E. D. ANDERSON.

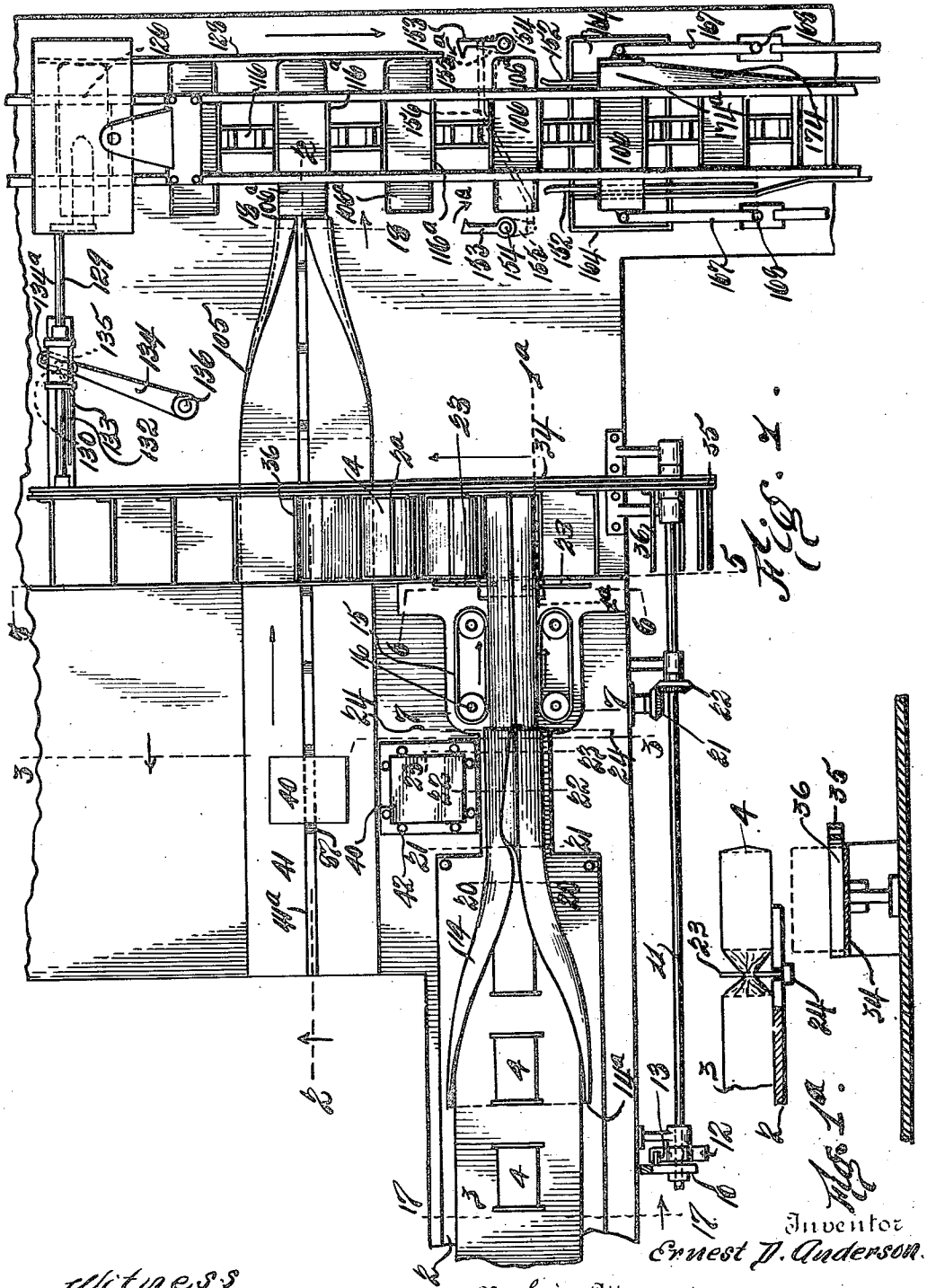
MEANS FOR WRAPPING AND PACKING ARTICLES.

APPLICATION FILED JUNE 24, 1916.

1,417,591.

Patented May 30, 1922.

8 SHEETS—SHEET 1.



Witness
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By his Attorney
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8 SHEETS — SHEET 2

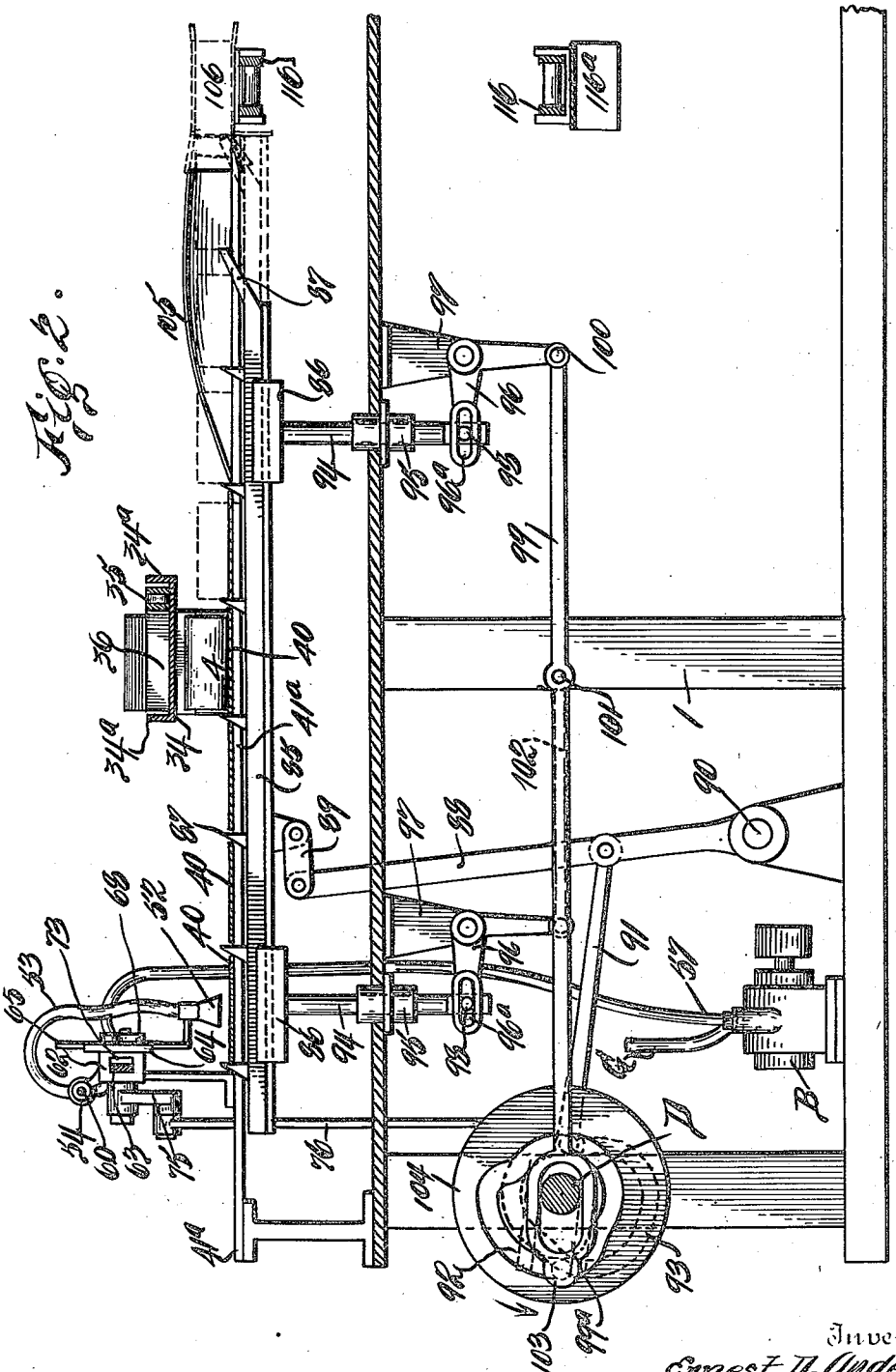


Fig. 2.

