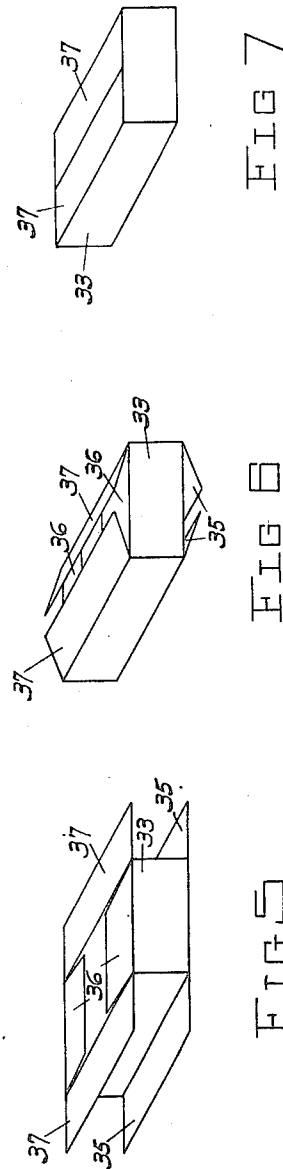
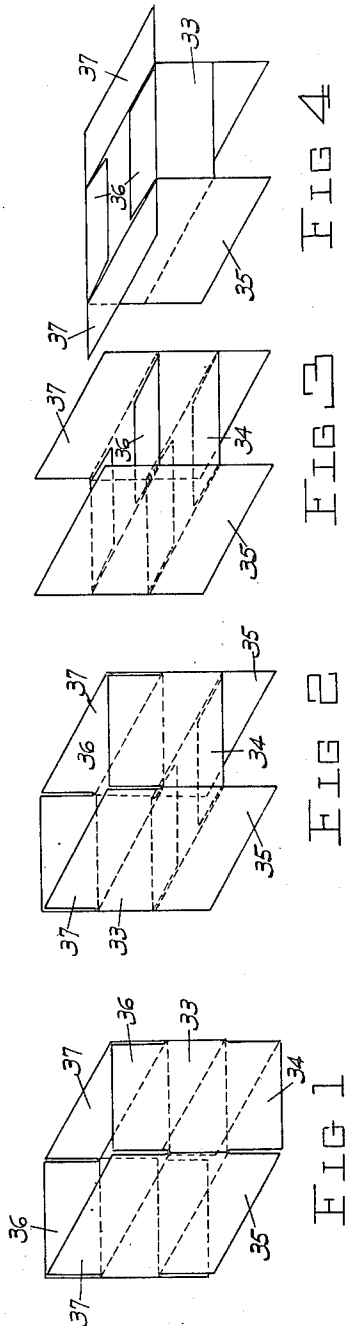


C. CROUCH & G. J. HEWLETT.  
 CARTON PASTING AND SEALING MACHINE.  
 APPLICATION FILED MAY 24, 1915.

1,183,347.

Patented May 16, 1916.  
 5 SHEETS—SHEET 1.



WITNESS:

*F. C. Adams*

INVENTORS

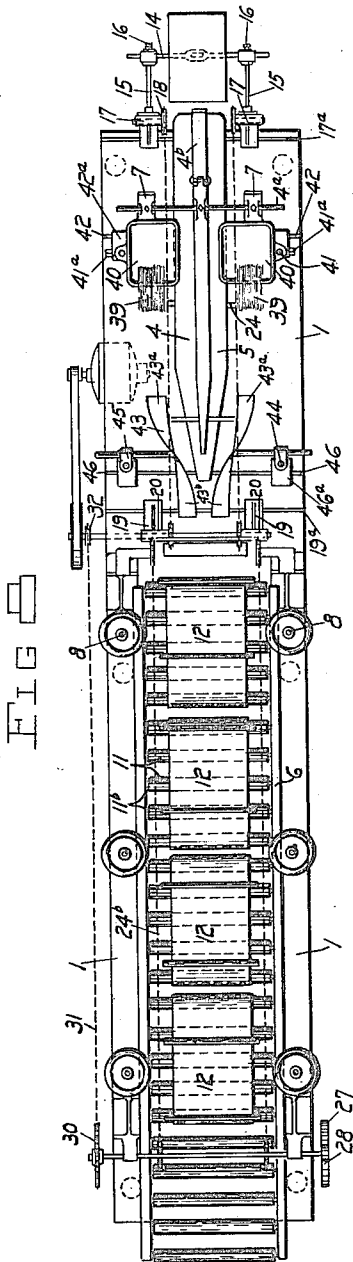
*Clyde Crouch*  
*G. J. Hewlett*  
 By *Chas. H. Williams, atty.*

