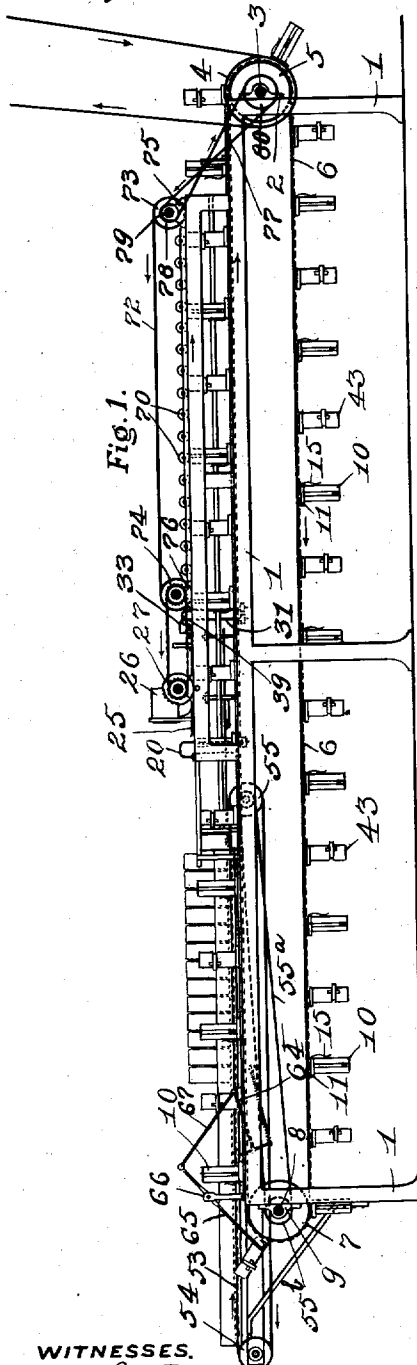


G. A. CULLOM.
 CARTON SEALING MACHINE.
 APPLICATION FILED APR. 19, 1909.

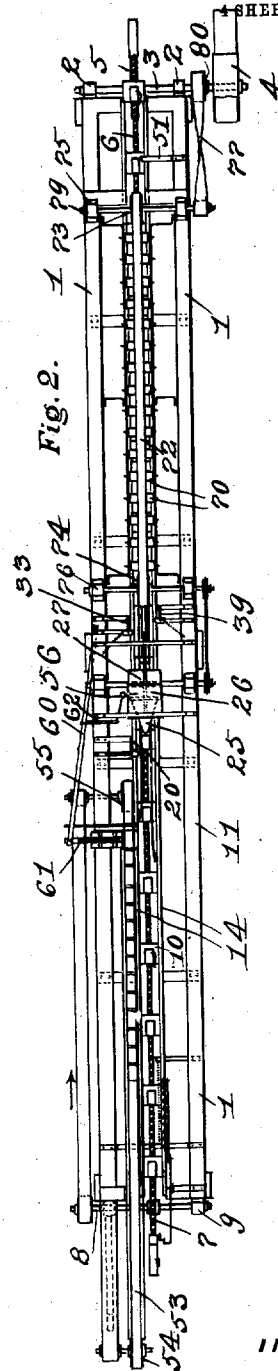
Patented June 21, 1910.

961,845.



WITNESSES.