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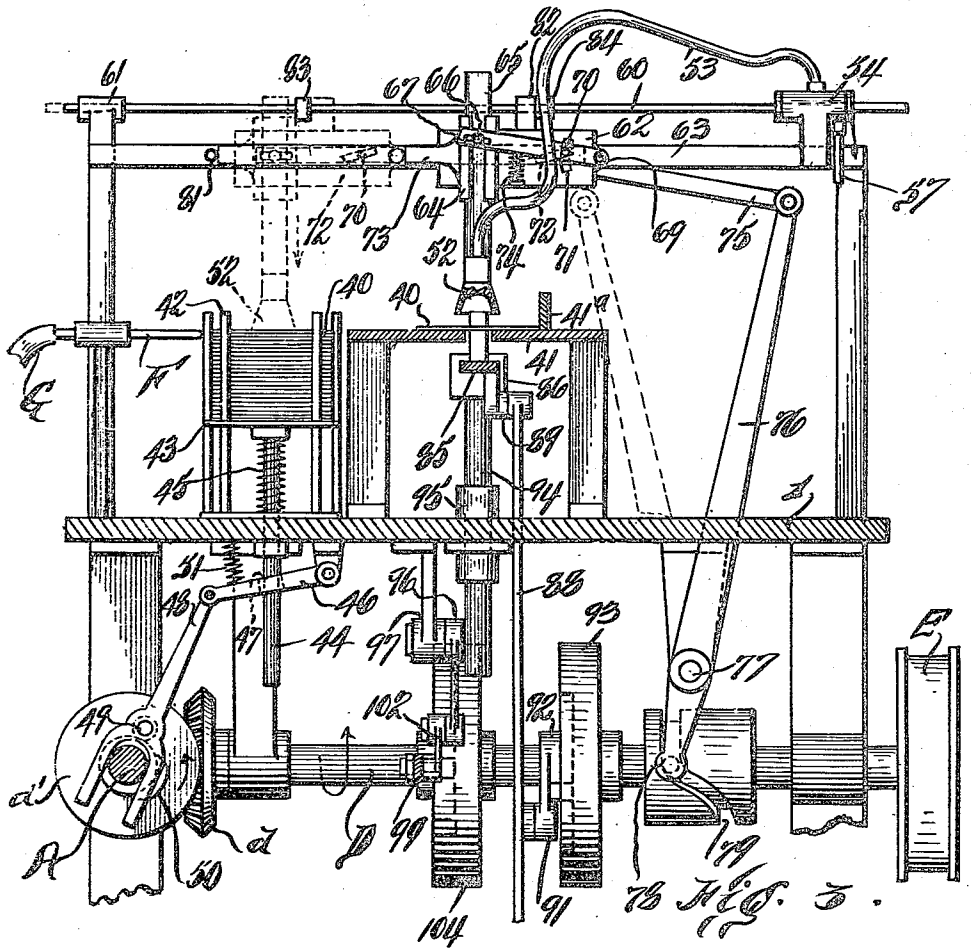


Fig. 3.

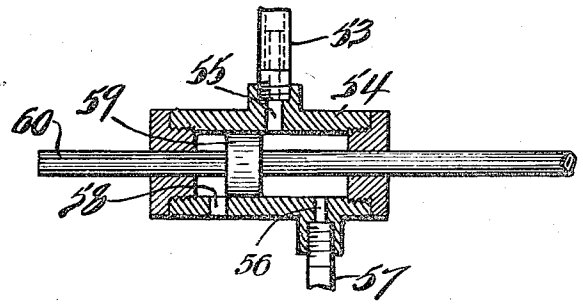


Fig. 4.

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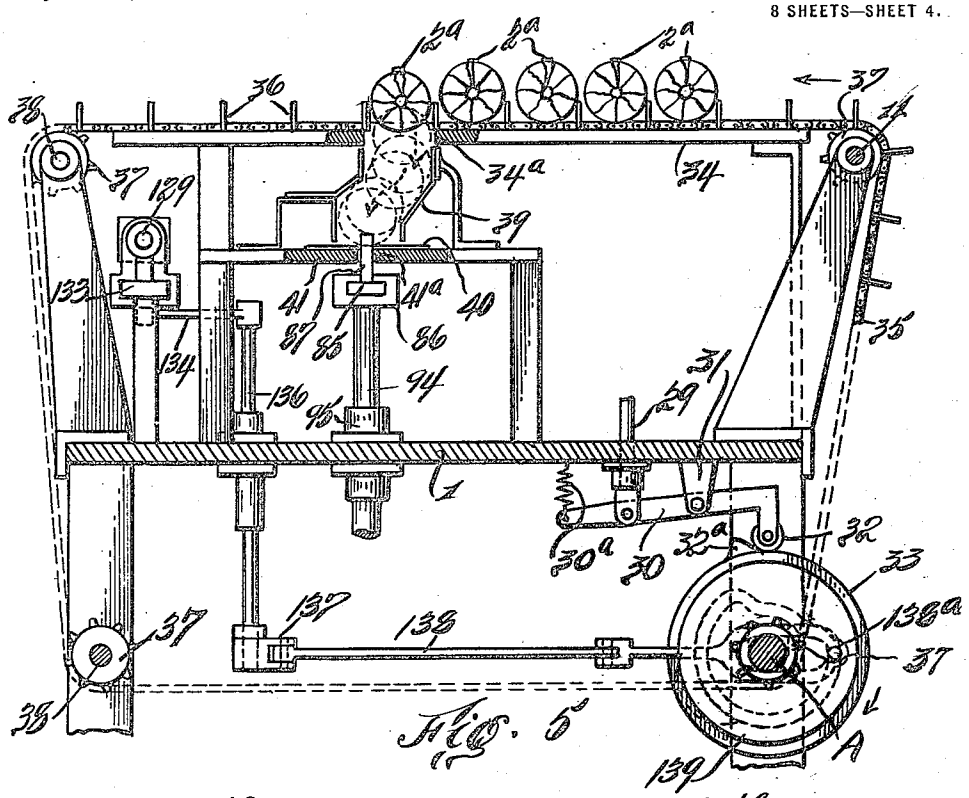


Fig. 5

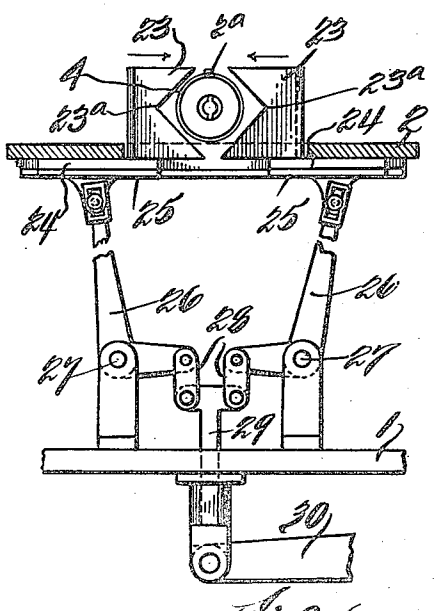


Fig. 6.

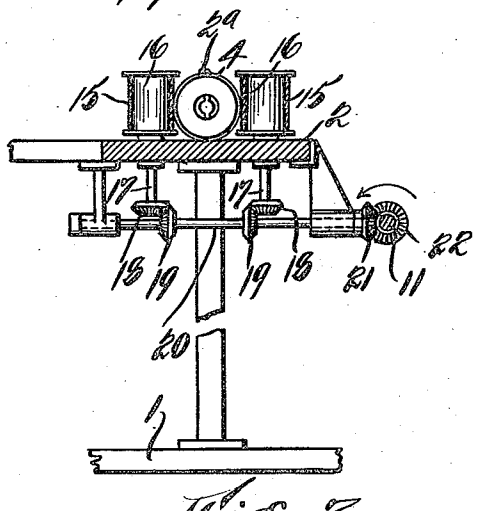


Fig. 7

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Fig. 8.

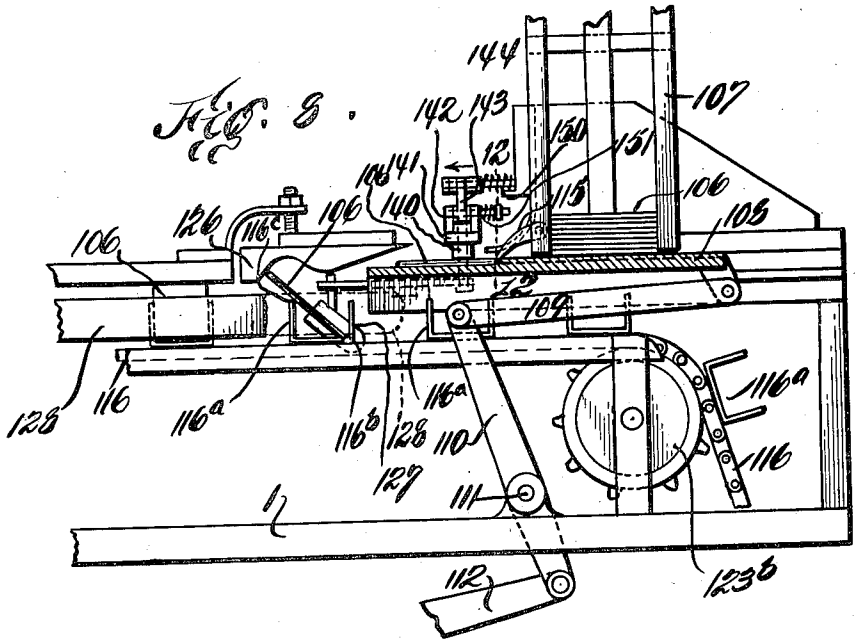
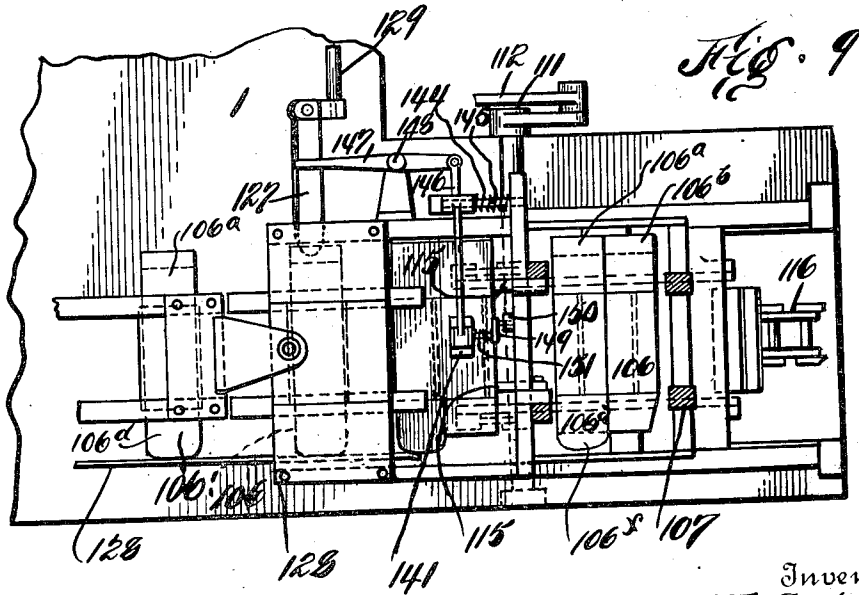


Fig. 9.