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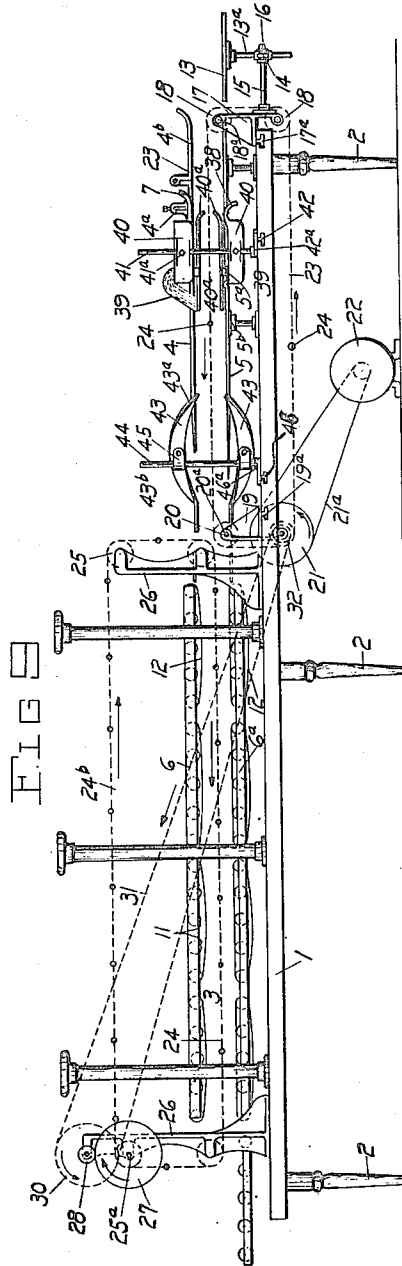
Patented May 16, 1916.

5 SHEETS—SHEET 2.



WITNESSES

*G. E. Adams.*



INVENTORS

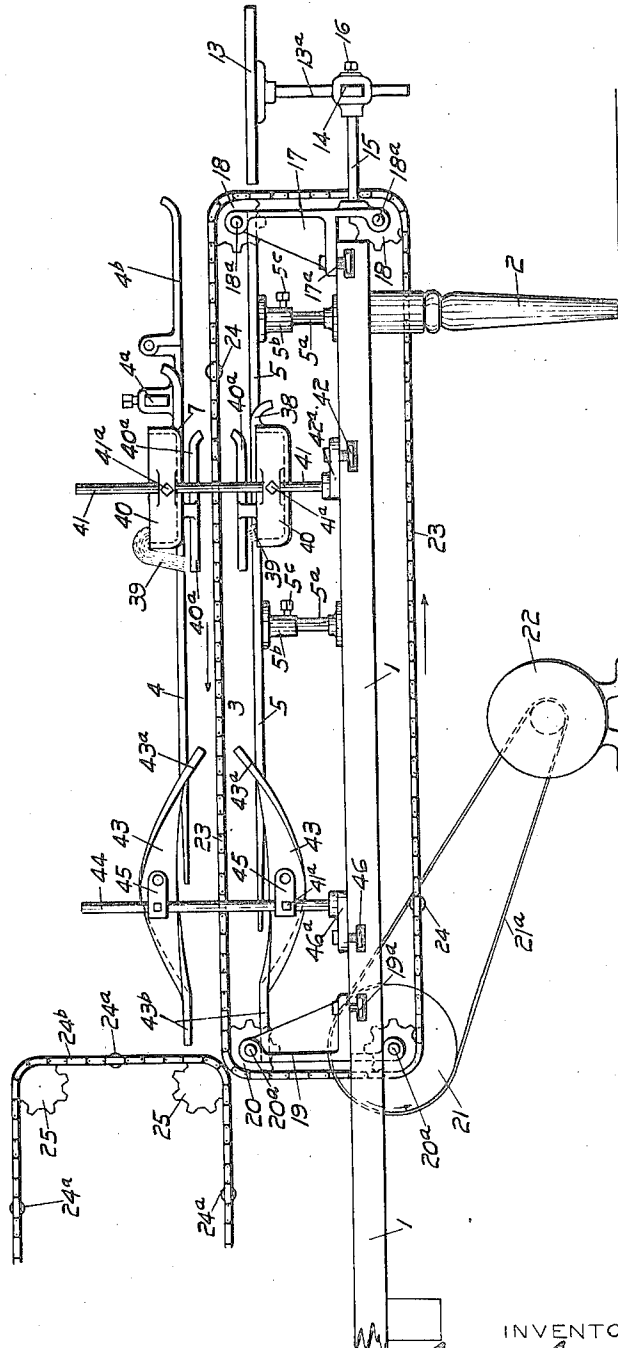
*Clayton Crouch*  
*G. J. Hewlett*  
 By *Chas. B. Williams, Atty.*

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 5 SHEETS—SHEET 3.

