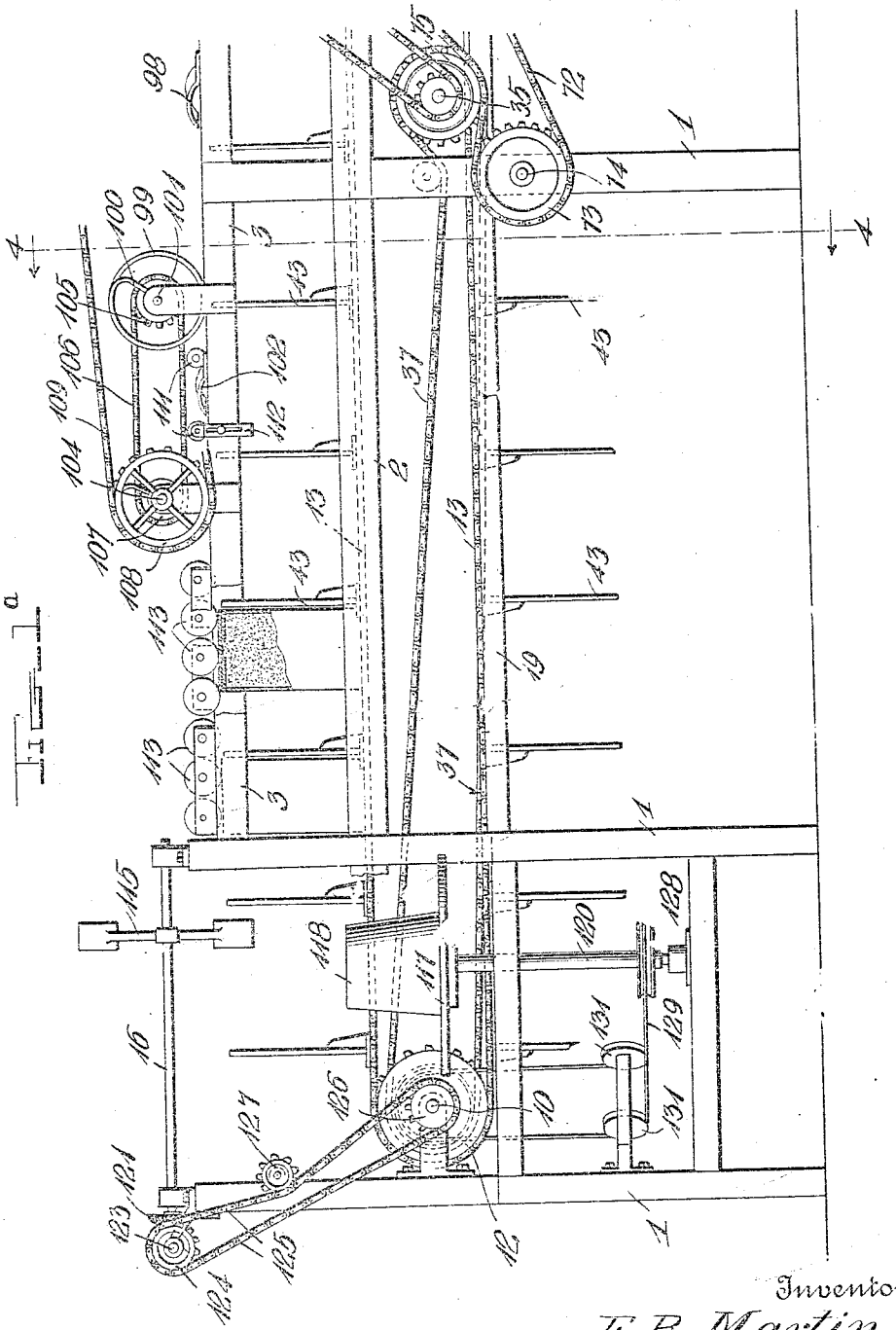
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6 SHEETS—SHEET 2.



Witnesses

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6 SHEETS—SHEET 3.