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8 SHEETS—SHEET 6.

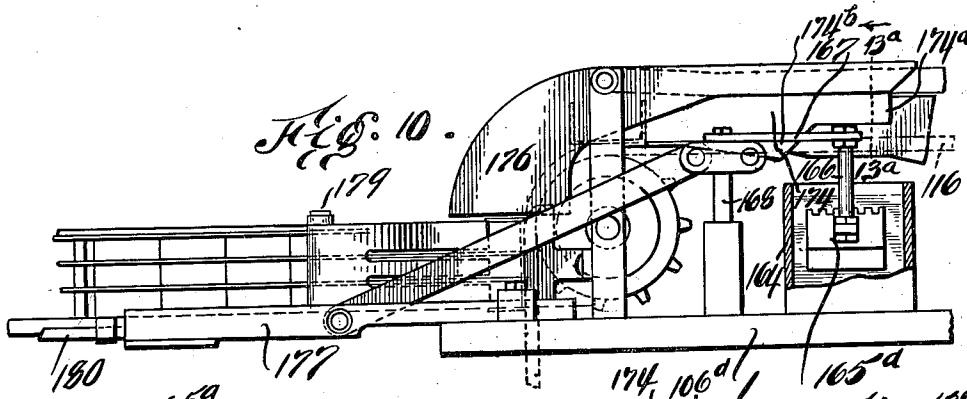


Fig. 10.

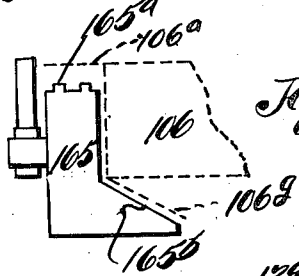


Fig. 13.

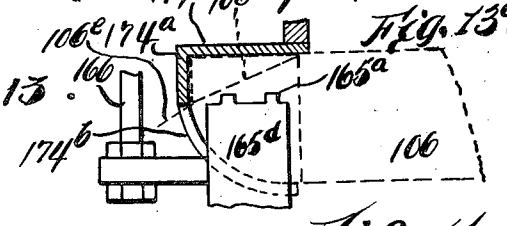


Fig. 13a.

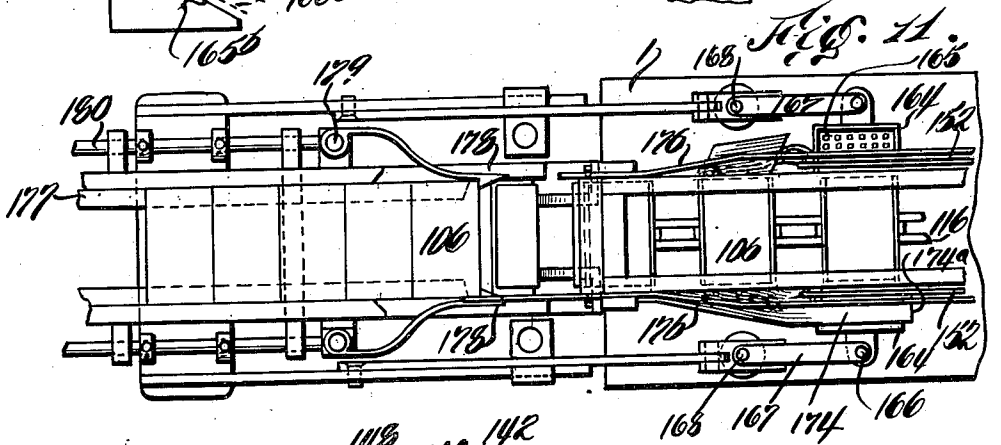


Fig. 11.

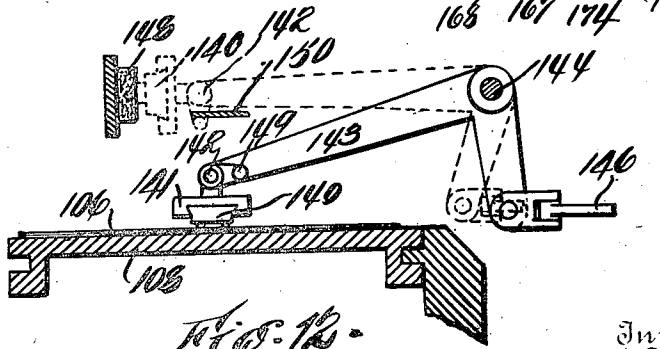


Fig. 12.

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8 SHEETS—SHEET 7.

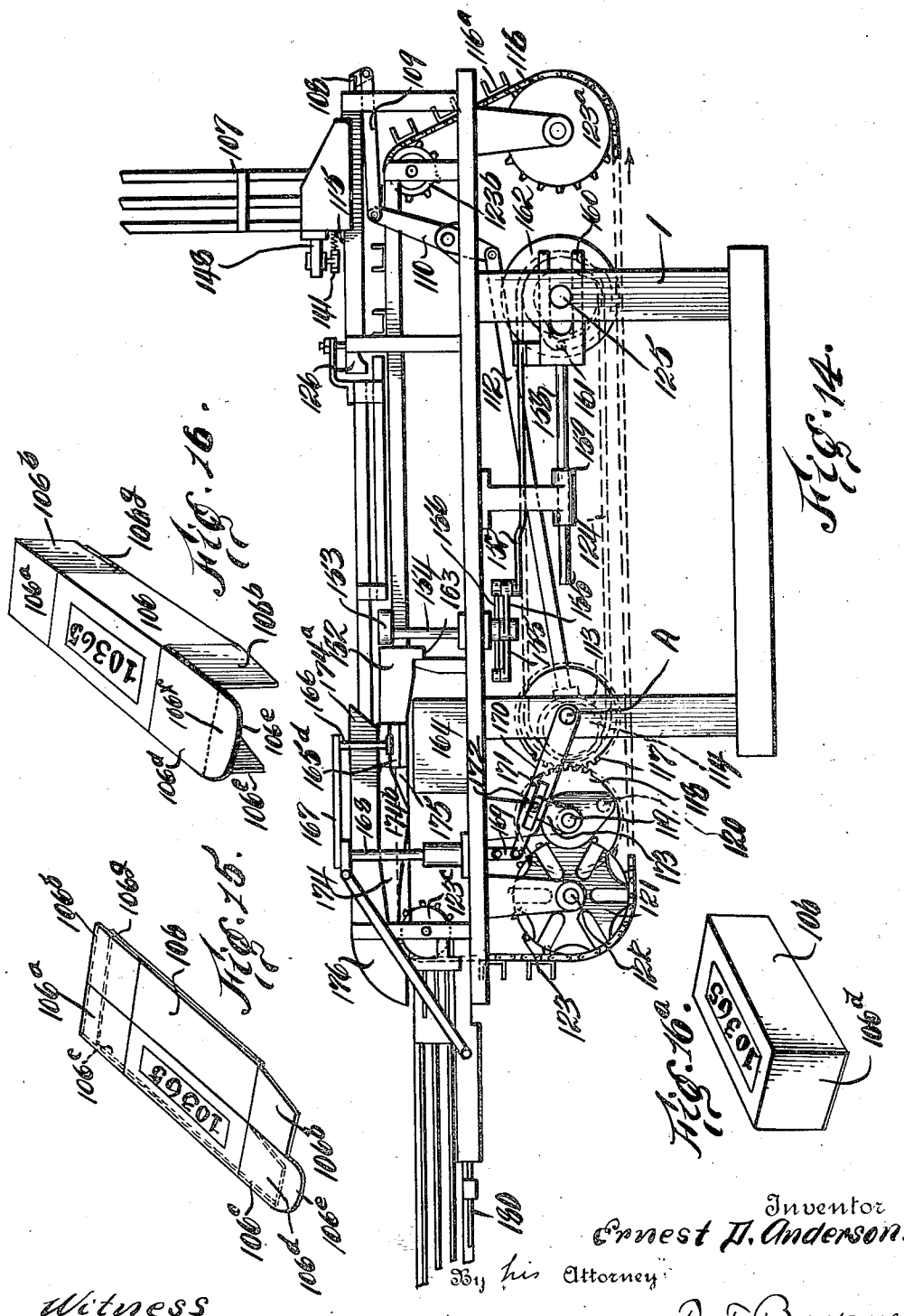


Fig. 16.

Fig. 17.

Fig. 18.

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8 SHEETS—SHEET 8.

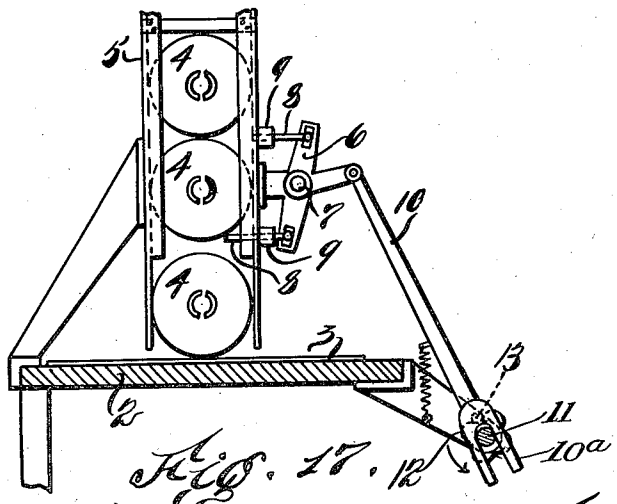


Fig. 17.

