W. RULISON.

BAG FILLING AND SEALING MACHINE.

APPLICATION FILED JULY 13, 1908.

936,169.

Patented Oct. 5, 1909.

10 SHEETS—SHEET 1.

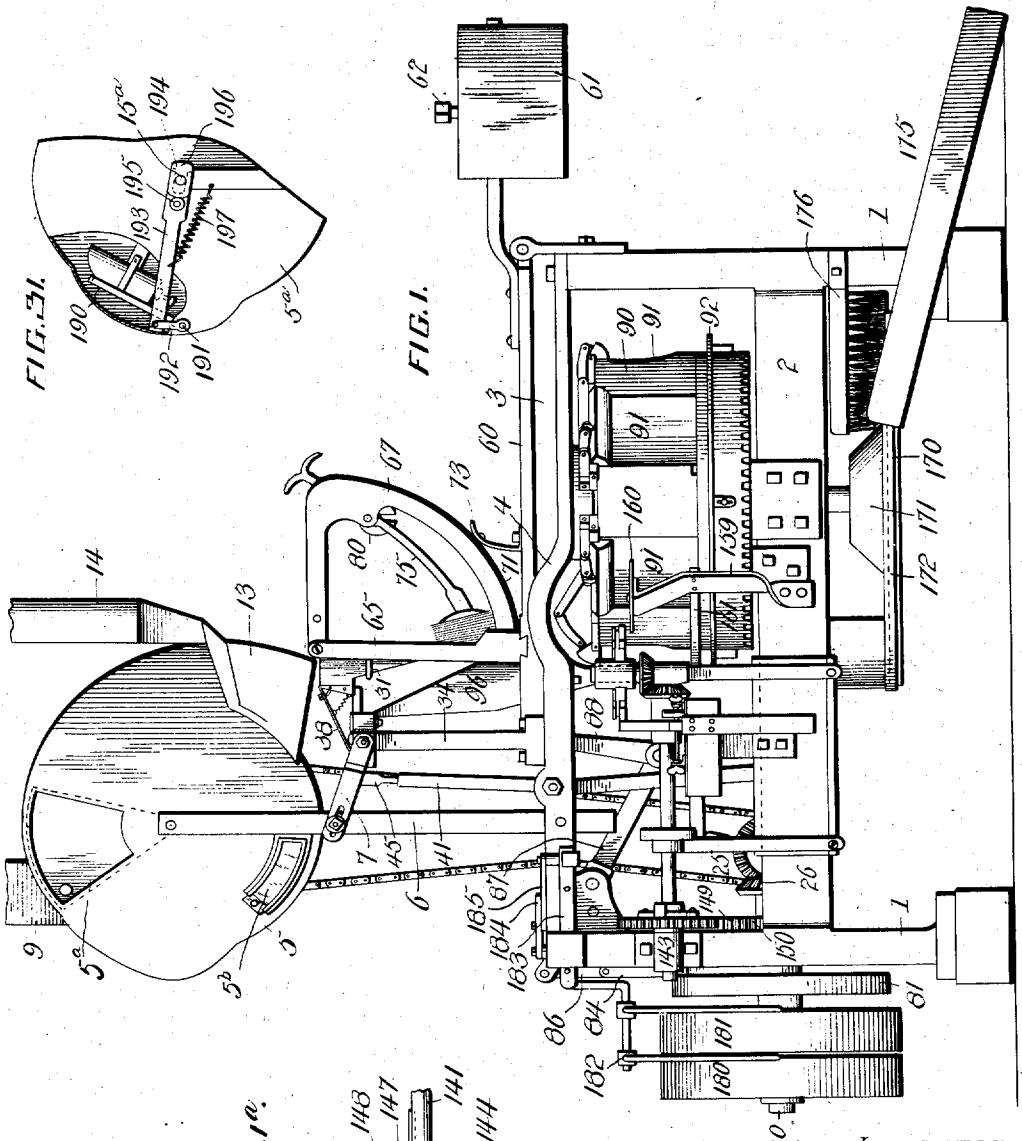


FIG. 1.

FIG. 3.

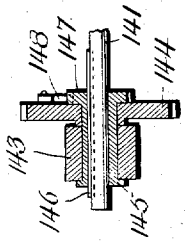


FIG. 1a.

WITNESSES:

W. F. Doyle

J. K. Moore

INVENTOR

William Rulison

By

Whittemore & Wright

Attorneys

W. RULISON.

BAG FILLING AND SEALING MACHINE.

APPLICATION FILED JULY 13, 1908.

936,169.

Patented Oct. 5, 1909.

10 SHEETS—SHEET 2.

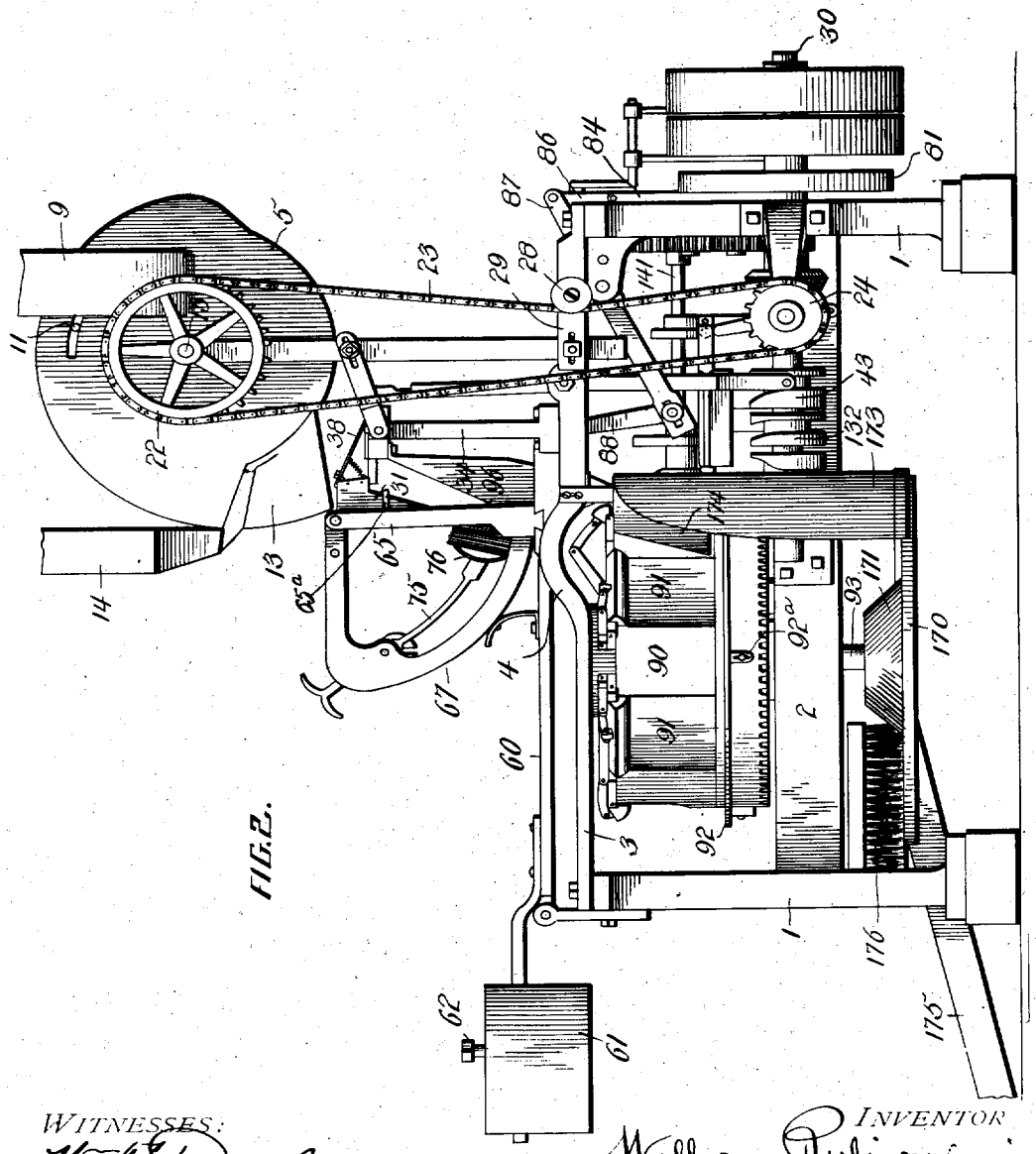


FIG. 2.