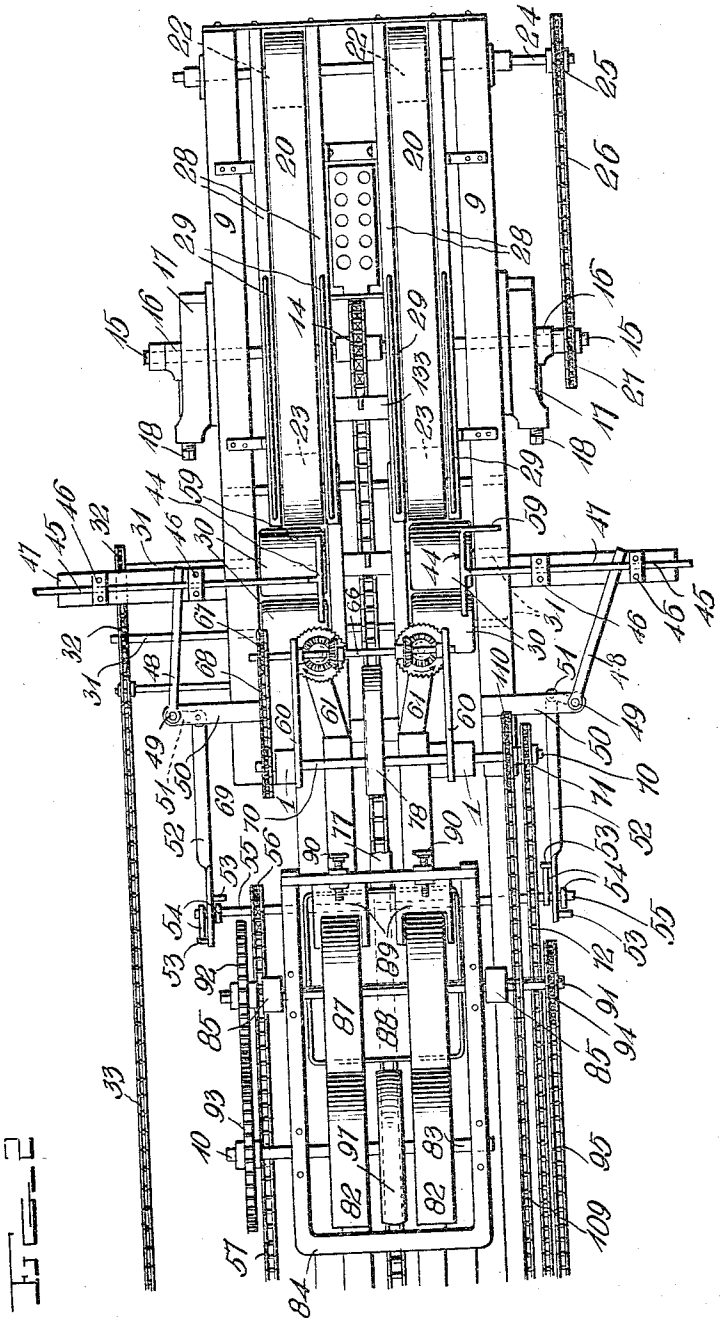


FIG. 2

Witnesses

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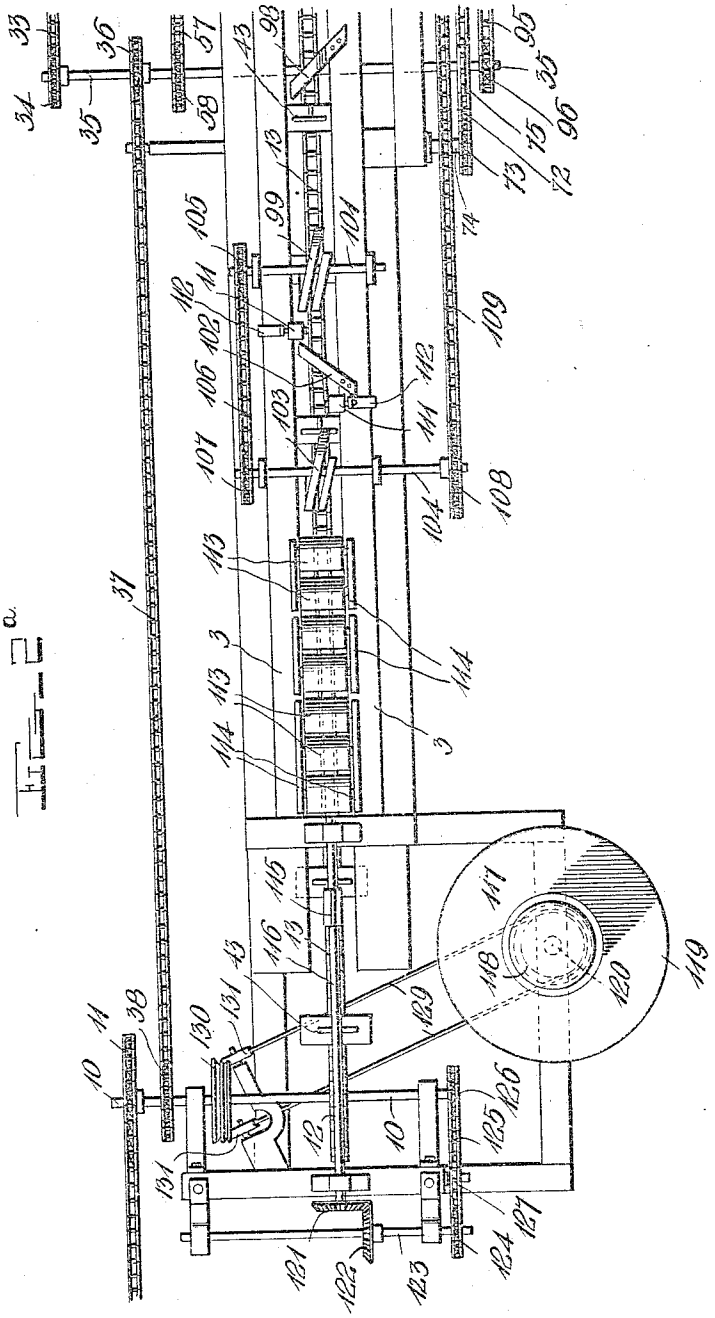
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Patented Apr. 6, 1915.