FIG 10



WITNESS

*F. C. Adams*

INVENTORS

*Clyton Crouch*  
*G. J. Hewlett*  
 By *Chas. E. Williams, atty*

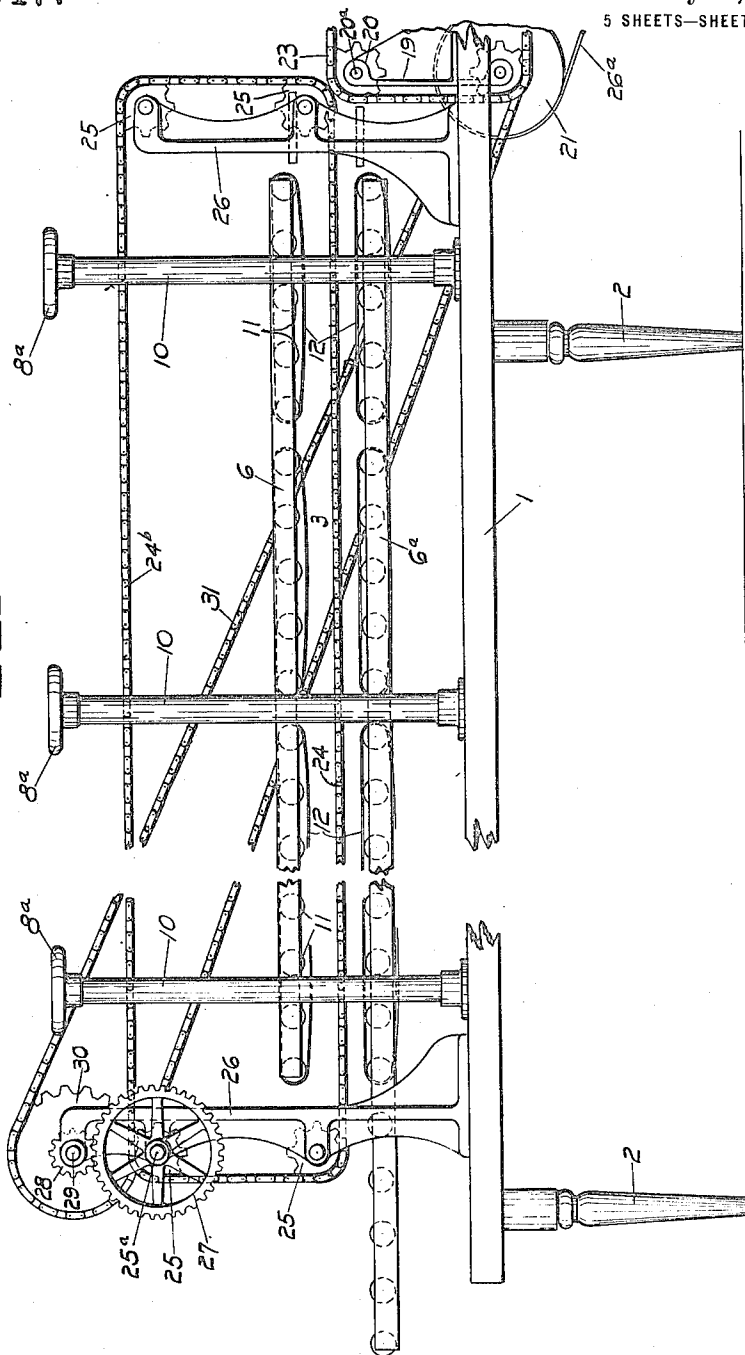
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5 SHEETS—SHEET 4.

FIG. 11.