Fig. 18.

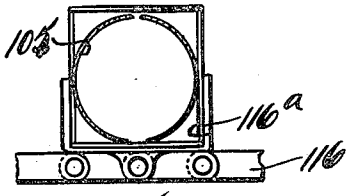


Fig. 19.

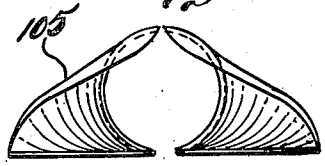


Fig. 20.

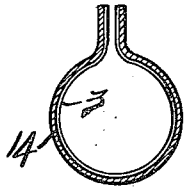


Fig. 22.



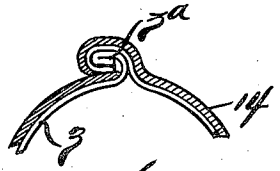


Fig. 24.

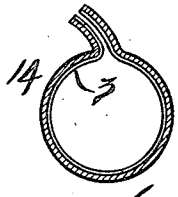


Fig. 21.

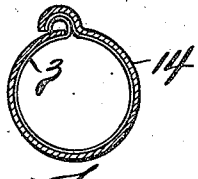


Fig. 23.

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UNITED STATES PATENT OFFICE.

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MEANS FOR WRAPPING AND PACKING ARTICLES.

1,417,591. Specification of Letters Patent. **Patented May 30, 1922.**

Application filed June 24, 1916. Serial No. 105,628.

To all whom it may concern:

Be it known that I, ERNEST D. ANDERSON, a citizen of the United States, and resident of Long Beach, in the county of Nassau and State of New York, have invented certain new and useful Improvements in Means for Wrapping and Packing Articles, of which the following is a specification.

Objects of my invention are to provide means to apply wrappers to articles of merchandise; to insert wrapped articles within cartons, and to close flaps of such cartons, a feature being to seal flaps at one end of the cartons and to tuck flaps, with or without sealing them, at the other end of the cartons.

A further object is to permit, when desired, the insertion in the cartons with such wrapped articles of other material, such as pamphlets, circulars and the like.

Another object of my invention is to provide means for stamping or printing upon cartons a number or other indication regarding contents thereof or the like.

In the example of my invention illustrated in the accompanying drawings, it may be assumed that photographic film spools are to be enclosed in wrappers, such as of tin foil or paper, fed into the machine in continuous lengths, upon which the spools are successively deposited, means being provided to advance such wrapper, fold it around the spools, to cut off the wrapper at the required length for each spool, close in the wrapper at the ends of the spools, open collapsed cartons in position to receive the wrapped spools, close the flaps of the cartons, and seal such flaps.

In connection with such mechanism I have illustrated means adapted to supply pamphlets or analogous material upon which the wrapped spools are deposited, means being provided for feeding the wrapped spools with their accompanying pamphlets and causing the pamphlets to be wrapped around the spools and then inserted in the opened cartons. I have illustrated means for stamping upon the cartons a designation, such as the emulsion number of the contained films, the particular arrangement that I have shown for such purpose being adapted to print such number upon the collapsed carton.

It will be understood that my improvements are not limited to all uses in succession above set forth, since the means for wrapping the articles may be used without reference to inserting such wrapped articles in opened cartons, and without reference to placing the wrapped articles in the cartons in conjunction with pamphlets or the like. Also, that my improved means for inserting articles with pamphlets or the like into opened cartons may be used without reference to the particular means shown for wrapping the articles.

My invention also comprises novel details of improvement and combinations of parts that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming part hereof, wherein,

Fig. 1 is a plan view of my improved machine adapted for wrapping articles, opening cartons, and feeding the wrapped articles with pamphlets into the open cartons, the parts for supplying pamphlets for wrapped articles and delivering charged cartons being shown in other views;

Fig. 1ª is a detail section on the line 1ª, 1ª, in Fig. 1;

Fig. 2 is an enlarged longitudinal sectional view substantially on the line 2, 2, in Fig. 1;

Fig. 3 is a cross sectional view, substantially on the line 3, 3, in Fig. 1, illustrating means for supplying pamphlets to be charged with wrapped articles into the cartons;

Fig. 4 is an enlarged detail sectional view of valve devices shown in Fig. 3;

Fig. 5 is an enlarged cross sectional view, substantially on the line 5, 5, in Fig. 1, illustrating means for delivering articles upon pamphlets;

Fig. 6 is a cross sectional view of the shearing devices for the wrapper that has been wrapped around articles, the section being taken on the line 6, 6, in Fig. 1;

Fig. 7 is a cross sectional view illustrating means for feeding the wrapper and its contained articles, the section being taken substantially on the line 7, 7, in Fig. 1;

Fig. 8 is an enlarged side elevation, partly in section, at one side of the machine, illustrating means for printing and feeding collapsed cartons;

Fig. 9 is a plan view of Fig. 8;

Fig. 10 is an enlarged side elevation illustrating means for gumming and closing carton flaps and for discharging closed cartons;

Fig. 11 is a plan of Fig. 10;

Fig. 12 is an enlarged cross sectional view, substantially on the line 12, 12, in Fig. 8,

illustrating means for printing or stamping designations upon the cartons;

Fig. 13 is an enlarged detail view illustrating means for gumming the flaps of cartons; Fig. 13ª is a detail view hereinafter referred to;

Fig. 14 is a side elevation of the machine looking from the righthand side of Fig. 1, parts illustrated in Fig. 1 being omitted;

Figs. 15, 16 and 16ª are, respectively, views of collapsed, opened and closed cartons;

Fig. 17 is an enlarged end elevation, partly in section, substantially on the line 17, 17, in Fig. 1, illustrating means for feeding articles step by step upon the continuous wrapper strip;

Fig. 18 is a cross sectional view substantially on the line 18, 18, in Fig. 1, illustrating that end of the plow or folder adapted for folding or wrapping pamphlets or the like around the wrapped articles or film spools, adjacent to the opened cartons;

Fig. 19 is an end view of said plow looking from the left in Fig. 1;

Figs. 20 to 23 inclusive are detail sectional views of a plow or former for folding the wrapper strip around the articles or film spools, the sections being taken respectively on the lines 20, 20, 21, 21, 22, 22, and 23, 23 in Fig. 1 and Fig. 24 is an enlarged detail fragmentary sectional view of the aforesaid wrapper plow, the section being taken substantially on the line 24, 24, in Fig. 1.

Similar numerals of reference indicate corresponding parts in the several views.

In the accompanying drawings the numeral 1 indicates a frame adapted to support mechanism hereinafter referred to. At 2 is a suitable guiding plate or table supported upon frame 1 at a suitable height, over which a continuous strip of tin foil, paper or other suitable wrapping 3 is drawn to be wrapped around articles 4, which strip may be supplied on a reel and supported in any suitable manner. The articles 4 are to be fed upon strip 3 at suitable distances apart thereon. In Fig. 17 I have illustrated a magazine 5 located over plate 2 and adapted to receive the articles 4, one above another. To deposit said articles successively upon strip 3 I have shown rocker arm 6 pivotally supported at 7 adjacent to magazine 5 and provided with spaced pins 8 pivotally connected with said arm, said pins being guided at 9 to reciprocate. Arm 6 is pivotally connected to a rod or link 10 shown having a forked end at 10ª receiving shaft 11, that is journaled in bearings upon frame 1 (Figs. 1, 5, 7 and 17), which shaft is provided with a cam 12 adapted to coact with a pin 13 on rod 10, whereby arm 6 will be rocked to cause pins 8 to alternately pass beneath the articles 4 to feed them one by one and successively upon strip 3. I provide means for wrapping the strip 3 around the articles 4 as the strip is fed or drawn longitudinally. For such purpose I have shown a plow or folder indicated generally at 14 (Figs. 1 and 20 to 24), the widened receiving end portion 14ª of which plow rests upon plate 2, said plow being suitably shaped to permit the passage therethrough of the articles 4 and the strip to be wrapped around said articles and to cause the marginal edges of said strip to be folded together at 3ª (Fig. 24) to form a closing seam for the wrapper around said articles. The means I have shown for feeding strip 3, and withdrawing the articles 4 therewith are as follows: Endless belts 15 are spaced apart on opposite sides of the strip 3 where it emerges from plow 14 in tubular form containing the articles 4, which belts are mounted upon spaced vertically disposed pulleys or rolls 16 journaled upon an extended portion of plate or guide 2, (Figs. 1 and 7). Two of said pulleys are shown provided with shafts 17, having gears 18 meshing with gears 19 on a shaft 20, journaled in bearings supported upon plate 2, said shaft being shown provided with a gear 21, in mesh with a gear 22 secured on shaft 11 (Figs. 1 and 7). The parts described are so timed that the belts 15 will draw or feed strip 3 continuously and the operation of pins 8 will feed articles 4 upon said strip in suitable spaced relation thereon, so that as said articles are drawn along with the strip and the latter is folded and seamed around such articles, the strip may be cut crosswise between each two such articles, and the ends of the wrapper projecting beyond the ends of the articles 4 folded against said articles, to provide a wrapper enclosing the articles. Suitably spaced from the rolls 16 along the tubular wrapping strip that encloses the articles 4, are cutters 23 (Figs. 1 and 6) opposed to each other, and shown having recessed or V-like edges 23ª which cutters are adapted to approach each other to sever the portion of the wrapped strip between each two spaced articles 4 enclosed therein, and to recede from the wrapped strip to permit the latter to be fed. The cutters 23 are carried upon slides 24 guided at 25 upon guide or plate 2. At 26 are rocker arms pivotally supported at 27 upon frame 1, and shown pivotally connected by links 28 with a rod 29 guided in frame 1 and pivotally connected with a lever 30, one end of which lever is shown pivotally connected at 31 with frame 1 (Figs. 5 and 6). A spring 30ª connects lever 30 with frame 1. Lever 30 is provided with a roller 32 co-operative with an eccentric or cam 33 secured on shaft. The raised portion 32ª of cam 33 actuates lever 30 to reciprocate rod 29 for operating rocker arms 26 to cause the cutters 23 to approach and recede, for severing the wrapper strip. Part of lever 30 is omitted in Fig. 6. The timing of the

