F. W. LEV.

PACKAGING MACHINE.

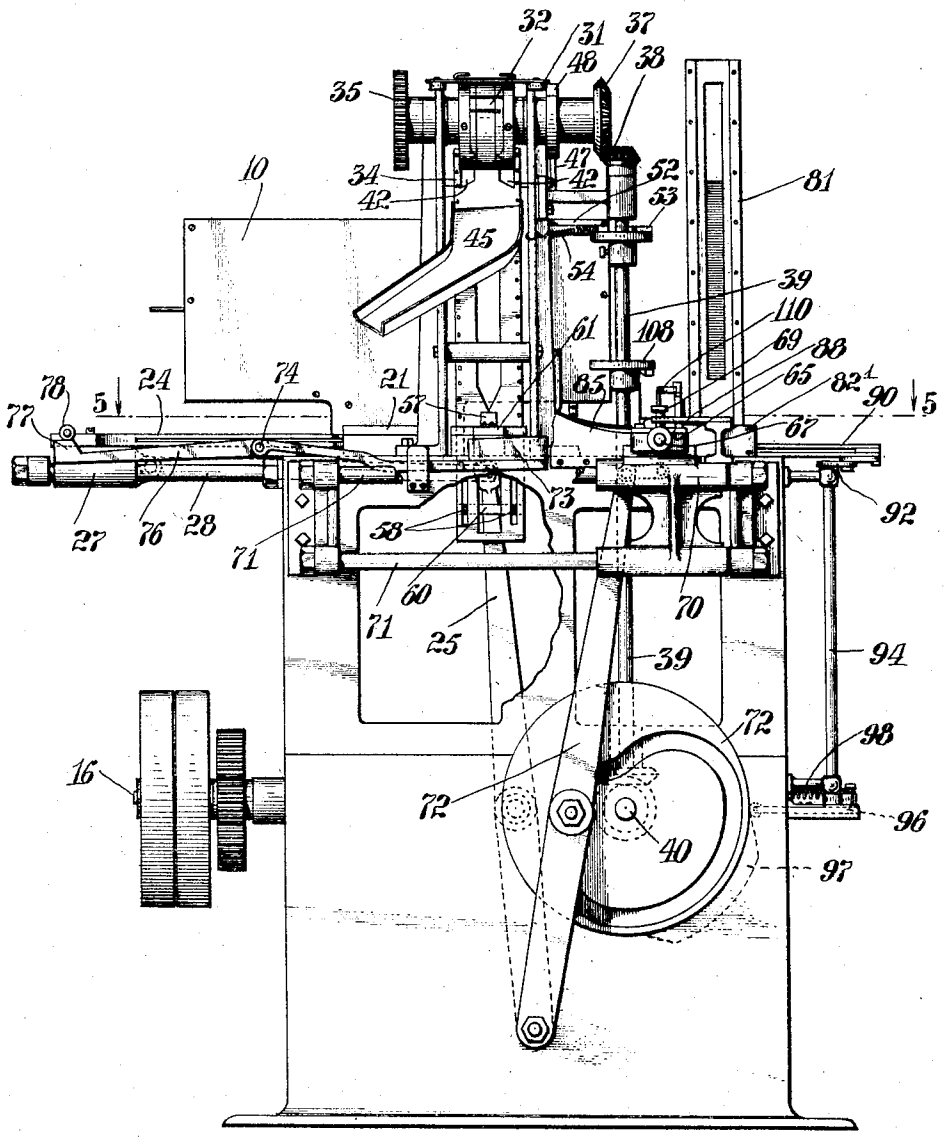
APPLICATION FILED MAY 6, 1911.

1,042,013.

Patented Oct. 22, 1912.

8 SHEETS—SHEET 1.

Fig. 1.



Attest:

Eugene Wening

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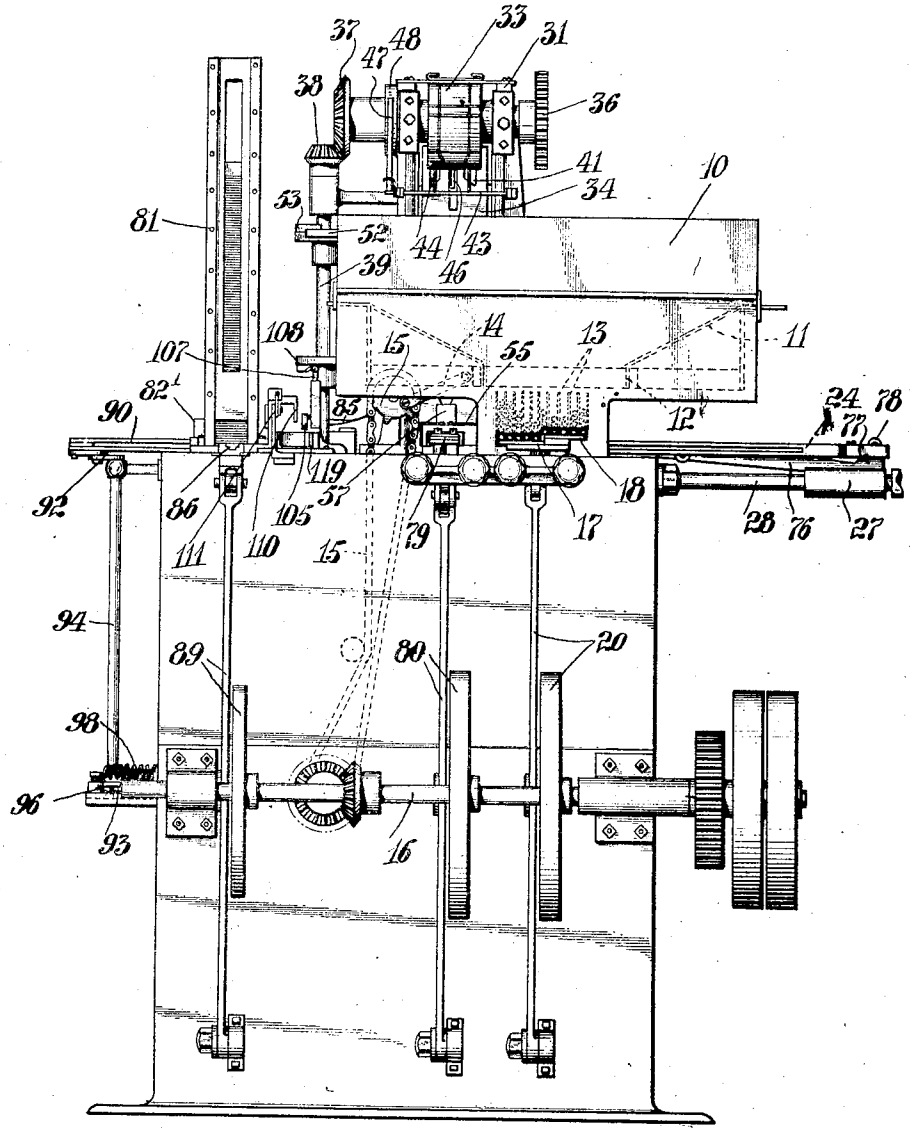
8 SHEETS—SHEET 2.

Fig. 2.



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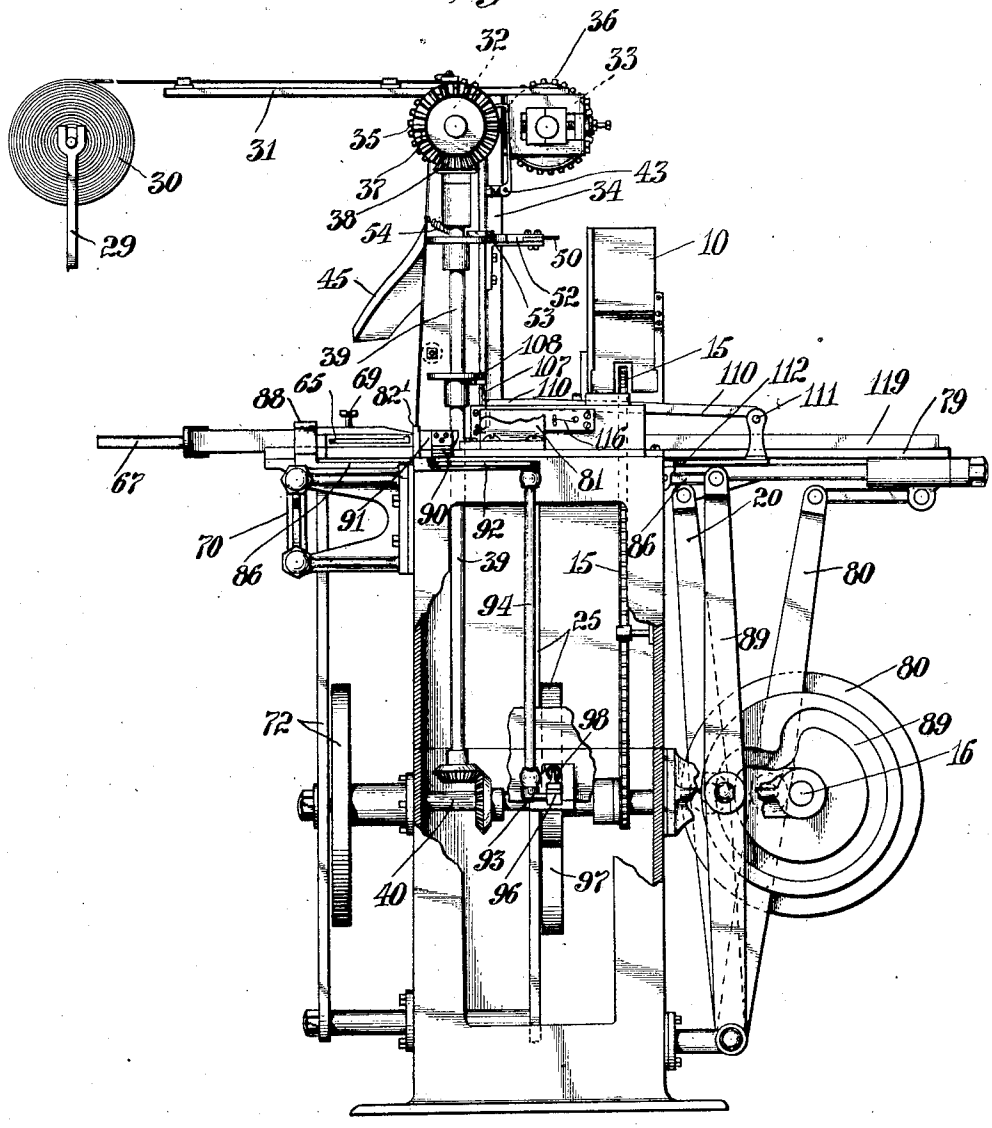
8 SHEETS—SHEET 3.