WITNESSES:

W. F. Hoyle

J. K. Moore

INVENTOR

William Rulison

By Whittaker & Prevost

Attorneys

W. RULISON.

BAG FILLING AND SEALING MACHINE.

APPLICATION FILED JULY 13, 1908.

936,169.

Patented Oct. 5, 1909.

10 SHEETS—SHEET 3.

FIG. 3.

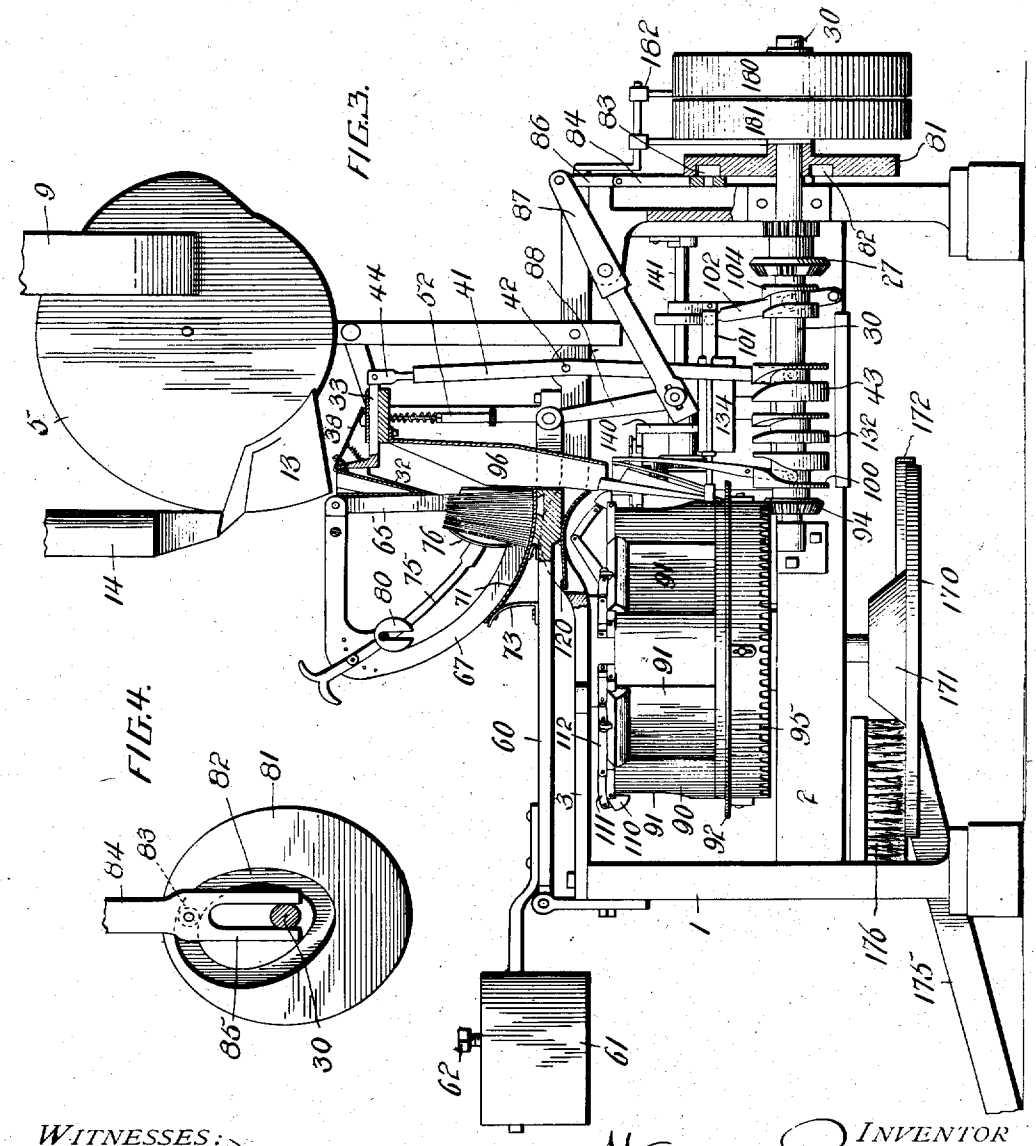


FIG. 4.

WITNESSES:

H. F. Doyle.

J. K. Moore

INVENTOR

William Rulison

By Whitaker & Prewood

Attorneys

W. RULISON.

BAG FILLING AND SEALING MACHINE.

APPLICATION FILED JULY 13, 1908.

936,169.

Patented Oct. 5, 1909.

10 SHEETS—SHEET 4.

FIG. 7.

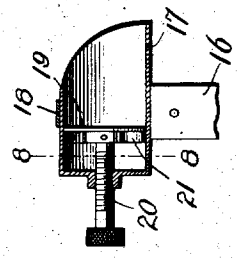


FIG. 8.

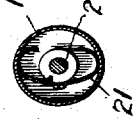


FIG. 5.

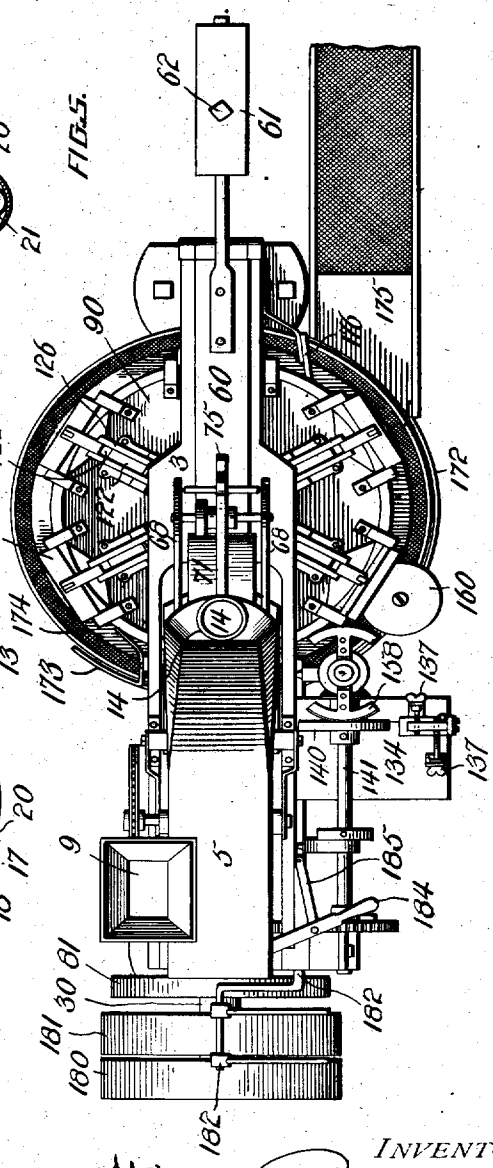
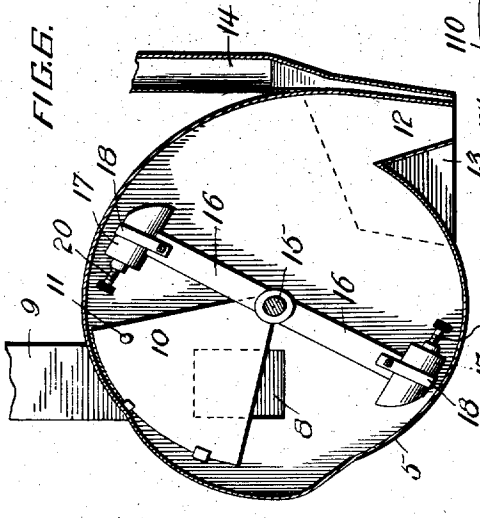


FIG. 6.