A. G. Mott
E. F. Wallace



INVENTOR

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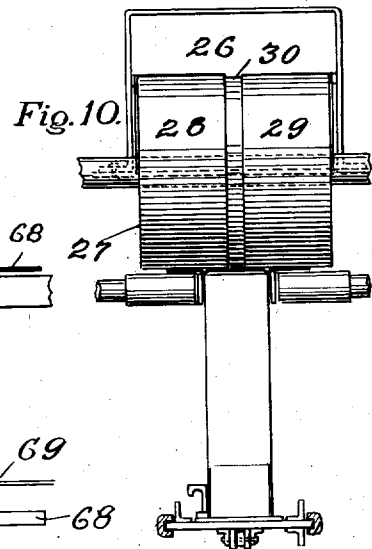
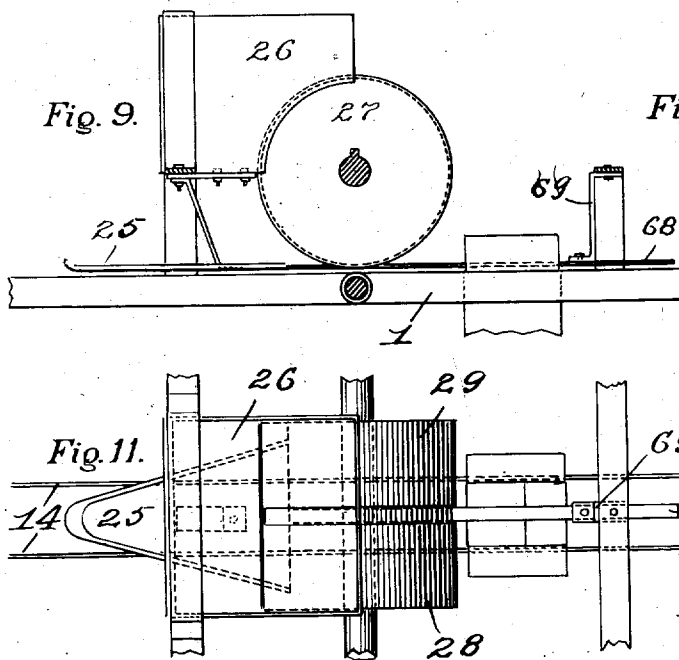
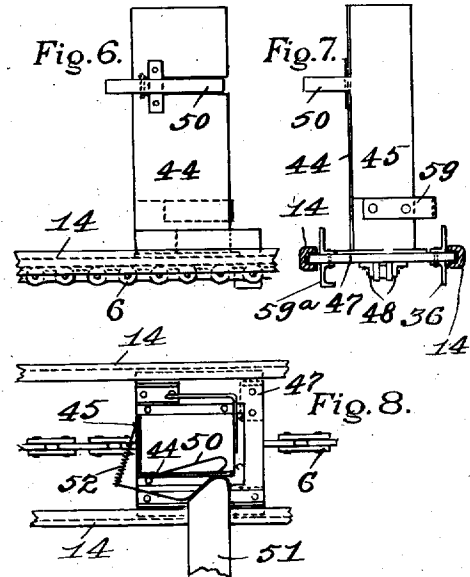
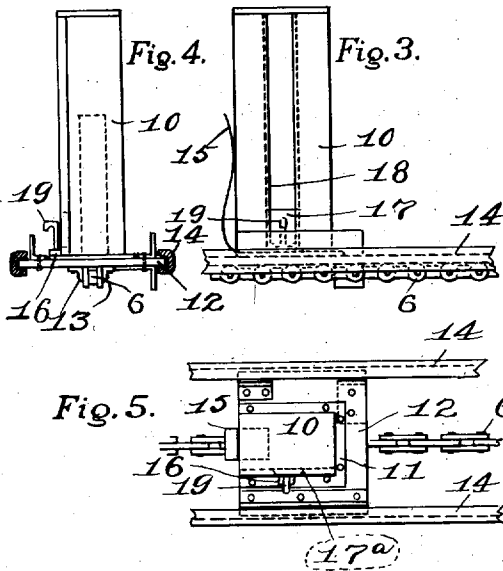
SHEETS—SHEET 1.

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4 SHEETS—SHEET 2.

