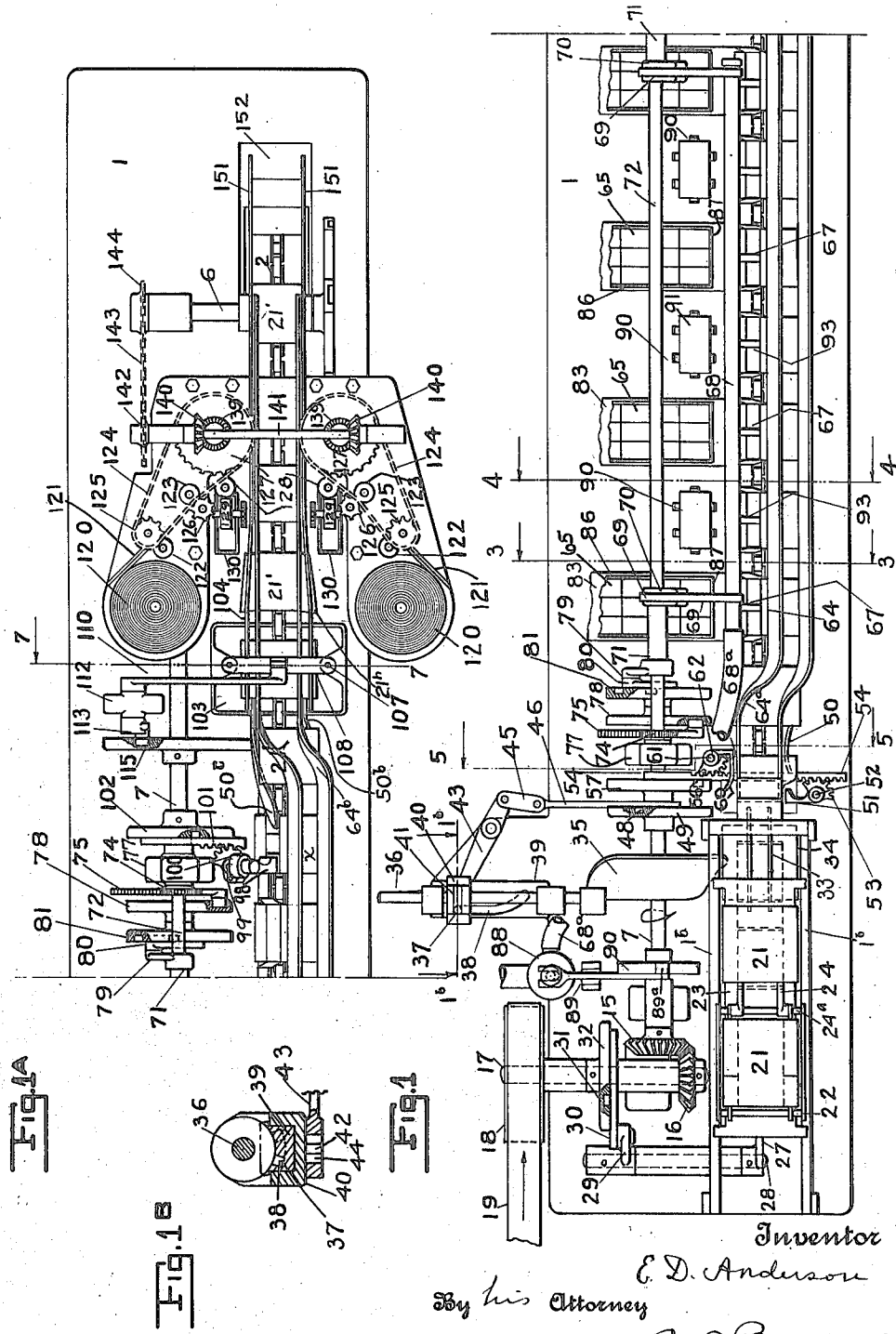


E. D. ANDERSON.
MEANS FOR CHARGING RECEPTACLES.
APPLICATION FILED APR. 30, 1915.

1,161,581.

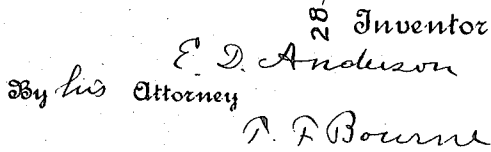
Patented Nov. 23, 1915.

5 SHEETS—SHEET 1.



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5 SHEETS—SHEET 2.



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5 SHEETS—SHEET 3.

Fig. 3

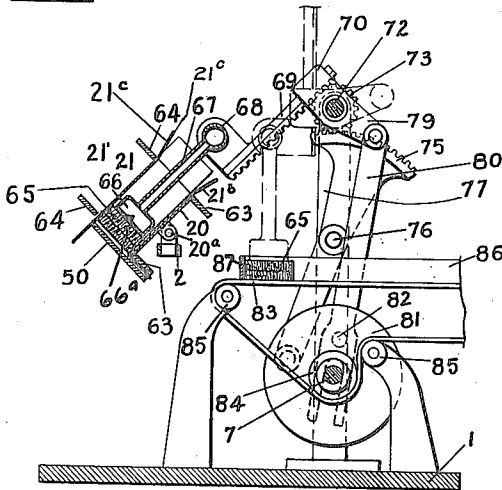


Fig. 4

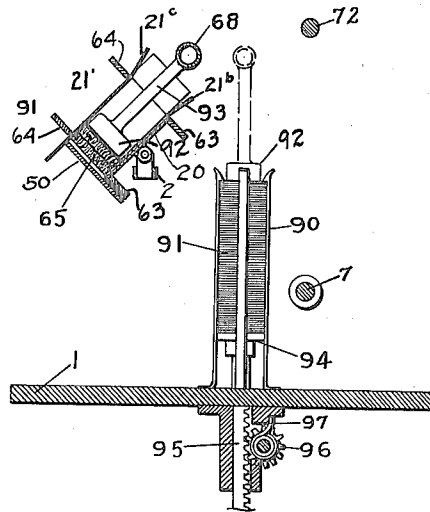


Fig. 8

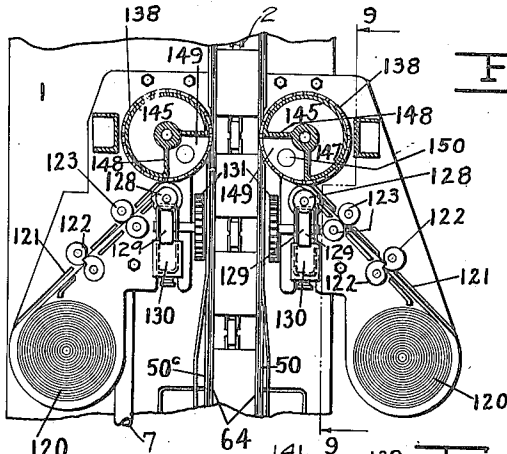


Fig. 10

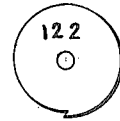


Fig. 10A

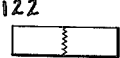


Fig. 9

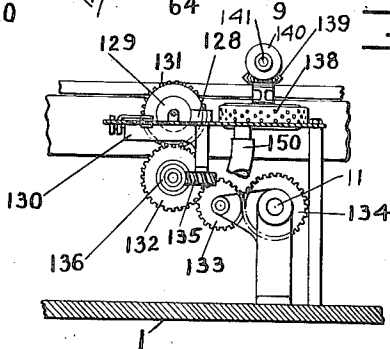


Fig. 9A

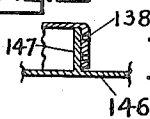
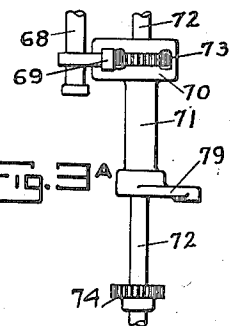