WITNESSES:

W. F. Dayle.

J. K. Moore

INVENTOR

William Rulison

BY

Whittaker & Prevost

Attorneys

W. RULISON.

BAG FILLING AND SEALING MACHINE.

APPLICATION FILED JULY 13, 1908.

936,169. Patented Oct. 5, 1909.

10 SHEETS—SHEET 5.

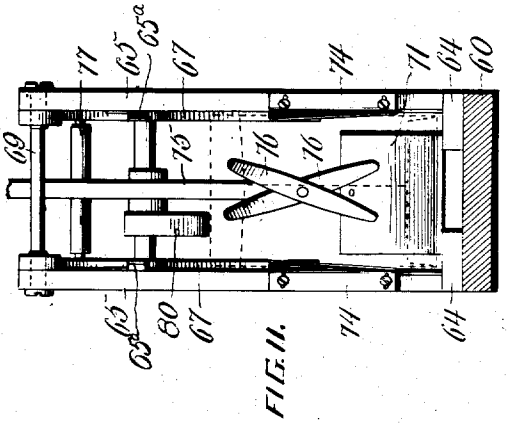


FIG. 11.

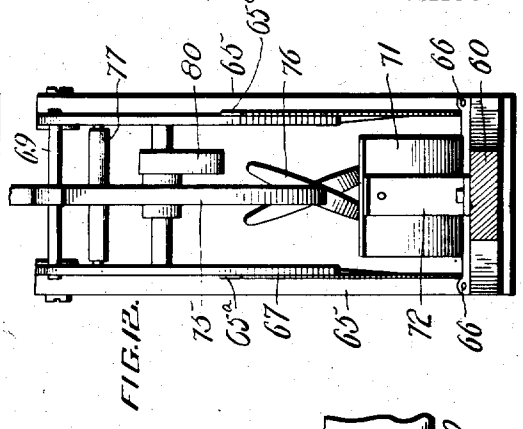


FIG. 12.

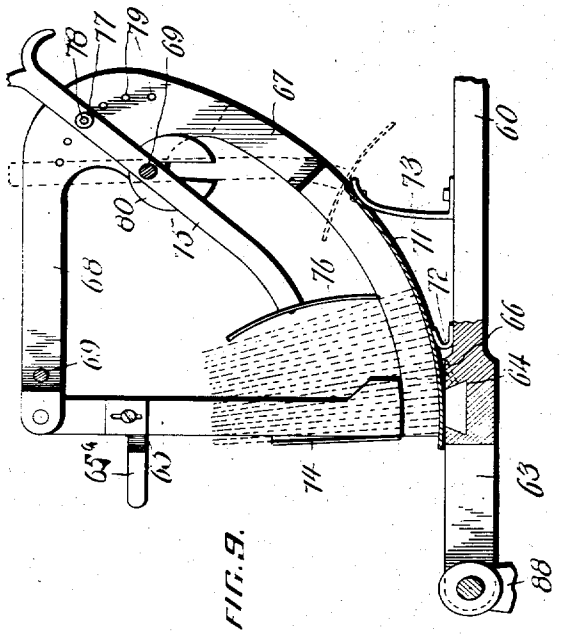


FIG. 9.

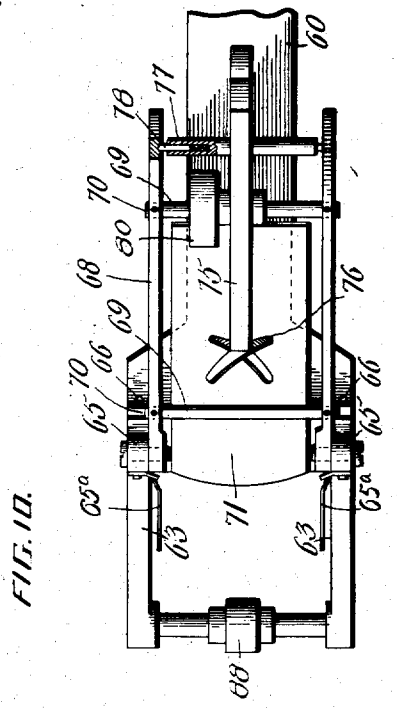


FIG. 10.

WITNESSES:

W. F. Doyle.

D. K. Moore

INVENTOR

William Rulison

BY

Whittaker & Wood

Attorneys

W. RULISON.

BAG FILLING AND SEALING MACHINE.

APPLICATION FILED JULY 13, 1908.

936,169.

Patented Oct. 5, 1909.

10 SHEETS—SHEET 6.

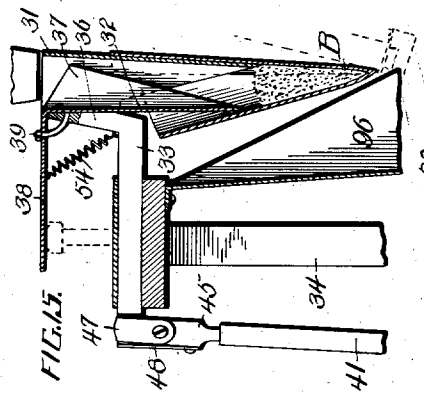


FIG. 15.

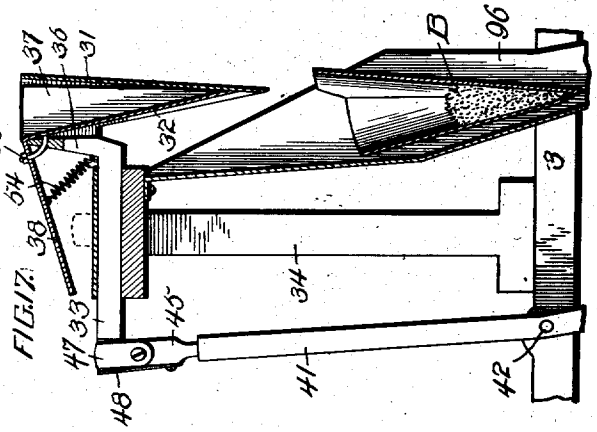


FIG. 17.

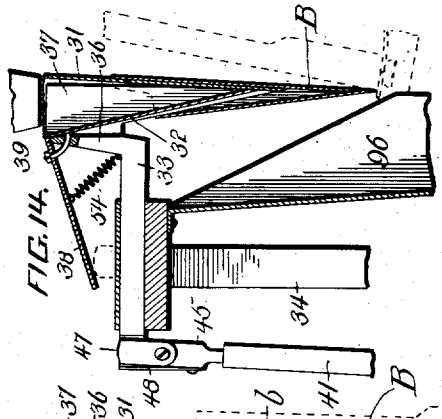


FIG. 14.