cutters is such that each time an article 4 is drawn forwardly with the tubular wrapping 3, and is caused to project beyond the belts 15, (Fig. 1ª), said cutters will be caused to approach each other, gathering and drawing together the portion of the wrapper located between opposing ends of two articles 4, finally severing such gathered portion of the wrapper, and thereupon pressing the portions of the wrapper thus left projecting from the ends of articles 4 against such ends. It will be understood that for the last named purpose, the cutters 23 are dull except in the corners of the recesses 23ª where such cutters are sharpened. By this means the main portion of the edges of said recesses will serve to gather the tin foil strip and draw it together and the sharpened portions will finally sever such wrapper. The effect of the operations stated may be such as to form a substantially hermetically sealed or closed in wrapper upon the article 4.

After the articles 4 have been wrapped, as above described, they may be delivered from the machine for sale or use, or they may be placed in cartons for delivery from the machine. Since it is sometimes desirable to enclose a pamphlet, circular or the like in a carton with articles of merchandise, I have provided means to supply and feed pamphlets or the like in position to be charged with the articles 4 in cartons. In the example illustrated, when the wrapped articles are projected beyond belts 15 said articles are brought over a transversely disposed guide 34, supported by frame 1 on a plane below guide 2 and extending beyond the adjacent edge of the latter, which guide 34 is provided with upturned edges 34ª (Figs. 1. 1ª, 2 and 5), whereby when the wrapped articles are cut off by the cutters 23 said articles will be dropped upon guide 34. Said articles are fed along guide 34 by means of an endless conveyer or chain 35 that is shown provided with spaced fingers 36 adapted to receive the wrapped articles therebetween to feed them along the guide. Conveyer 35 is shown supported upon sprockets 37, two of which are shown journaled at 38 upon supports on frame 1, one of which sprockets is secured upon shaft 11, whereby as said shaft is rotated, and the other of said sprockets is secured upon shaft A, the conveyer will push the wrapped articles 4 to a delivery opening 34ª in guide 34 (Fig. 5). I have shown a chute 39 beneath opening 34ª adapted to guide the wrapped articles 4 for deposit upon pamphlets or analogous material 40 located upon a bed 41 supported upon frame 1. The pamphlets 40 are to be placed upon bed 41 successively, and fed along said bed step by step, the pamphlets being brought to rest successively beneath chute 39 for the deposit on such pamphlets of wrapped articles 4 in succession. The means I have shown for supplying and depositing pamphlets 40 successively upon bed 41 are as follows: At 42 is a magazine or holder for pamphlets 40 (Figs. 1 and 3) suitably supported upon frame 1 and provided with a movable plate or plunger 43, shown having a depending rod 44 passing through a guide in frame 1, a spring 45 normally tending to raise plate 43 and pamphlets thereon (Fig. 3). In order to feed the stack of pamphlets upwardly in accordance with the removal of the top one thereof successively, I have shown a lever 46 pivotally supported upon frame 1 and provided with an aperture 47 receiving rod 44, said lever being shown pivotally connected with a rod 48 having a forked end receiving shaft A and provided with a pin 49 to coact with a cam 50 on said shaft (Fig. 3). A spring 51 connects lever 46 with frame 1, and tends normally to depress said lever. The arrangement is such that each time that a pamphlet 40 is removed from the top of the stack of pamphlets the cam 50 will cause lever 46 to rise to release rod 44 from the gripping action of the edges of its aperture 47, at which time the spring 45 will cause the stack of pamphlets to rise to head 52, and thereupon cam 50 and spring 51 will cause lever 46 to descend to cause the edges of its aperture 47 to grip rod 44 to prevent further rise of the stack of pamphlets, until head 52 has returned (as presently described), and so on, feeding the stack of pamphlets upwardly step by step for removal successively. The means for removing the uppermost pamphlet from the stack I have illustrated, embody hollow head 52 that is connected by a flexible tube or hose 53 (Figs. 2 and 3) with a suitable air exhaust apparatus, such as a suction pump B (Fig. 2). To cause exhaust through head 52 at the proper time I have shown tube 53 connected with the valve casing 54 secured upon frame 1, said casing having a port 55 communicating with tube 53 and a port 56 communicating with a pipe 57 to be connected with the exhaust apparatus. The casing also has a relief port 58 spaced from port 56. At 59 is a valve within the casing adapted alternately to open and close ports 56 and 55. Said valve is shown connected with a reciprocative rod 60 guided to slide in said casing and in a guide 61 on frame 1, (Figs. 2, 3 and 4). The head 52 is adapted to be alternately moved from a position over the pamphlets in magazine 42 to a position over bed 41, and vice versa, for the purpose of removing the top pamphlet from the magazine and depositing it upon bed 41. I have shown a block or the like 62 guided to slide upon a transverse bar 63 carried by frame 1. A rod or bar 65 carries the head 52, and a vertical guideway 64, receiving rod or bar 65, is carried

by a bar 73 guided for movement in carriage 62 along side of guide bar 63. Rod or bar 65 is provided with a pin or projection 66 freely receiving the slot 67 in an arm 68 that is pivotally supported at 69 upon carriage 62. A spring 74 interposed between carriage 62 and arm 68 normally tends to raise said arm and thereby through pin 66 to raise bar 65 and head 52.

Carriage 62 is pivotally connected by a link 75 with a lever 76 pivotally supported at 77 upon frame 1, and having a pin 78 coacting with a cam 79 secured on shaft D (Figs. 2 and 3). Shaft D may be provided with a pulley E, and may be considered as the main drive shaft. Gears *d*, *d'* (Fig. 3) drive shaft A from shaft D. The arrangement is such that as said shaft rotates, the carriage 62 will be reciprocated. When carriage 62 moves to the left in Fig. 3 the bar 73, when head 52 is over magazine 42, will engage a stop 81, shown on guide bar 63, to limit movement of said bar 73 with carriage 62, whereupon a continued movement of said carriage will cause pin 70 to ride downwardly in slot 72 thereby causing arm 68 to swing downwardly, carrying rod 65 and head 52 downwardly to cause said head to engage the uppermost pamphlet 40 of the stack. Just about the time that head 52 engages said pamphlet, projection 82 on carriage 62 will engage a stop 83 on rod 60, to cause valve 59 to be moved to the left (Fig. 4) to open port 55 into communication with port 56, and thereupon exhaust will occur through head 52 to cause said pamphlet to be sucked against said head, and thereupon carriage 62 will be moved to the right (Fig. 3) and pin 70 will slide reversely up through slot 72, and arm 68 will be raised to cause raising of rod 65 and head 52 with the attached pamphlet, and a continued movement of carriage 62 will cause bar 73, rod 65 and head 52 to be moved with the carriage to the final position over bed 41. The projection 82 now engages a stop 84 on bar 63 to cause valve 59 to move to the right of port 55 (Fig. 4) cutting off communication of said port with port 56 and opening communication of port 55 with relief port 58, whereupon the pamphlet 40 will drop from head 52 upon bed 41. A guide 41ª on said bed serves to center the pamphlets properly thereon. In order that the pamphlets will be picked up only one by one from the stack in the magazine, by the suction through head 52, I provide means to blow a relatively light stream of air against pamphlets at the upper portion of the stack. For such purpose I have shown an air nozzle or jet F (Fig. 3), shown supported upon the main frame and terminating at a point at one side of the upper magazine in the stack, which jet or nozzle may be connected by a pipe or tube G to the pressure side of the exhaust apparatus B, (Fig 2). By this means a continual stream of air may be maintained projecting against the pamphlets, thereby tending to separate the pamphlets and to prevent the one that is engaged by the head from drawing away the ones below, or in other words, to prevent the suction through head 52 affecting, through the uppermost pamphlet, those below to carry them with said pamphlet.