WITNESS

*A. C. Adams*

INVENTORS

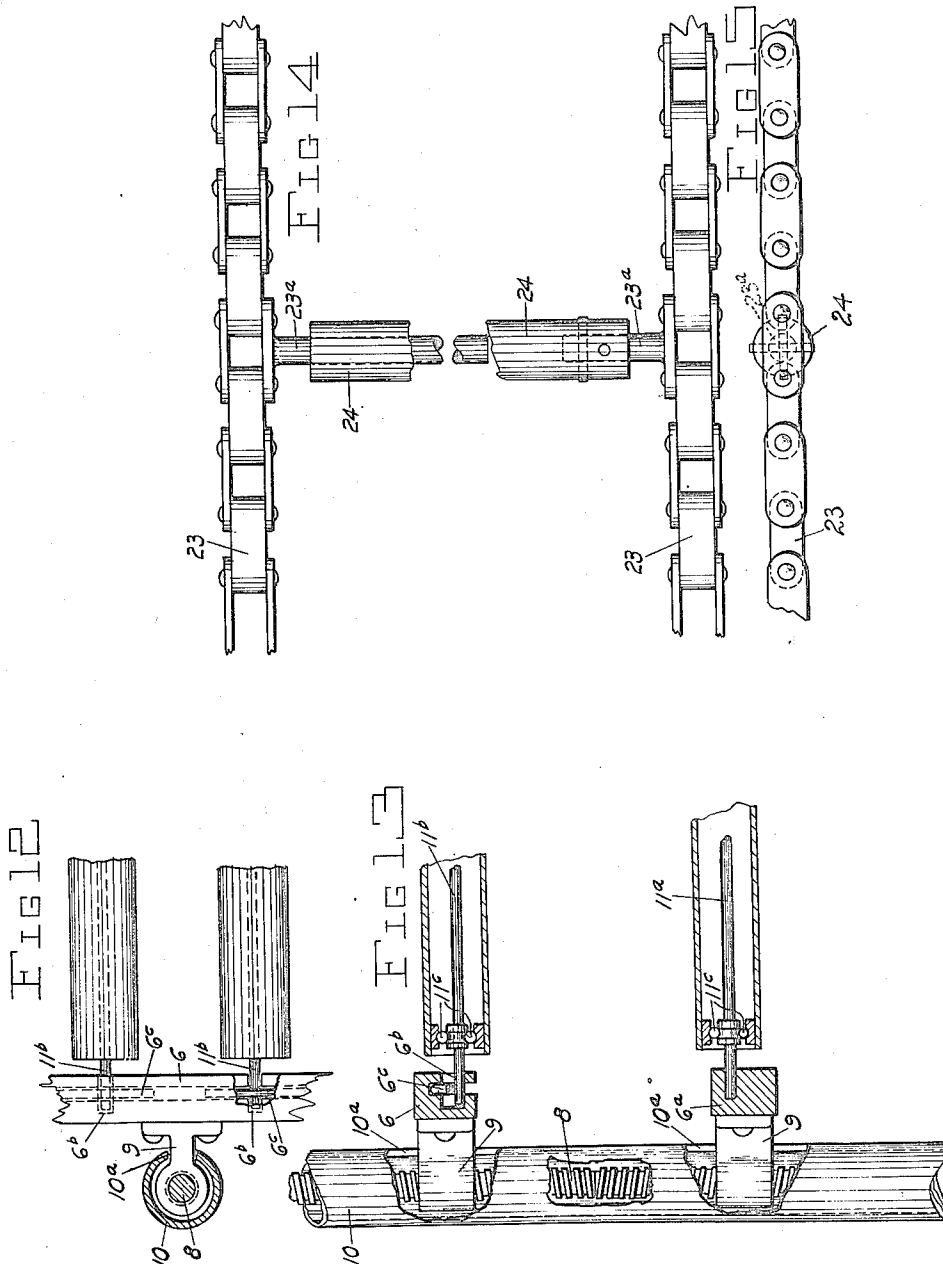
*Clayton Crouch*  
*G. J. Hewlett*  
*By O. B. Williams, atty.*

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5 SHEETS—SHEET 5.



WITNESS:

F. C. Adams

INVENTORS

Clayton Crouch  
 Geo. J. Hewlett  
 By O. B. Billman, Atty.

# UNITED STATES PATENT OFFICE.

CLAYTON CROUCH AND GEORGE J. HEWLETT, OF CLEVELAND, OHIO.

## CARTON PASTING AND SEALING MACHINE.

1,183,347.

Specification of Letters Patent.

Patented May 16, 1916.

Application filed May 24, 1915. Serial No. 29,978.

*To all whom it may concern:*

Be it known that we, CLAYTON CROUCH and GEORGE J. HEWLETT, citizens of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Carton Pasting and Sealing Machines, of which the following is a specification.

Our invention relates to improvements in carton pasting and sealing machines, the improved machine being particularly designed and adapted for receiving the ordinary or conventional form of carton or paper box provided with suitable flaps or folds in proper position to be immediately filled with the contents to be packed after which a suitable conveyer is adapted to carry or transport the filled box or carton and deposit a suitable supply of paste or glue over the flaps or folds after which such flaps or folds provided with a suitable supply of properly distributed paste are automatically folded or closed over the contents of the carton or box and held in such closed or sealed position between suitable carton receiving and sealing aprons for such a length of time as will be necessary for the paste to thoroughly set or dry so that the flaps will remain securely sealed for the transportation or storage of the carton and its contents.