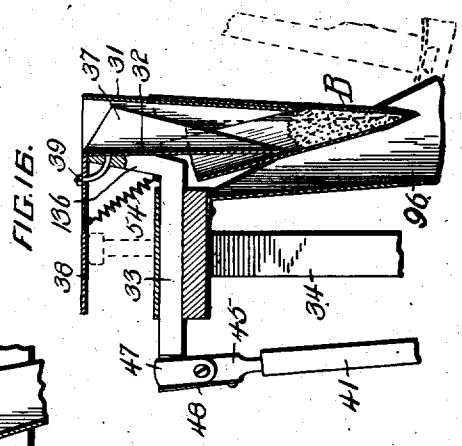


FIG. 16.

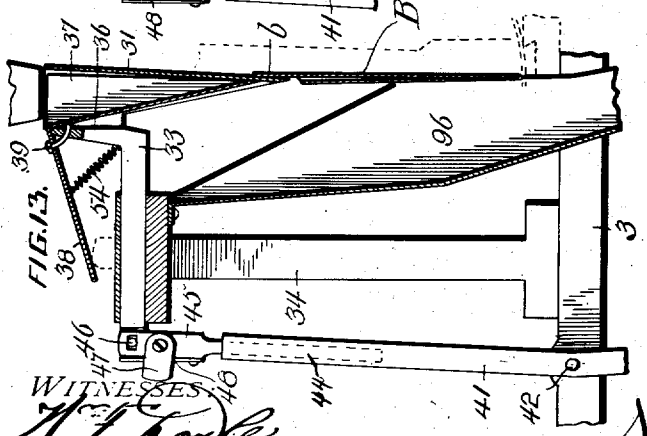


FIG. 13.

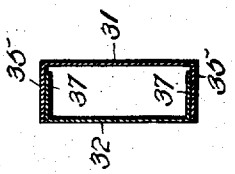


FIG. 18.

WITNESSES:

W. F. Coyle.

J. K. Moore

INVENTOR

William Rulison

BY

Whitaker & Prevost

Attorneys

W. RULISON.

BAG FILLING AND SEALING MACHINE.

APPLICATION FILED JULY 13, 1908.

936,169.

Patented Oct. 5, 1909.

10 SHEETS—SHEET 7.

FIG. 21.

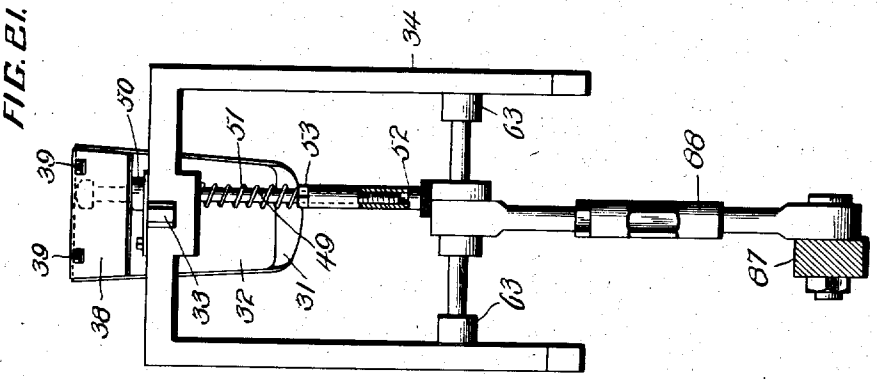


FIG. 20.

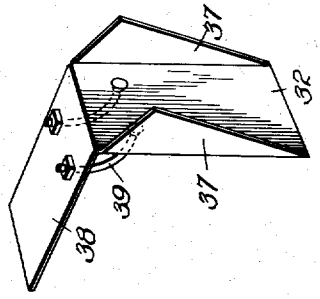


FIG. 23.

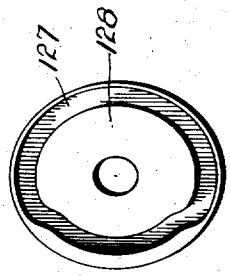


FIG. 18.

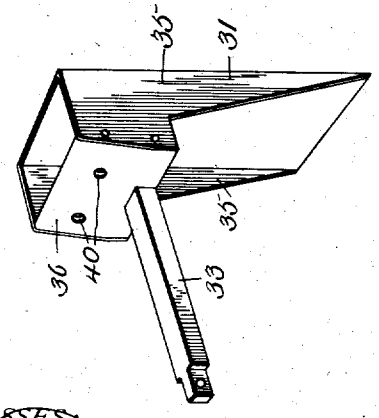
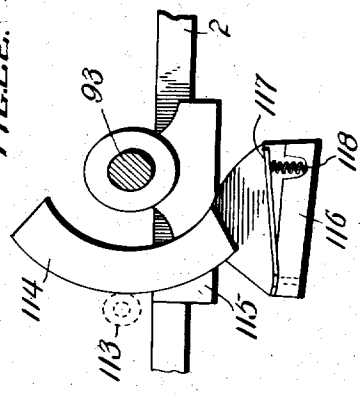


FIG. 22.



WITNESSES:

H. F. Kayle.

J. K. Moore

INVENTOR

William Rulison

BY

Clarke & Sewall

Attorneys

W. RULISON.

BAG FILLING AND SEALING MACHINE.

APPLICATION FILED JULY 13, 1908.

936,169.

Patented Oct. 5, 1909.

10 SHEETS—SHEET 8.

FIG 24.

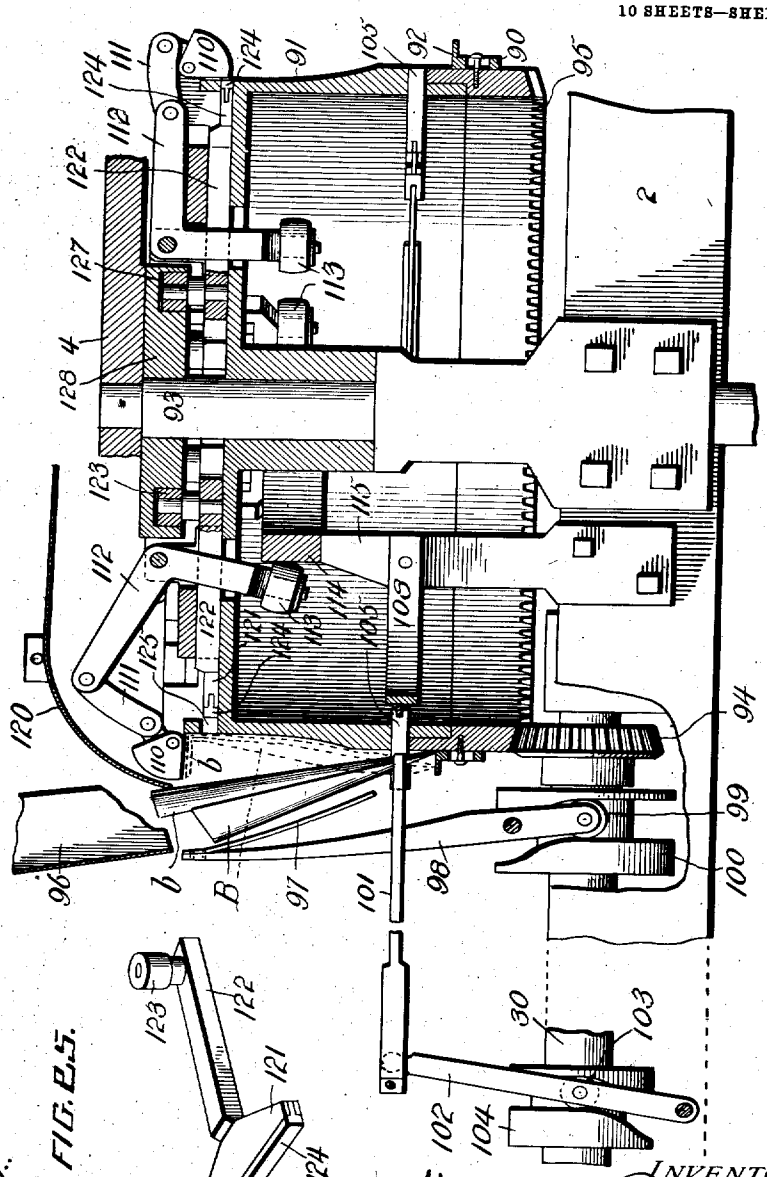
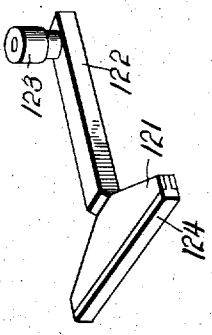


FIG. E.5.