Fig. 3.



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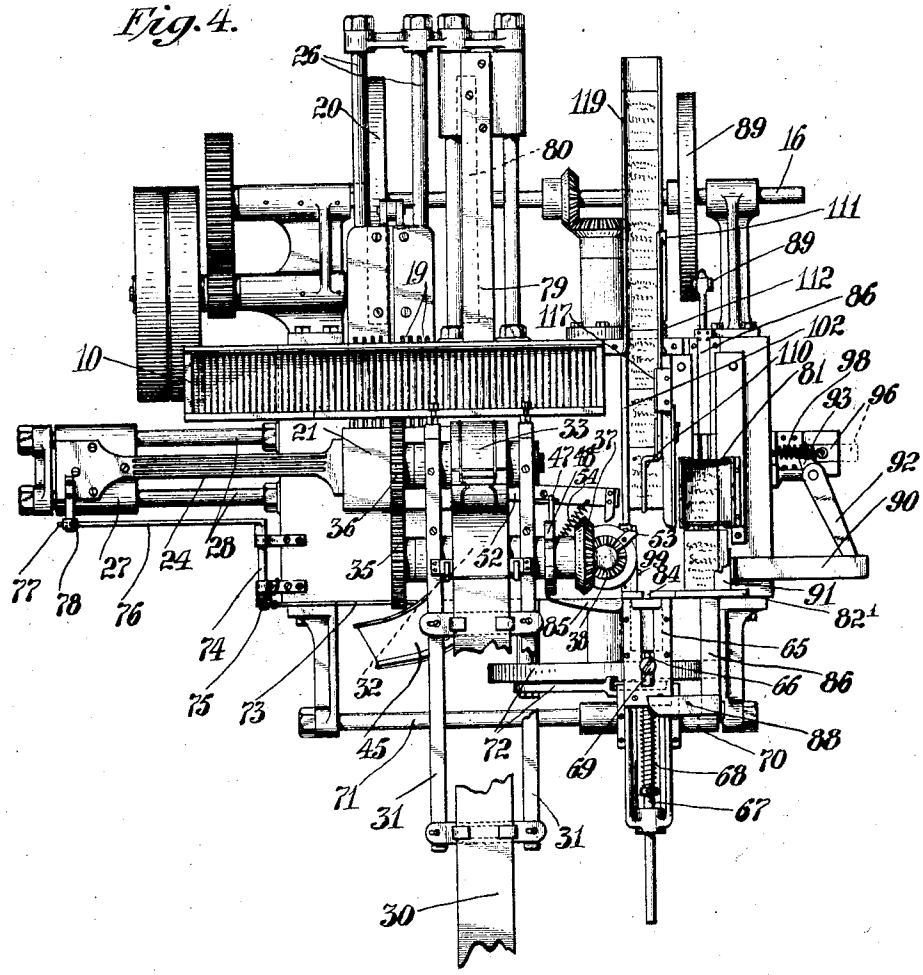
8 SHEETS—SHEET 4.

Fig. 4.



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8 SHEETS—SHEET 5.

Fig. 5.

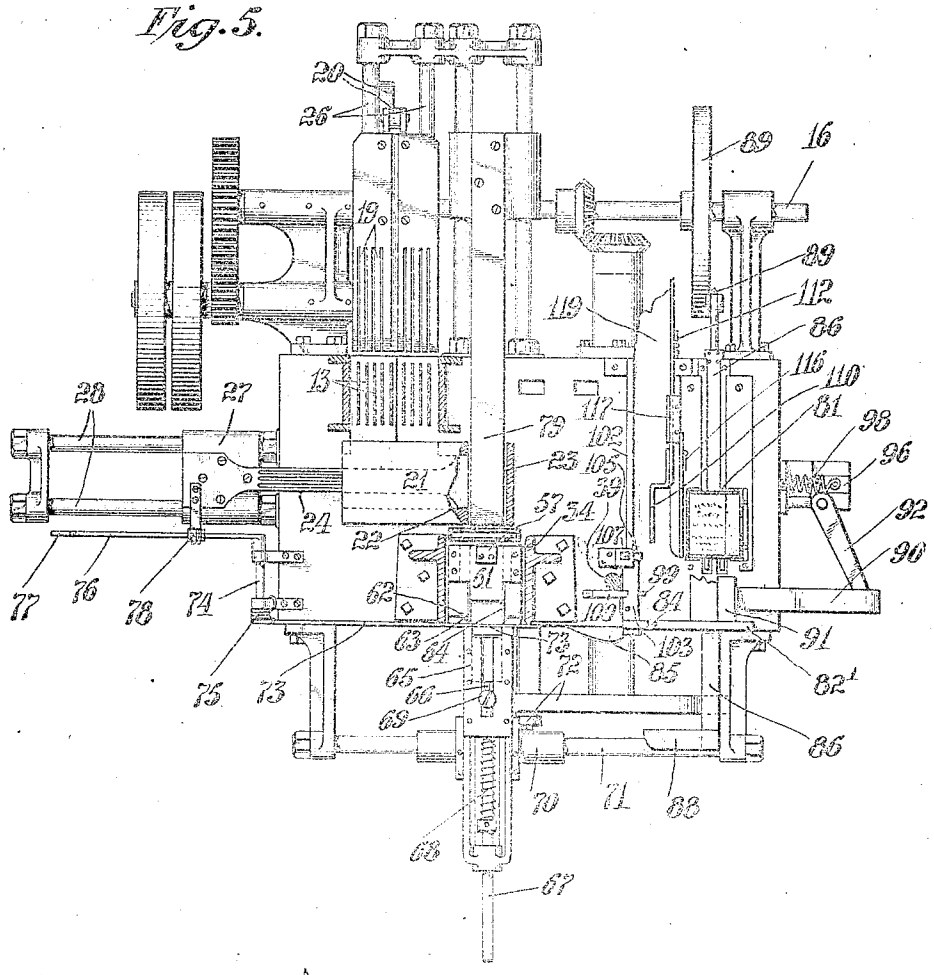
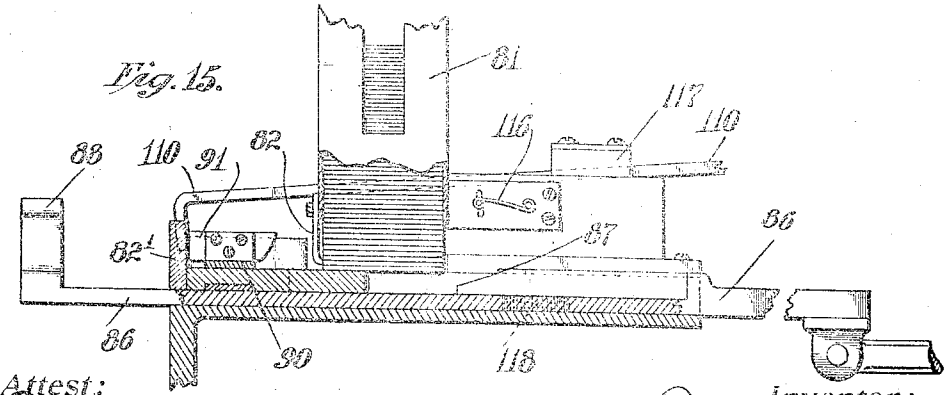


Fig. 15.



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8 SHEETS—SHEET 6.

Fig. 6.

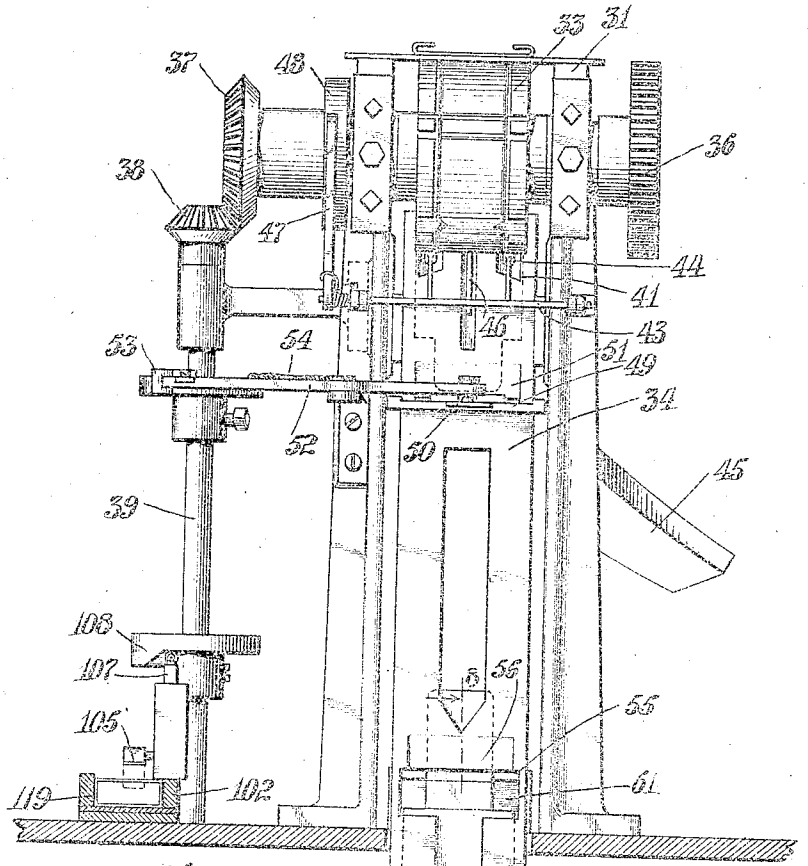


Fig. 8.