I provide means to feed the pamphlets along bed 41 successively and step by step, for the deposit on the pamphlets of articles from the guide 34. For such purpose I have shown a longitudinally disposed bar 85 extending lengthwise beneath bed 41 and shown supported in guides 86 (Figs. 1, 2, 3 and 5). The bar 85 is provided with spaced fingers or projections 87 adapted to receive the pamphlets therebetween, which fingers or projections extend through a longitudinally disposed slot 41ª in bed 41. Bar 87 is given a longitudinal as well as an up and down movement, which may be accomplished in any suitable manner. For such purpose I have shown a lever or arm 88 pivotally connected by a link 89 with bar 85 and pivotally supported upon frame 1 at 90. A rod 91 pivotally connected with lever 88 is provided with a fork 92 receiving shaft D (Fig. 2), and operated by a cam 93 secured on said shaft, whereby as said shaft rotates bar 81 will be reciprocated. Up and down movement is given to said bar between its reciprocations as follows: the guides 86 are carried by rods 94 that are guided to reciprocate in guides 95 carried by frame 1 (Figs. 2, 3 and 5), which rods are respectively connected with bell crank levers 96 pivotally supported by said frame, as upon brackets 97. Said levers are shown provided with slots 96ª receiving pins or projections 98, and the levers 96 are pivotally connected with a rod 99. One of the levers is shown pivotally connected at 100 directly to said rod, and the other lever 96 is shown pivotally connected at 101 to said rod by means of an interposed link 102 (Figs 2 and 3). Rod 99 is shown provided with a slot at 99ª receiving shaft D and provided with a pin 103 coacting with the groove of cam 104 secured on said shaft. The arrangement is such that as said shaft rotates and causes reciprocation of bar 85, as before described, the rod 99 will be reciprocated and thereby through the bell crank levers 96 and rods 94 will cause the up and down movement of bar 85 between its reciprocations, whereby the fingers or projections 87 will be caused to rise through slots 41ª of bed 41 to receive a pamphlet 40 between two of such fingers. Rod 85 then will be moved to the right in said figure to move the pamphlet forward a step, the rod will descend and withdraw the fingers and then move to the left in Fig. 2 to again rise to

receive another pamphlet 40 and so on, the pairs of fingers respectively moving several pamphlets along the bed 41 step by step, and likewise when an article 4 has been deposited upon a pamphlet (Fig. 2) causing such article to be stepped along with and upon the corresponding pamphlet 40.

After the articles 4 have been deposited upon the pamphlets it is intended that the pamphlets be folded around such articles as they are fed along bed 41 with the articles 4. For such purpose I have shown a plow or folder 105 for folding the pamphlets around articles 4 for insertion in cartons (Figs. 1, 2 and 18). Plow or folder 105 may be formed as an extension of bed 41, and is so shaped and curved that when the articles 4 resting upon the pamphlets 40 are, by the fingers 87, pushed through the plow, the curved edges of the plow will cause portions of the pamphlets projecting at the sides of the articles 4 to wrap around the same, the slot 41^a extending through the delivery end of plow 105 so that the finger 87 at the adjacent end of said slot may push the pamphlets and articles 4 therefrom into opened cartons 106 that are brought to rest opposite the open end of said plow. Any suitable means may be provided for supplying and opening cartons and presenting the cartons with their opened ends opposing the delivery end of plow 105, in succession to be charged with the wrapped articles, and to remove the charged cartons from in front of the plow. In the accompanying drawings I have illustrated means for such purpose substantially similar to carton supplying, opening and closing means set forth in Letters Patent No. 1,151,233, granted to me August 24, 1915. The devices I have illustrated for such purpose may be described as follows: The closed or collapsed cartons or containers 106 are shown stacked in a suitable magazine 107 supported by frame 1, from which magazine the lowermost cartons are to be successively delivered, (Figs. 8, 9 and 14). Beneath a magazine 107 is a reciprocative plate or platform 108 suitably guided upon the frame and provided with one or more ribs or the like upon which the cartons normally rest. Plate 108 is pivotally connected by links 109 with rock arms 110 carried by shaft 111 pivotally supported upon frame 1 (Figs. 8, 9 and 14). A link 112 is connected to arm 110 and is secured to eccentric strap 113 operated by an eccentric 114 secured upon shaft A, whereby plate 108 is reciprocated. At 115 is a dog pivoted in front of magazine 107 (Fig. 8). When plate 108 is moved to the right in Fig. 8 the required distance the ribs of the plate pass behind the lowermost carton 106 in the magazine, the cartons then resting upon the lefthand portion of plate 108 in front of said ribs. Upon the forward stroke of plate 108 the lowermost carton is pushed from under the stack by the ribs substantially to the position shown in Fig. 8, whereupon dog 115 drops behind such carton to keep the latter from moving to the right when plate 108 next moves back. When said plate moves sufficiently far to the right from the position shown in Fig. 8 to release said carton, the latter drops off of the retracted plate into one of the pockets or receivers 116^a of the conveyer 116, that is shown comprising chains carried around suitable sprockets. Said conveyer is given a suitable step by step or intermittent motion. In the example illustrated I have provided a Geneva movement for operating the conveyer. I have shown shaft A provided with a gear 117 in mesh with a gear 118 upon a shaft 119 which carries the male member 120 of the Geneva movement, which in turn engages the female member 121 of said movement that is upon the shaft 122 carried by the main frame, which shaft also carries a sprocket wheel 123 engaging and driving the endless conveyer 116 intermittently or periodically step by step around the sprockets 123, 123^a, 123^b, 123^c, (Fig. 4.) A chain 124 passing over a sprocket wheel on shaft A and over a sprocket wheel on shaft 125, drives said shaft (Fig. 14) for a purpose to be explained. When the carton has been dropped from plate 108 into a receiver or pocket 116^a, the conveyer moves forward or to the left (Fig. 8) and brings said carton against a stop 126, causing the carton to be seated in the receiver, and the conveyer comes to rest with the carton opposite an opener or knife 127 that is adapted to enter one end of the carton, said opener being adapted to be moved to open the carton. The opposite end of the carton now opposes a plate or abutment 128, resisting the entrance of the opener. As illustrated in Fig. 8 the carton is suspended or bridged between its edges, by means of spaced supports, one of said supports being shown as a corner 116^b of receiver 116^a, and the other support being an edge 116^c of the opposite wall of the receiver, a side of the receiver serving as a fixed wall. The carton is thus unsupported between opposite edges. The normal position of the opener is such that when the carton is coming to rest, the point of the opener or knife is brought into contact with the adjacent extended end of top flap 106^a of the carton (Fig. 15) slightly separating said flaps. The opener is then moved forward into the carton and is moved in such manner, as by rotating the opener, that at or after the end of its forward stroke the opener opens the carton and seats it in the pocket or receiver 116^a, dragging the carton from one of its supports, whereupon the opener retreats from the carton. For operating the opener 127 in the

manner stated, I have shown the same carried upon a shaft or rod 129 (Fig. 1) that is provided with a pin 130 entering a slot 132 provided in the concave face of a fixed block 133 carried by frame 1 (Fig. 5), whereby as the shaft 129 is reciprocated the opener will be rocked or rotated. Shaft 129 may be reciprocated by means of a rock arm 134 having a slot 134ª receiving pin 135 connected to said shaft, said arm being carried by a shaft 136 (Figs. 1 and 5) journaled upon frame 1. Shaft 136 may be rocked by an arm 137 secured thereto and pivotally connected with a rod 138 having a forked or slotted end receiving shaft A, and provided with a pin 138ª coacting with a cam 139 secured on said shaft (Fig. 5). The foregoing parts respecting the carton supplying and feeding devices are, as before stated, substantially similar to corresponding parts illustrated in my aforesaid Letters Patent and reference thereto may be had for a more detailed description thereof.

After the cartons have been opened and seated in the conveyer the wrapped articles are to be charged successively into such opened cartons, and in the arrangement illustrated the conveyer will be brought to rest, step by step, with an opened carton successively opposing the open end of the plow or folder 105, so that the articles 4 may be charged into said cartons together with the pamphlet or the like 40 wrapped around such article when desired. It will be understood, of course, that the wrapped articles may be fed into the cartons by the means described without at the same time supplying a pamphlet or the like with the articles.

For some classes of goods it is desirable to print or stamp designations on the cartons to indicate some quality, characteristic or the like relative to the contained goods. Where photographic films are sold within cartons it is frequently desirable to print or stamp upon the cartons the emulsion number or other designation regarding the contained film. While such designation may be printed or stamped upon the cartons before or after the films are charged in the cartons, I have illustrated means for printing or stamping such designation upon the collapsed cartons, such means being located in position to print or stamp the cartons after their delivery from the magazine 107 and before their delivery into the receivers 116ª. For such purpose I have shown a type member or stamp 140 carrying the desired designation located over the carton when the latter is projected forwardly from magazine 107 by the advance of plate 108 to the carton delivering position (Fig. 8), whereby the designation may be printed or stamped upon the cartons before the latter are released by said plate to fall into the receivers 116ª. Type member 140 is shown carried by a suitable holder or head 141 that is pivotally carried at 142 upon a rock arm 143 journaled upon a shaft or support 144 carried by the main frame or projecting from a portion of the magazine (Figs. 8, 9 and 12). A spring 145 connected with said arm and with support 144, or with the magazine, normally tends to keep type member 140 raised. A link 146 pivotally connected with arm 143 and with a rock arm 147 that is pivotally supported upon the main frame at 148, (Fig. 9), serves, when arm 147 is rocked, to cause the type member to print or stamp upon the carton 106 beneath the same. The operation of type member 140 is properly timed to print or stamp a carton 106 before plate 108 is withdrawn from beneath the same. In the example illustrated in the accompanying drawings one end of arm 147 is shown located in position to be acted upon by opener 127, or its shaft, as said opener is projected toward a carton in a receiver 116 (Fig. 9), so that when said opener advances to open one carton, type member 140 will be caused to descend upon another carton or plate 108, and when the opener recedes from the opened carton the type member 140 will also recede from the printed or stamped carton and the plate 108 will be withdrawn to drop the stamped carton into a receiver 116ª, and the conveyer will move a step forwardly to carry the printed or stamped carton into the opener receiving position (Fig. 8). While the type member 140 may be such as to stamp the cartons, like embossing, I have shown means to applying to type member 140, when it is desired to print upon the cartons. For such purpose I have shown an inking pad 148 supported above the type member. (Fig. 12), the pivot or shaft 142 of said type member having a projection 149 adapted to engage a stop 150, shown carried by the magazine in position to be engaged by said projection when arm 143 rises with type member 140 to cause the latter to be swung for engagement with the inking pad, and whereby when said arm descends the type member will pass away from the inking pad, and will be swung down to the working position by a spring 151.