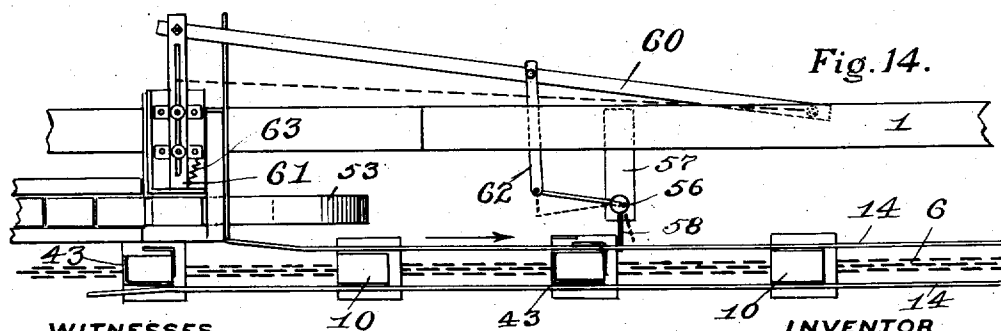
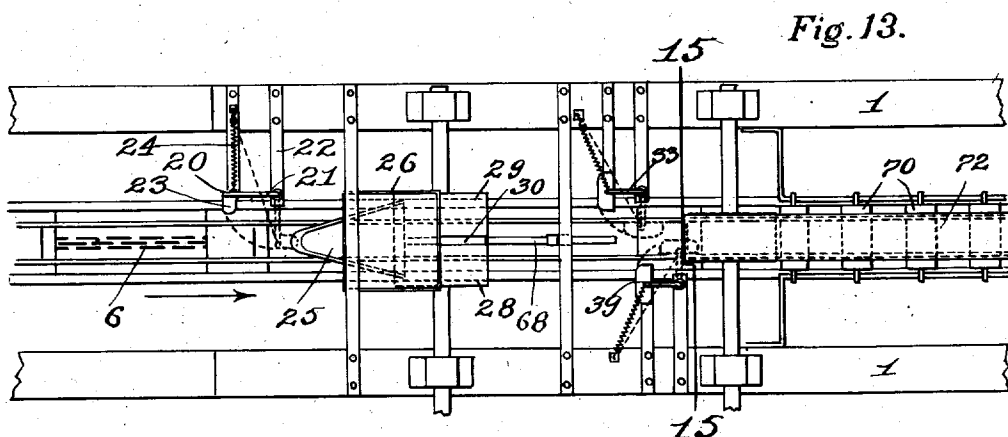
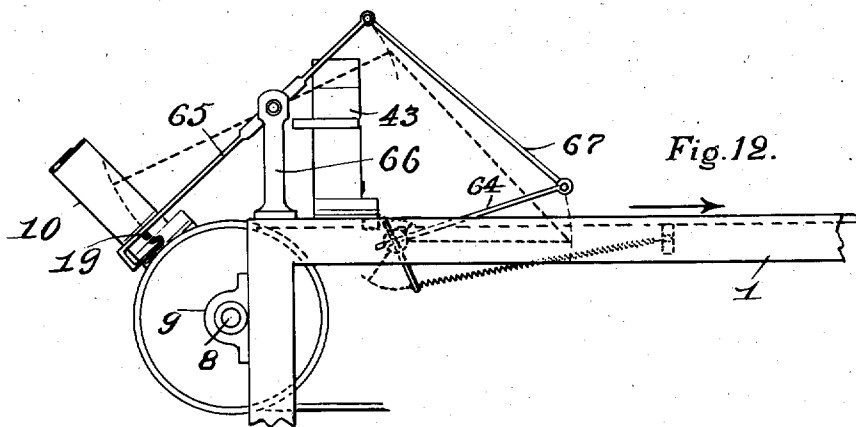


WITNESSES.
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961,845.