The primary object of the invention is to provide a generally improved machine of this class of exceedingly simple, cheap, and efficient construction for the purposes above mentioned, and in carrying out this invention the machine is provided at its front or receiving end with a suitable carton receiving and supporting table where the box is first set up and filled after which it is transported by means of a suitable carton conveyer passing along or between suitable paste applying and carton flap operating devices said flap operating devices being adapted to fold over the freshly pasted flaps upon the contents of the box after which the carton conveyer feeds the completely folded carton to and between suitable carton receiving and sealing aprons arranged in series and spaced apart to form a suitable carton receiving and transporting guideway through which the cartons are transported through the medium of a second but preferably more slowly moving carton con-

veyer one member of which moves through the carton receiving and transporting guideway, said carton receiving and sealing aprons preferably passing over and inclosing a series of presser rollers adapted to cooperate with the carton receiving and sealing aprons in holding and sealing the carton flaps until the paste is thoroughly set so that when the cartons emerge from the delivery end of the machine they are securely sealed for further transportation and storage.

With the above mentioned and other ends in view, the invention consists in the novel construction, arrangement, and combination of parts, hereinafter described, illustrated in one of its embodiments in the accompanying drawings, and particularly pointed out in the appended claims.

Referring to the drawings forming a part of this specification, Figure 1, is a perspective view of an ordinary or conventional form of paper carton or box as it appears in its initial position and before being placed on the carton receiving and supporting table of the machine preparatory to being filled and passed through the machine. Fig. 2, a similar view of the same with the lower end flaps folded inwardly to rest upon the carton receiving and supporting table while being filled the lower side flaps being adapted to depend from the sides of the table. Fig. 3, a view of the same with the top end flaps folded over the contents preparatory to being passed into the carton conveyer. Fig. 4, a view of the same with the top side flaps folded outwardly and horizontally as the second operation and after being pushed off of the table and engaged by one of the cross bars of the carton conveyer. Fig. 5, a view showing the lower side flaps folded outwardly parallel with the upper side flaps as the third or final positioning of the box flaps and showing the position of the side flaps while being conveyed by the carton conveyer while receiving the paste from the paste applying devices above and below said top and bottom side flaps, respectively. Fig. 6, a view showing the intermediate position of the side flaps after being pasted and being folded inwardly by the carton flap engaging and folding devices arranged at the side of the carton conveyer. Fig. 7, a view of the carton after the final folding of the side flaps by the carton flap folding devices and preparatory to passing the cartons into

the carton receiving and sealing aprons and passing the same between the same by the second carton conveyer. Fig. 8, a top plan view of the improved machine complete, the carton conveyers being diagrammatically illustrated by dotted lines. Fig. 9, a side elevation of the same. Fig. 10, an enlarged side elevation of the receiving end of the machine comprising the carton receiving and supporting table, a carton conveyer leading therefrom, and paste applying and carton flap operating or folding devices arranged at the sides of the upper member of the endless carton conveyer. Fig. 11, an enlarged side elevation of the rear end of the machine comprising the carton receiving and sealing aprons and carton presser rollers together with the vertically adjustable apron and presser roller carrying frames. Fig. 12, an enlarged fragmentary top plan view of the upper carton presser rollers and the upper adjustable roller and apron carrying frames. Fig. 13, an enlarged cross sectional view through the bearing portions of the upper and lower roller and apron carrying frames, together with the mechanism for supporting and simultaneously and uniformly moving or adjusting said upper and lower roller and apron carrying frames toward and from each other. Fig. 14, a detail fragmentary top plan view of one of the carton conveyers. Fig. 15, a side elevation of the same.

Similar numerals of reference designate like parts throughout all the figures of the drawings.

The improved machine comprises a suitable supporting frame 1, which may be mounted on suitable legs or supports 2, said supporting frame being provided with carton receiving and guiding members vertically adjustable thereon to form an intervening carton receiving and guiding or conveying guide-way 3. The carton receiving and guiding members are adjustable toward and from each other so as to vary the dimensions of the carton receiving and conveying guide-way 3, to adapt the latter to cartons of varying depth or dimensions.

The carton receiving and guiding members at the front or receiving end of the machine, are in the form of upper and lower horizontally extending members 4 and 5, respectively, while those at the rear or toward the delivery end of the machine are in the form of upper and lower roller and apron carrying frames 6 and 6<sup>a</sup>, respectively. The lower guide members 5, at the front of the machine are vertically adjustable through the medium of guide bolts 5<sup>a</sup>, and sleeve brackets 5<sup>b</sup>, the latter being adjusted on the bolts 5<sup>a</sup>, by means of adjusting bolts or screws 5<sup>c</sup>, and the upper member 4, is connected to a cross bar 4<sup>a</sup>, mounted in the carton flap receiving and guiding members 7, to be hereinafter described.