WITNESSES:

H. F. Coyle.

J. K. Moore

INVENTOR

William Rulison

BY

Whitaker & Prevost

Attorneys

W. RULISON.

BAG FILLING AND SEALING MACHINE.

APPLICATION FILED JULY 13, 1908.

936,169.

Patented Oct. 5, 1909.

10 SHEETS—SHEET 9.

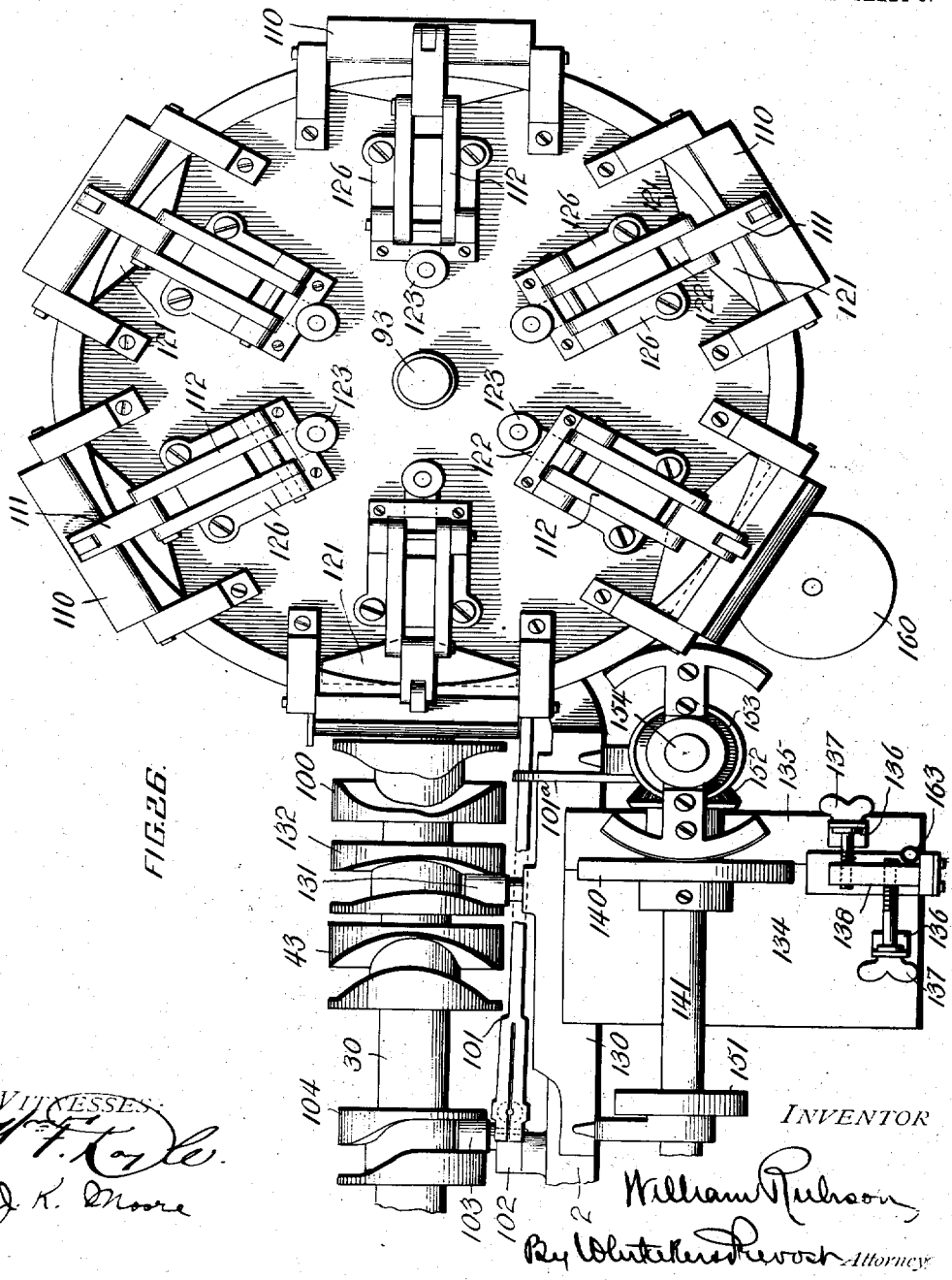


FIG. 26.

WITNESSES:

H. F. Coyle.

J. K. Moore

INVENTOR

William Rulison

By Whittemore Hopkins Attorneys

W. RULISON.

BAG FILLING AND SEALING MACHINE.

APPLICATION FILED JULY 13, 1908.

936,169.

Patented Oct. 5, 1909.

10 SHEETS—SHEET 10.

FIG. 27.

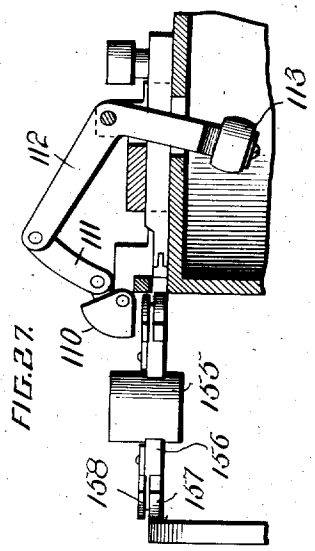


FIG. 28.

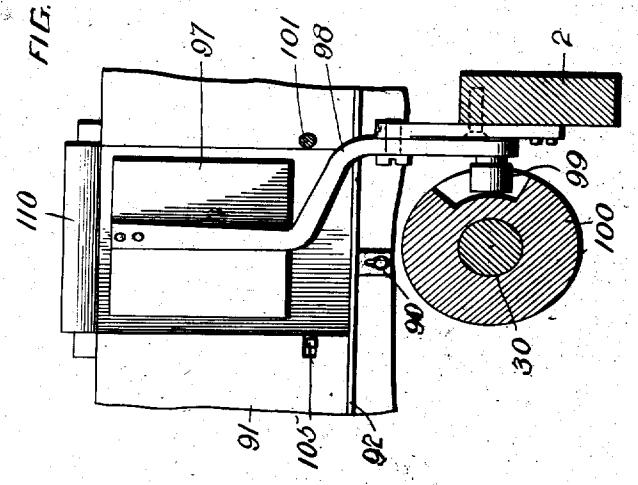


FIG. 29.