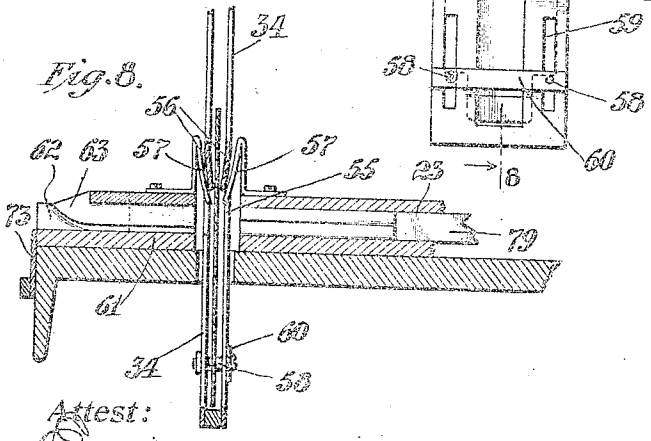
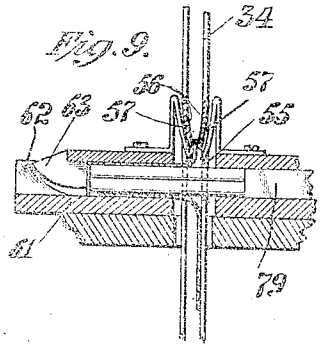


Fig. 9.



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PACKAGING MACHINE.

APPLICATION FILED MAY 6, 1911.

1,042,013.

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8 SHEETS—SHEET 7.

Fig. 7.

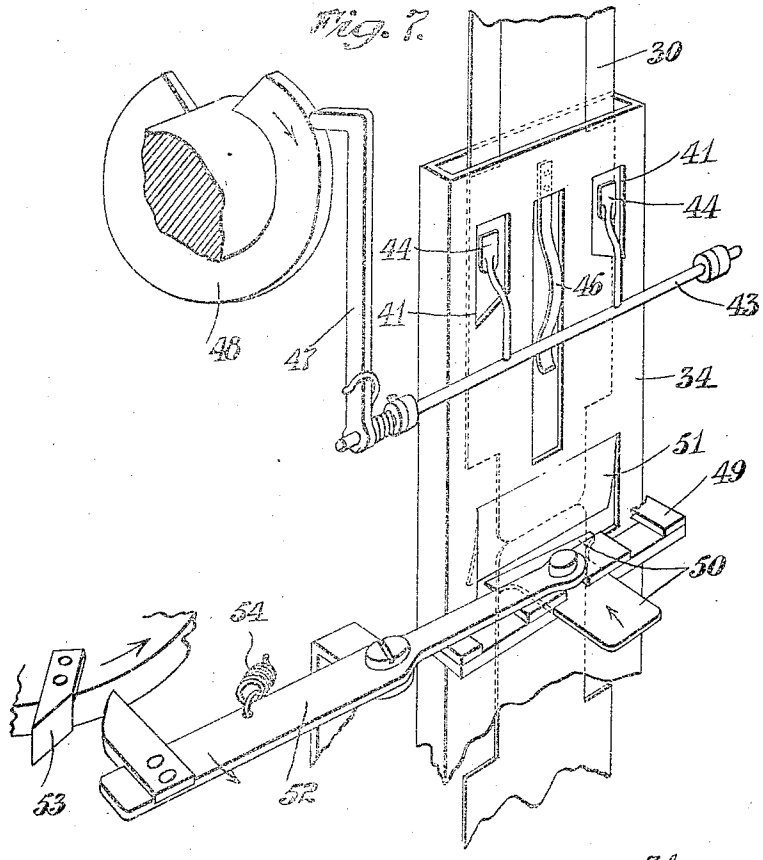


Fig. 10.

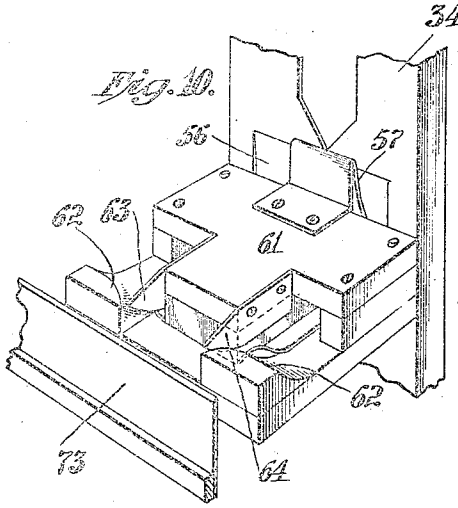
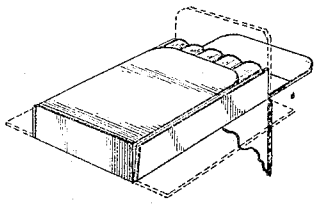


Fig. 1.



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APPLICATION FILED MAY 6, 1911.

1,042,013.

Patented Oct. 22, 1912.

8 SHEETS—SHEET 8.

Fig. 16.

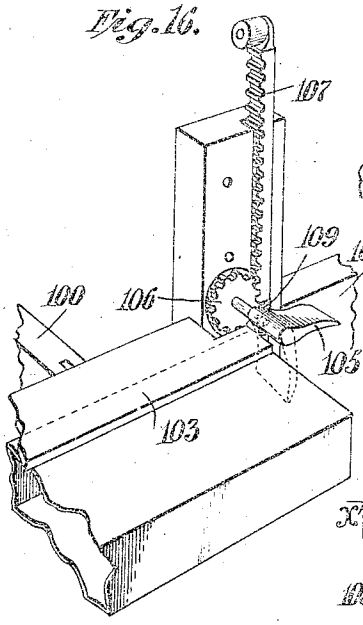


Fig. 12.

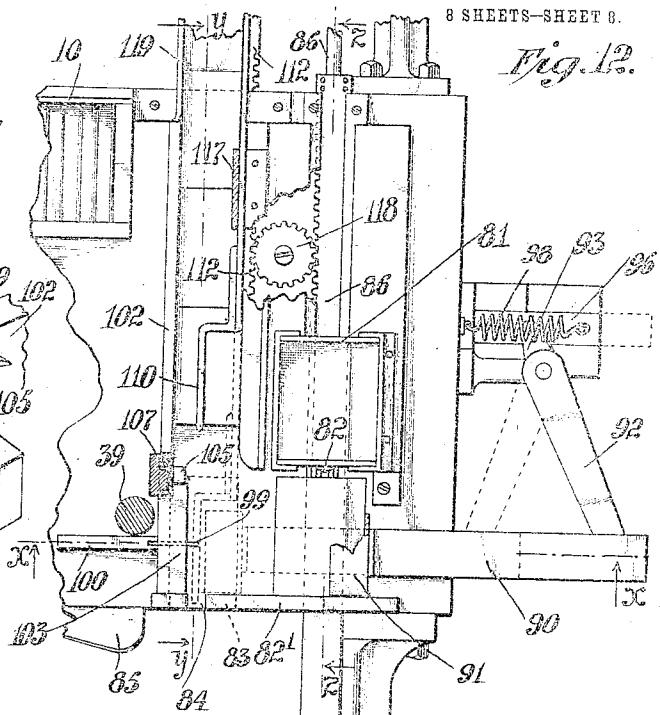
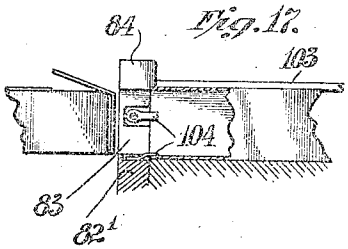


Fig. 17.



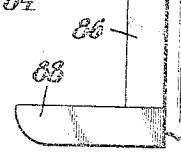


Fig. 13.

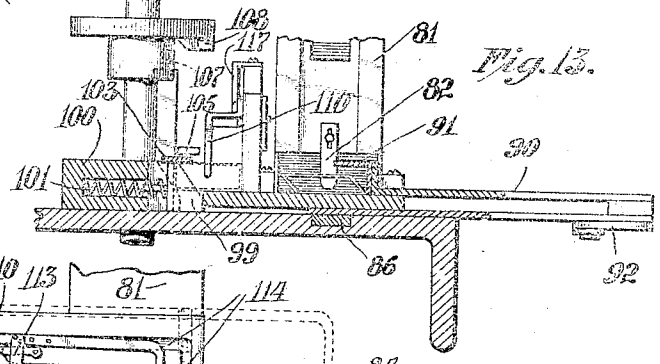
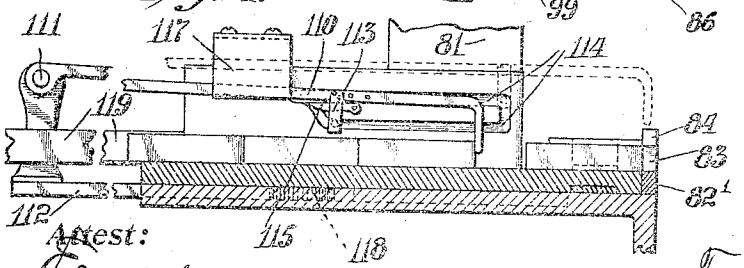


Fig. 14.