The upper roller and apron carrying frames 6 and 6<sup>a</sup>, respectively, are supported by and are adapted to be moved simultaneously and uniformly toward and from each other through the medium of right and left handed threaded screws or shafts 8, engaging internally threaded bearing brackets 9, the latter being mounted on the outer sides of the frames 6 and 6<sup>a</sup>, and being adapted to be moved vertically toward and from each other through the guide or slotted portions 10<sup>a</sup>, of the vertically extending guide pedestals 10, on the sides of the machine frame, said adjusting screws or shafts 8, terminating at their top in adjusting wheels or heads 8<sup>a</sup>.

The frames 6 and 6<sup>a</sup>, are provided with a series of presser rollers 11, the rollers in the lower frame 6, being preferably mounted on stationary axle shafts 11<sup>a</sup>, while the upper presser rollers in the upper frame are mounted on vertically movable spring resisted axle shafts 11<sup>b</sup>, as shown most clearly in Figs. 12 and 13 of the drawings. The ends of the vertically movable axle shaft 11<sup>b</sup>, are adapted to play in vertical slots 6<sup>b</sup>, in the upper frame 6, and to operate against the resistance of bow-spring members 6<sup>c</sup>, or other suitable spring resisted bearing members. If desired the presser rollers 11, may be of tubular form and mounted to revolve on the shafts 11<sup>a</sup>, and 11<sup>b</sup>, through the medium of suitable roller bearings 11<sup>c</sup>.

A suitable number of presser rollers 11, are inclosed by carton receiving and sealing aprons 12, such endless aprons 12, being arranged in series said presser rollers being adapted to cooperate with the carton receiving and sealing aprons 12, in holding and sealing the carton flaps as pasted and folded down by the carton flap sealing and folding mechanism to be hereinafter described. By arranging the aprons 12, in series each box or carton will be individually treated in the pressing sealing and setting operation, and it will be obvious that each box will only have to move the apron immediately in contact therewith as likewise the roller as distinguished from the case where the apron extended the entire length of the upper frame or the lower frame and inclosed all the rollers thereof.

Referring now to the front or carton receiving end of the improved machine, and more particularly to the carton conveyer adapted to carry the cartons from the table to the carton guide-way between the upper and lower members 4 and 5, respectively, and the carton flap receiving and guiding members at the sides of said conveyer, together with the paste applying and flap operating or folding devices, it will be seen that the machine is provided at its front

with a carton receiving and supporting table 13. The carton receiving and supporting table 13, is adjustable vertically and laterally through the medium of a vertical stem or support 13<sup>a</sup>, carried upon a cross bar 14, the latter being adjustably mounted in rearwardly extending bars 15, and the parts 13<sup>a</sup>, and 14, may be secured in various adjusted positions through the medium of set screws or bolts 16. The arms or bars 15, extend from bearing brackets 17, at the rear or feed end of the machine, said brackets 17, being provided with idle sprocket wheels 18, and similar brackets 19, are arranged farther to the rear and are provided with sprockets 20, the sprocket wheels 18 and 20, being arranged in pairs and mounted on shafts 18<sup>a</sup>, and 20<sup>a</sup>, the lower shaft 20<sup>a</sup>, extending across beneath the frame and being provided with a pulley 21, adapted to receive motion through the medium of a belt 21<sup>a</sup>, communicating with a suitable source of power such as a motor 22. The sprocket wheels 18 and 20, carry the endless members of the carton conveyer, said members, in the present instance, comprising sprocket chains 23, provided with carton engaging and feeding cross bars 24. It will be seen that the upper member of the carton conveyer travels within the carton receiving and conveying guide-way 3, from front to rear and substantially midway between the upper and lower members 4 and 5, respectively. As a means of moving the sprocket chains 23, toward and from each other for adjusting to cartons of varying width the cross bars 24, are preferably in the form of tubular members mounted upon stub pins or shafts 23<sup>a</sup>, extending from some of the links of the chains and arranged at suitable intervals, and as a means of moving the sprocket wheels 18 and 20, correspondingly the bearing brackets 17 and 19, are transversely movable or adjustable in transversely extending grooves 17<sup>a</sup>, and 19<sup>a</sup>, in a well known and understood manner. The sprocket wheels 20, on the lower shaft 20<sup>a</sup>, are adapted to be moved to meet the varying adjustments above referred to.

The second carton conveyer at the rear of the machine is a more slowly moving one and is similarly constructed and mounted, said conveyer comprising endless sprocket chains 24<sup>b</sup>, mounted on sprocket wheels 25, said wheels 25, being mounted on vertically extending brackets or pedestals 26, the upper rear pair of sprocket wheels 25, being mounted on a driving shaft 25<sup>a</sup>, provided with a gear wheel 27, meshing with a pinion 28, said pinion being carried on the end of a second shaft 29, and the latter being provided at its opposite end with a sprocket wheel 30, the latter receiving its motion from a sprocket chain 31, extend-

ing over a small sprocket 32, on the shaft 20<sup>a</sup>, which receives its motion from the motor 22, through the pulley 21, and belt 20, and it will be obvious that by reason of the gearing above referred to that the second carton conveyer is given a relatively slow movement and the members 24<sup>b</sup>, of such conveyer are provided with a series of cross bars 24<sup>a</sup>, preferably spaced to correspond approximately to the length of the cartons to be conveyed between the carton receiving and sealing aprons and presser rollers carried by the adjustably mounted frames 6 and 6<sup>a</sup>.