Fig. 3A



Inventor

E. D. Anderson

By his Attorney

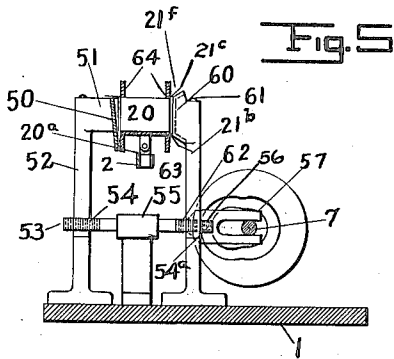
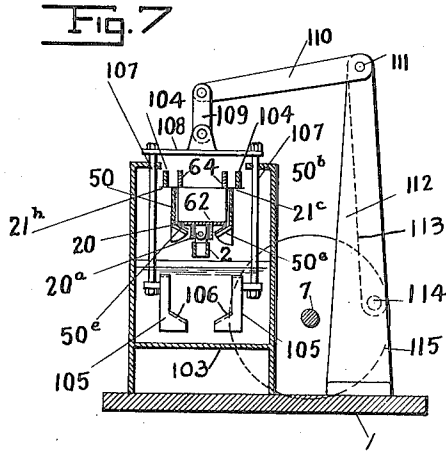
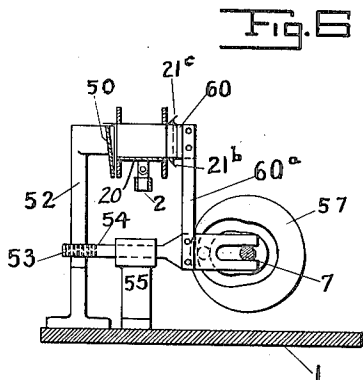
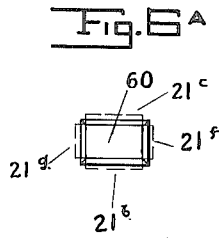
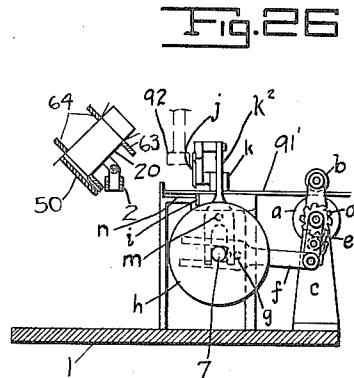
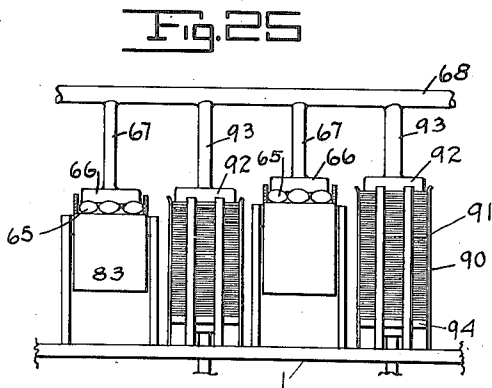
A. F. Bourne

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1,161,581.

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5 SHEETS—SHEET 4.



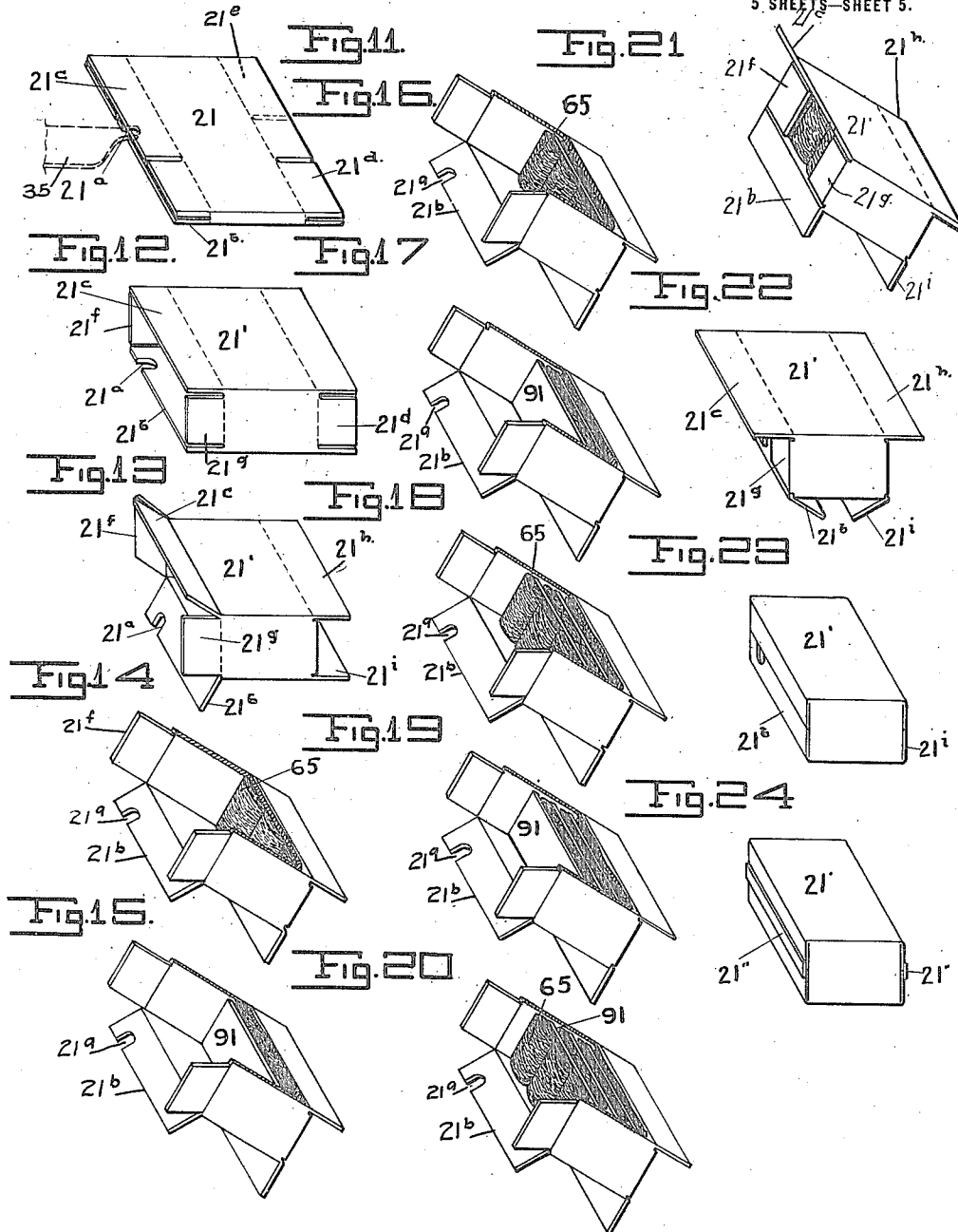
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By his Attorney
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1,161,581.

Patented Nov. 23, 1915.

5 SHEETS—SHEET 5.



Inventor
 E. D. Anderson
 By his Attorney
 P. F. Bourne

UNITED STATES PATENT OFFICE.

ERNEST D. ANDERSON, OF NEW YORK, N. Y.