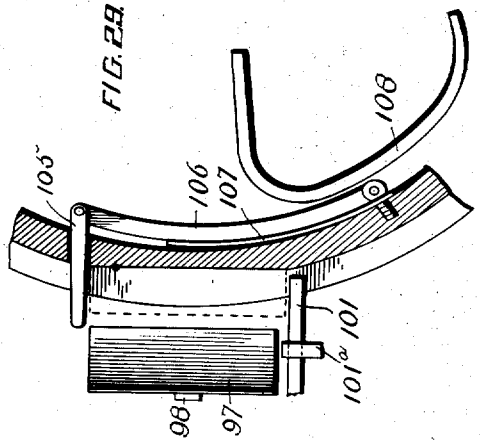
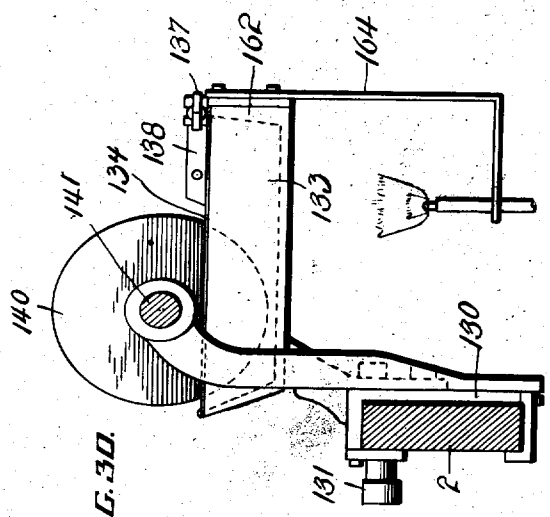


FIG. 30.



WITNESSES:

W. F. Doyle.

J. K. Moore

INVENTOR

William Rulison

BY

Whittaker & Prevost

Attorney

UNITED STATES PATENT OFFICE.

WILLIAM RULISON, OF JOHNSTOWN, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, OF TWO-THIRDS TO ROSE M. KNOX, EXECUTRIX OF CHARLES B. KNOX, DECEASED, CHARLES M. KNOX, 2D, AND JAMES E. KNOX, ALL OF JOHNSTOWN, NEW YORK.

BAG FILLING AND SEALING MACHINE.

936,169. Specification of Letters Patent. Patented Oct. 5, 1909.

Application filed July 13, 1908. Serial No. 443,241.

To all whom it may concern:

Be it known that I, WILLIAM RULISON, citizen of the United States, residing at Johnstown, in the county of Fulton and State of New York, have invented certain new and useful Improvements in Bag Filling and Sealing Machines: and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention consists in the novel features hereinafter described reference being had to the accompanying drawings which illustrate the best form in which I have contemplated embodying my invention and the invention is fully disclosed in the following description and claims.

The object of my invention is to provide a machine for automatically filling bags with measured quantities of material, and sealing the bags, and to that end it comprises mechanism of a novel character organized and arranged to effect this result.

In the accompanying drawings, Figure 1 is a side elevation of a bag filling machine embodying my invention. Fig. 1ª is a detail of a bearing for the shaft of the pasting mechanism. Fig. 2 is an elevation similar to Fig. 1 but showing the opposite side of the machine. Fig. 3 is a central longitudinal vertical sectional view of the machine, parts being shown in elevation. Fig. 4 is a detail view of one of the cams on the main shaft of the machine. Fig. 5 is a top plan view of the machine. Fig. 6 is an enlarged vertical sectional view of the measuring device. Fig. 7 is a detail sectional view of a part of the measuring device, still further enlarged, showing one of the measuring cups, and the adjusting device for varying the capacity thereof. Fig. 8 is a transverse section on line 8—8 of Fig. 7. Fig. 9 is an enlarged side elevation of the bag magazine. Fig. 10 is a top plan view of the same. Figs. 11 and 12 are front and rear end views of the bag magazine. Figs. 13 to 17 inclusive are detail sectional views showing the operation of the bag filling chute or funnel, in filling and delivering a filled bag. Fig. 18 is a horizontal sectional view of the bag filling chute. Figs. 19 and 20 are perspective views of the parts of the bag filling chute or funnel separated. Fig. 21 is a detail view of the mechanism for operating the hinged member of the bag filling chute. Fig. 22 is a detail horizontal sectional view of the mechanism for operating the folding block actuating lever. Fig. 23 is a bottom plan view of the cam for operating the sliding pressure block which coöperates with the folding block. Fig. 24 is an enlarged vertical sectional view of the rotating carriage, and adjacent parts. Fig. 25 is a detail view of the sliding pressure block detached. Fig. 26 is an enlarged top plan view of the carriage, and gluing or pasting mechanism. Fig. 27 is a detail sectional view of the rotary pasting disk showing its relation to the carriage, folding block and pressure block. Fig. 28 is an elevation of a portion of the carriage and adjacent parts, showing the shifting plate and positioning stop, and one of the retracting detents on the carriage. Fig. 29 is a horizontal sectional view of the same. Fig. 30 is a detail view of the glue or paste reservoir and the feed disk therein. Fig. 31 is a detail view of a part of the measuring apparatus showing a modification thereof.

The main frame of the machine consists in this instance of two end standards or frames 1, 1, provided with bottom flanged portions adapted to be secured by lag screws or otherwise to a table, trestle or other supporting surface, a horizontal girder 2 secured to and connecting said standards between their ends, and a top bar 3 which is provided with an upward curved portion 4.

5 represents the hopper for the material which is supported from the main frame in this instance by vertical bars 6, 6 and braces 7, 7. The hopper is provided with an aperture 8 on one side communicating with a supply pipe 9, through which the material is introduced, and the supply aperture 8 is controlled by a sliding gate 10, operable from the interior of the hopper by means of a projection 11. The front wall of the hopper is provided with a swinging door 5ª covering an aperture through which access can be had to the interior to adjust gate 10, or the measuring cups hereinafter described. I also prefer to provide a transparent panel 5ᵇ in the hopper as shown so that the operator can see if material is in the hopper. The hopper is also provided with a downwardly directed tangential discharge spout 12, which

is preferably surrounded by an exterior casing 13, connected with an air pipe 14, communicating with an air exhausting device, for withdrawing any dust which may arise from the filling of the bags.

A horizontal shaft 15 extends through the side walls of the hopper and is provided with a plurality of radial arms 16, two being shown, carrying at their outer ends adjustable measuring scoops or buckets 17, secured to the ends of said arms by straps 18, or in any other desired way. The scoops or buckets are best shown in Figs. 6, 7 and 8 and consist each of a cylindrical shaped vessel closed at one end and having its walls projecting farther on the side adjacent to the shaft than at other portions. Each scoop is preferably provided with a false bottom, 19 adjustable by means of a screw 20, to vary the capacity of the vessel, and the screw 20 is preferably provided with a friction spring or brake 21 (see Figs. 7 and 8) which binds against the wall of the vessel, and holds the screw in its adjusted position.

On the outside of the hopper, the shaft 15 is provided with a sprocket wheel 22 connected by a chain 23, with a sprocket wheel 24, on a cross shaft or stud 25, and connected by a miter pinion 26, with a similar pinion 27 on the main shaft 30, of the machine which extends longitudinally of the girder 2, and through one of the end standards 1. I prefer to give intermittent rotary motion to the shaft 15, and which I accomplish by using a mutilated pinion 27, on the main shaft and omitting a number of teeth to produce the desired intermittent motion. The sprocket chain is conveniently held taut by an idle roll 28, on an adjustable slide or plate 29, secured to the top bar 3. It is obvious, however, that the shaft 15 might be driven in other ways.