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Eugene Wenning

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Frank W. Lev

by

Atty

UNITED STATES PATENT OFFICE.

FRANK W. LEV, OF NEW YORK, N. Y., ASSIGNOR TO INTERNATIONAL PACKING MACHINE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

PACKAGING-MACHINE.

1,042,013. Specification of Letters Patent. Patented Oct. 22, 1912.

Application filed May 6, 1911. Serial No. 625,576.

To all whom it may concern:

Be it known that I, FRANK W. LEV, a citizen of the United States of America, residing at New York city, New York, have invented certain new and useful Improvements in Packaging-Machines, of which the following is a specification.

My invention relates to packaging machines and more particularly to a type thereof adapted to assemble a plurality of independent articles in compact form and inclose them in a receptacle having a slide cover.

One object of the invention is to provide a machine of this character which will have high efficiency and capacity and will deliver completed, full packages, the slide covers of which will not be subject to liability of separation after having the inner slide inclosed therein.

Another object is to provide a machine of this character adapted to deliver completed, packed slide boxes, wherein slidable covers, prior to being charged into the machine will be formed and dried, so that the sole function of the machine, as to such covers, will be to distend them and to deliver the inner box parts within same, thus eliminating all necessity for the employment of a paste or glue pot in connection with the machine and increasing the capacity of the machine.

A further object is to provide a machine of this character using previously completed slide covers, wherein said covers may be conveniently stored in large quantities and will be successively distended and accurately positioned to receive the filled inner box part with each actuation of the machine.

A further object is to provide a machine of the character immediately above described, wherein the distention and positioning of the slide covers will be accomplished in a manner to prevent any collision between the cover and the inner box part during the assembling of these parts.

A still further object is to provide a machine of this character wherein the packed and assembled boxes will be automatically delivered by the machine, the delivering mechanism being so synchronized with the assembling mechanism and the mechanism delivering the slide covers as to permit the rapid operation of these mechanisms while avoiding any possibility of interference of parts.

A still further object is to provide a machine of this character wherein the blanks for the inner box parts are formed from a continuous strip of material by a blanking mechanism embodied in the machine, each blank being completed and severed from said strip as required.

A still further object is to provide in a machine of this character, a box part blanking mechanism adapted to remove the superfluous material from a continuous strip to form a blank of the desired configuration and to discharge the removed material in a manner to avoid clogging, or interference with the operation, of the machine by said material.

A still further object is to provide a machine of this character wherein inner box part blanks will be formed consecutively from a continuous strip of suitable material, each blank being separated from said strip and delivered, and held in position to receive and be folded about assembled cigarettes or other articles adapted to be inclosed therein.

A still further object is to provide a machine of this character wherein a plurality of separate articles will be firmly compacted and inclosed within an inner slide box part which in turn will be inclosed within a previously formed slide box cover so that said articles will be inclosed within the box and will not be mutilated or disarranged while being packed. And a still further object is to provide a continuously operating machine, the various mechanisms of which are so associated and combined as to collect or assemble a plurality of separate articles to be packed, form a blank, inclose said collected or assembled articles within said blank, and slide said folded blank and its inclosed articles within a previously completed slide cover.

The invention consists in such novel features of construction and combination of parts as are hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawings:—Figure 1 is a front elevation of a machine embodying my invention; Fig. 2 is a rear elevation thereof: Fig. 3 is a side elevation thereof with a portion of the frame broken away to disclose some of the operating mechanisms; Fig. 4 is a plan view of the machine; Fig. 5 is a horizontal section on the line 5—5 of Fig. 1; Fig. 6 is a detail, in elevation, of the

blank forming and delivering mechanism and a portion of the cover holding mechanism; Fig. 7 is a perspective view of the mechanism for removing the separated parts of the strip and for separating the completed blanks from the strip. Figs. 8, 9 and 10 are detailed views of the blank holding and folding means, illustrating the manner of applying the blanks to the collected cigarettes; Fig. 11 is a detailed view of the packed inner box part illustrating the manner of folding the forward end and short end flap; Fig. 12 is a detailed plan view of the cover storing, feeding and distending mechanisms and of the delivery mechanism for the completed, packed boxes; Fig. 13 is a section on the line x—x of Fig. 12; Fig. 14 is a section on the line y—y of Fig. 12; Fig. 15 is a section on the line z—z of Fig. 12; Fig. 16 is a detailed view of the mechanism for imparting the final forward thrust to the slide cover preparatory to the delivery of the inner box part thereinto; and Fig. 17 is a detailed view showing the holding means for the distended box to insure the accurate delivery of the inner packed box part to the cover.

Like reference numbers refer to like parts throughout the several views.

A machine embodying my invention combines in a single structure coöperating elements and mechanisms, the operations of which will serve to assemble and compact a plurality of independent articles; form a blank from a continuous strip of material such as light card-board, fold this blank about the previously assembled and compacted articles so as to inclose said articles within a box part formed of said blank by this folding operation, deliver previously completed slide covers in a position where the inner box part may be delivered into said cover, and finally deliver the packed boxes.

In my description of the machine, I will follow closely the steps above referred to and will consider the following mechanisms in the order named: first; the article collection or assembling and compacting mechanism; second; the blank forming and positioning mechanism; third; the folding mechanism for inclosing the articles within the blank; fourth; the cover storing, distending and positioning mechanism and means delivering the packed inner box part into said cover; and fifth; the package delivery mechanism.

The machine shown in the accompanying drawings is especially adapted for packaging cigarettes and many refinements are incorporated therein for adapting the machine to the delicate nature of the article handled thereby.

In the drawings, I have shown at 10 a hopper adapted to receive the cigarettes, which hopper has a movable converging bottom 11 having a discharge opening 12 therein, above a plurality of partitions 13 of a height sufficient to accommodate a plurality of cigarettes. The bottom 11 is reciprocated by means of the link 14 driven from a chain and sprocket mechanism 15 actuated from the power shaft 16 of the machine. Closing the bottom of the channels formed by the partitions 13 are supporting shelves 17 and 18 arranged on different levels so that the cigarettes may be arranged in two layers preparatory to packing in the boxes.

Sliding upon the shelves 17 and 18 are a plurality of forked plungers 19 adapted to pass between the various partitions 13 and engage the lowermost row of cigarettes contained between said partitions, all of said plungers being simultaneously actuated by a cam and lever system 20.

Positioned at the discharge end of the partitions 13 is a compacting box 21, divided by a transverse partition 22 so that as the cigarettes are delivered to said box by the plunger 19 they will be divided into two equal groups and held upon separate levels so that one row of cigarettes may be forced below the other and both rows simultaneously delivered to a chamber 23 by the plunger 24 which is divided horizontally as shown in Fig. 1, to afford the clearance necessary to permit said plunger to pass upon opposite sides of the partition 22. The plungers 19 and 24 move along perpendicular lines, the latter serving to compact the cigarettes within the chamber 23. The plunger 24 is actuated by the cam and lever system 25. The plungers 19 move upon the guides 26 and the support 27 for the plunger 24 moves upon the guides 28.

Mounted upon or adjacent to the machine is a support 29 for a roll of continuous strip 30 of light card-board, which strip is threaded through the guide frame 31 to the cutting and scoring rotary dies 32 and 33 surmounting a guide frame 34 through which the strip is fed by the said rollers. The dies 32 and 33 carry enmeshed gears 35 and 36 and are driven by means of the gears 37 and 38 carried by the shaft 39, said shaft being driven from the shaft 40 which in turn is geared to the power shaft 16.

The guide frame 34 has therein a plurality of oppositely disposed openings 41 and 42, which are utilized to remove that material of the strip cut away by the dies 32 and 33 for the purpose of facilitating the formation of the corners and forming the long and short end flaps of the inner box parts. Extending across the frame 34 is a rock shaft 43 carrying pushed plates 44 projecting through the openings 41 and adapted to project the edges of the strip 30 along the slit therein, formed by the said rollers,

outwardly through the openings 42 in a manner to cause the lower edge of said openings to separate this cut away portion from that portion of the strip forming the blank, the portion thus separated being discharged into the chute 45 which delivers it at a point beyond the working mechanisms of the machine. Carried by the frame 34 is a spring 46 adapted to hold the strip perfectly flat while passing through said frame and accurately position it so that each completed blank may be severed from the strip as required.

Carried by the rock shaft 43 is a spring pressed arm 47 which through the cam 48 imparts a timely movement to said shaft to cause the forward end of the portion of the strip to be severed to be thrust through the openings 42.

The frame 34, below the pusher plates 44 is slotted, and mounted adjacent to said slot is a plate 49 having slidably mounted therein a shear blade 50 adapted to sever each completed blank from the main strip and permit it to drop sufficiently far within the said frame 34 to afford proper clearance for the continued operation of the dies 32 and 33 while the cigarettes or other articles are being inclosed within the completed and detached blank.

The blade 50 has pivotally attached thereto one arm of a lever 52, the other arm of which carries an anvil through which the cam wheel 53 imparts a timely oscillation to the lever 52. The spring 54 serves to normally hold the blade 50 out of contact with the strip 30. To hold the strip 30 flat at that point when a completed blank is detached therefrom by the shear blade 50, I contract the frame 34 by forcing a portion 51 thereof inwardly thus guiding the strip and holding it against the wall of said frame. A suitable platen against which the shear blade acts is carried by the frame 34. Below this cut-off mechanism, the frame 34 is cut away to leave opposite openings 55 alined with the discharge end of the chamber 23. The completed blanks when detached drop within the frame 34 so as to extend across these openings 55, and to properly position the blank within said frame preparatory to inclosing the cigarettes therein, I contract the frame 34 at 56. Mounted upon opposite sides of this contracted portion are clips 57 which define the line along which the blanks fold as the cigarettes are forced through the openings 55. Below the chamber 23, the frame 34 has mounted thereon oppositely disposed pins 58 passing through elongated slots 59, said pins being held in alinement by the bar 60 and being adjustable in said slots so as to facilitate the accurate setting of the machine to properly position the blanks which are supported through the engagement of the corner shoulders of the blanks with said pins.