MEANS FOR CHARGING RECEPTACLES.

1,161,581.

Specification of Letters Patent.

Patented Nov. 23, 1915.

Application filed April 30, 1915. Serial No. 24,860.

To all whom it may concern:

Be it known that I, ERNEST D. ANDERSON, a citizen of the United States, and resident of New York city, borough of Manhattan, in the county of New York and State of New York, have invented certain new and useful Improvements in Means for Charging Receptacles, of which the following is a specification.

My invention relates to improvements in machines for charging cartons or receptacles with articles of merchandise, sealing the charged cartons, and, when desired, applying a sealing strip upon the cartons and discharging the filled and sealed cartons from the machine.

My invention is particularly adapted to charging layers of articles into cartons with strips of paper or the like interposed between the layers of articles, and has particular reference to charging cartons with such goods as the wellknown shredded wheat biscuit, wherein each layer of biscuits comprises a plurality of biscuits, in the particular embodiment of the packed cartons herein illustrated there being four layers of biscuits, each layer containing three biscuits, with a sheet of paper interposed between each layer of biscuits.

In the construction of machine illustrated in the accompanying drawings I provide a magazine for collapsed cartons, means to feed such cartons successively from the magazine into receivers or pockets on an endless conveyer, means to open and square the cartons in such pockets, means to feed a plurality of articles for a layer and to deposit such layers of articles in the opened cartons, with means to supply sheets of paper, and means to insert sheets of paper in the cartons upon previously inserted layers of articles, means being provided to close and seal the flaps of the cartons and apply a sealing strip thereon, all in a continuous manner.

In accordance with the specific embodiment of my present invention I provide means to tilt opened cartons within the receivers or pockets of the conveyer, and means to lift the layers of biscuits, tilt them to a position to enter the tilted cartons and deposit them therein, such lifting and tilting means being spaced apart for inserting the layers of biscuits in the cartons step by step, and interposed between certain of said spaced lifting means I provide means to re-

tain sheets of paper, with means to pick up the sheets of paper, tilt them and deposit them in the cartons upon previously inserted layers of biscuits, the conveyer having the cartons stopping each time the layers of biscuits and the papers are to be inserted in the cartons, the operations being carried on continuously, the different layers of biscuits and sheets of papers being built up in the cartons as the latter progress with the conveyer. Instead of providing stacks of sheets of paper, the paper sheets may be cut successively from rolls to be placed in the cartons as required. The means for lifting the biscuits and sheets of paper to place them in the cartons, as illustrated in the accompanying drawings, comprise pneumatically operating devices, such as air suction heads to lift the layers of biscuits and the sheets, deposit them in the cartons, and release them therein.

My invention further 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,

Figures 1 and 1^a, taken together, illustrate a plan view of a machine embodying my invention; Fig. 1^b is a detail section on the line 1^b, 1^b in Fig. 1; Figs. 2 and 2^a taken together illustrate a partial side view of said machine; Fig. 2^b is a detail section on the line 2^b, 2^b, in Fig. 2; Figs. 3, 4 and 5 are respectively cross sections on the line 3, 3, 4, 4, 5, 5, in Fig. 1; Fig. 3^a is a detail plan of part of Fig. 3; Fig. 6 is a modification of the parts shown in Fig. 5; Fig. 6^a is a detail of Fig. 6; Fig. 7 is a cross section on the line 7, 7, in Fig. 1^a; Fig. 8 is a horizontal section of parts shown in Fig. 1^a; Fig. 9 is a detail side view substantially on the line 9, 9, in Fig. 8; Fig. 9^a is a sectional detail of part of Fig. 9; Figs. 10 and 10^a illustrate in plan an edge view, enlarged, of the cutter for the strip shown in Fig. 8; Figs. 11 to 24 illustrate steps in the opening, charging, closing and sealing of cartons in accordance with my invention; Fig. 25 is an enlarged detail, and Fig. 26 is a detail of a modification.

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

The numeral 1 indicates a suitable frame in which is supported a conveyer 2 shown in the form of a chain supported upon sprocket wheels 3, 4, upon shafts 5, 6, jour-

naled in suitable bearings in said frame. To operate the conveyer I have shown a shaft 7 journaled in suitable bearings upon frame 1 and having a gear 9 in mesh with
 5 a gear 10 on a shaft 11 having an arm 12 provided with a projection 13 adapted to coact with slots 14^a in a toothed wheel 14 in the nature of a Geneva movement for operating the conveyer step by step, (Fig. 2^a).
 10 Shaft 7 may be rotated in any suitable manner, such as by a gear 15 on said shaft meshing with a gear 16 on a shaft 17 provided with a pulley 18 receiving a driving belt 19. Conveyer 2 is shown provided with receivers
 15 or pockets 20 into which cartons 21 are to be deposited successively. The cartons 21 are shown stacked in a suitable magazine 22 supported upon frame 1. Beneath said magazine is a reciprocative plate or slide 23
 20 mounted to slide upon rails 1^b of frame 1 and adapted to pass under the cartons. Said plate is shown provided with a shoulder 23^a adjacent to a depressed portion 23^b upon which the cartons 21 rest temporarily.
 25 The stack of cartons rest upon plate 23 in the position shown in Fig. 2, and when said plate is moved properly to the left the lowermost carton will enter the depression 23^b and the shoulder 23^a will push such carton
 30 to the right in Fig. 2, upon each forward stroke of said plate. One or more dogs 24, shown pivotally supported at 24^a, are adapted to engage the rear edge of a carton that is carried forwardly with plate 23 so that
 35 when said plate is withdrawn said dog will retain the carton so that the part 23^b of said plate may slide from under the carton and the same will be deposited in a receiver or pocket 20 beneath the same, the forward
 40 edge of the carton in such position engaging the stop 25 to cause the carton to tilt to move into the receiver in substantially the position indicated in Fig. 2. Any suitable means may be provided for reciprocating
 45 plate 23. For this purpose I have shown link 26 pivotally connecting said plate with a lever 27 that is pivotally supported upon the frame by shaft 28, which shaft is shown
 50 provided with an arm 29 pivotally connected with a rod 30 having a yoke guided upon shaft 17, which rod has a pin or roller 31 coacting with a suitable cam 32 secured on said shaft 17 (Figs. 1 and 2). When the
 55 conveyer moves a step from the carton-receiving position the upper edge of the carton is adapted to engage a suitable stop 33 on the frame (Fig. 2) to cause the carton to be snugged in the pocket 20 where it remains in an inclined position. At one side of conveyer 2, opposed to the receivers 20, is an
 60 abutment 34 along which the corresponding ends of the cartons are adapted to travel for a suitable distance. When the conveyer comes to rest against the stop 34 the carton
 65 will be opposite opener or knife 35 that is

adapted to enter the adjacent end of the carton, said opener being adapted to open the carton or abutment 34 resisting the entrance of the opener into the carton. The normal position of the opener is such that just as
 70 the carton comes to rest the point of the opener passes through a notch 21^a in a flap 21^b of the carton with the point of the knife adjacent to and in contact with the top flap 21^c of the carton (Fig. 11) partially separating the flaps. The opener is then moved
 75 forward into the carton and is rotated in such a manner that at the end of its forward stroke the opener opens the carton and seats the same in the receiver or pocket 20, where-
 80 upon the opener retreats from the carton. Any suitable means may be provided for thus reciprocating and rotating the opener, and in the example illustrated in the accompanying drawings I have shown means substantially similar to that disclosed with respect to a carton opener in my application
 85 for Letters Patent for packing and wrapping machines, filed Dec. 29, 1913, Serial No. 809,254, other parts before described also being substantially similar to parts shown in my said application.