6 SHEETS—SHEET 4.



Witnesses

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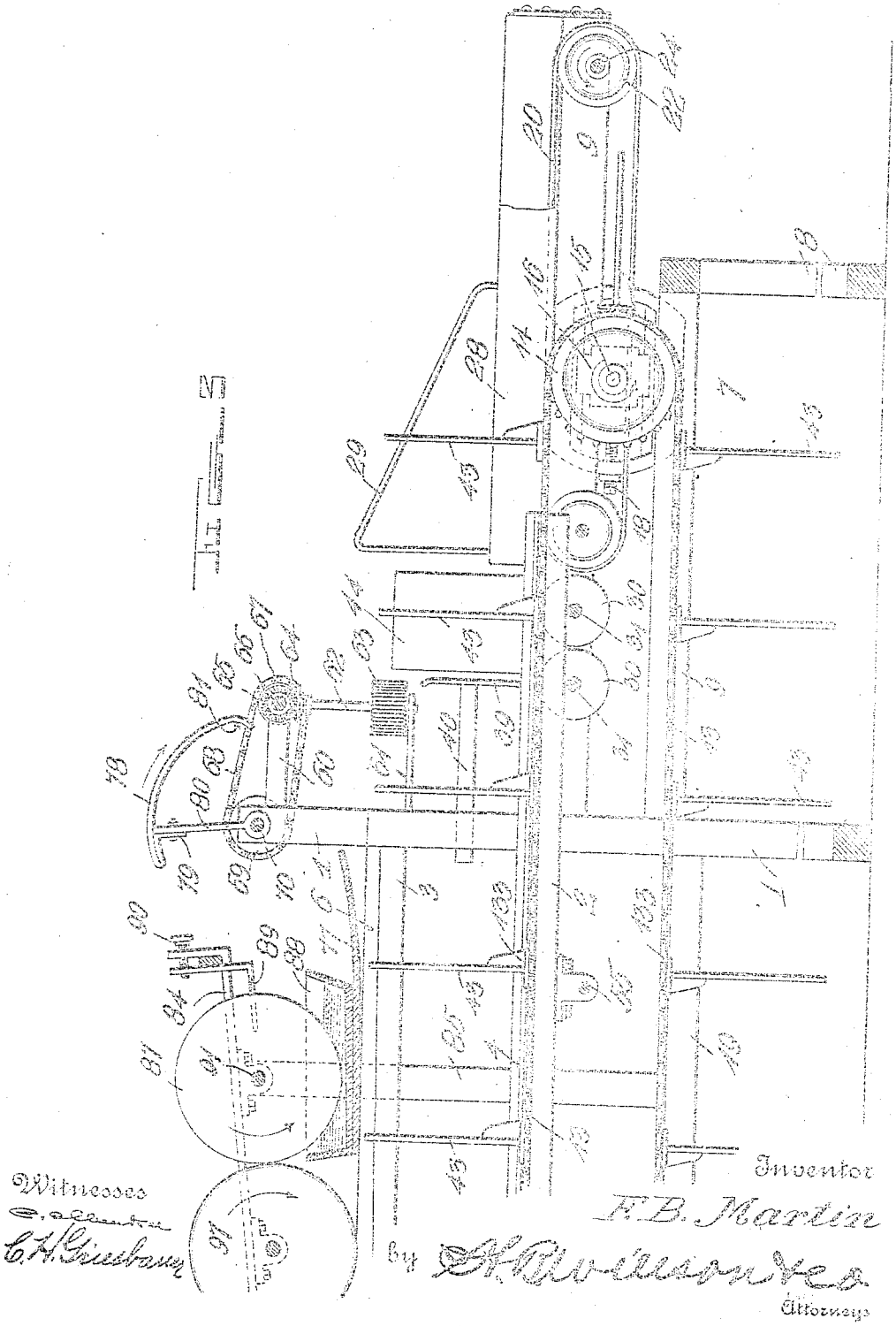
TOP FLAP SEALING MACHINE FOR SEALED CARTONS.

APPLICATION FILED JULY 22, 1909.

1,184,476.

Patented Apr. 8, 1915.

8 SHEETS—SHEET 5.



Witnesses

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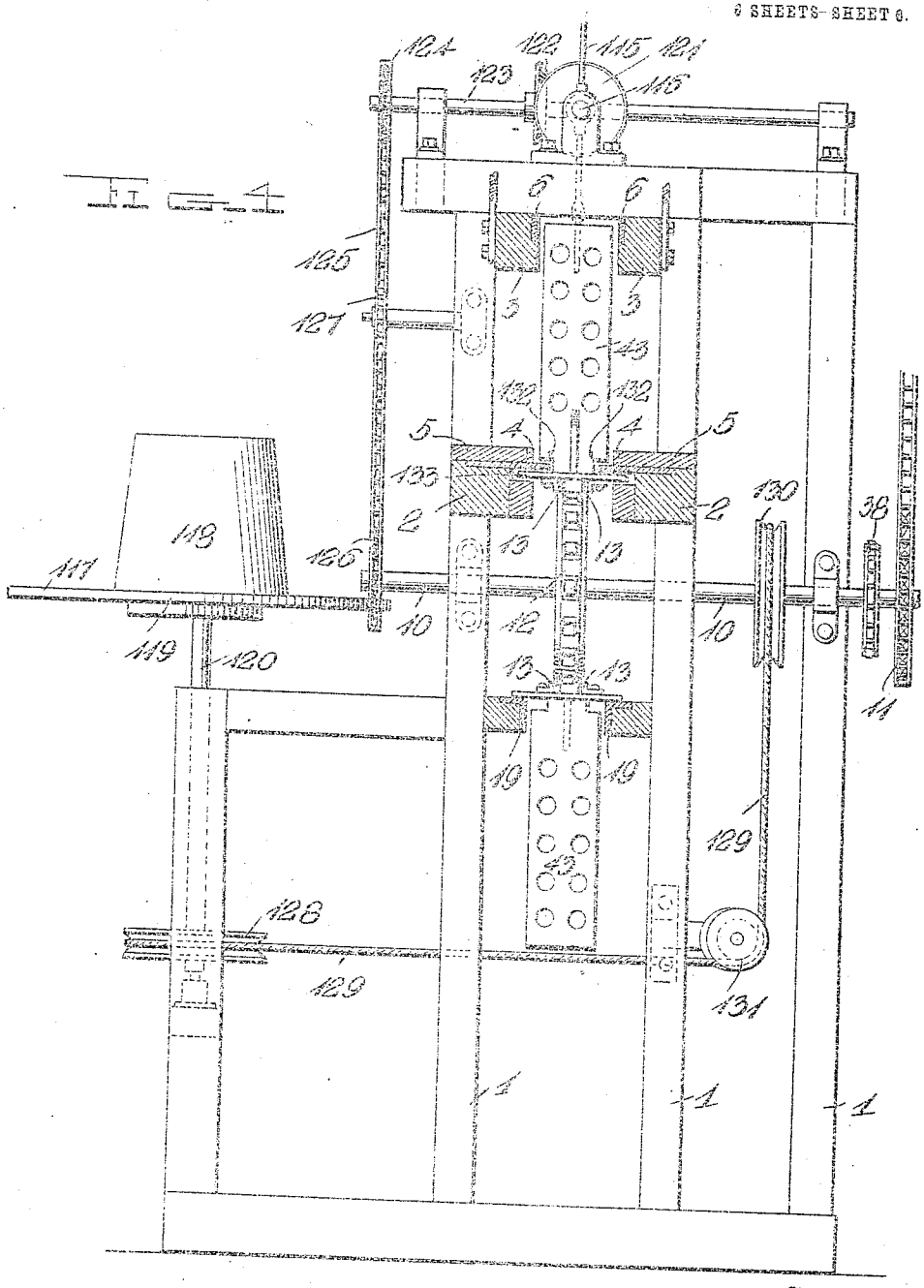
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APPLICATION FILED JULY 22, 1909.