Upon that side of the frame 34 opposite to, and alined with, the compacting chamber 23, is a fixed folding die 61 the side folders 62 of which turn the side wings of the blank upwardly as said blank is forced through said die with the cigarettes or other articles contained within same. This die 61 carries one of the clips 57 which serves to turn down the long retaining flap of the inner box part as the blank is forced from the chamber 23 through the openings 55, to the die 61. The plates 63, 64 carried by the die 61 within the side folders 62 prevent the displacement of the cigarettes while the side wings of the inner box part are being folded by the side folders 62. The said plates 63, 64 project forwardly as shown in Fig. 10, to an extent to hold the cigarettes compacted until the side folders 62 have completely up-turned the side wings of the inner box part and said part with the contained cigarettes is about to be fed to the mechanism adapted to accomplish the completion of the folding of the box blank and the delivery thereof to the slide cover.

Moving across, and adapted to be alined with the forming die 61 is a transfer box 65 having mounted therein an ejector 66 carrying a guide rod 67. Acting upon the rod 67 is a spring 68 adapted to normally withdraw the ejector plunger within the box to the full extent so as to permit the free insertion of the folded inner box part and its contained articles. The top of the transfer box 65 is provided with a slot, movin the slide cover in a manner which will is a stud 69 by means of which the ejector may be actuated to discharge the contents of the transfer box and deliver same withing the slide cover in a manner which will be hereinafter described. The carriage 70 for the transfer box 65 is mounted upon parallel guides 71 and said carriage and said box are reciprocated by means of a cam and lever mechanism 72.

To accomplish the folding of the forward end of the inner box part, I space the transfer box 65 slightly away from the folding die 61 and interpose between these mechanisms an oscillatory folding blade 73, which after the inclosed cigarettes have been transferred from the folding die to the transfer box, is raised to fold the end of the blank upwardly and position the end flap so that with the subsequent movement of the transfer box, it will be folded down upon the top of the inner box part. The blade 73 is carried by a shaft 74 which is acted upon by a spring 75 in a manner to normally position said blade below the opening in the transfer box 65. Carried by the shaft 74 is a lever arm 76, the end of which is provided with a rise 77 adapted to be acted

upon by the roller 78, carried by the carriage 27, as said carriage approaches the limit of its return movement preparatory to the transfer of cigarettes from the box 21 to the chamber 23, the arrangement of such roller and of such lever arm being such as to permit the spring 75 to hold the blade 73 in its inoperative position excepting during that short interval during which the carriage 27 is at the end of its return stroke.

The cigarettes are forced from the compacting chamber 23 through the guide frame 34 and folding die 61 into the transfer box 65 by the plunger 79 which is actuated by the cam and lever mechanism 80.

Mounted at one side of the folding die 61 is a magazine 81 adapted to receive a pile of collapsed, previously completed slide covers, said magazine being open at the bottom so as to permit the covers to automatically drop within said magazine as the lowermost cover is removed from the bottom of the pile. A plate 82 upon the forward face of said magazine limits the feeding of one cover at a time, the cover so fed being positioned upon the top plate of the machine, and the lower end of the magazine being spaced from the top plate sufficiently to prevent the jamming of the covers adjacent to the bottom of the pile.

Adjacent to the cover magazine and feeding mechanism therefor, I provide the top plate of the machine with a flange 82′ having an opening therein at 83 through which the inner box part and its contents are adapted to be forced when being inserted within the slide cover, said flange having a vertical slot 84 therein communicating with the opening 83 to permit the package delivery mechanism to engage each completely packed box and remove it in a manner to afford a clear field for the succeeding box.

Located between the folding die 61 and the opening 83 is a folder plate 85, adapted to engage the short flap of the inner box part and fold it down as shown in Fig. 17 so as to remove sufficient of the elasticity along the fold of this flap and the forward end of the box part, to facilitate the insertion of this part within the previously distended and positioned cover.

The top plate of the machine below the magazine 81 is slotted, and mounted in this slot is a slide 86 having a shoulder 87 thereon adapted to engage the lowermost cover contained in the magazine and push it forwardly into that position where the distending and positioning mechanism will engage same. The slide 86 extends forwardly beyond the rim 82 and its forward end carries an arm 88 adapted to engage the stud 69 and actuate the plunger 66 against the tension of the spring 68, to discharge the inner box part and the cigarettes contained therein from the transfer box 65 and deliver it through the opening 83 within the slide cover. It will thus be observed that the slide 86 has the twofold function of feeding a collapsed cover from the magazine upon its direct reciprocation and delivering the contents of the transfer box into same upon its return stroke. The slide 86 is actuated by a cam and lever mechanism 89.

Moving at right angles to the slide 86 is a plunger 90 carrying a rectangular head 91, said plunger being positioned forwardly of the magazine 81 in a manner to engage each box cover as it is fed from the magazine. Said plunger receives a timely reciprocation from the crank arm 92 mounted on the shaft 94 which carries a crank arm 93 oscillated by a slide 96. A riser 97 upon the cam forming a part of the cam and lever mechanism 25 actuates said slide. The riser 97 is of sufficient length to hold the cover for a short interval when said plunger 90 has reached the limit of its direct reciprocation, said reciprocation accomplishing the distending of the cover and said holding interval permitting a short movement of the box cover to bring it into engagement with certain devices which will be hereinafter described, for holding it in this distended position. A spring 98 holds the slide 96 in engagement with the cam and also restores said slide and the plunger 90 to normal. The plunger 90 is longitudinally slotted so as to be guided by the under section thereof moving upon a guide in the top plate of the machine, (see Fig. 13) said under section being projected beyond the upper section to provide means for forcing the distending plate 99 out of the path of the box cover when said plate has accomplished a sufficient distention of said cover to insure its being properly set up in position to receive the inner box part. The plate 99 is a narrow sliding plate having an inclined surface adapted to be engaged by the box cover, and is mounted in a block 100, being normally projected by the spring 101 against the tension of which it is forced within the block 100 by the box itself or by the under section of the plunger 90. The incline upon the plate 99 extends upwardly and engages the box cover substantially centrally thereof so that the resistance of said plate to the movement of said cover will have the effect of opening or distending it and will prevent the crushing of its top by engagement with the flange 102.

The top plate 103 serves in conjunction with the angular plunger head 91 to hold the box cover upon the top plate of the machine and at the same time serves as a top guide for the distending plate 99.

By the means above described, it will be observed, I successively feed previously completed slide covers for boxes endwise from a

magazine and subsequently feed them sidewise into a position to have the previously filled inner box parts charged within same, resistance devices being provided whereby, during the sidewise movement of the cover, it will be distended so as to cause it to assume a rectangular form.

Countersunk within the walls of the opening 83 and projecting inwardly from the rim 82', are a plurality of clips 104 behind which clips each box cover, when fully distended and after it has been forced into a rectangular shape, is adapted to be forced by an oscillatory pusher plate 105. These clips are designed to hold the box cover in this shape to permit the withdrawal of the plunger 90, and to guide the inner box part as it is forced into the cover, preparatory to the succeeding operation of the machine.

The plate 105 is mounted on the axis of a pinion 106 in mesh with a rack 107, which rack receives a timely reciprocation from the cam 108 against the tension of the spring 109 which restores said rack and said pusher plate to normal to afford the proper clearance for the delivery of the packed box.

After the inner box part and its contained articles are charged or forced within the cover, it is necessary to deliver the completely packed box in a manner to allow sufficient clearance to prevent the jamming of the succeeding box cover. This delivery mechanism comprises a reciprocatory hook 110 adapted to be advanced over the top of the box, to be automatically dropped behind said box, and to be returned upon a lower level, carrying the box with it. To effect this movement, the hook 110 is pivoted to an arm 111 carried by a sliding rack 112, said hook being provided with an extension 113 having a roller moving in the continuous, substantially rectangular guide way 114. This way 114 extends forwardly, downwardly, rearwardly and upwardly on an incline where it joins the first named branch, an automatic switch member 115 serving to prevent the hook from dropping down said inclined section before it has reached the forward downward reach of the guide slot. The spring 116 serves to normally close the switch 115, said switch being automatically opened, against the tension of this spring, through the return movement of the hook. That reach of the guide slot 114 adjacent to the switch 115 is inclined upwardly so as to lift the hook 110 as it approaches the limit of its return movement. A keeper 117 serves to guide the hook in its reciprocatory movement.

The slide 86 is provided with rack teeth and enmeshed therewith and with the rack 112 is a pinion 118 through which the rack 112 is advanced upon the return movement of the slide 86 and is withdrawn with the completed packed box upon the forward feeding movement of said slide, thus insuring the removal of each completed box simultaneously with the feeding movement of the cover for the next box. The boxes are delivered along the channel plate 119.