For the purpose above stated I have shown the opener carried upon a shaft or rod 36 (Fig. 1) that is provided with a pin 37
 95 entering a suitably curved slot or groove 38 provided in the concave face of the fixed block 39. A block 40 has a forked portion 41^a adapted to receive the head portion of pin 37 between them, which jaws are mounted
 100 freely upon shaft or rod 36, which block 40 is provided with a pin 42 co-acting with an arm 43 that has a suitable slot 44 receiving said pin. Arm 43, is shown connected with a link 45 that is connected with a rod
 105 46 guided by a shaft 7 and having a pin 48 coacting with a cam 49 on said shaft, whereby as said cam rotates, arm 43 will be rocked, shaft 36 and the opener will be reciprocated, and during the forward stroke the opener
 110 35 will enter the carton, and when pin 37 engages the curved portion of slot 38 the shaft and opener will be rotated, causing the opener to open and square the carton and seat it in the corresponding pocket 20, and
 115 before the conveyer is moved the next step forward the opener will be withdrawn from the carton ready to enter and open a succeeding carton, and so on each time the conveyer comes to rest with a carton opposite the opener. Upon the next step or movement of the conveyer the said opened carton is brought to a position where its forward end flap 21^a (Fig. 11) engages a flap closer 50
 120 (Fig. 1) which is shown in the form of a plate or shoe suitably curved to engage said flap to close it while the conveyer is coming to rest.

At 51 is a movable flap closer adapted to close in the corresponding end flap 21^c (Fig. 130

12) while the carton is in the last named position. Said closer is shown carried upon a shaft 52 suitably journaled upon the main frame and adapted to be rocked to close in said flap. To operate the closer 51 I have shown shaft 52 provided with a segment 53 engaging a rack 54 slidably supported in a bearing 55 (Fig. 5) and having a pin or roller 56 engaging a cam 57 secured on shaft 7, the end of rack 54 being shown yoked and guided upon said shaft, whereby as said cam rotates, the flap closer 51 will be rocked. When the conveyer has come to rest with a carton in the position shown in Fig. 1, the closer 51 will be turned to close in the end flap 21^e, so that both flaps 21^e and 21^a will then be closed Fig. 13. On the side of the conveyer opposite the flap closer 51 is a flap flarer 60 (Figs. 1 and 5), shown pivotally supported upon a shaft 61 secured on frame 1 and provided with a toothed segment 62 communicating with a rack 54^a operative with rack 54, whereby when the carton comes to rest in the position stated, the flap flarer 60 will be caused to move toward the carton to engage the flaps 21^b, 21^c, 21^f and 21^g, (Figs. 5 and 14) to expand them. After a carton is moved from the flap closer 51 and the flarer 60, the latter move away ready to return to close and flange flaps of the next carton, and so on.

Instead of causing the flap flarer 60 to rotate, the same may be reciprocated toward and from the cartons, for which purpose I have shown said flap opener connected by arm 60^a with the rack bar 54 (Fig. 6) whereby as the latter reciprocates, the flap opener will be moved toward and from the cartons, the flap closer 51 being suitably timed with respect to the movement of the flarer 60 so as to close the flap 21^e before the carton is stepped away from the position opposing the flap flarer. In Fig. 6^a a front view of the flap flarer 60 of Fig. 6 is illustrated, showing its beveled face adapted to spread the flaps of the cartons.

In the embodiment of my invention illustrated in the accompanying drawings I provide means for causing the receivers or pockets 20 to be tilted or inclined with respect to the plane of the conveyer 2, preferably after the flaps of the cartons have been operated on by the flap closer 51 and flap flarer 60, to enable articles to be packed in the cartons in an inclined direction. For this purpose I have shown the receivers 20 as pivotally supported at 20^a upon conveyer 2 (Fig. 3), and at 63, 64 are pairs of rails spaced apart at opposite sides of the conveyer, and extending parallel with respect thereto, the rails 63 being shown beneath receivers 20 and the rails 64 above the same (Fig. 3). Said rails are suitably curved, as shown at 64^a, to cause the receivers to be tilted as they pass such curved portions of

said rails, the guide 50 being likewise curved at 50^a (Fig. 2) and extending along the machine in opposition to the adjacent open sides of receivers 20 to act as an abutment or stop for the closed flaps 21^a, 21^e, and articles 65 against which the articles 65 will rest that are to be inserted in the cartons. By this means, as the conveyer carries the cartons along the machine said cartons will be tilted and so temporarily retained to permit the articles 65 to be charged therein at an angle to the horizontal. Suitable means are provided for picking up the articles 65 and inserting them in the cartons. In the example illustrated in the accompanying drawings I have shown means for picking up layers of articles 65 and successively inserting them in the cartons or receptacles, and I have also shown means for inserting spacers, such as sheets of paper or the like, between the layers of articles in the cartons, although the inserting of spacers between the layers of articles need not be used except for special kinds of packing. My improved machine is particularly adapted for inserting in receptacles or cartons articles such as the wellknown shredded wheat biscuits, which are customarily packed in four layers of three biscuits each, with sheets of papers interposed between the layers of biscuits. I have shown means operating pneumatically to lift the articles or biscuits 65, deposit them in the cartons and release them therein. I have also shown means operating pneumatically to pick up spacers or sheets of paper, and place them upon the layers of articles in the cartons and release them therein. To pick up the articles 65 and deposit them in the receptacles or cartons I have shown suction heads 66 connected by tubes 67 with pipe 68 adapted to receive suction or exhaust periodically. The suction heads 66 are hollow and provided with perforated plates 66^a to coact with articles 65. The pipe 68 carrying the suction heads may be caused to descend toward the articles 65 and to raise said heads with the articles and deposit the latter in the cartons in any suitable manner. I have shown the pipe 68 supported by rack bars 69 suitably spaced apart, slidably carried in blocks 70, that are secured to or formed with sleeves 71 rotatively supported upon a shaft 72 that is journaled in suitable bearings on frame 1. Racks 69 are in mesh with pinions 73 that are secured on shaft 72 for reciprocating the racks to thereby reciprocate the head 66. Shaft 72 is provided with pinions 74 (Figs. 1, 1^a and 3^a) in mesh with toothed segments 75 pivotally supported at 76 on uprights 77, which racks are adapted to be rocked by cams 78 secured on shaft 7 (Fig. 1).