After the cartons have been charged as before stated, the conveyer moves the charged cartons from the charge receiving position, and means are provided for closing the flaps of the charged cartons. For such purpose I have shown abutments or guides 152 (Figs. 1 and 14) on opposite sides of the conveyer and suitably spaced from the plow or folder 105 in position to engage the forward lefthand edge flaps 106ᶜ of the carton (Figs. 15 and 16). Flap closers or arms 153 are carried upon shafts 154 journaled upon frame 1 at opposite sides of the conveyer, which shafts are provided with arms 155, that are pivotally connected to-

gether by a link 156. One of said arms is shown connected by a link 157 (Fig. 14) with a rod 158 shown guided at 159 and having a forked portion 160 receiving shaft 125, which rod is provided with a pin 161 coacting with a cam 162 on said shaft. Said shaft is so timed that flap closers or arms 153 will be swung back and forth, and will simultaneously rotate in the direction of the arrows *a* in Fig. 1, to close the corresponding righthand edge flaps 106^b of the carton, each time the conveyer comes to rest. Upon the next step of the conveyer the flaps 106^c will engage the guides or abutments 152 which will act on the flaps 106^c to close them over the flaps 106^b, the closers 153 moving outwardly at the proper time. Said guides or abutments 152 and the arms 153 are substantially similar to the corresponding parts shown in my aforesaid Letters Patent, except that said abutments and arms are located in position to act upon the flaps at the ends of the carton at the same time instead of successively as set forth in my said patent.

When the end flaps of the cartons have been closed in, as stated, the upper and lower flaps of said cartons are temporarily retained projecting outwardly to receive paste, in case flaps of opened cartons are to be sealed. The upper flaps ride along the upper edges of the guides 152, and the lower flaps are turned under, as the conveyer steps forwardly, by the curved trip portions 163 of guides 152 (Fig. 16) as in my aforesaid Letters Patent, whereupon the conveyer comes to rest with such carton opposed to the glue or paste pots 164 containing pasters 165 (Figs. 1, 10, 11 and 14). The pasters are more particularly shown in detail in Figs. 13 and 13^a. The pasters are shown connected with spindles or rods 166, which in turn are connected by bars 167 with plungers 168 guided in bearings in the main frame. The plungers 168 are connected by links 169 (Fig. 14) with levers 170 which are shown pivoted upon shaft A, said levers having slots 171 receiving pins 172 on arm 173 projecting from shaft 119. By this means the pasters are periodically reciprocated. In the example illustrated, it will be assumed that one of the end flaps 106^d is arranged to be tucked into the carton for closing the corresponding end thereof. For such purpose said flap is provided with a portion 106^e projecting beyond the dotted or scored line 106^f that is adapted to be operated upon by the flap paster and tuck folder 165^d (Fig. 13^a). When the cartons come to rest adjacent to the pasters, the flap 106^d will have been caused to pass under the angularly extending portion 174^a of a guard 174 on one side of the machine (Fig. 13^a), whereby said flap is somewhat bent downwardly and rests over the paster and tuck turner 165^d. Upon the upward stroke, the upper parts 165^a of the pasters will engage the under sides of the upper flaps of the cartons and the lower part 165^b of the paster 165 will engage the lower turned under adjacent flap 106^g, at one end of the carton (Fig. 13) to apply paste to flaps 106^a and 106^g, while the paster and flap turner 165^d will engage the flap 106^d and push it into the seat in guard 174, causing the tuck 106^e to be bent or folded as indicated in dotted lines in Fig. 13^a. The next step to the left of the conveyer, after the pasters descend, causes the flaps of the pasted cartons to engage the guards 175 to cause the lower flaps of the cartons to be laid against the previously closed in side flaps 106^b, 106^c, whilst the upper flaps of the cartons are, by the guards 174, (Figs. 10, 13^a and 14) caused to close or fold over the previously closed flaps, the curved portion 174^b of guard 174 causing the tuck 106^e to be tucked inside of the carton over the other adjacent previously folded flaps while closing in the pasted flap 106^d, such operations being effected as the flap members 106^d, 106^e slide along the curved portion 174^b, whereby the charged cartons are sealed (Fig. 16^a). The next step forward of the conveyer causes the sealed cartons to continue to travel between the guards 176 where they are squeezed sufficiently to insure sealing of the flaps, and thereafter the cartons are discharged from the conveyer upon a discharge plate or guideway 177. Some of the foregoing devices are substantially similar to corresponding devices set forth in my aforesaid Letters Patent. Any suitable means may be provided for removing the charged and sealed cartons from the machine. I have illustrated devices for such purpose comprising resilient arms 178 pivotally supported at 179 upon reciprocative rods 180 operated in manner set forth in my aforesaid Letters Patent to which reference may be made for a more detailed description of said parts, it being understood, of course, that other means may be provided for removing the cartons successively from the machine if desired.

It will be understood that, when the magazines are charged with their respective articles and the strip 3 is adjusted through the plow or folder 14, and the machine is started, the parts are so arranged and timed that as said strip is fed and the articles 4 are placed thereon in spaced relation such articles may be successively folded within the strip and the latter cut off between the articles in such manner that the wrapped articles may be fed successively upon the bed 41 upon which the pamphlets or the like 40 are also successively fed in spaced relation, and that the cartons will be delivered to the receivers of the conveyer, opened and brought into position successively opposite the plow or folder 105 ready to receive the wrapped articles 4 with the pamphlets 40

folded therearound, as fed into the opened cartons by the reciprocative fingers 87, step by step, in accordance with the stopping of the opened cartons in front of such plow or folder, so that such charged cartons will be moved from the charge-receiving position and have their flaps closed and sealed, for delivery from the machine, all in a continuous and successive manner with accuracy and expedition. In case it be desired to charge the wrapped articles into the cartons, without the accompanying pamphlets or the like, it merely will be necessary to disconnect the parts 48 and 76 from their corresponding cams, and then the operations of wrapping the articles 4, severing the wrappers, depositing the wrapped articles upon bed 41, and feeding such articles into the opened cartons may proceed, as before described.

While I have illustrated and described means adapted to carry out the operations set forth, it will be understood that the means set forth for wrapping the articles and feeding them to opened cartons may be utilized in conjunction with carton delivering, opening and closing means differing from the particular means for such purpose set forth, and that such article-wrapping means may be used without reference to cartoning devices in cases where it is merely desired to wrap articles without enclosing them in cartons; also that changes may be made in the details of construction and arrangement of parts set forth, within the scope of the appended claims, without departing from the spirit of my invention.

Having now described my invention what I claim is:—

1. An apparatus of the class described comprising means to assemble wrappers and articles together, means to fold the wrappers around the articles after they are assembled, means to sever the wrappers between articles thereon, and means to charge such wrapped articles into cartons.

2. An apparatus of the class described comprising means to assemble wrappers and articles together, means to fold the wrappers around the articles after they are assembled, means to sever the wrappers between articles thereon, means to charge such wrapped articles into cartons, and means to close the cartons.

3. An apparatus of the class described comprising means to assemble wrappers and articles together, means to fold the wrappers around the articles after they are assembled, means to sever the wrappers between articles thereon, means to supply other matter with such wrapped articles, and means to charge such wrapped articles and other matter into cartons.

4. An apparatus of the class described comprising means to supply cartons, means to open cartons, means to assemble wrappers and articles together, means to fold the wrappers around the articles after they are assembled, means to sever the wrappers between articles thereon, means to fold pamphlets around the wrapped articles, and means to charge the wrapped articles and pamphlets into cartons.

5. An apparatus of the class described comprising means to supply cartons, means to open cartons, means to assemble wrappers and articles together, means to fold the wrappers around the articles after they are assembled, means to sever the wrappers between articles thereon, and close the ends of the wrappers at the ends of the articles, and means to charge such wrapped articles into the cartons.

6. An apparatus of the class described comprising means to supply cartons, means to open cartons, means to assemble wrappers and articles together, means to fold the wrappers around the articles after they are assembled, means to sever the wrappers between articles thereon, and close the ends of the wrappers at the ends of the articles, means to charge such wrapped articles into the cartons, means for applying adhesive to the flaps of the cartons, and means for closing the flaps.

7. An apparatus of the class described comprising means to supply cartons, means to open cartons, means to assemble wrappers and articles together, means to fold the wrappers around the articles after they are assembled, means to sever the wrappers between articles thereon and close the ends of the wrappers at the ends of the articles, means to supply other matter with the wrapped articles, and means to charge such wrapped articles and other matter in the cartons.

8. An apparatus of the class described comprising a conveyer, means to deposit cartons in the conveyer, means to open cartons, means to assemble wrappers and articles together, means to fold and secure the wrappers around the articles after they are assembled, means to charge the wrapped articles into cartons in the conveyer.

9. An apparatus of the class described comprising a carton receiver, a carton opener, means for inserting the opener within cartons, means for operating the opener to open the cartons, means to withdraw the opener from an opened carton, means to feed a wrapper strip, means to deposit spaced articles on the strip, means to fold the wrapper strip around the articles after they are assembled, means to sever the wrapper between articles therein, and means to insert the wrapped articles in the opened cartons.