Beneath the hopper is the filling chute for guiding the measured quantity of material delivered by one or other of the scoops 17, to the spout 12, into the bags. This chute which is best seen in Figs. 13 to 20 inclusive, comprises a fixed jaw 31 and a movable jaw 32, carried upon a horizontally reciprocating slide 33, which is mounted in a suitable slide bearing at the upper end of a post 34, secured to the top bar 3 of the frame. The fixed jaw is preferably formed as illustrated in Fig. 19, and is provided with lateral flanges 35 increasing in width toward the upper end of the jaw, and secured rigidly to a vertical transverse fulcrum plate 36, which is formed integrally with or attached to the slide 33. The movable jaw 32 is also provided with lateral flanges 37, increasing in width toward the top and adapted to fit within or overlap the flanges 35 of the fixed jaw as shown in Fig. 18 to prevent the material from spilling laterally. The movable jaw is pivotally mounted or hinged with respect to the fixed jaw and I prefer to provide it with a laterally projecting lip or arm 38, preferably formed by bending into horizontal position an integral piece of metal forming a continuation of the movable jaw, and forming an angle therewith which engages the top edge of the fulcrum plate 36, the movable jaw being held in position with respect to the fulcrum plate by curved bolts 39, connecting the jaw 32 and lip 38 and passing through apertures 40 in the fulcrum plate, but this hinge connection may be made in other ways if desired.

The filling chute is adapted to be reciprocated horizontally by means of a vertically disposed lever 41, pivoted at 42 to the top bar 3, through which it extends, its lower end being provided with a friction roll, engaging a cam groove in a cam 43 on main shaft 30, as shown in Fig. 3, said cam being timed to move the chute horizontally at the required points in the cycle of operation of the machine. The upper end of the lever 41 is suitably connected with the slide 33. In this instance the lever is bored out near its upper end to receive a longitudinally movable extension piece 44 (see Fig. 13) which is provided at its upper end with a yoke 45 pivotally connected to the slide by a pin 46, the pin being held in position by a plate 47 secured to one side of the yoke by a screw, as shown in Fig. 13. The yoke 45 is provided with a horizontal slot engaging the pin 46 and the rear face of the yoke is provided with a spring 48 which bears against the end of the slide 33, and presses it to the right (Figs. 13 to 16) thus permitting a slightly backward yielding of the chute if necessary when it encounters the endmost bag in the bag magazine, as hereinafter described.

The movable jaw is operated in a direction away from the fixed jaw by means of a plunger 49 (see Fig. 21) extending through the slide support, and having a head 50 above the same and immediately beneath the arm 38 of the movable jaw. The plunger 49 is provided with a retracting spring 51 and its lower end is threaded to receive an adjusting sleeve 52 which is adjustable thereon and is secured in adjusted position by a set nut 53. The plunger is operated at the proper time as hereinafter described. The movable jaw 37 is also provided preferably with a retracting spring 54 (see Figs. 13 to 16) which holds it normally in close relation with the fixed jaw.

The bag magazine is movable vertically with respect to the filling chute, and is carried preferably on the inner end of a lever 60, pivoted to the frame, in this instance to a bracket secured to one of the standards 1, the outer end of said lever extending preferably beyond the point of pivoting and provided with a counter balance, in this in-

stance a weight 61, having a sliding engagement with the lever for accurately adjusting the same and being secured thereto by a set screw 62.

The bag magazine is illustrated in detail in Figs. 9 to 12 inclusive, and is constructed as follows. The lever 60 is bifurcated at its inner end and the bifurcated portions 63 are provided with transverse dovetail grooves 64 which receive the correspondingly shaped lower ends of two vertically disposed supports 65, 65 adjustable laterally in said grooves to accommodate bags of different widths, and locked in their adjusted positions by screws 66. The bag magazine itself comprises two side plates having curved portions 67 which are made very thin at their lower ends, where they engage the stack of bags and arms 68, the latter being pivoted to the upper ends of the vertical supports 65. These side plates are connected by cross rods 69, 69 extending through apertures in said side plates and secured thereto by set screws 70 so that the plates may be adjusted laterally toward and from each other to accommodate bags of different width. 71 represents a curved bottom plate disposed between the curved portions 67 of the plates, and supported upon the lever 60 by brackets 72, 73, for supporting the bags. The vertical supports 65 are each provided with a retaining plate 74 secured thereto by screws passing through horizontal slots in said plates to permit lateral adjustment thereof, and said plates have their inner edges inclined outwardly from top to bottom so as to engage the upper portions only of the outermost bag of those held in the magazine and prevent the bags from escaping therefrom. In order to force the bags in the magazine toward the retaining plates 74, I provide a plunger 75 pivotally connected with the side plates of the magazine, and in this instance pivotally mounted on one of the cross bars 69. This plunger is provided at its lower end with a pair of light spring arms 76 crossed in the form of an X and secured centrally to the end of the plunger thus providing four points of contact on the rearmost bag in the magazine. The plunger 75 is also provided with means for securing it adjustably in relation to the side plates, and for this purpose I prefer to provide the plunger with a cross bar 77 provided at each end with a spring actuated pin or tumbler 78 (see Fig. 10) adapted to engage one of a row of depressions or recesses 79 arranged on the inner face of the adjacent side plate. The outer end of plunger 75 is provided with a handle to facilitate its adjustment, and also for elevating the plunger and side plates when it is desired to place a supply of bags in the magazine. At such time the plunger may be turned to the position shown in dotted lines (Fig. 9) and made to engage the rear edge of the curved bottom plate or bracket 73 to hold the parts elevated while the bags are inserted. It will be obvious that when the plunger is placed in the position shown in full lines (Figs. 9 to 12) the spring fingers 76 will bear against the rearmost bag with the weight of the plunger and side plates. If more weight is required an additional removable weight 80 may be supported upon the outer cross bar 69 as shown in the drawings or otherwise secured to the plunger and side plates.

The lever 60 carrying the bag magazine is raised and lowered at the required times by means of suitable connections with the main shaft 30. In this instance the shaft 30 is shown provided with a cam 81 (see Figs. 1 to 5) having a cam groove 82 on one face, (Figs. 3 and 4) which is engaged by a roll 83 on a vertically movable slide bar 84, provided with a slotted portion 85 engaging the shaft 30. The upper end of slide bar 84 is connected by a link 86, with one end of a walking beam 87, the opposite end of which is connected by a link 88 with the lever 60.

Below the bag magazine is a horizontally disposed and revoluble drum or carriage 90 substantially circular in plan, but provided at intervals around its peripheral face with flattened portions 91 curved outwardly at their lower ends, and below said flattened portions is an annular supporting rail or flange 92 projecting from the drum to support the lower ends of the filled bags. I prefer to make this rail vertically adjustable to accommodate bags of different heights and to this end it is provided with vertically slotted lugs or ears 92^a through which screws pass which secure it to the drum. The drum is mounted to rotate with a shaft 93, mounted in a bearing, secured to the horizontal frame girder 2, and is driven by means of a pinion 94 on the main shaft 30 which engages an annular gear rack 95 formed integrally with or secured to the bottom of the drum (see Fig. 24).

96 represents a guiding chute through which the filled bags drop from the bag filling chute, upon the horizontal supporting rail 92 of the carriage or drum. The chute 96 terminates at about the level of the top of the carriage, and the bag is guided to the rail 92 and momentarily supported by a spring shifting plate 97 secured adjacent to its upper edge to a lever 98 pivoted to the frame, the lower end of the lever being provided with a friction roll 99 or projection engaging a groove in a timed cam 100 on main shaft 30 (see Figs. 24 and 28).