The blocks 70 are adapted to be rocked to cause the heads 66 to be swung or oscillated, and for this purpose I have shown

the sleeves 71 provided with arms 79 that are pivotally connected with rods or bars 80, shown having yokes guided by shaft 7, and adapted to be reciprocated by cams 81, secured on said shaft, as by means of pins or rollers 82. The articles 65 to be picked up by the heads 66 may be maintained in position with relation to said heads by any suitable means. For this purpose I have shown conveyers or belts 83 beneath the heads, shown passing over pulley 84 on shaft 7 and over guide pulleys 85 (Fig. 3), the outer portions of said belts being supported in any well known manner. At 86 are spaced guides over the belts between which the articles 65 are guided upon the belts; and at 87 are stops over the belts to retain the articles 65 in position as the belts under the articles keep said articles supplied against said stops. The exhaust or suction from pipe 68 may be controlled periodically in any suitable manner, such as by a valve 88 (Fig. 1) controlled by an arm or lever 89 pivotally carried upon frame 1 and having a projection 89^a coacting with a cam 90 on shaft 7. The arrangement described is such that when the conveyer stops with a carton in front of a head 66, with the flaps 21^b, 21^c, 21^d and 21^e opened or expanded (Fig. 13), the head 66 will be caused to descend upon the articles adjacent to stop 87 by means of the rotation of pinions 73 causing racks 69 to descend. Valve 88 will open to permit exhaust through pipe 68, the articles will be sucked against the heads 66, pinions 73 will cause racks 69 and heads 66 to rise to a proper height, arms 79 will be operated to rock the sleeves 71, whereupon pipe 68 with the attached heads will be swung bodily at an inclination with respect to belts 83, pinions 73 will then operate to cause the racks to move outwardly to carry the heads 66 with the articles 65 into the receptacles or cartons and deposit them therein, the valve 88 will close to cut off exhaust and admit air to pipe 68 to cause release of the articles within the cartons, pinions 73 will then cause the racks 69 to rise to withdraw the heads from the carton, arms 79 will cause the pipe 68 and the heads to rock back over the articles on belts 83 ready for another supply of articles, and so on successively for the various layers of articles to be deposited in the cartons. Where there are several of the heads 66 spaced apart, each adapted to provide a layer of articles or biscuits 65 in the cartons, the length of the corresponding tubes 66 and the height of the belts 83 may vary in accordance with the different heights of the layers in the succeeding cartons on the conveyer (Fig. 25), so that the articles will be properly piled up in layers at different heights. Where spacers, such as sheets of

paper or the like, are to be interposed between the layers of articles, I provide means interposed between spaced heads 66 for placing sheets of paper upon different layers of such articles. For this purpose I have shown magazines 90 located upon frame 1 adapted to retain stacks of sheets of paper 91 adapted to fit within the cartons, pipe 68 being provided with suction heads 92, similar to the suction heads 66, and adapted to enter the cartons, the tubes 93 connecting the suction heads 92 with pipes 68 being of proportionate length according to the varying heights of the layers of the articles in the cartons. The heads 92 are caused to descend upon the stack of sheets 91 to pick up the uppermost sheet when valve 88 is opened to create exhaust through pipe 68, and then when the heads 92 are raised and swung to one side and lowered in the cartons and valve 88 closes and admits air to pipe 68, the sheets 91 will be deposited upon the corresponding layer of articles in the cartons. A flexible tube 68^a connecting pipe 68 with valve 88 permits the various movements of pipe 68 as described. To keep the stack of sheets 91 elevated any suitable means may be provided. I have shown plate 94 in magazine 90 (Fig. 4) and a rack 95 normally tending to raise said plate, which rack is shown in mesh with a pinion 96 normally turned by a spring 97 tending to raise the rack so that the sheets will be kept under upward propulsion in the magazines. Where several layers of articles 65 and interposed spacers 91 are to be placed in the receptacles or cartons, the belts or conveyers 83 will be at different successive heights along the conveyer 2 and the magazines 90 will also retain the stacks 91 at varying heights, according to the height of two adjacent belts 83. In such instance, also, the heads 66 will be normally at correspondingly different heights, which may be accomplished by making the tubes 67 of varying lengths, and the heads 92 will likewise normally be at different heights, which may be accomplished by providing tubes 93 of different lengths, as illustrated in Fig. 25, whereby the layers and spacers may be charged in the receptacles or cartons at different heights therein as the conveyer carries the receptacles or cartons along step by step.

Instead of providing magazines for spacers I may provide means for cutting spacers from sheets or webs of paper or other material, step by step or successively, as the heads 92 carry the spacers away. Means for this purpose are shown in Fig. 26, wherein a strip or web 91' is adapted to be fed between feeding rollers *a*, *b*, carried by an upright *c* on frame 1, roller *a* being shown provided with a ratchet *d* engaged by a dog

on a rocking arm *e* that is pivotally connected with a rod *f* having a yoke guided upon shaft 7, and provided with a pin *g* coacting with a cam *h* on said shaft for rotating the rollers *a*, *b*, step by step. The sheet or web 91' passes between a stationary cutter *i* and a movable cutter *j* that is pivotally supported at *k* and provided with a rod *k*² having a yoke guided upon shaft 7 and having a pin *m* coacting with said cam *h*, (or another cam on shaft 7, if preferred), whereby the spacers or sheets 91 will be cut off step by step, and may rest upon the support *n* ready to be picked up by head 92. One of said sets of cutting devices for the strips may be provided between spaced suction heads 66 and beneath the corresponding suction head 92, and arranged at different heights in accordance with the arrangement described with respect to Fig. 25. It will be understood that each time the heads 66 and 92 are lowered, a corresponding set of articles 65 and spacers or sheets 91 will be raised, carried over the cartons and deposited therein, and the said heads will release the articles and spacers or sheets, and thus the articles and spacers are charged into cartons, successively building up the layers.

Figs. 14 to 20 represent steps in charging cartons layer by layer with the articles or biscuits 65 and the spacers or sheets 91, four layers of articles being indicated with three interposed spacers, as illustrated in Fig. 20. When the receptacle or carton has been fully charged to the desired number of layers and spacers, during the step by step movement of the conveyer flap 21' engages the outwardly curved end of a flap closer 50^c, which at such position is opposed to and spaced from the guide 50 (Fig. 1^a), whereby said flap is turned in and is held in such position by said closer 50^c by passing along the latter for a suitable distance. When the conveyer comes to rest, as at the position *x*, a flap closer 98 is operated to engage and close the flap 21^a, which is retained closed by the closer 50^c, and the conveyer next steps forwardly. Flap closer 98 may be operated substantially in the manner described with respect to the flap closer 51, and for this purpose it is pivotally carried by a shaft having a universal joint 99 (Fig. 2^a) provided with toothed segment 100 engaging reciprocative rack 101 guided upon shaft 7, in the manner described with respect to rack 54, and reciprocated by a cam 102 secured on shaft 7, (Fig. 1^a). When the conveyer makes another step forward the receivers or pockets are restored to the normal upright position in which the cartons or receptacles are received therein, and for this purpose the guides or rails 63, 64 and the guide 50 are suitably curved at 64^b and at 50^b, which, by contact with the receivers, causes the receivers

or pockets 20 to tilt back to a vertical position with the charged cartons in such position, the rails and guide continuing in an on-edge condition (Fig. 7). During the progress of the charged cartons up to and past the flap closers 50^c and 98, the flaps 21^b, 21^c, and the flaps 21^h and 21ⁱ, at the opposing ends of the conveyer, are kept extended by the rails 63, 64 until the charged cartons 21' come to rest over a paste pot 103 and the unfolded flaps 21^c, 21^h of the carton will have engaged spaced abutments 104, whose forward edges 104^b are suitably shaped to permit said flaps to pass thereunder (Fig. 2^a), and said flaps will be in the positions shown in Figs. 7 and 22, and the rear portions of the guides 50, 50^c are bent under at 50^a (Fig. 7) in position to have caused the flaps 21^b and 21ⁱ to have been turned under the folded carton, substantially in the position as shown in Figs. 7 and 22. In such position of the carton the toes 50^c and the guides 50, 50^c (Fig. 2^a) retain the flaps 21^b and 21ⁱ exposed over the paster.