1,134,476.

Patented Apr. 6, 1915.

9 SHEETS—SHEET 6.



Witnesses

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UNITED STATES PATENT OFFICE.

FRANK B. MARTIN, OF BATTLE CREEK, MICHIGAN, ASSIGNOR TO POSTUM CEREAL CO., LIMITED, OF BATTLE CREEK, MICHIGAN, A PARTNERSHIP ASSOCIATION.

TOP-FLAP-SEALING MACHINE FOR SEALED CARTONS.

1,134,476. Specification of Letters Patent. Patented Apr. 6, 1915.

Application filed July 22, 1909. Serial No. 509,027.

To all whom it may concern:

Be it known that I, FRANK B. MARTIN, a citizen of the United States, residing at Battle Creek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Top-Flap-Sealing Machines for Filled Cartons; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in machines for folding and sealing the top flaps of filled cartons.

One object of the invention is to provide a machine of this character in which the operation of folding and applying the glue, and sealing the flaps of cartons is greatly facilitated, means being provided whereby the filled cartons are periodically fed to the machine from opposite sides of the same and at the proper time for being engaged by the carrying mechanism and conducted to the folding and sealing devices of the machine.

Another object is to provide an improved construction of delivery mechanism whereby the sealed cartons are automatically removed from the machine and deposited onto an apparatus from which they may be conveyed to any suitable point.

With the foregoing and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings: Figures 1 and 1ª represent a side elevation of one side of a top flap folding and sealing machine constructed in accordance with my invention. Fig. 1ª being a continuation of Fig. 1. Figs. 2 and 2ª represent a top plan view of the same. Fig. 3, is a vertical longitudinal section of a portion of the front end of the machine, and Fig. 4, is a vertical cross-section on the line 4—4 of Fig. 1ª.

In the embodiment of the invention, I provide a supporting frame comprising a series of uprights or standards 1 to which is secured a pair of lower longitudinally disposed guide bars 2, and a pair of upper longitudinally disposed guide bars 3, which are arranged above and spaced a suitable distance from the bars 2, as shown. On the lower guide bars 2 are arranged follower supporting tracks 4, and carton supporting plates 5. To the inner side of the upper guide bars 3, are secured wear plates 6.

On the forward end of the main frame of the machine is arranged an extension 7, comprising standards 8, and upper and lower side bars 9. In the main portion of the machine, adjacent to the delivery end thereof, is mounted a main drive shaft 10, on one end of which is fixedly mounted a main drive sprocket 11 which is connected to any suitable driving mechanism, (not shown). On the shaft 10 in the center of the machine is fixedly mounted one of the drive sprockets 12 of a follower operating chain 13, which passes around a sprocket gear 14 arranged on a shaft 15 which is journaled in bearings 16 adjustably mounted in guide frames 17 secured to the side bars 9 of the extension 7, as shown. In the guide frames 17 are arranged adjusting screws 18 which are engaged with the bearings 16 whereby said bearings may be adjusted to take up slack in the chain 13 thereby keeping the same taut. In the lower portion of the main frame, is arranged the chain supporting and follower guiding tracks 19 with which the followers and lower stretch of the chains 13 are engaged when returning to the forward end of the machine, after having delivered the sealed cartons at the opposite end of the machine.

In the extension 7 of the machine are arranged carton feeding belts 20 which pass around drive pulleys 22 and 23 arranged in the extension of the frame. The pulleys 22 are fixedly mounted on a belt operating shaft 24 which is journaled in suitable bearings on the ends of the upper bars 9 of the extension 7 and on one end of said shaft 24 is fixedly mounted a sprocket gear 25 which is connected by a sprocket chain 26 to a sprocket gear 27 on the adjacent end of the shaft 15 of the carrying chain 13, whereby motion is obtained to drive the two belts in the proper direction and at the proper speed. On the upper bars 9 of the extension frame 7 on each side of the belts 20 are arranged guards or carton guiding plates 28 and guide rods 29 by means of which the cartons are held in position while being fed to the machine.

In the upper bars 9 of the extension 7 are

arranged pairs of feeding rollers 30, said rollers being disposed at the inner ends of the belts 20 and are fixedly mounted on operating shafts 31 journaled in the upper cross bars 9 of the extension 7, as shown. On one end of the shafts 31 are arranged sprocket gears 32 which are connected by a sprocket chain 33 to a sprocket gear 34 on a counter shaft 35 which is mounted in suitable bearings in the main frame of the machine. On the counter shaft 35 is mounted the sprocket gear 36 which is connected by the sprocket chain 37 to a sprocket gear 38 on the main drive shaft 10, whereby the counter shaft is driven in the proper direction and at the proper speed.