10. An apparatus of the class described comprising a carton receiver, a carton opener, means for inserting the opener within

cartons, means for operating the opener to open the cartons, means to withdraw the opener from an opened cartons, means to feed a wrapper strip, means to deposit spaced articles on the strip, means to fold the wrapper strip around the articles after they are assembled, means to sever the wrapper between articles therein, means to supply other material and means to insert said wrapped articles with such other material into the opened cartons.

11. An apparatus of the class described comprising means to wrap articles, means to sever the wrapper between articles thereon, a bed to receive said wrapped articles, means to retain opened cartons opposing the bed and means to feed said articles successively along said bed step by step into the opened cartons.

12. An apparatus of the class described comprising means to wrap articles, means to sever the wrapper between articles thereon, a bed to receive said wrapped articles, said bed being provided with a longitudinal slot, a bar provided with spaced fingers to enter said slot, means to reciprocate said bar, means to retain opened cartons opposing the bed and means to raise and lower the bar for feeding said articles along said bed into the opened cartons.

13. An apparatus of the class described comprising means to wrap articles, means to sever the wrapper between articles thereon, a bed, means to feed the wrapped articles to the bed, means to apply pamphlets upon the bed, means to apply wrapped articles upon said pamphlets, means to retain opened cartons opposing the bed and means to feed the pamphlets and wrapped articles thereon successively into the opened cartons.

14. An apparatus of the class described comprising means to wrap articles, a bed, means to feed the wrapped articles to the bed, means to apply pamphlets upon the bed, means to apply wrapped articles upon said pamphlets, means to feed the pamphlets and wrapped articles thereon successively, means to retain opened cartons opposing the bed, a folder adjacent to said bed adapted to wrap pamphlets around the articles as the pamphlets and articles thereon are fed through the folder into the opened cartons.

15. An apparatus of the class described comprising means to wrap articles, a bed, means to supply pamphlets, an exhaust head to coact with said pamphlets, means to move said head from the bed to the supply of pamphlets and vice versa, and means to cause exhaust through the head to pick up pamphlets and to cut off such exhaust to release pamphlets on the bed, means to feed said pamphlets step by step along said bed, means to feed said wrapped articles upon said pamphlets successively, means to retain opened cartons opposing the bed and a folder to receive said pamplets with the articles thereon to fold the pamphlets around said articles the feeding means moving the articles and pamphlets through the folder.

16. An apparatus of the class described comprising means to wrap articles, a bed, means to supply pamphlets, an exhaust head to coact with said pamphlets, a bar connected with said head, a guide for said bar, means to support said guide for lateral movement, means to move said guide to and fro, means to raise and lower said bar with said head to move it from the bed to the pamphlet supply and vice versa, means to cause exhaust through said head when over said pamphlets and to cut off exhaust from the head when over said bed to deposit the pamphlets thereon, means to feed said pamphlets step by step along said bed, means to feed said wrapped articles upon said pamphlets successively, means to retain opened cartons opposing the bed and a folder to receive said pamphlets with the articles thereon to fold the pamphlets around said articles the feeding means moving the articles and pamphlets through the folder.

17. The combination of a bed, means to supply pamphlets, an exhaust head, a bar connected with said head, a bar having a guide for the first named bar, a carriage, means to guide the carriage for reciprocation, means to guide the second named bar relatively to the carriage, an arm connected with the carriage, means coactive between the first named bar and said arm for operating the latter and the head, a stop for the second named bar, means to reciprocate the carriage, means to cause exhaust through the head when over the pamphlets and to cut off exhaust from the head when over the bed to deposit pamphlets thereon, means to feed the pamphlets along the bed step by step, means to feed articles upon the pamphlets, means to retain opened cartons opposing the bed, and a folder to receive said pamphlets with the articles thereon to fold the pamphlets around said articles the feeding means moving the articles and pamphlets through the folder.

18. The combination of a bed, means to supply pamphlets, an exhaust head, a bar connected with said head, a bar having a guide for the first named bar, a carriage, means to guide the carriage for reciprocation, means to guide the second named bar relatively to the carriage, an arm connected with the carriage, means coactive between the first named bar and said arm for operating the latter and the head, a stop for the second named bar, means to reciprocate the carriage, a valve casing having a port in communication with said head, said casing having a port for communication with an exhaust apparatus and a relief port spaced apart, a valve to coact with said ports to

cause exhaust and relief through said head, a rod connected with said valve, spaced stops upon said rod, and a projection on said carriage to coact with said stops for shifting said valve when the carriage reciprocates, means to feed pamphlets along the bed step by step, means to feed articles upon said pamphlets, means to retain opened cartons opposing the bed and a folder to receive said pamphlets with the articles thereon to fold the pamphlets around said articles, the feeding means moving the articles and pamphlets through the folder.

19. An apparatus of the class described comprising a bed, means to apply pamphlets upon the bed, means to apply articles upon the pamphlets, a folder for said pamphlets, means to feed the pamphlets and articles thereon along the bed through the folder, and means to supply and present cartons opposite the folder in position to receive therefrom said articles with pamphlets wrapped thereon.

20. An apparatus of the class described comprising a bed, means to apply pamphlets upon the bed, means to apply articles upon the pamphlets, a folder for said pamphlets, means to feed the pamphlets and articles thereon along the bed through the folder, means to supply and present cartons opposite the folder in position to receive therefrom said articles with pamphlets wrapped thereon, and means to close the flaps of the charged cartons.

21. An apparatus of the class described comprising a bed, means to apply pamphlets upon the bed, means to apply articles upon the pamphlets, a folder for said pamphlets, means to feed the pamphlets and articles thereon along the bed through the folder, means to supply and open cartons, means to present opened cartons in position to receive articles and pamphlets from said bed through said folder, and means to feed said pamphlets and articles together along the bed through the folder to fold the pamphlets around the articles and charge the same into said opened cartons.

22. An apparatus of the class described comprising a bed, means to apply pamphlets upon the bed, means to apply articles upon the pamphlets, a folder for said pamphlets, means to feed the pamphlets and articles thereon along the bed through the folder, means to supply and open cartons, means to present opened cartons in position to receive articles and pamphlets from said bed through said folder, means to feed said pamphlets and articles together along the bed through the folder to fold the pamphlets around the articles and charge the same into said opened cartons, and means to close the flaps of the charged cartons.

23. An apparatus of the class described comprising means to wrap articles, a bed, means to feed the wrapped articles to the bed, means to apply pamphlets upon the bed, means to apply said wrapped articles upon said pamphlets, a folder for said pamphlets, means to feed the pamphlets and articles thereon along the bed through the folder, means to supply and open cartons, and means to present the cartons in position to receive said articles with pamphlets wrapped thereon.

24. An apparatus of the class described comprising means to wrap articles, a bed, means to feed the wrapped articles to the bed, means to apply pamphlets upon the bed, means to apply said wrapped articles upon said pamphlets, a folder for said pamphlets, means to feed the pamphlets and articles thereon along the bed and through the folder, means to supply and open cartons, means to present the cartons in position to receive said articles with pamphlets wrapped thereon, and means to close the flaps of the charged cartons.

25. An apparatus of the class described comprising means to wrap articles, a bed, means to feed the wrapped articles to the bed, means to supply pamphlets upon the bed, means to apply said wrapped articles upon said pamphlets, a folder for said pamphlets, means to supply and open cartons, means to present opened cartons in position to receive articles and pamphlets from said bed, and means to feed pamphlets with articles thereon through the folder to fold the pamphlets around the articles and charge the same into said opened cartons.

26. An apparatus of the class described comprising means to wrap articles, a bed, means to feed the wrapped articles to the bed, means to supply pamphlets upon the bed, means to apply said wrapped articles upon said pamphlets, a folder for said pamphlets, means to supply and open cartons, means to present opened cartons in position to receive articles and pamphlets from said bed, means to feed pamphlets with articles thereon through the folder to fold the pamphlets around the articles and charge the same into said opened cartons, and means to close the flaps of the charged cartons.

27. The combination of means for moving an open carton having flaps projecting from its ends, a guard for one of said flaps having a seat to oppose said flap and an extended portion adjacent thereto, a member to engage said flap to push it to the seat and cause a projecting end portion of the flap to be bent for a tuck, said guard having an inclined portion to cause said flap to be folded toward the carton and said tuck end to be tucked into the carton as the latter is moved along the guard.

28. The combination of means for supplying an open carton having flaps projecting from its ends, means to fold flaps of the

carton at the ends thereof, a guard for one of the flaps having a seat to oppose the flap, an extended portion adjacent thereto to cooperate with the flap for folding the tuck-end thereof, and a member adapted to engage said flap to push it into the seat to cause its tuck-end to bend relatively to the main part of the flap, and means to fold said flap and tuck its tuck-end into the carton.

29. The combination of means for supplying an open carton having flaps projecting from its ends, means to fold flaps of the carton at the ends thereof, a guard for one of the flaps having a seat to oppose the flap, an extended portion adjacent thereto to cooperate with the flap for folding the tuck-end thereof, a member adapted to engage said flap to push it into the seat to cause its tuck-end to bend relatively to the main part of the flap, means to apply paste to said member for pasting the main portion of said flap whilst its tuck-end is being bent, and means to fold said flap with its pasted portion against the previously folded flap and to tuck its tuck-end into the carton.

Signed at New York city, in the county of New York and State of New York this 23rd day of June, A. D. 1916.

ERNEST D. ANDERSON.

Witnesses:
MARIE F. WAINRIGHT,
T. F. BOURNE.