Within the paste pot are suitable reciprocative pasters 105 having their upper ends adapted to engage the flaps 21^c, 21^h and their beveled portions 106 adapted to engage the inturned flaps 21^b and 21ⁱ (Fig. 7) when the pasters are raised. The pasters are shown carried by rods 107 connected with a head 108 that is pivotally connected by a link 109 with an arm 110, shown journaled at 111 on an upright 112 on frame 1, an arm 113 being connected with arm 110 and having a pin or projection 114 to coact with a cam 115 on shaft 7 (Figs. 1^a and 7). As said cam rotates, the pasters 105 will be reciprocated to apply paste to the said flaps of the carton. As the conveyer steps the gummed carton along from over the paste pot the downwardly inclined edges 104^a of abutments 104 engage the upper flaps 21^c, 21^h and fold them against the flaps 21ⁱ, 21^e, and the flaps 21^a and 21^c, respectively, and the suitably shaped flap turners 116 engage the lower flaps 21^b, 21ⁱ and fold them against the flaps 21ⁱ, 21^e, 21^d and 21^c respectively, substantially in the positions illustrated in Fig. 23, and the cartons are thus closed and sealed, and the guides 104 and 116 are sufficiently extended to keep the said flaps closed during further progress of the cartons with the conveyer.

Where it is desired to apply pasting strips 21'' along the closed flaps (Fig. 24) I provide means for feeding, pasting and cutting off suitable strips and applying them over the seams between the closed flaps of the cartons. For this purpose I provide means for supporting reels of paper or fabric strips, which pass from the reels in suitable feeding cutters 122 to the feed rollers 123 suit-

ably spaced from said cutters. A chain 124 coacting with sprockets 125, 126, 127 (Fig. 1^a) causes proper rotation of cutters 122 and feed rollers 123 on opposite sides of the strip, the parts being so timed that when the strip is gripped by the feed rollers 123, the cutters 122 will cut off the proper lengths of the strips for the cartons. The cut-off strips pass thence against pasting rollers 128 rotated by chain 124 and in contact with paste-pot rollers 129, dipping in the paste pots 130 (Figs. 8 and 9). Rollers 129 are shown provided with gears 131 meshing with gears 132 (Fig. 9) operated by gears 133, 134. Gear 134 is operated by shaft 11. Roller 128 is shown provided with a gear 135 in mesh with a gear 136 attached to gear 132 for rotating pasting roller 128 in contact with paste roller 129. The cut-off strip passes from the pasting roller 128 to a perforated suction shell or drum 138, which causes the pasted strip to be carried against the folded and pasted flaps of the cartons as the latter travel past the opposing pasting drum. Each paste drum is shown in the form of a hollow shell suitably journaled and provided with a gear 139 meshing with a gear 140 on a shaft 141, shown having a sprocket 142 receiving a chain 143 from a sprocket 144 on shaft 6. The perforated suction shell or drum 138 rotates around a chamber 145, secured upon frame 1, comprising a bottom plate 146 and a wall 147 (Fig. 9^a) which wall is shown annular for three-quarters of its circumference, and having angularly disposed or radial walls 148 providing a suction chamber 149 to which an exhaust pipe 150 leads (Fig. 8), the exhaust being induced through said pipe in any suitable manner. Where strips 21'' are to be applied upon opposite sides of cartons, two sets of strip feeding, cutting and pasting devices are provided, as illustrated in the accompanying drawings on opposite sides of the conveyer. The arrangement is such that when the cut-off and pasted strips pass from the pasting rolls 128 under the influence of suction maintained through the perforated shell or drum 138, at the compartments 149, the strips will adhere to said shells by the suction, and will be applied against the flaps of the cartons, and will be relieved from the influence of the suction as they pass the upper walls 148 of said compartment, (Fig. 8) since at such point the suction will be cut off in the perforations of the shells 138. The parts are so timed that the strips will be applied on the flaps of the cartons as the latter progress between the suction drums 138. The strips 21'' so pasted on the cartons are maintained between spaced guides 151 serving to keep the pasted strips pressed against the cartons, and the charged sealed and pasted cartons may be delivered from the

receivers or pockets 20 in any suitable manner. I have shown chute 152 adapted to receive the charged and sealed cartons and to deliver them to a suitable conveyer or belt 153 for carrying away the finished cartons.

From what has been described, it will be understood that the receptacles or cartons are fed successively into the receivers of the conveyers, are opened and seated in said receivers, flaps at one end of each carton are closed and the flaps at the opposite end of the cartons are opened, the receivers and cartons are tilted, the articles to be charged in the cartons are raised up and swung to an inclined or tilted direction so as to be inserted in the cartons substantially on end, are deposited in the cartons in successive layers, with or without interposed spacers 91, the conveyers with the charged cartons are tilted back to a normal or upright position, the flaps are pasted, closed and sealed, and sealing strips may be applied upon the closed outer flaps all in a continuous manner, the operations taking place step by step and successively as the cartons are carried along by the conveyer without the articles being required to be handled in any manner, and without danger of injuring them, owing to the manner in which the articles are picked up through the influence of exhaust or suction and carefully deposited and released in the cartons. Since, in the accompanying drawings, the receptacles or cartons are deposited in the receivers or pockets of the conveyers with the open ends of the cartons horizontally disposed, I cause the receivers or cartons to be tilted with respect to the horizontal, and insert the articles 65 in said cartons in a tilted direction so that when said articles are released in the cartons, they will remain in an inclined position, obviating the possibility of their falling outwardly, whereupon just before the charged carton is brought to a horizontal position the end flaps are closed in, preventing the articles from falling outwardly at one end of the cartons, the guide 50, by retaining the opposite end flaps closed, preventing the articles from falling out at the opposite end.

While I have illustrated means for depositing collapsed receptacles in the receivers or pockets of the conveyer, and for opening the receptacles while in such receivers or pockets, it will be understood that the cartons may be presented to the means I have disclosed for picking up and inserting articles or goods within the cartons in any other desired manner, and that while I have shown a conveyer having receivers or pockets to present cartons in front of the carton charging device, said cartons may be successively presented to such device in any other suitable manner. It will be under-

stood that the means for applying paste upon the faces of the flaps may be omitted, and that the flaps may be retained closed by means of the sealing strips 21'', or the flaps may be sealed and the retaining strips omitted.

While I have illustrated and described a practical embodiment of my invention it will be understood that changes may be made in the details of construction and arrangements 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. A machine of the class described comprising means to supply receptacles having flaps at opposite ends, means to open the receptacles, means to close the flaps at one end of the receptacles, and means to enter the opened receptacles and recede therefrom to charge the receptacles with articles.

2. A machine of the class described comprising means to supply receptacles having flaps at opposite ends, means to open the receptacles, means to close the flaps at one end of the receptacles, and means to enter the opened receptacles and recede therefrom to charge the receptacles with articles against said closed flaps.

3. A machine of the class described comprising means to supply receptacles having flaps at opposite ends, means to open the receptacles, means to close the flaps at one end of the receptacles, means to enter the opened receptacles and recede therefrom to charge the receptacles with articles against said closed flaps, and means to close the flaps at the opposite ends of the receptacles.

4. A machine of the class described comprising a conveyer having means to propel receptacles step by step, means spaced apart to retain articles to be placed in the receptacles, spaced suction heads located adjacent to said article-retaining means respectively, said heads being at respectively different heights, means to cause exhaust through said heads simultaneously, means to cause said heads to descend upon articles, lift and move said articles away from the retaining means, and deposit said articles in said receptacles.

5. A machine of the class described comprising a conveyer having means to propel receptacles step by step, means spaced apart to retain articles to be placed in the receptacles, spaced suction heads located adjacent to said article-retaining means respectively, said heads being at respectively different heights, means to cause exhaust through said heads simultaneously, means to cause said heads to descend upon articles, lift and move said articles away from the retaining means and deposit said articles in said re-

ceptacles, means to retain spacers between said article retaining means, suction heads located adjacent to said spacer retaining means and between the first named suction heads, the second named suction heads being connected with exhaust and with the said means that operates the first named suction heads to insert the spacers in the receptacles.