Adjustably mounted on one of the standards 1 of the main frame, are carton stopping plates 39 one of which is arranged over and adjacent to the inner feed roller 30 at each side of the machine. The stop plates 39 are secured to the outer ends of supporting bars 40, the inner ends of which are provided with slots 41 in which are arranged bolts 42 whereby said bars are adjustably secured to the standards 1 to hold the stop plates at the desired position. In connection with the carton feeding mechanism, I provide means for periodically moving one carton at a time from first one pair of feeding rollers 30 and then the other pair onto the plates 5 of the guide bars 2 and in position to be engaged by the next approaching follower 43 as the latter is moved upwardly whereby the carton is carried onto the folding and sealing devices.

The means for periodically moving the cartons from the feed rollers 30 comprises push plates 44 secured to the inner ends of push bars 45 which are slidably mounted in guide clips 46 secured to supporting brackets 47 arranged on the opposite sides of the extension 7, as shown. The push bars 45 are loosely engaged by the forward ends of operating arms or levers 48 fixedly mounted on the upper ends of vertically disposed crank shafts 49 which are journaled in bearing brackets 50 secured to the upper and lower guide bars 9 of the extension 7. On the shafts 49 are also secured crank arms 51 to which are connected the forward ends of operating bars 52 on the inner ends of which are arranged oppositely projecting pins 53 which are alternately engaged by cams 54 mounted on the opposite ends of a shaft 55 which is journaled in suitable bearings in the main frame of the machine. On the shaft 55 is fixedly mounted a sprocket gear 56 which is connected by a chain 57 to a sprocket gear 58 on the counter shaft 35 whereby motion is imparted to the shaft 55 to drive the same in the proper direction and at the proper speed.

By means of the feed belts 20, the cartons placed thereon are fed forwardly onto the feed rollers 30 and by said rollers are carried on against the stop plates 39 by which they are held until the shifting plates 44 move the same laterally onto the supporting plates 5 and in the path of movement of the followers. The space over these rollers 30 between the stop plates 39 and the adjacent ends of the belts 20 is only sufficient to receive one carton at a time and when this carton is pushed over onto the plates 5 by the shifting plates 44, the next carton on the belt 20 is held back or prevented from passing onto the rollers 30 by means of stop flanges 59 formed on the forward edges of the plates 44 and projecting outwardly at right angles thereto so that when the plates 44 are moved inwardly, said flanges are brought opposite the inner ends of the belts 20 and thus stop or hold back any cartons from passing onto the rollers until the shifting plates 44 have again retracted or moved outwardly over the feed rollers. The operating devices for the carton shifting or moving plates 44 are so arranged that the plates on opposite side of the machine are moved alternately to push the cartons off from the rollers 30 onto the plates 5 and are so timed that a carton will be moved from one side or the other of the machine in front of the next approaching follower, thus the cartons fed from one side of the machine will not interfere with the cartons fed from the other side.

Revolubly mounted in suitable bearing brackets 60 and 61 secured to the upper portion of the forward uprights or standards 1 and to the upper guide bars 3 are vertically disposed shafts 62 on the lower ends of which are secured corrugated rubber carton pressing and straightening rolls 63 between which the cartons pass as soon as they are moved by the followers 43 and before they are brought into engagement with the folding devices. The rolls 63 engage the upper portion of the sides of the carton and press the sides together so that should the same have become bulged outwardly by the weight of the material placed therein, they will again be brought into shape before passing between the upper guide bars 3 of the frame. On the upper ends of the shafts 62 of the rolls 63 are fixedly mounted beveled gear pinions 64 which are engaged with similar pinions 65 on a horizontally disposed operating shaft 66, the ends of which are revolubly mounted in the bearing brackets 60. On one end of the shaft 66 is fixedly mounted a sprocket gear 67 which is connected by a sprocket chain 68 with a sprocket gear 69 on one end of a folder operating shaft 70 which is revolubly mounted in the upper ends of the forward standards 1 of the machine frame. On the opposite end of the shaft 70 is fixedly mounted a sprocket gear 71 which is con-

nected by a sprocket chain 72 to an idle sprocket gear 73 revolubly mounted on the stub shaft 74 arranged on one side of the frame, as shown. The upper stretch of the chain 72 is engaged with a sprocket gear 75 mounted on the adjacent end of the counter shaft 35 whereby when said shaft is driven it in turn drives the shaft 70 from which motion is imparted to the driving mechanism of the pressing rolls 63. The lower stretch of the chain 72 is engaged by an idle sprocket gear 76 mounted on the side of the machine, as shown.

After the carton has passed between the pressing rolls 63, the upper ends of the carton enters between the upper guide bars 3 and is brought beneath the first folding device 77 which engages the first end flap of the carton and folds the same down over the upper end of the carton. The folding device 77 is preferably in the form of an inclined plate or bar, the rear end of which is secured to the upper side of the upper guide bars 3, while the forward end projects upwardly a suitable distance above said bars to engage the end flap of the carton and fold the same down, as hereinbefore described.

Immediately after the first end flap has been folded down by the folding device 77, the second end flap is engaged by its folding device and folded down thereby onto the first end flap, after which the carton is moved on between the guide bars 3 by the carrying mechanism. The second end flap folder comprises a segmental bar 78, one end of which is bent inwardly upon itself and thence downwardly at right angles to form an attaching lug 79 by means of which said bar is secured to an operating arm 80 which is rigidly connected to the shaft 70 and is revolved thereby to bring the folding bar 78 around into engagement with the second end flap whereby the same is folded down onto the first end flap, as described. The free end of the folding bar 78 is preferably turned inwardly, as shown at 81, to facilitate the engagement of the bar with the flap of the carton.