Referring now to the carton receiving or feeding end of the machine and the manner in which such cartons are pushed and filled and then fed into the machine through the medium of the first carton conveyer and along the carton flap receiving, paste applying and flap operating or folding members or devices, Figs. 1 to 7, inclusive, illustrate successive steps or positions of the carton and its flaps from its initial position as received at the feeding end of the machine and as pasted and fed through the same until it finally emerges from the machine in a completely pasted and sealed condition as illustrated in Fig. 7 of the drawings.

The operator at the feeding end of the machine receives the carton 33, in substantially the position shown in Fig. 1 of the drawings and then folds the lower end flaps 34, inwardly as shown in Fig. 2 of the drawings and rests the carton in such position upon the carton receiving and supporting table 13, while being filled, the lower side flaps 35, being adapted to depend from the sides of the table and after being filled on such table the operator then folds the top end flaps 36, over the contents of the box and in such position pushes the same forwardly to rest upon the adjacent receiving end of the lower guide member 5, and between the members 23, of the first carton conveyer, after which the operator turns the top side flaps 37, outwardly and horizontally to the position indicated in Fig. 4 of the drawings, said top side flaps taking over the flap receiving and guiding members 7, after which the lower side flaps 35, are moved to the horizontal position shown in Fig. 5 and are brought into engagement with the flap receiving and guiding members 38, at the sides of the lower carton guide or support 5, such guiding members 38, serving to prevent the lower side flaps from falling downwardly, and as a means of holding said side flaps 35 and 37, in a substantially horizontal position while receiving the paste or adhesive material from the paste applying members 39, leading from the paste reservoirs or receptacles 40, said reservoirs or receptacles 40, are provided with supplementary flap guide members 40<sup>a</sup>, and it will

be observed that the paste receptacles 40, and flap guide members 40<sup>a</sup>, are vertically adjustable through the medium of the supporting stems or bars 41, and set screws or bolts 41<sup>a</sup>, and it will also be observed that such reservoirs 40, and guide members 40<sup>a</sup>, are adjustable toward and from each other or transversely of the machine through the medium of transverse guide slots 42, and clamp base plates 42<sup>a</sup>, in an obvious and well known manner and for the purpose hereinbefore referred to in connection with the bearing brackets 17, and 19, in the slots 17<sup>a</sup>, and 19<sup>a</sup>. It will also be observed that the upper carton guide member 4, is provided at its front with a pivoted supplementary guide 4<sup>b</sup>, to hold down the top end flaps 36, during the initial insertion of the carton and while the side flaps 37, and 35, are being positioned as hereinbefore referred to.

As a means of returning the pasted side flaps 35, and 37, over the contents of the carton and as received from the paste applying members 39, four curved carton flap operating or folding members 43, are provided, said members being preferably arranged in pairs at the sides of the guide members 4, and 5, the receiving ends 43<sup>a</sup>, thereof being arranged below and above the horizontal planes of the members 4, and 5, so as to engage the forward ends of the horizontally extending side flaps, the unsealed sides thereof riding over the curved flap operating or folding members 43, in an obvious manner whereby said sealed flaps are returned to a horizontal position above and below the carton contents the carton emerging from the horizontally extending delivery portions 43<sup>b</sup>, of the flap operating or folding members and the cross bar 24, of the carton conveyer positioning the closed or sealed box in a true and proper position into the receiving ends of the first set of carton receiving and sealing aprons 12, where it is engaged by one of the cross bars 24<sup>a</sup>, of the second conveyer and this second conveyer moving in a slow manner will slowly move the closed cartons through between the various aprons 12, and presser rollers 11; any slight variations in the thickness of the cartons or the surfaces of the upper flaps caused by unevenness in the carton contents being taken up or relieved by the springs 6<sup>c</sup>, operating against the axle shafts 11<sup>b</sup>, carrying the upper presser rollers 11, and it will be apparent that when the carton finally emerges from the delivery end of the machine after being subjected to the action of the sealing aprons 12, and presser rollers 11, the paste will be thoroughly set or dried so that the flaps will be securely sealed for transportation or storage. It will also be observed that the flap operating or folding members 43, are vertically adjustable on supporting stems or bars 44, through the medium of brackets

45, and set screws or bolts 45<sup>a</sup>, and that the stems or bars 44, are adjustable toward and from each other through the medium of transverse guide slots 46, and clamp base plates 46<sup>a</sup>, for the purposes of adjustment as hereinbefore described.