4 SHEETS—SHEET 3.



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 CARTON SEALING MACHINE.
 APPLICATION FILED APR. 19, 1909,

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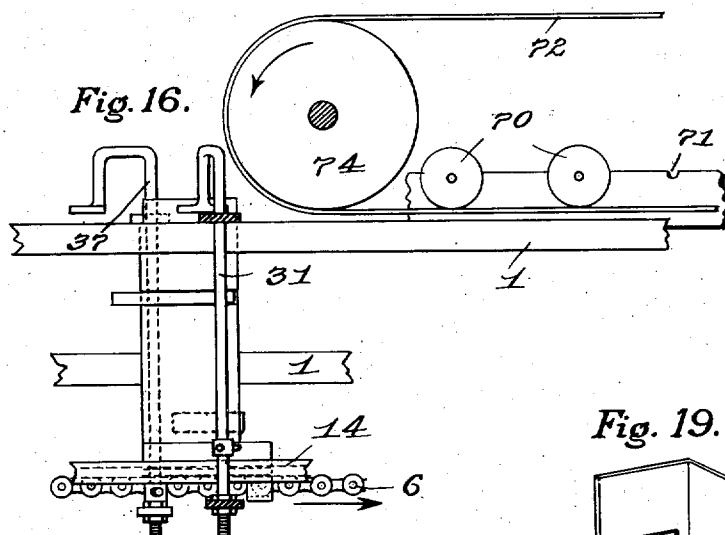
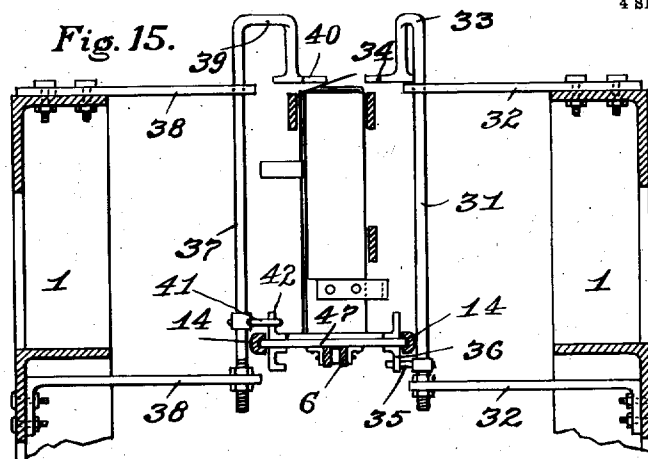


Fig. 17.

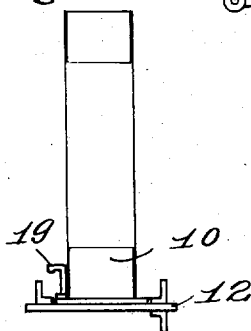


Fig. 18.

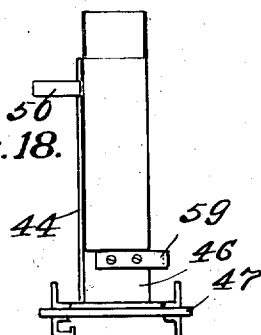
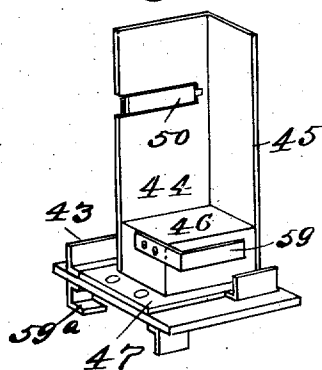


Fig. 19.



WITNESSES.

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UNITED STATES PATENT OFFICE.

GEORGE A. CULLOM, OF ST. LOUIS, MISSOURI.

CARTON-SEALING MACHINE.

961,845.

Specification of Letters Patent. Patented June 21, 1910.

Application filed April 19, 1909. Serial No. 490,910.

To all whom it may concern:

Be it known that I, GEORGE A. CULLOM, a citizen of the United States, and resident of St. Louis, Missouri, have invented certain new and useful Improvements in Carton-Sealing Machines, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to an improvement in carton sealing machines, the object of my invention being to provide a machine of simple construction arranged to receive cartons, to first fold and secure the one end of the carton, then to receive the carton filled with merchandise and to fold and secure the other end of the carton.

To the above purposes, my invention consists in certain novel features of construction and arrangement of parts which will be hereinafter more fully described, pointed out in the claims and illustrated in the accompanying drawings, in which:

Figure 1 is an elevation of the complete machine; Fig. 2 is a plan view of same; Fig. 3 is an elevation of one of the carton blocks, which will hereinafter be termed the "male" block, in position on the endless conveyer and track; Fig. 4 is an end elevation of same; Fig. 5 is a plan view of Fig. 3; Fig. 6 is an elevation of one of the second series of carton holding blocks, which will hereinafter be termed the "female" block, in position on the endless conveyer and track; Fig. 7 is an end elevation of same; Fig. 8 is a plan view of Fig. 6; Fig. 9 is an elevation of the means for folding the lower flaps of the carton and the gluing devices; Fig. 10 is an end elevation of same, showing a carton in position to be glued; Fig. 11 is a plan view of Fig. 9; Fig. 12 is an elevation of the carton delivering apparatus; Fig. 13 is a plan view of the means for folding the upper flaps of the carton and the same gluing devices; Fig. 14 is a plan view of the means for delivering the cartons from an endless conveyer, closed at their bottoms and filled with merchandise, to the carrier which conveys them to the means for folding and gluing the upper flaps of the carton; Fig. 15 is a sectional elevation on the line 15-15 of Fig. 13, showing the means for operating

the folders for the upper flaps of the carton; Fig. 16 is an elevation partly in section of the folder shown in Fig. 15, showing its relative position with the means for holding the flaps of the carton after glue is applied; Fig. 17 is an end elevation of one of the male carton blocks, showing the carton thereon; Fig. 18 is a like view of one of the female carton blocks showing a carton thereon as it would appear with its lower end closed and filled with merchandise; and, Fig. 19 is a perspective of one of the female blocks.

Referring by numerals to the accompanying drawings: 1 designates the frame of the machine. At its rear end, mounted in the bearings 2, is a shaft 3, upon which a pulley 4 is positioned and to which power is applied to drive the entire machine.

A sprocket wheel 5 is carried by the shaft 3, and is embraced by an endless chain 6, which chain also embraces a sprocket wheel 7 at the front end of the machine mounted on a shaft 8, in the bearings 9.

A series of carton carriers, which will hereinafter be termed male blocks 10, are carried by the chain 6, and spaced apart thereon at regular intervals. The block 10 is preferably made of sheet metal and is substantially rectangular, but its shape and dimensions may vary with the shape and dimensions of the cartons used. A flange 11 at the bottom of the block is riveted, or otherwise secured to a plate 12, which is secured to the chain 6 by the angle plates 13, (Fig. 4.)

Horizontally grooved tracks 14, extending the entire length of the machine, are arranged to receive the side margins of the plates 12 and to carry them during their travel over the machine in one direction.

Each of the male blocks 10 is provided with a leaf spring 15 for retaining a carton on the block when in an inverted position, which will hereinafter be made clear. Each of the blocks 10 is also provided with a means for delivering the cartons, which means comprises a block 16, an integral plate 17 having beveled faces 17^a, arranged to slide in the slot 18 in the male block 10, and a hook 19 adapted to be operated by a means hereinafter described.

A folder 20 is fixed to the frame of the

machine in line with the path of travel of the blocks 10, and comprises a rock-shaft 21 mounted in the bearings 22, a folder 23 and a spring 24, which parts are identical with the parts of a second folder, hereinafter described in detail.

A combined folder and spreader 25 is fixed to the machine frame, immediately over the path of travel of the carton carrying blocks, which combined folder and spreader 25 comprises a single piece of sheet metal substantially triangular in shape, having its forward end rounded and slightly beveled to prevent the carton being held thereby.

A glue box 26 is rigidly secured to the machine frame over the path of travel of the carton carriers and designed to supply a quantity of glue to a roller 27 having two surfaces 28—29 separated by an annular groove 30.

A second folding apparatus fixed on the frame 1, immediately following the gluing device, comprises a rock-shaft 31 in the bearings 32, an arm 33 at the upper end of the shaft, and a shoe 34 adapted to engage and fold inwardly and downwardly a side flap of the carton. Fixed to the shaft 31 at its lower end is an arm 35, which is engaged by a projection 36 on the bottom of the plate 12.

A third folding apparatus, opposite the second folder, acts on the other side-flap of the carton, immediately following the action of the second folder, and comprises a rock-shaft 37 in the bearings 38, an arm 39 at the upper end of the shaft, and a shoe 40 adapted to engage and fold inwardly and downwardly the second side-flap of the carton. Fixed to the shaft at its lower end is an arm 41, which is engaged by a projection 42 on the upper face of the plate 12.