After the end flaps of the carton have thus been folded down into closed position, the carton is moved along over the supporting plates 5 and between the upper guide bars 3. As the carton is brought beneath the first folding device 77, the side flaps of the carton are opened out flat and into engagement with the upper sides of the guide bars 3 in which position the carton is brought beneath the glue applying rollers 82 by means of which the proper quantity of glue is applied to the side flaps. The glue applying rollers 82 are mounted on an operating shaft 83 which is journaled in suitable bearings on the frame 84 which is pivotally mounted, adjacent to its forward end, on the upper end of a standard 85 secured to the main frame of the machine. The frame 84 is adjustably secured in any suitable manner to the standards 86 which are also secured to the main frame of the machine. By means of the adjustable connection between the forward end of the frame 84 and the standards 86, the pressure of the glue rollers on the side flaps of the cartons is regulated. In the frame 84 is revolubly mounted glue carrying rollers 87 which revolve in glue tanks 88 and also engage the glue applying rollers 82 whereby the glue in the tanks is carried to the glue applying rollers 82 and by these rollers applied to the flaps of the carton. Arranged in the forward end of the frame 84 are scrapers 89 which are engaged with the peripheries of the rollers 87 and are adapted to remove the superfluous glue therefrom so that only the proper quantity of glue is carried by the rollers 87 and deposited on the applying rollers 82. The scrapers 89 are preferably adjustably secured in the frame 84 by means of suitable adjusting screws 90 whereby they may be more or less closely engaged with the peripheries of the rollers 87 to regulate the quantity of glue carried around by said rollers.

On one end of the shaft 91 of the rollers 87 is mounted a spur wheel 92 which is operatively engaged with a gear wheel 93 on the shaft 83 of the glue applying rollers 82 whereby motion of the shaft 91 is applied to the shaft 83 to operate the same and said glue applying rollers. On the opposite end of the shaft 91 of the rollers 87 is fixedly mounted a sprocket gear 94 which is connected by a sprocket chain 95 to a sprocket gear 96 on the shaft 35 whereby motion is imparted to the shaft 91. On the shaft 83 of the glue applying rollers 82 is mounted a top flap pressing roll 97 which engages the folded end flaps of the carton and presses the same down onto the material in the carton and prevents any of the glue from the rollers 82 from coming into engagement with the contents of the carton. After the glue has thus been applied to the side flaps and the cartons moved on from beneath the rollers 82, the flap on one side of the carton is brought into engagement with an elevating device 98 by means of which said side flap is raised and partially folded down toward the folded end flaps. The flap elevating and folding device 98 is preferably in the form of a curved diagonally arranged plate or bar which is secured at one end to the top of one of the guide bars 3, as shown. After the side flap has been thus acted upon by the device 98, the carton is moved on until the partially folded flap is brought into engagement with the first side folding and closing device 99 which is in the form of a spirally constructed bar which is secured

by an arm 100 to an operating shaft 101 mounted in suitable bearings on the upper guide bars 3, as shown. The spiral bar 99 preferably increases in width from its free end toward the center, at which point, the bar attains its greatest width.

After the first side flap has been folded down into engagement with the folded end flaps, the second side flap is engaged by an elevating device 102 which is similar in construction and operation to the device 98 and is secured to the opposite side bar, immediately in rear of the first side folding device 99. The flap elevating device 102 raises and partially folds the second side flap after which the carton is moved on to bring said partially folded flap into engagement with the second side flap closing and folding device 103 which is fixedly mounted on an operating shaft 104 journaled in suitable bearings on the guide bars 3 of the frame. The closing and folding device 103 engages the second side flap and forces the glued side of the same down into engagement with the first folded side flap, thus completely closing the carton. The second side flap folding device 103 is constructed and arranged in the same manner as the first side flap folding device 99.

On one end of the shaft 101 of the first side flap folding device 99 is fixedly mounted a sprocket gear 105 which is connected by a sprocket chain 106 to a sprocket gear 107 on the adjacent end of the shaft 104 of the second side flap folding device 103. On the opposite end of the shaft 104 is fixedly mounted a sprocket gear 108 which is connected by a sprocket chain 109 with a sprocket gear 110 on the shaft 70 of the second end flap folding device whereby the motion of said shaft is imparted to the shaft 104 and from said shaft to the shaft 101 whereby the first and second side flap closing and folding devices are operated.

Arranged on the upper guide bars 3 of the frame are corner shaping rollers 111 which are adapted to engage the upper side corners of the carton after the side flaps have been folded over, thus pressing and forming said corners. The rollers 111 are pivotally mounted in the upper ends of bearing bars 112 which are adjustably secured to the guide bars 3 by a bolt and slot connection, as shown.

After the cartons have passed beneath the second side flap closing and folding device 103, they are brought beneath the series of sealing rollers 113 which are revolubly mounted in bearing bars 114 arranged on the upper side of the guide bars 3 whereby the folded and closed side flaps are pressed down against each other and against the folded end flaps, thus causing the glued surfaces of said side flaps to firmly adhere to the parts with which they are engaged, thus securely sealing the cartons.