The operation of the herein described machine is substantially as follows:—Cigarettes or other articles are stored in quantities in the hopper 10 in a position where they will drop from the converging movable bottom of said hopper between the partitions 13, the space between which partitions ordinarily will be completely filled with superposed cigarettes so that two rows of cigarettes will always be present adjacent to the bottom plates 17 and 18 of said partitions, and in the path of the plungers 19. The converging bottom is constantly reciprocated by the link 14 and the chain and sprocket mechanism 15. The plungers 19 are given a timely reciprocation by the cam and lever mechanism 20 to successively deliver the lowermost row of cigarettes contained between the partitions 13 endwise to the compacting box 21, five cigarettes being delivered below and five above the transverse partition 22 in said compacting box. Substantially no frictional resistance is offered to the feeding of said cigarettes, and the plungers 19 receive a limited movement to avoid disturbing the tobacco at the open ends of the cigarettes. When the cigarettes have thus been delivered to the compacting box 21 the plungers 19 begin to recede and the plungers 24 are advanced, forcing the cigarettes sidewise from the compacting box 21 into the chamber 23, both tiers or rows of cigarettes being simultaneously delivered to said chamber so that these rows will be superposed, in position ready to be discharged from said chamber 23 and inclosed within an inner box part. While the cigarettes are thus being collected and compacted, the blank forming and positioning mechanism is operative to form from the continuous strip 30 a completed blank to form the complete inner box part, one such blank being formed and severed with each complete cycle of operation of the machine. The dies 32 and 33 are driven continuously from the shaft 40 and as they are thus rotated they feed the strip 30 from its reel, cut said strip along the lines to form the corners and flaps, score it where the folds will come and feed it into the guide frame 34. As the forward edge of the cut portion of the strip passes the forward edge of the openings 41 and 42, the shaft 43 is rocked by its cam and lever mechanism 48, projecting the pusher plates 44 through the openings 41, to engage the cut away portion of the strip 30 and force it through the openings 42 so that said cut away portion will pass outside of the said guide frame and be separated from the strip by reason of its

engagement with the lower edge of the opening 42 and discharged by the chute 45 so as not to interfere with the working parts of the machine. The spring clips 46 hold the strip 30 adjacent to that side of the guide frame wherein the openings 42 are formed at this interval. The cut away portion of the strip thus removed includes that necessary in forming the long flap upon one inner box part and the short flap upon the succeeding box part, thus requiring but one reciprocation of the pusher plates 44 each time the machine turns over. After having the blanks so formed and severed, the strip 30 is fed downwardly within the frame 34 until the line of demarcation between successive inner box parts is in that position relative to the shear blade 50 where said blade may be actuated to sever one completed box part blank from the strip. At this interval the cam 53 oscillates the lever 52 against the tension of the spring 54 to cause the blade 50 to sever the completed blank, the inwardly projected portion 51 of the guide frame 34 holding the strip against the cutting block, not shown in the drawings, so as to accurately position said strip during the cutting operation. The spring 54 normally holds the shear blade out of the path of the strip. Upon being severed, the completed blank drops within the guide frame until the shoulders thereof, adjacent to the short flap, engage the studs 58, said blank when thus positioned extending across the openings 55 with the short flap projected downwardly. The contraction of the frame 34 adjacent to the openings 55 not only serves to properly center and position the blank, but at the same time prevents any tendency toward its buckling. The drop of the completed blank affords a proper clearance for a continuous feeding movement of the strip by the cutting and scoring rollers 32 and 33. The severance of the completed blank will occur substantially simultaneously with the delivery of the cigarettes to the chamber 23. The forward movement of the plungers 24 will release the lever 76 and cause the folding plate 73 to assume a position below the openings 55. At this stage, the plunger 79 is advanced, forcing the cigarettes from the chamber 23 through the openings 55 and folding die 61 into the transfer box 65, such movement of the cigarettes carrying the blank with them and folding the long flap upon the top thereof and the side flaps upwardly along the sides thereof so that as they enter the transfer box 65 the cigarettes will be completely inclosed within the inner box part except as to that end thereof where the small box flap is positioned. While passing through the die 61, the side folders 62 turn up the sides of the box, the plates 63, 64 holding the cigarettes compacted until such time as the sides of the inner box part are properly folded. During this forward movement of the plunger 79, the plungers 24 are receding and after the delivery of the inclosed cigarettes to the transfer box and the plunger 79 has receded, the roller 78 will engage the riser 77 and force the folding plate 73 upwardly to turn the end portion of the blank carrying the short flap.

During the advance of the plunger 79 to transfer the cigarettes from the chamber 23 to the transfer box 65, the slide 86 is moved forwardly by the cam and lever mechanism 89 to push one collapsed box cover, that which is lowermost in the magazine 81, into the path of the rectangular head 91 of the plunger 90. There is a tendency of this cover to spring open slightly when free of the magazine, but the overhang of the head 91 confines it to the proper position. It will thus be seen that the covers within the magazine are fed one at a time, and endwise, by the slide 86. As the slide 86 reaches the limit of its direct reciprocation, the arm 88 thereon is positioned so as to permit the transfer box 65 to be positioned between it and the rim 82′. While the box part and the arm 88 are being brought to the positions above described, the transfer box 65 receives a lateral reciprocation from the cam and lever mechanism 72, the folder plate 85 during the traverse of said box, turning the short flap downwardly upon the top of the inclosed cigarettes, completing the inclosing operation. The box 65 comes to rest alined with the opening 83 in the rim 82′, with the stud 69 in the path of the arm 88. Substantially simultaneously with the limit of the direct reciprocatory movement of the box 65, the plunger 90 is advanced by the crank arms 92 and 93 and the reciprocatory slide 96 controlled by the riser 97 upon the cam 25. This movement of the plunger 90 slides the previously delivered box cover at right angles to its movement in passing from the magazine, or sidewise, against the rim 102 and under the top plate 103 which plate in conjunction with the plunger head 91 prevents the buckling of the cover. As the cover is fed sidewise and before its engagement with the rim 102, it will engage the plate 99, the upwardly inclined surface of which will engage one side of said cover and through the resistance of the spring 101 serve to distend said box to a degree which will cause the subsequent engagement of that side with the rim 102, to completely distend said cover. The plate 99, as the box is distended, will recede within the opening of the block 100 or be forced inwardly by the under section of the slide 90, and thus allow a clear field for the cover. As the cover is forced by the plunger 90 against the rim 102, it will be trued up into rectangular form preparatory

to having the inner box part, with its contained cigarettes or other articles, delivered thereinto. To avoid any possibility of the distortion of the cover which would interfere with the delivery of the inner box part therein, the pusher plate 105 is at this moment oscillated, advancing the distended cover slightly so as to bring its forward edges behind the clips 104 about the opening 83. The box being thus positioned, the slide 86 recedes and the arm 88 thereon, by engagement with the stud 69, forces the ejector 66 toward the slide 82 against the tension of the spring 68, thus transferring the inner box part, and its contained or inclosed cigarettes, from the transfer box 65 to the distended box cover, pasing through the opening 83 in the rim 82'. The two parts of the box being thus assembled, the plunger 90 returns to normal and the transfer box 65 begins its return movement, the spring 68, when the stud 69 is clear of the arm 88, restoring the ejector 66 to its former position. As the slide 86 recedes to transfer the inner box part to the cover, the rack thereon, through the pinion 118, advances the rack 112 and with it the hook 110, the rim of the extension 113 moving forwardly in the upper reach of the way 114 so as to cause the hook to pass over the box just completed. As the hooked end of the member 110 is positioned over the vertical slide 84 in the rim 82', the roller of the extension 113 drops in the forward vertical reach of the guide slot 114 positioning said end beyond the packed box so that with the next forward reciprocation of the slide 86, the rack and pinion mechanism above referred to will reverse the direction of movement of said hook and move said completed box and all previously completed and packed boxes, along the slide 119 leaving a clear field for the next box cover to be filled. As said hook 110 approaches the limit of its return movement, the roller upon the extension 113 will pass up the inclined reach of said way automatically opening the switch 115 against the tension of the spring 116, said switch immediately and automatically closing so as to confine the next forward reciprocation of said hook to the upper reach of said way. The pivotal connection 111 permits this simultaneous oscillatory and reciprocatory movement of the hook 110.

In describing the operation of the machine, I have followed the steps incidental to the packing of a single box, it being understood, however, that while I have described the various operations in sequence, many of them are occurring simultaneously, the machine having high capacity and the restoration of some parts to normal being requisite before the completion of the entire sequence of operations, to secure the effective operation of the machine in its entirety and to avoid the limitation of the capacity of the machine to the duration of the operative movement of the members having the slowest or longest movements.

It is not my intention to limit the invention to the precise details of construction shown in the accompanying drawings, it being apparent that such may be modified without departing from the spirit or scope of the invention.

I believe it to be broadly new to provide a machine of this character wherein the blanks for the inner box parts are cut and formed from a continuous strip. I also believe it to be broadly new to provide a machine of this character wherein articles inclosed in an inner box part are transferred mechanically to a previously completed slide cover, and also to provide a mechanism whereby a large number of such covers collapsed and stored in a magazine, may be delivered one at a time preparatory to delivering the inner box part thereto, and I intend to claim all such features broadly.

Having described my invention, what I claim as new and desire to have protected by Letters Patent, is:—

1. A machine of the character described, embodying therein means adapted to form box part blanks from a continuous strip and simultaneously feeding same substantially vertically, a guide channel through which said strip is fed by said means, a cut-off mechanism whereby the formed blanks are severed from said strip while passing through said channel, means spaced below and away from said cut-off means, adapted to receive and hold each severed blank in a flat position preparatory to having an article delivered thereinto, whereby said blank is fed mechanically until severed and is then fed solely by gravity, and means whereby said blank is folded about an article or articles.

2. A machine of the character described, embodying therein means for forming inner box part blanks from a continuous strip, including therein a rotary cutting and scoring die, simultaneously forming and scoring the strip and feeding it substantially vertically, a substantially vertically extending guide channel beyond said die, through which the strip is fed by said die, a cut-off mechanism whereby the formed blanks are severed from said strip while passing through said channel, a folding die, and means spaced below and away from said cut-off mechanism, and adapted to receive and hold said blanks in a flat position relative to said folding die, preparatory to having articles delivered thereunto, whereby said blanks are fed mechanically until severed, and are then fed solely by gravity.

3. A machine of the character described, embodying therein means for forming inner

box part blanks from a continuous strip, including therein a rotary cutting and scoring die simultaneously forming and scoring and feeding the strip substantially vertically, a substantially vertically extending guide channel beyond said die, means separating the cut away portion from said strip, a cutting blade adapted to sever completely formed blanks from said strip, a folding die, and means spaced below and away from said die, adapted to receive and hold accurately said blanks in a flat position relative to said folding die preparatory to having articles delivered thereunto, whereby said blanks are fed and positioned through gravity.