A second series of carton carriers, hereinafter termed female blocks 43, are carried by the chain 6 and spaced apart thereon at regular intervals, one between each pair of the male blocks 10. The female block 43 is preferably made of sheet metal and is composed of the upright walls 44—45, of substantially the same height as the male block 10.

A bottom piece 46, of a height corresponding to the flaps on the carton, is secured to a plate 47 within the walls 44—45, and the plate 47 is secured to the chain 6 by the angle plates 48. The plate 47 is embraced between and carried by the grooved tracks 14.

An arm 50 is hinged to the wall 44 of the female block and arranged to be engaged at a given point by the fixed arm 51 to discharge a carton, said arm 50 being operated in one direction by the spring 52 fixed at its one end to the wall 45 of the carton carrier, and its other end to the free end of the arm 50.

An endless conveyer 53, embracing the

pulleys 54 and 55, is arranged to travel in a line parallel with and in the same direction as the chain 6, motion being imparted thereto through the belt 55^a, and pulley 55^b on the shaft 8, to a point in front of the first folding device, at which point is located an apparatus for removing from the conveyer 53 the cartons, one at a time, and placing them within the female blocks. This apparatus comprises a rock-shaft 56 in the bearing 57, an extension 58 of which is engaged by the projection 59 on the plate 47 of the female block.

An arm 60 is pivoted to the machine frame and arranged to actuate a plunger 61 through the medium of the link 62 connected with the rock-shaft 56, the plunger being returned to its normal position by the spring 63.

At the forward end of the machine is an apparatus for discharging the cartons closed and glued at their bottom ends, and comprising an arm 64 pivotally hung in the frame 1, (Fig. 12) adapted to be engaged by the projection 59^a on the female block, a rod 65 supported in the bearing 66, and a link 67 connecting said arm 64 and rod 65. The free end of the rod 65 is designed to engage a hook 19, which elevates the block 16, thus discharging a carton from the block 10.

To hold the end flaps downwardly for a portion of their travel is a strip 68 fixed at its one end to the spreader 25, and its rear end to a hanger 69.

To insure a perfect sealing of the flaps after they have passed through the gumming apparatus, a series of weighted rollers 70—70 resting in the notches 71 bear on the endless belt 72 which firmly holds the gummed flaps for a given length of time during their travel over the machine, the said belt embracing pulleys 73—74 mounted in the bearings 75—76, motion being imparted thereto through the cross belt 77 embracing the pulley 78 on the shaft 79 which carries the pulley 73 and the pulley 80 on the shaft 3.

In the practical operation of the machine, cartons, with all of their flaps extended outwardly, are placed upon the male blocks 10 on the endless conveyer 6 and carried rearwardly by said carrier to a point where the combined folder and spreader engages the first end-flap and the two side-flaps, which folder and spreader acts to fold rearwardly the first end-flap and fold outwardly the two side-flaps, the folder 20 acting upon the rear end-flap and placing its forward margin under the combined folder and spreader. The side-flaps of the carton, thus held outwardly, are passed under the surfaces 28—29 and then to the second and third folders, which folders engage and fold the side-flaps which have just been gummed inwardly, and which flaps are then carried under the belt

73, which securely holds them to insure a perfect sealing. The cartons are then carried underneath the machine and held from dropping from the blocks 10 by springs 15, to the starting point where the discharging rod 65 engages the hook 19 and block 16, and thus discharges the carton sealed at one end. The cartons are then filled with merchandise and placed with their sealed ends downwardly on a conveyer 53, which conveyer carries them to a point where the plunger 61 is actuated to place the cartons within the walls of the female block. The cartons are then carried by the female blocks and acted upon by the folding and gluing devices in the same manner as when sealing their other ends. The filled and completed cartons are then carried to a point where the fixed arm 51 engages the pivoted arm 50 to discharge the carton from the machine.

I claim:

1. In a machine of the class described, a frame, an endless chain arranged on said frame, a series of carton holding devices carried by said chain, means for folding and gluing flaps of cartons carried by said chain, means for discharging the cartons folded and glued at one end, a second conveyer arranged on said frame, a second series of carton holding devices on said chain to receive the cartons filled with merchandise and closed at one end, means for discharging the filled cartons from the second conveyer into the second series of carton holding devices carried by said chain, so that the flat folding and gluing means may act upon the remaining flaps of the cartons, and means for discharging the cartons from the machine filled and sealed at both ends.