After the cartons have passed beneath the sealing rollers 113, they are brought into the path of movement of a suitable discharging mechanism which is here shown and is preferably in the form of a paddle wheel 115 which is fixedly secured to a shaft 116 mounted in suitable bearings on the upper ends of the standards of the frame. As the cartons are brought beneath the discharging device 115, the blades thereof will be brought into engagement with the cartons and will up-set and push the same off from the supporting bars 5 and onto a suitable catching mechanism, which is here shown and is preferably in the form of a turntable 117 comprising a central conical shaped body portion 118 at the lower end of which is formed an annular radially projecting plate 119 on which the cartons fall, top end down, and are carried around. The cartons may be removed from the turn-table as they are brought around, by hand or any suitable mechanism, (not shown). The turntable 117 is fixedly mounted on the upper end of a vertically disposed operating shaft 120 which is journaled in suitable bearings on the frame of the machine. The shaft 116 of the discharge device is provided on its outer end with a bevel gear pinion 121 which engages a similar pinion 122 on a shaft 123 mounted in suitable bearings on the frame of the machine. On one end of the shaft 123 is fixedly mounted a sprocket gear 124 which is connected by a sprocket chain 125 with a sprocket gear 126 on the main drive shaft 10 whereby motion is imparted to drive the shaft 116 in the proper direction and at the proper speed. One stretch of the chain 125 is engaged with an idle gear 127 mounted in suitable bearings on the frame, as shown. On the shaft 120 of the turn-table, adjacent to its lower end is fixedly mounted a drive pulley 128 which is connected by a belt 129 with a drive pulley 130 on the shaft 10 whereby motion is imparted to the shaft 120 to operate the turntable 117. The belt 129 passes around idle guide pulleys 131 before engaging the pulley 128, as shown.

The followers 43 by means of which the cartons are carried along over the supporting plates 5 may be of any suitable construction but are preferably in the form of oblong plates having formed therein a series of apertures which are provided to reduce the weight of the followers. The lower ends of the followers are preferably notched out on the opposite edges, as shown at 132, to provide recesses which engage the tracks 4 on the inner side of the lower guide bars 2, between which the lower ends of the followers pass. On the notched ends of the

followers are secured chain attaching and track engaging plates 133 to which the chains 13 are secured in any suitable manner. The ends of the plates 133 engage beneath the tracks 4 and hold the followers in place when the latter are passing from the front to the rear end of the machine to move the cartons to the latter. On the return movement of the followers, the ends of the plates 133 engage and slide over the angle iron tracks or bars 19 arranged below the lower guide bars 2, as shown. By thus constructing and attaching the followers, they are held in position and readily moved from one end of the machine to the other to carry the cartons along over the supporting bars 5.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention, as defined in the appended claims.

Having thus described my invention, what I claim is:

1. In a machine of the character described, a supporting frame, a carton carrying mechanism arranged in said frame, said mechanism comprising guiding and supporting bars, carton supporting plates, a carrying chain, a series of followers secured to said chain, supporting tracks adapted to be engaged by said followers and to support and hold said chain in operative position, a feeding mechanism arranged on each side of the machine, means whereby the cartons are alternately pushed from said feeding mechanism and into position to be engaged by the followers on said chain, a series of folding devices adapted to fold the top flaps of the cartons into closed position, and means whereby glue is applied to the flaps as the same are folded.

2. In a device of the character described, a supporting frame, a carton carrying mechanism arranged in said frame, a feeding mechanism arranged at each side of the machine whereby the cartons are fed one at a time into the path of movement of said carrying mechanism, a series of top flap folding devices, glue applying devices adapted to apply glue to the top side flaps of the cartons, a flap sealing device adapted to press the folded and glued flaps into sealing engagement with each other, a discharging mechanism whereby the sealed cartons are pushed off from the machine, and a turn table adapted to receive the sealed cartons when discharged from the machine.

3. In a machine of the character described, a supporting frame, a carton carrying mechanism arranged in said frame, a feeding mechanism adapted to feed the cartons one at a time into the path of movement of said carrying mechanism, a pair of revolubly mounted carton shaping rolls, adapted to straighten up and shape the cartons, a first end flap folding device comprising an inclined bar adapted to engage and fold down the first end flap of the carton, a second end flap folding device comprising a revolubly mounted segmental flap engaging bar, adapted to be brought into engagement with the second end flap and to hold the latter over into closed position onto the first folded end flap, glue applying rollers adapted to apply the proper quantity of glue to the side flaps of the cartons, side flap elevating devices adapted to engage and partially close the side flaps of the carton, side flap closing and folding devices adapted to successively engage first one side flap and then the other and to fold the same down into closed position, a series of sealing rollers adapted to press the glued and folded flaps into firm engagement with each other, a discharging mechanism adapted to push the sealed cartons from the machine, and a turn table to receive the cartons when thus pushed from the machine.

4. In a machine of the character described, a supporting frame, a carton carrying mechanism operatively arranged in said frame, a feeding mechanism comprising endless feed belts and pairs of feeding rolls adapted to receive the cartons from said belts, stop devices arranged over said feeding rolls to receive and hold the cartons fed forwardly by said rolls, a carton pushing mechanism comprising push bars adapted to be moved inwardly and outwardly over said feeding rolls whereby first one and then another carton is pushed from the opposite pairs of feeding rolls into the path of movement of the carrying mechanism, means to alternately operate said pushing mechanism, a series of top flap folding devices, and a series of glue applying devices adapted to fold and apply glue to the top flaps of the cartons while being moved along by said carrying mechanism.

5. In a top flap sealing machine for filled cartons, a series of top flap folding devices, adjustably mounted glue applying rollers, a carton feeding mechanism, said mechanism comprising a pair of endless belts, means to operate said belts, pairs of feeding rolls to receive the cartons from said belts, carton pushing devices, said devices comprising push plates arranged over said feeding rolls, operating bars connected to said plates, operating shafts, plate reciprocating levers mounted on said shafts and loosely engaged with said operating bars, a shaft operating bar, cams operatively engaged with said bar, and means to actuate said

cams whereby a reciprocating movement is alternately applied to said push plates and thereby to push the cartons from first one side and then the other of the machine into the path of movement of said carrying mechanism.