4. A machine of the character described, embodying therein means for forming inner box part blanks from a continuous strip, including therein a rotary cutting and scoring die simultaneously forming and scoring and feeding the strip substantially vertically, a substantially vertically extending guide channel beyond said die, means separating the cut away portion from said strip, means conveying said separated portion away from the operative mechanisms of the machine, a cutting blade adapted to sever completely formed blanks from said strip, a folding die, and means spaced below and away from said die, adapted to receive and accurately hold said blanks in a flat position relative to said folding die preparatory to having articles delivered thereunto, whereby said blanks are fed and positioned through gravity.

5. A machine of the character described, embodying therein means for forming inner box part blanks from a continuous strip, including therein a rotary cutting and scoring die simultaneously forming, scoring and feeding the strip, an inclosed guide channel beyond said die, said channel having therein oppositely disposed openings alined with the cutters on said die, pusher plates adapted to be projected through said openings and project the cut away portion of the strip through one set of said openings and beyond said guide channel, means intermittently actuating said pusher plates, a cutting blade beyond said pusher plates adapted to sever completely formed blanks from said strip, a folding die, and means accurately positioning said severed blanks relative to said folding die.

6. A machine of the character described, embodying therein means for forming inner box part blanks from a continuous strip, including therein a rotary cutting and scoring die simultaneously forming, scoring and feeding said strip, an inclosed guide channel beyond said die, said channel having therein oppositely disposed openings alined with the cutters on said die, pusher plates adapted to be projected through said openings and project the cut away portion of the strip through one set of said openings and beyond said guide channel, means intermittently actuating said pusher plates, a cutting blade beyond said pusher plates adapted to sever completely formed blanks from said strip, a chute extending from said channel plate below said openings whereby the separated portion of the strip is delivered away from the working parts of the machine, a folding die, and means accurately positioning the severed blanks relative to said folding die.

7. A machine of the character described, embodying therein means for forming inner box part blanks from a continuous strip, including therein a rotary cutting and scoring die simultaneously forming, scoring and feeding said strip, an inclosed guide channel beyond said die, said channel having therein oppositely disposed openings alined with the cutters on said die, pusher plates adapted to be projected through said openings and project the cut away portion of the strip through one set of said openings and beyond said guide channel, means intermittently actuating said pusher plates, a spring tongue forcing the strip against the wall of the said channel plate adjacent to said last named set of openings, a cutting blade beyond said pusher plates adapted to sever completely formed blanks from said strip, a folding die, and means accurately positioning said severed blanks relative to said folding die.

8. A machine of the character described, embodying therein means for forming inner box part blanks from a continuous strip, including therein a rotary cutting and scoring die simultaneously forming and scoring and feeding the strip substantially vertically, a substantially vertically extending guide channel beyond said die, means separating the cut away portion from said strip, said channel having an opening through one side thereof below said means, a cutting blade movable through said opening and adapted to sever completely formed blanks from said strip, a lever pivotally connected with said cutting blade, a spring normally holding said blade without said channel, a cam adapted to intermittently actuate said blade against the tension of said spring, a folding die, and means spaced below and away from said die, adapted to receive and accurately hold said blanks in a flat position relative to said folding die preparatory to having articles delivered thereunto, whereby said blanks are fed and positioned through gravity.

9. A machine of the character described, embodying therein means for forming inner box blanks from a continuous strip, including therein a rotary cutting and scoring die simultaneously forming and scoring and

feeding the strip substantially vertically, a substantially vertically extending guide channel beyond said die, means disposed below said die for separating the cut away portion from said strip, a cutting blade disposed below said last named means and adapted to sever completely formed blanks from said strip after the cut away portion has been separated therefrom, a folding die positioned more than the length of a blank below said cutting blade, and a plurality of pins adapted to engage the shoulders of the severed blank, arrest it and accurately position it relative to said folding die.

10. A machine of the character described, embodying therein means for forming inner box part blanks from a continuous strip, including therein a rotary cutting and scoring die simultaneously forming and scoring and feeding the strip substantially vertically, a substantially vertically extending guide channel beyond said die, means disposed below said die for separating the cut away portion from said strip, a cutting blade disposed below said last named means and adapted to sever completely formed blanks from said strip after the cut away portion has been separated therefrom, a folding die positioned more than the length of a blank below said cutting blade, a plurality of pins adapted to engage the shoulders of the severed blank, arrest it and accurately position it relative to said folding die, said pins projecting through slots in said channel elongated in the direction of movement of the die, and means whereby said pins may be set in any adjusted position along said slots.

11. A machine of the character described, embodying therein means for forming inner box part blanks from a continuous strip, including therein a rotary cutting and scoring die simultaneously forming and scoring and feeding the strip substantially vertically, a substantially vertically extending guide channel beyond said die, means disposed below said die for separating the cut away portion from said strip, a cutting blade disposed below said last named means and adapted to sever completely formed blanks from said strip after the cut away portion has been separated therefrom, a folding die positioned more than the length of a blank below said cutting blade, a plurality of pins adapted to engage the shoulders of the severed blank, arrest it and accurately position it relative to said folding die, said pins projecting through slots in said channel elongated in the direction of movement of the die, a cross tie carrying said pins in exact alinement, and means whereby said cross tie and its pins may be set in any adjusted position along said slots.

12. A machine of the character described, embodying therein means for forming inner box part blanks from a continuous strip, including therein a rotary cutting and scoring die simultaneously forming, scoring and feeding the strip, a guide channel beyond said die, means separating the cut away portion from said strip, said channel having an opening through one side thereof below said means, a cutting blade movable through said opening and adapted to sever completely formed blanks from said strip, a lever pivotally connected with said cutting blade, a spring normally holding said blade without said channel, a cam adapted to intermittently actuate said blade against the tension of said spring, said channel adjacent to said cutting blade being contracted to hold the strip against a backing, a folding die, and means accurately positioning said blanks relative to said folding die.

13. A machine of the character described, embodying therein means for forming inner box part blanks from a continuous strip, including therein a rotary cutting and scoring die simultaneously forming and scoring and feeding the strip substantially vertically, a substantially vertically extending guide channel beyond said die, means disposed below said die for separating the cut away portion from said strip, a cutting blade disposed below said last named means and adapted to sever completely formed blanks from said strip after the cut away portion has been separated therefrom, a folding die positioned more than the length of a blank below said cutting blade, said channel having openings through both walls thereof in register with said folding die, and the walls above said openings being contracted to center the blank and prevent its buckling, and a plurality of pins adapted to engage the shoulders of the severed blank, arrest it and accurately position it relative to said folding die.

14. A machine of the character described, embodying therein means for forming inner box part blanks from a continuous strip, including therein a rotary cutting and scoring die simultaneously forming, scoring and feeding the strip, a guide channel beyond said die, means separating the cut away portion from said strip, a cutting blade adapted to sever completely formed blanks from said strip, a folding die positioned more than the length of a blank below said cutting blade, said channel having openings through both walls thereof in register with said folding die, and the walls above said openings being contracted to center the blank and prevent its buckling, clips on opposite sides of, and projecting below, said contracted portion for defining the fold in filling said blank, and a plurality of pins adapted to engage the shoulders of the severed blank, arrest it and accurately position it relative to said folding die.

15. A machine of the character described,

embodying therein means for forming inner box part blanks from a continuous strip, including therein a continuously rotated cutting and scoring die simultaneously forming and scoring and feeding the strip substantially vertically, a substantially vertically extending guide channel beyond said die, means disposed below said die for separating the cut away portion from said strip, a cutting blade disposed below said last named means and adapted to sever completely formed blanks from said strip after the cut away portion has been separated therefrom, a folding die positioned more than the length of a blank below said cutting blade, and a plurality of pins adapted to engage the shoulders of the severed blank, arrest it and accurately position it relative to said folding die.

16. A machine of the character described, embodying therein a magazine adapted to receive a plurality of previously completed collapsed slide box covers, a reciprocatory slide adapted upon its reciprocation in one direction to engage and deliver said covers one at a time and endwise from said magazine, a reciprocatory plunger, having an extended head having an overhang adapted to pass over the cover, moving perpendicularly to the movement of said slide and adapted to impart movement sidewise to said covers as delivered from said magazine, means successively actuating said slide and said plunger, a fixed rim having an overhang adapted to extend over the cover, against which the cover is thrust by said plunger and by which it is distended and accurately positioned to receive an inner box part, and a reciprocatory inclined plate yieldingly mounted relative to, and adapted to pass beyond, said rim, said plate having an inclined edge projected upwardly in the direction of movement of the cover, whereby said cover may receive an initial distention and force said plate beyond said rim.

17. A machine of the character described, embodying therein a magazine adapted to receive a plurality of previously completed collapsed slide box covers, a guide rim spaced away from, and having an opening therethrough at one side of, said magazine, means, for delivering said covers one at a time and endwise from said magazine, adjacent to said guide rim, means for imparting movement sidewise to said covers as delivered from said magazine, means arranged in the path of said covers as they are moved sidewise whereby each cover will be distended and accurately positioned in alinement with the opening in said rim to receive an inner box part, means within the opening in said rim adapted to enter and hold the cover in the distended position, and means adapted to impart endwise movement to the distended box cover to thrust it into operative engagement with said last named means.

18. A machine of the character described, embodying therein a magazine adapted to receive a plurality of previously completed collapsed slide box covers, a guide rim spaced away from, and having an opening therethrough at one side of, said magazine, means, for delivering said covers one at a time and endwise from said magazine, adjacent to said guide rim, means for imparting movement sidewise to said covers as delivered from said magazine, means arranged in the path of said covers as they are moved sidewise whereby each cover will be distended and accurately positioned in alinement with the opening in said rim to receive an inner box part, a plurality of clips secured to said rim about said opening and adapted to engage a distended box cover and the sides of the inner box part when passing through said opening, and means adapted to impart endwise movement to the distended box cover to thrust it into operative engagement with said clips.