2. In a machine of the class described, a frame, an endless conveyer mounted on said frame, a series of carton carriers arranged on said conveyer, means on said carton carriers for retaining the carton thereon when in an inverted position, means for folding and gluing the flaps of one end of the cartons, means for discharging the cartons from the machine sealed and folded at one end, a second conveyer arranged on the machine to receive the cartons filled with merchandise and sealed at one end, a second series of carton carriers arranged on the first mentioned conveyer, each of which second series of carton carriers is provided with a discharging device, means for delivering the cartons from the second conveyer into the second mentioned carton carriers, so that the flap folding and sealing means may act on the remaining flaps of the cartons, and a fixed arm on the machine arranged to engage the discharging arms carried by the second mentioned carton carriers.

3. In a machine of the class described, a

frame, an endless conveyer mounted on said frame, a series of carton carriers on said conveyer, means for folding and sealing the one end portion of the carton, means for holding the flaps after they are glued during a given time in their travel over the machine, means for discharging the cartons sealed at one end from the machine, a second conveyer arranged in a line parallel with the first mentioned conveyer, a second series of carton holding devices on the first conveyer; a plunger acted upon by the carton holding devices to discharge the cartons from the second mentioned conveyer into the second series of carton carriers, so that the flap folding and gluing means may act on the remaining flaps of the cartons and means for discharging the cartons from the machine sealed at both ends.

4. In a machine of the class described, a frame, an endless carrier arranged for rotation on said frame, a series of carton carriers arranged on said conveyer, each of which carton carriers is provided with a discharging device, means mounted upon one end of the frame for engaging discharging devices on a number of the carton carriers and means mounted on the opposite end of the frame for engaging the discharging devices on the remaining carton carriers.

5. In a machine of the class described, a frame, an endless conveyer arranged for operation on said frame, a series of carton carriers on said conveyer, a second conveyer arranged on the machine in line parallel with the first conveyer, a discharging apparatus comprising a rock-shaft adapted to be engaged by the carton carriers, a link connected at its one end with the rock-shaft and at its other end with a lever, the lever and plunger connected with the link, and a spring for actuating the plunger in one direction.

6. In a machine of the class described, a frame, an endless conveyer arranged for operation on said frame, a series of carton carriers arranged on said conveyer, a discharging device carried by said carton carrier, comprising a spring actuated lever pivotally connected with a side wall of the carrier, and a fixed arm on the machine frame for engaging the spring actuated lever.

7. In a machine of the class described, a frame, an endless conveyer mounted for operation on said frame, carton carriers arranged on said conveyer, each of which carton carriers is of substantially rectangular form, having in one of its side walls a vertical slot, a slidable block arranged to slide in said slot capable of movement vertically therein, a hook affixed to said block and a means fixed on the machine frame for engaging the said hook, which means comprises a rock-shaft, having a part designed

to be engaged by a part of the carrying
block, a tilting rod mounted in suitable
bearings on the machine frame, a link con-
necting said rod with said rock-shaft and a
5 spring for operating the rock-shaft in one
direction.

In testimony whereof, I have signed my

name to this specification, in presence of two
subscribing witnesses.

GEORGE A. CULLOM.

Witnesses:

E. E. LONGAN,
E. L. WALLACE.

Correction in Letters Patent No. 961,845.

It is hereby certified that in Letters Patent No. 961,845, granted June 21, 1910,
upon the application of George A. Cullom, of St. Louis, Missouri, for an improve-
ment in "Carton-Sealing Machines," an error appears in the printed specification
requiring correction as follows: Page 3, line 36, the word "flat" should read *flap*;
and that the said Letters Patent should be read with this correction therein that
the same may conform to the record of the case in the Patent Office.

Signed and sealed this 19th day of July, A. D., 1910.

[SEAL.]

F. A. TENNANT,

Acting Commissioner of Patents.

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