6. In a machine of the character described, a main supporting frame, a carton carrying mechanism, arranged therein, a feeding mechanism to feed the cartons one at a time to said carrying mechanism, a first end flap folding and side flap opening device, a second end flap folding device, an adjustable glue applying mechanism to apply glue to said side flaps, side flap elevating devices adapted to raise and partially fold said side flaps, side flap closing and folding devices adapted to completely fold and close said side flaps, said devices comprising rotary, spiral bars, corner forming devices adapted to crease and form the upper side corners of the carton, a series of sealing rolls, a carton discharging mechanism, said mechanism comprising a revolubly mounted paddle wheel, and a revolubly mounted turn-table adapted to receive the sealed cartons when pushed over off from the machine by said paddle wheel.

7. In a machine of the class described, a supporting frame, a carton-carrying mechanism arranged in said frame, said mechanism comprising guide and supporting bars, carton supporting plates, a carrying chain, a series of followers secured to said chain, supporting tracks adapted to be engaged by said followers and to support and hold said chain in operative position, a feeding mechanism arranged at each side of the machine, means whereby the cartons are alternately pushed from said feeding mechanism into position to be engaged by the followers and folding and glue-applying means for the top flaps of the cartons.

8. In a machine of the character described, a supporting frame, a carton carrying mechanism arranged in said frame, a feeding mechanism adapted to feed the cartons one at a time into the path of movement of said carrying mechanism, a pair of revolubly mounted carton shaping rolls, adapted to straighten out and shape the cartons, a first end flap folding device comprising an inclined bar adapted to engage and fold down the first end flap of the carton, a second end flap-folding device comprising a revolubly mounted segmental flap engaging bar, adapted to be brought into engagement with the second end flap and to hold the latter over into inclosed position onto the first folded end flap, glue applying rollers adapted to apply the proper quantity of glue to the side flaps of the cartons, side flap elevating devices adapted to engage and partially close the side flaps of the carton, side flap closing and folding devices adapted to successively engage first one side flap and then the other and to fold the same down into closed position, a series of sealing rollers adapted to press the glued and folded flaps into firm engagement with each other, and a discharging and receiving means for said cartons.

9. In a machine of the character described, a supporting frame, a carton carrying mechanism operatively arranged in said frame, a feeding mechanism comprising endless feed belts and pairs of feeding rolls adapted to receive the cartons from said belts, stop devices arranged over said feeding rolls to receive and hold the cartons fed forwardly by said rolls, a carton pushing mechanism comprising push bars adapted to be moved inwardly and outwardly over said feeding rolls whereby first one and then another carton is pushed from the opposite pairs of feeding rolls into the path of movement of the carrying mechanism, means to alternately operate said pushing mechanism, a series of top flap folding devices, and a series of glue applying devices adapted to fold and apply glue to the top flaps of the cartons while being moved along by said carrying mechanism, a discharging mechanism to push the sealed cartons from the machine, and receiving means for the cartons.

10. In a top flap sealing machine for filled cartons, a series of top flap folding devices, glue applying means, a feeding mechanism, a carton carrying mechanism and carton pushing devices for pushing the cartons on the carrying mechanism said pushing devices comprising pushing plates arranged for endwise movement in advance of the feeding mechanism and means for alternately actuating said pushing plates.

11. In a top flap sealing machine for filled cartons, a series of top flap feeding devices, glue applying rollers, a carton feeding mechanism, said mechanism comprising a pair of endless belts, means to operate said belts, pairs of feeding rolls to receive the cartons from said belts, carton pushing devices comprising push plates, arranged over said feeding rolls, operating bars for said push plates, vertical crank shafts, reciprocating levers carried by said shafts and engaging the operating bars of the push plates, crank shaft operating bars and means of actuating said shaft operating bars whereby a reciprocating movement is alternately applied to said push plates to push the cartons from first one side and then the other side of the machine into the path of movement of the carrying mechanism.

12. In a machine of the character described, a main supporting frame, a carton carrying mechanism, arranged therein, a feeding mechanism to feed the cartons one at a time to said carrying mechanism, a first

end flap folding and side flap opening device, a second end flap folding device, an adjustable glue applying mechanism to apply glue to said side flaps, side flap elevating devices adapted to raise and partially fold said side flaps, side flap folding and closing devices adapted to completely fold and close said side flaps, corner forming devices adapted to crease and form the upper corners of the cartons, sealing rolls and a carton discharging mechanism.

13. In a machine of the character described, a main supporting frame, a carton carrying mechanism arranged therein, a feeding mechanism to feed the cartons one at a time to said carrying mechanism, a first end flap folding and side flap opening device, a second end flap folding device, an adjustable glue applying mechanism to apply glue to said flap, side flap elevating devices adapted to raise and partially fold said side flaps, side flap closing and folding devices adapted to completely fold and close said side flaps, said devices comprising rotary spiral bars, sealing rolls, and a carton discharging mechanism.

14. In a top flap sealing machine for filled cartons, a series of flap folding devices, glue applying rolls, a carton feeding mechanism comprising a pair of endless belts at opposite sides of the machine, means to drive said belts, a carton carrying mechanism, pairs of feeding rolls to receive the cartons from said belts, carton pushing devices at opposite sides of the machine to push the cartons out one at a time from the feeding rolls to the carrying mechanism, and means to actuate said pushing devices.

15. In a top flap sealing machine for filled cartons, a series of flap folding devices, glue applying rolls, a carton feeding mechanism comprising a pair of endless belts at opposite sides of the machine, means to drive said belts, a carton carrying mechanism, pairs of feeding rolls to receive the cartons from said belts, carton pushing devices at opposite sides of the machine to push the cartons out one at a time from the feeding rolls to the carrying mechanism, and means to actuate said pushing devices, each of said pushing devices comprising a push plate having a right angularly bent portion which positions in advance of the endless belt at the adjacent side of the machine when in projected position.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FRANK B. MARTIN.

Witnesses:
JOHN C. DAVIS,
CHAS. R. YOUNG.