From the foregoing description, taken in connection with the accompanying drawings, the operation and advantages of our invention will be readily understood.

Having thus described one of the embodiments of our invention, what we claim and desire to secure by Letters Patent, is,—

1. In a carton pasting and sealing machine, a supporting frame and presser roller and apron carrying frames adjustably mounted thereon, one of said frames being provided with vertically movable spring resisted presser rollers, and said aprons being arranged in series between said frames and passing over and inclosing a plurality of said presser rollers.

2. A carton pasting machine, comprising a supporting frame, carton receiving and guiding members adjustably mounted thereon, endless carton conveyers adapted to travel between said members, adjustably mounted carton flap receiving and guiding members at the sides of said conveyers, means for applying paste to the carton flaps while in said flap receiving and guiding members, and means for returning or closing said pasted flaps over the carton contents.

3. In a carton pasting machine, a supporting frame, carton receiving and guiding members vertically adjustable thereon, paste applying and carton flap holding and folding members at the sides of said vertically adjustable receiving and guiding members and transversely adjustable toward and from each other independently of said carton receiving and guiding members, and a carton conveyer passing between said first mentioned carton receiving and guiding members.

4. In a carton pasting and sealing machine, a supporting frame, horizontally extending spaced roller and sealing apron carrying frames mounted above the same, means for supporting and simultaneously and uniformly moving said frames toward and from each other forming a variable intermediate carton receiving and conveying guide-way, and an endless carton conveyer passing through said guide-way.

5. A carton pasting and sealing machine, comprising a supporting frame, horizontally extending carton receiving and guiding members, a carton conveyer extending between said members, paste applying and carton flap operating members at the sides of said carton conveyer, horizontal carton receiving and sealing aprons mounted at the rear of said carton receiving and guiding members and said carton flap operating

members, a carton conveyer adapted to move more slowly than the first mentioned conveyer and to pass between said carton receiving and sealing aprons, and means for simultaneously operating said carton conveyers.

6. In a carton pasting and sealing machine, a supporting frame, presser roller carrying frames spaced apart forming an intermediate carton receiving and conveying guide-way, means for adjusting said frames uniformly and simultaneously toward and from each other to regulate said guide-way, endless carton receiving and sealing aprons passing over and inclosing a plurality of said presser rollers and arranged in series between said frames, and a carton conveyer traveling between said aprons and presser rollers.

7. A carton pasting and sealing machine, comprising a main frame, carton receiving and guiding members carried thereby, carton conveyers extending therebetween one of which is arranged at the rear of the other and moves more slowly, carton flap receiving and guiding members at the sides of said first or more rapidly moving conveyer, means for applying paste to the carton flaps while in said flap receiving and guiding members, means for closing said pasted flaps as received from said paste applying means, and spring resisted presser rollers in co-operative relation to said second or more slowly moving conveyer for sealing and setting said pasted flaps in their closed position.

8. In a carton pasting machine, a supporting frame, carton receiving and guiding members adjustably mounted thereon, carton conveyer members transversely adjustable toward and from each other, carton flap receiving and guiding members at the sides of said conveyer members, means for applying paste to the carton flaps while in said flap receiving and guiding members, and vertically and horizontally adjustable

flap folding members adapted to receive the pasted flaps as received from said flap pasting members and to return and hold the flaps in folded or closed position.

9. A carton pasting and sealing machine, comprising a supporting frame, carton receiving and guiding members, including adjustably mounted endless sealing aprons and presser rollers interposed between said aprons, carton conveyers passing between said receiving and guiding members, carton flap receiving and paste applying members at the sides of said carton receiving and guiding members, carton flap engaging members at the sides of said carton receiving and guiding members adapted to receive and fold over the sealed flaps as received from said paste applying members, and means for adjusting said carton receiving and guiding members vertically and laterally toward and from each other.

10. A carton pasting and sealing machine, comprising a main frame, carton receiving and guiding members adjustably mounted thereon forming an intermediate carton receiving and conveying guide-way, endless carton conveyers passing between said guide-way, carton flaps receiving and paste applying members at the sides of said guide-way, carton flap returning members at the sides of said guide-way adapted to return or fold over the sealed flaps as received from said paste applying members, and carton receiving and sealing aprons and presser rollers above and below said guide-way for holding and setting said sealed flaps as received from said carton flap returning and closing members.

In testimony whereof we have affixed our signatures in presence of two witnesses.

CLAYTON CROUCH.  
GEO. J. HEWLETT.

Witnesses:

HUBERT S. TURNER,  
IRENE POWELL.