6. A machine of the class described comprising a conveyer having means to propel receptacles step by step, means spaced apart to retain articles to be placed in the receptacles, spaced suction heads located adjacent to said article-retaining means respectively, said heads being at respectively different heights, means to cause exhaust through said heads simultaneously, means to cause said heads to descend upon articles, lift and move said articles away from the retaining means and deposit said articles in said receptacles, means to retain spacers between said article retaining means, suction heads located adjacent to said spacer retaining means and between the first named suction heads, said heads being at respectively different heights, the second named suction heads being connected with exhaust and with the said means that operates the first named suction heads to insert the spacers in the receptacles.

7. A machine of the class described comprising means to propel receptacles step by step, a plurality of spaced conveyers for articles, means to guide articles on the conveyers, stops to retain the articles on the conveyers, spaced suction heads above the conveyers, means to cause exhaust through said heads simultaneously and cut off exhaust therefrom simultaneously, devices to cause said heads to descend upon said articles on the conveyers, raise the heads and articles and move them laterally and deposit the articles in the receptacles, means to maintain spacers between said heads, suction heads to pick up said spacers, said suction heads being located between the first named heads, means to cause suction through the second named heads, the second named heads being connected with the means that operate the first named heads for causing spacers to be deposited upon preceding articles placed in the receptacles.

8. A machine of the character described comprising a conveyer, receivers movably carried by the conveyer adapted to receive receptacles, means to insert receptacles in said receivers, means to open the receptacles while in the receivers, and means to tilt the receivers and receptacles with respect to the conveyer.

9. A machine of the character described comprising a conveyer, receivers movably carried by the conveyer adapted to receive receptacles, means to tilt the receivers and

receptacles with respect to the conveyer, and means to charge the receptacles with layers of articles.

10. A machine of the character described comprising a conveyer, receivers movably carried by the conveyer adapted to receive receptacles, means to tilt the receivers and receptacles with respect to the conveyer, means to charge the receptacles with layers of articles, and means to insert spacers in the receptacles between layers of articles therein.

11. A machine of the character described comprising a conveyer, receivers movably carried by the conveyer adapted to receive receptacles, means to tilt the receivers and receptacles with respect to the conveyer, and means to alternately insert layers of articles and spacers therebetween in the receptacles.

12. A machine of the character described comprising a conveyer, receivers movably carried by the conveyer, means to retain the receivers on the conveyer in a normal position, means to charge the receivers with receptacles, means to cause the receivers to tilt with respect to the conveyer, and means to pick up and deposit articles in the tilted receivers.

13. A machine of the character described comprising a conveyer, receivers movably carried by the conveyer, means to charge the receivers with receptacles, rails extending for a suitable distance parallel with the conveyer and also curved with respect thereto to cause the receivers and receptacles to tilt with respect to the conveyer, said rails being also reversely curved to cause the receivers to be restored to their normal relation with respect to the conveyer, and means to pick up and deposit articles in the tilted receptacles.

14. A machine of the character described comprising a conveyer, receivers movably carried by the conveyer, means to charge receivers with receptacles, rails extending for a suitable distance parallel with the conveyer and also curved with respect thereto to cause the receivers to tilt with respect to the conveyer, said rails being also reversely curved to cause the receivers to be restored to their normal relation with respect to the conveyer, a flap closer adjacent to and extending along the side of the conveyer to close and retain flaps of the articles closed, said closer having a suitably curved portion to substantially correspond with the curvature of said rails, the flap closer serving as an abutment for the ends of the receptacles and having a portion curved with respect to the conveyer corresponding to the tilting of the receivers.

15. A machine of the character described comprising a conveyer, receivers movably carried by the conveyer, means to charge re-

ceivers with receptacles, rails extending for a suitable distance parallel with the conveyer and also curved with respect thereto to cause the receivers to tilt with respect to the conveyer, said rails being also reversely curved to cause the receivers to be restored to their normal relation with respect to the conveyer, a flap closer adjacent to and extending along the side of the conveyer to close and retain flaps of the articles closed, said closer having a suitably curved portion to substantially correspond with the curvature of said rails, the flap closer serving as an abutment for the ends of the receptacles and having a portion curved with respect to the conveyer corresponding to the tilting of the receivers, a movable flap closer adjacent to the first named flap closer, and means to operate said movable closer to close flaps of the receptacles before they reach the first named closer.

16. A machine of the character described comprising a conveyer, receivers movably carried by the conveyer, means to charge receivers with receptacles, rails extending for a suitable distance parallel with the conveyer and also curved with respect thereto to cause the receivers to tilt with respect to the conveyer, said rails being also reversely curved to cause the receivers to be restored to their normal relation with respect to the conveyer, a flap closer adjacent to and extending along the side of the conveyer to close and retain flaps of the articles closed, said closer having a suitably curved portion to substantially correspond with the curvature of said rails, the flap closer serving as an abutment for the ends of the receptacles and having a portion curved with respect to the conveyer corresponding to the tilting of the receivers, a movable flap closer adjacent to the first named flap closer, means to operate said movable closer to close flaps of the receptacles before they reach the first named closer, a flap flarer on the opposite side of the conveyer, and means to operate said flap opener.

17. A machine of the character described comprising a conveyer having receivers, means to insert receptacles in said receivers, an opener, means to insert the opener in the receptacles in the receivers, means to operate the opener in the receptacles, a flarer for flaps at one end of the receptacles, and means to charge the receptacles with articles.

18. A machine of the character described comprising a conveyer having receivers, means to insert receptacles in said receivers, an opener, means to insert the opener in the receptacles in the receivers, means to operate the opener in the receptacles, a flarer for flaps at one end of the receptacles, means to charge the receptacles with articles, and means to close said flaps of the receptacles.

19. A machine of the character described comprising a conveyer having receptacles, receivers movably connected therewith, a magazine for receptacles, means to feed receptacles into said receivers, means to open
 5 receptacles in the receivers, means to close flaps at one end of the receivers, means to expand flaps at the opposite ends of the receivers, means to cause the receivers to tilt
 10 with respect to the conveyer, and means to charge articles in said receptacles.

20. A machine of the character described comprising a conveyer having receptacles, receivers movably connected therewith, a
 15 magazine for receptacles, means to feed receptacles into said receivers, means to open receptacles in the receivers, means to close flaps at one end of the receivers, means to expand flaps at the opposite ends of the receivers, means to cause the receivers to tilt
 20 with respect to the conveyer, means to charge articles in said receptacles, and means to apply spacers upon the articles in the receptacles.

21. A machine of the character described comprising a conveyer having receivers movably connected therewith, a magazine for receptacles, means to feed receptacles into said receivers, means to open receptacles in the
 30 receivers, means to close flaps at one end of the receptacles, means to expand flaps at the opposite ends of the receptacles, means to cause the receivers to tilt with respect to the conveyer, means to supply articles for the receptacles, and means to lift said articles
 35 from the supply means, move them into a tilted position and deposit them in the receptacles in a tilted position.