19. A machine of the character described, embodying therein a magazine adapted to receive a plurality of previously completed collapsed slide box covers, a guide rim spaced away from, and having an opening therethrough at one side of, said magazine, means for delivering said covers one at a time and endwise from said magazine, adjacent to said guide rim, means for imparting movement sidewise to said covers as delivered from said magazine, means arranged in the path of said covers as they are moved sidewise whereby each cover will be distended and accurately positioned in alinement with the opening in said rim to receive an inner box part, means within the opening in said rim adapted to enter and hold the cover in the distended position, a vibratory pusher plate adapted to engage the distended box cover and impart endwise movement thereto to thrust it into operative engagement with said last named means, and intermittently operative means actuating said pusher plate.

20. A machine of the character described, embodying therein a magazine adapted to receive a plurality of previously completed collapsed slide box covers, a reciprocatory slide adapted upon its reciprocation in one direction to engage and deliver said covers one at a time and endwise from said magazine, a reciprocatory plunger having an extended head moving perpendicularly to the movement of said slide imparting movement sidewise to said covers as delivered from said magazine, means successively actuating said slide and said plunger, a fixed rim against which said covers are thrust by said plunger and by which they are distended and accurately positioned to receive an inner

box part, means imparting a timely reciprocation to said slide, a crank shaft, one arm of which is connected to said plunger, and the other arm of which is connected to a slide, a slide, a spring acting thereon to normally hold said plunger out of the path of the cover being fed by said slide, and a cam imparting a timely intermittent reciprocation to said plunger.

21. A machine of the character described, embodying therein a magazine adapted to receive a plurality of previously completed collapsed slide box covers, a reciprocatory slide adapted upon its reciprocation in one direction to engage and deliver said covers one at a time and endwise from said magazine, a reciprocatory plunger, having an extended head having an overhang adapted to pass over the cover, moving perpendicularly to the movement of said slide and adapted to impart movement sidewise to said covers as delivered from said magazine, means successively actuating said slide and said plunger, a fixed rim having an overhang adapted to extend over the cover, against which the cover is thrust by said plunger and by which it is distended and accurately positioned to receive an inner box part, and a reciprocatory inclined plate yieldingly mounted relative to, and adapted to pass beyond, said rim, said plate having an inclined edge projected upwardly in the direction of movement of the cover, whereby said cover receives an initial distention and forces said plate beyond said rim, said plunger being bifurcated and the arm thereof not having said extended head being adapted to engage said plate and sustain the pressure of the yielding support thereof.

22. A machine of the character described, embodying therein a magazine adapted to receive a plurality of previously completed collapsed slide box covers, reciprocatory means for delivering said covers one at a time and endwise from said magazine, means for imparting movement sidewise to said covers as delivered from said magazine, means arranged in the path of said covers as they are moved sidewise whereby each cover will be distended and accurately positioned to receive an inner box part, means whereby the filled inner box part is delivered within said distended cover, and reciprocatory delivery means independent of said last means and operative during the return movement of the reciprocatory movement of said means delivering covers from said magazine, whereby each cover and its contained inner box part is removed to leave a clear field for the succeeding cover.

23. A machine of the character described, embodying therein a magazine adapted to receive a plurality of previously completed collapsed slide box covers, means for delivering said covers one at a time and endwise from said magazine, means for imparting movement sidewise to said covers as delivered from said magazine, means arranged in the path of said covers as they are moved sidewise whereby each cover will be distended and accurately positioned to receive an inner box part, and delivery means, whereby each cover and its contained inner box part is removed to leave a clear field for the succeeding cover, comprising a hook adapted to be advanced over the distended cover during the return reciprocation of said slide, means causing said hook to engage the completed box at the end of such movement, and means returning said hook upon the succeeding feeding movement of said slide.

24. A machine of the character described, embodying therein a magazine adapted to receive a plurality of previously completed collapsed slide box covers, means for delivering said covers one at a time and endwise from said magazine, means for imparting movement sidewise to said covers as delivered from said magazine, means arranged in the path of said covers as they are moved sidewise whereby each cover will be distended and accurately positioned to receive an inner box part, and delivery means, whereby each cover and its contained inner box part is removed to leave a clear field for the succeeding cover, comprising a hook pivoted at one end thereof adapted to be advanced over the distended cover during the return reciprocation of said slide, a plate having a continuous way therein comprising two substantially parallel, horizontal reaches, a vertical reach connecting one end thereof and an inclined reach connecting the other end thereof, whereby said hook is caused to engage the completed box at the end of such movement, an automatic switch adjacent to the said inclined reach whereby said hook is prevented from entering the lower reach upon its direct movement, means carried by said hook moving in said way, and means returning said hook upon the succeeding feeding movement of said slide.

25. A machine of the character described, embodying therein a magazine adapted to receive a plurality of previously completed collapsed slide box covers, means for delivering said covers one at a time and endwise from said magazine, means for imparting movement sidewise to said covers as delivered from said magazine, means arranged in the path of said covers as they are moved sidewise whereby each cover will be distended and accurately positioned to receive an inner box part, and delivery means, whereby each cover and its contained inner box part is removed to leave a clear field for the succeeding cover, comprising a hook pivoted at one end thereof adapted to be advanced

over the distended cover during the return reciprocation of said slide, a plate having a continuous way therein comprising two substantially parallel, horizontal reaches, a vertical reach connecting one end thereof and an inclined reach connecting the other end thereof, whereby said hook is caused to engage the completed box at the end of such movement, an automatic switch adjacent to the said inclined reach whereby said hook is prevented from entering the lower reach upon its direct movement, means carried by said hook moving in said way, a rack for the support for the pivoted end of said hook, a rack moving with said slide and an intermediate pinion whereby said hook is moved simultaneously with, but in a reverse direction to, said slide.

26. A machine of the character described, embodying therein an inner box part blank delivery mechanism, article delivery mechanism, folding means whereby said article delivery mechanism causes an article or articles to be inclosed by one of said blanks, a transfer box into which said inclosed articles are forced by said article delivery mechanism, said transfer box having therein an ejector plunger having a stud thereon projecting through the slot in said transfer box, a magazine adapted to receive a plurality of previously completed collapsed slide box covers, a guide flange having an opening therein, a slide adapted to deliver covers one at a time from said magazine upon the direct reciprocation thereof, an arm carried by said slide adapted to engage the stud upon said transfer box whereby said ejector will be actuated upon the return reciprocation of said slide, and means distending the cover in position relative to said opening in the interval between the direct and the return reciprocations of said slide whereby said slide upon its direct reciprocation will feed the cover, and upon its return reciprocation will deliver the articles inclosed in the inner box part into the distended box cover.

27. A machine of the character described, embodying therein an inner box part blank delivery mechanism, article delivery mechanism, folding means whereby said article delivery mechanism causes an article or articles to be inclosed by one of said blanks, a transfer box into which said inclosed articles are forced by said article delivery mechanism, said transfer box having therein a spring retracted ejector plunger having a stud thereon projecting through the slot in said transfer box, a magazine adapted to receive a plurality of previously completed collapsed slide box covers, a guide flange having an opening therein, a slide adapted to deliver covers one at a time from said magazine, upon the direct reciprocation thereof, an arm carried by said slide adapted to engage the stud upon said transfer box whereby said ejector will be actuated upon the return reciprocation of said slide, and means distending the cover in position relative to said opening in the interval between the direct and the return reciprocations of said slide whereby said slide upon its direct reciprocation will feed the cover, and upon its return reciprocation will deliver the articles inclosed in the inner box part into the distended box cover.

28. A machine of the character described, embodying therein means adapted to form inner box part blanks from a continuous strip, means separating the completely formed blanks from said strip, an article delivery mechanism, folding means whereby said article delivery mechanism causes an article or articles to be inclosed by one of said blanks, a transfer box into which said inclosed articles are forced by said article delivery mechanism, said transfer box having therein an ejector plunger having a stud thereon projecting through the slot in said transfer box, a magazine adapted to receive a plurality of previously completed collapsed slide box covers, a guide flange having an opening therein, a slide adapted to deliver covers one at a time from said magazine upon the direct reciprocation thereof, an arm carried by said slide adapted to engage the stud upon said transfer box whereby said ejector will be actuated upon the return reciprocation of said slide, and means distending the cover in position relative to said opening in the interval between the direct and the return reciprocations of said slide whereby said slide upon its direct reciprocation will feed the cover, and upon its return reciprocation will deliver the articles inclosed in the inner box part into the distended box cover.

29. A machine of the character described, embodying therein an inner box part blank delivery mechanism, article delivery mechanism, folding means whereby said article delivery mechanism causes an article or articles to be inclosed by one of said blanks, a transfer box into which said inclosed articles are forced by said article delivery mechanism, said transfer box having therein an ejector plunger having a stud thereon projecting through the slot in said transfer box, a magazine adapted to receive a plurality of previously completed collapsed slide box covers, a guide flange having an opening therein, a slide adapted to deliver covers one at a time from said magazine upon the direct reciprocation thereof, an arm carried by said slide adapted to engage the stud upon said transfer box whereby said ejector will be actuated upon the return reciprocation of said slide, means distending the cover in position relative to said opening in the interval between the direct and the

return reciprocations of said slide whereby said slide upon its direct reciprocation will feed the cover, and upon its return reciprocation will deliver the articles inclosed in the inner box part into the distended cover, and a box delivery mechanism comprising means adapted to be advanced and caused to engage the filled cover upon the return movement of said slide and to recede with the filled box upon the direct or cover feeding movement of said slide.

In testimony whereof I have affixed my signature in presence of two witnesses.

FRANK W. LEV.

Witnesses:
OTTO MUHE,
EUGENE WENING.