22. A machine of the character described comprising a conveyer having receivers movably connected therewith, a magazine for receptacles, means to feed receptacles into said receivers, means to open receptacles in the
 40 receivers, means to close flaps at one end of the receptacles, means to flare flaps at the opposite ends of the receptacles, means to cause the receivers and receptacles to tilt with respect to the conveyer, means to supply articles for the receptacles, a suction
 45 head to coact with said articles, means to cause suction through said head, and means to raise the head with the articles attached, tilt the head in line with the tilted receptacles, and insert the head with the articles in
 50 the receptacles and remove the head therefrom.

23. A machine of the class described comprising a conveyer having means to propel receptacles step by step, means spaced apart
 60 to retain articles to be placed in the receptacles, spaced suction heads located adjacent to said article-retaining means respectively, said heads being at respectively different heights, means to cause exhaust through said

heads simultaneously, means to cause said
 65 heads to descend upon articles, lift and move said articles away from the retaining means and deposit said articles in said receptacles, means to retain spacers between
 70 said articles retaining means, suction heads located adjacent to said spacer retaining means and between the first named suction heads, the second named suction heads being connected with exhaust and with the said
 75 means that operates the first named suction heads to insert the spacers in the receptacles, and means to finally close the flaps of the receptacles and seal the same.

24. A machine of the class described comprising a conveyer having means to propel
 80 receptacles step by step, means spaced apart to retain articles to be placed in the receptacles, spaced suction heads located adjacent to said article-retaining means respectively, said heads being at respectively different
 85 heights, means to cause exhaust through said heads simultaneously, means to cause said heads to descend upon articles, lift and move said articles away from the retaining means and deposit said articles in said receptacles, means to retain spacers between said articles
 90 retaining means, suction heads located adjacent to said spacer retaining means and between the first named suction heads, the second named suction heads being connected
 95 with exhaust and with the said means that operates the first named suction heads to insert the spacers in the receptacles, means to finally close the flaps of the receptacles, and means to apply sealing strips along the flaps
 100 of the receptacles.

25. A machine of the character described comprising a conveyer having receptacles, receivers movably connected therewith, a
 105 magazine for receptacles, means to feed receptacles into said receivers, means to open receptacles in the receivers, means to close flaps at one end of the receivers, means to expand flaps at the opposite ends of the receivers, means to cause the receivers to tilt
 110 with respect to the conveyer, means to charge articles in said receptacles, means to apply paste to flaps of the receptacles, and means to finally close said flaps.

26. A machine of the character described
 115 comprising a conveyer having receptacles, receivers movably connected therewith, a magazine for receptacles, means to feed receptacles into said receivers, means to open receptacles in the receivers, means to close
 120 flaps at one end of the receivers, means to expand flaps at the opposite ends of the receivers, means to cause the receivers to tilt with respect to the conveyer, means to charge articles in said receptacles, means to finally close said flaps, and means to apply
 125 sealing strips along the flaps of the receptacles.

27. A machine of the character described comprising means to propel receptacles, means to charge articles in the receptacles, means to close the flaps of the receptacles, a
5 perforated shell, means to cause exhaust in said shell, means to feed pasted strips to said shell, and means to cause said shell to apply the pasted strips to the closed flaps of the receptacles.
- 10 28. A machine of the character described comprising means to propel receptacles, means to charge articles in the receptacles, means to close the flaps of the receptacles, a
15 perforated shell, means to support a sealing strip, means to feed the sealing strip, means to cut off lengths of said strip, a perforated shell, means to apply paste to the cut off strips, means to cause exhaust within said shell, and means to cause the shell to apply
20 the pasted strip to the closed flaps of the receptacles.
29. A machine of the character described comprising means to propel receptacles, means to charge articles in the receptacles,
25 means to close the flaps of the receptacles, a perforated shell, means to support a sealing strip, means to feed the sealing strip, means to cut off lengths of said strip, a perforated shell, a chamber inclosed by said shell and
30 having a wall terminating adjacent to closed flaps of the receptacles, means to cause exhaust in said chamber, and means to cause said shell to rotate to apply pasted strips to closed flaps of the receptacles.
- 35 30. A machine of the class described comprising means to retain receptacles, an opener, means to cause the opener to enter the receptacles and operate therein to open
40 them, a flarer adapted to flare flaps of said receptacles, means to operate said flarer, means to charge articles in the opened receptacles, and means to close the flaps of the receptacles.
- 45 31. A machine of the class described comprising means to supply receptacles having flaps, means to open the receptacles, means to charge the receptacles with articles, means to close the flaps of the receptacles,
50 and means to apply a sealing strip over closed flaps of the receptacles.
32. A machine of the class described comprising means to supply receptacles having flaps, means to open the receptacles, means to charge the receptacles with articles,
55 means to close the flaps of the receptacles, and means to apply sealing strips to the closed flaps at opposite ends of the receptacles.
33. A machine of the class described comprising means to supply receptacles, means to open the receptacles, means to charge the receptacles with alternate layers of articles
60 and spacers, means to close the receptacles, and means to apply a sealing strip on the receptacle.
34. A machine of the class described comprising means to supply receptacles having flaps, means to charge the receptacles with alternate layers of articles and spacers,
70 means to close and seal the flaps of the receptacles, and means to apply sealing strips on said closed flaps.
35. A machine of the class described comprising means to supply receptacles having flaps at opposite ends, means to open the
75 receptacles, means to close the flaps at one end of the receptacles, and means to enter the opened receptacles and recede therefrom successively to charge the receptacles with layers of articles.
- 80 36. A machine of the class described comprising means to supply receptacles, means to open the receptacles, means to bodily lift articles and to enter the receptacles with
85 said articles, said means releasing the articles in the receptacles and receding therefrom, and means to close the receptacles after the said lifting means has receded therefrom.
37. A machine of the class described comprising means to supply receptacles having
90 flaps at opposite ends, means to open the receptacles, means to close the flaps at one end of the receptacles, and means to bodily lift articles and deposit them in the receptacles.
- 95 38. A machine of the class described comprising means to supply receptacles having flaps at opposite ends, means to open the receptacles, means to close the flaps at one end of the receptacles, means to bodily lift
100 articles and deposit them in the receptacles, and means to close the flaps at the opposite ends of the receptacles.
39. A machine of the class described comprising means to supply receptacles having
105 flaps at opposite ends, means to open the receptacles, means to close the flaps at one end of the receptacles, means to bodily lift articles and deposit them in the receptacles,
110 means to close the flaps at the opposite ends of the receptacles, and means to apply sealing strips on the receptacle.
40. A machine of the class described comprising means to supply receptacles having
115 flaps at opposite ends, means to open the receptacles, means to close the flaps at one end of the receptacles, means to bodily lift articles and deposit them in the receptacles, means to close the flaps at the opposite ends
120 of the receptacles, and means to apply sealing strips on said closed flaps.
41. A machine of the class described comprising means to supply receptacles having
125 flaps at opposite ends, means to open the receptacles, and means to charge the receptacles with alternate layers of articles and spacers.
42. A machine of the class described comprising means to supply receptacles having
130 flaps at opposite ends, means to open the

receptacles, means to charge the receptacles with alternate layers of articles and spacers, and means to close flaps of said receptacles.

43. A machine of the class described comprising means to supply receptacles having flaps at opposite ends, means to open the receptacles and the flaps, and means to charge the receptacles with alternate layers of articles and spacers.

44. A machine of the class described comprising means to supply receptacles having

flaps, means to open the receptacles, means to charge the receptacles with alternate layers of articles and spacers, and means to close the receptacles.

Signed at New York city, in the county of New York, and State of New York, this 29th day of April, A. D. 1915.

ERNEST D. ANDERSON.

Witnesses:

T. F. BOURNE,

MARIE F. WAINRIGHT.