As the carriage is continuously rotated it is necessary to position each of the filled bags with respect to one of the flattened bag engaging faces of the carriage. These

positioning devices, in this instance, comprise a positioning stop or detent 101, mounted on the frame of the machine, and a carrying detent 105 mounted in the carriage adjacent to each of the said flattened faces 91. The positioning detent consists of a horizontally disposed sliding rod 101 (Figs. 24, 26, 28 and 29) engaging a suitable guide 101^a adjustably secured to the frame and having one end located adjacent to the spring shifting plate 97 to engage the edge of the bag, when the detent is projected and hold it from rotation with the carriage. The detent 101 can be adjusted laterally to a slight extent by adjusting the guide 101^a to accommodate bags of slightly different width, if desired. The other end of the detent 101 is connected pivotally (in this instance by a ball and socket joint to permit of the adjustment of guide 101^a) with the upper end of an actuating lever 102, pivotally secured at its lower end to the girder 2 of the main frame, and provided with a friction roll, or stud 103, engaging a groove in a timed cam 104 secured to the main shaft 30. (see Fig. 24.) The carriage is provided with a carrying detent 105 (one of which is shown in detail in Fig. 29) extending through a recess in the wall of the drum or carriage 90, at the rear edge of each flattened face 91, the inner end of the carrying detent being connected to a cam engaging lever 106 provided with a retracting spring 107 which normally holds the detent 105 in retracted position. The detents 105 are each projected just before they reach a position in line with the rear edge of a filled bag as it lies upon the supporting rail 92 and spring shifting plate 93, by means of a stationary cam 108, secured to the frame of the machine within the drum or carriage 90 as shown in Fig. 29, and at the instant the detent 105 is projected the positioning stop or detent 101 is retracted out of the path of the bag, leaving the bag free to be carried by the drum, and the bag is also shifted by the shifting plate 97 into engagement with the adjacent flat face 91 of the carriage.

Upon the top and outer edge of the carriage are pivotally mounted a plurality of folding blocks 110, one above each of the flat faces 91 of the carriage. Each of these blocks is connected by a link 111, to one end of an L-shaped actuating lever 112, the opposite end of which carries a roll 113. The link 111 and lever arm 112 are brought into a straight line to positively lock the folding block when the latter is swung down over the adjacent bag receiving face 91, as shown at the right in Fig. 24, and said folding block is raised to bring its inner face into a substantially horizontal position while passing the chute 96 and the paste or glue applying mechanism (hereinafter described) by means of a stationary cam 114 (shown in detail in plan, Fig. 22) which has an exterior curved surface to engage the inner face of the roll 113 of each folding block and successively raise said blocks. The cam 114 is supported from a bracket 115 secured to the girder 2, to which the cam 108 is also preferably attached, and the cam 114 is also provided with an extension 116 carrying a yielding pressure applying blade 117 which is preferably formed of spring metal and is also backed up by a spring 118 if desired, as shown in Fig. 22. The yielding blade 117 engages the outer face of each of the rolls 113 successively, and thereby positively forces the folding block downward and locks it, as before described, causing it to fold the flap of the bag after the paste or glue has been applied as hereinafter described. The blade 117 will yield in case two or more bags are brought simultaneously in position for folding, in which case the locking plate could not be locked, thus avoiding straining the parts.

In order to prevent the folding blocks 110 from striking the edges of the bags while in raised position (as shown at the left in Fig. 24), I prefer to provide a stationary guard plate 120 extending over the folding plate adjacent to chute 96 as shown best in that figure. It will also be seen that when the shifting plate 97 is operated as before described to shift the bag into position on the carrier (see Fig. 24) into the position shown in dotted lines, it will pass under the folding block which is momentarily opposed to it, and thereby press the lip of the bag beneath the same, and bend the lip into horizontal position as therein shown. For convenience the bag is represented throughout by the letter B and the lip is lettered b.

The rotary carriage 90 is also provided adjacent to each of the folding blocks 110 with a pressure block 121 (one of which is shown in detail in Fig. 25) mounted on the end of a slide or bar 122, carrying a friction roll or stud 123, the outer face of the pressure block being preferably provided with a cushioning surface 124 of rubber, leather or other suitable material. The pressure blocks 121 are arranged to be projected through horizontal apertures 125 in the flat portions of the wall of the drum 90, and the slides 122 are held in suitable radially disposed guides 126 on the top face of the drum or carriage, see Fig. 26. The friction rolls or studs 123 engage a cam groove 127 in the lower face of a stationary cam plate 128 (see Figs. 23 and 24) secured rigidly to the top plate 3 and provided with a central aperture engaging the top of shaft 93 upon which the carriage rotates. The cam groove 127 is timed so as to project the slide 122 after the folding block has been depressed, and while it is held by the spring blade 117, thereby bringing the cushioned surface 124

in contact with the rear face of the bag, and pressing outward with a yielding pressure. Thus the bag flap is squeezed between the surface 124 of the pressure block and the folding block, and the proper sealing of the flap is insured. The parts remain in this position after the roll 113 leaves the spring blade 117, and until the folding block is raised on the other side of the machine to permit the discharge of the bag, thus giving sufficient time for the paste or glue to set.

The paste or glue applying devices are shown best in Figs. 26, 27 and 30 and are adapted to apply the adhesive material in a thin continuous strip across the front fold of the bag just beneath its top edge, in position to engage the flap *b* when the latter is folded. The entire pasting mechanism is mounted on a horizontal slide 130, in this instance, supported by and having a sliding engagement with the horizontal girder 2. This slide 130 is positively reciprocated by suitable means, and is shown provided with a stud or friction roll 131, engaging a cam groove in a rotary cam 132, secured to the main shaft 30, and timed to reciprocate the slide at the proper intervals in the cycle of operation of the machine.

The slide 130 carries a receptacle 133 for the adhesive material which is provided with a cover consisting of flat plates 134, 135 each provided with a lug 136, through which extends an adjusting thumb screw 137 engaging a threaded aperture in a lug 138 secured to the receptacle. The adjacent edges of plates 134, 135 are recessed to form a slit through which a distributing disk 140 extends into the receptacle, and the plates can be adjusted laterally by means of their respective set screws, to regulate the width of this slit, and therefore the amount of adhesive material on the face of the distributing disk 140.

The disk 140 is mounted on a revoluble shaft 141, supported in bearings 142, 142 secured to or formed with the slide 130, and having a sliding engagement with a bearing 143 on one of the standards 1, so that the shaft may be moved endwise as the slide 130 is reciprocated. The shaft 141 is provided with a driving pinion 144, held from lateral movement with the shaft, and connected with the shaft by a ratchet and pawl mechanism, so that the shaft can be rotated in a forward direction by hand. As shown in Fig. 1ª the shaft 141 extends through a sleeve 145 which is flanged at its outer end to prevent it from moving inward, and the shaft and sleeve are connected by a long key or feather 146. The pinion 144 is loosely mounted on the sleeve, which is provided at its inner end with a ratchet 147 rigidly secured thereto, and engaged by a pawl or pawls 148 carried by the pinion 144.

The pinion 144 is connected by an intermediate pinion 149 with a driving pinion 150 on the main shaft 30, which imparts motion to the shaft 141 when the machine is in operation. The shaft 141 is provided with a hand wheel 151 for operating the paste or glue applying mechanism preliminarily, to insure a proper distribution of the adhesive material when desired, and said shaft also carries at its inner end a miter gear 152, meshing with a miter gear 153, on a vertical shaft 154, mounted in bearings carried by the slide 130, and carrying at its upper end a rotary scoring and adhesive applying device. This device consists in this instance of a hub 155 provided with radial arms 156 preferably two in number at the outer ends of which are provided thin adhesive applying segments 157, which are so disposed as to engage the face of the distributing disk 140 (see Fig. 26) and have their outer peripheral portions supplied with adhesive material therefrom. Above the segments 157 are scoring plates 158, which are secured to the arms 156 and have segmental portions corresponding with the segments 157, but not engaging the distributing disk, as shown in Fig. 27. The segments 157 and 158 are of less extent peripherally than the width of the bags to be handled by the machine. As a bag is carried away from the guiding chute 96, as before described, after being placed in engagement with one of the flattened faces of the carriage, the slide 130 is shifted by the cam 132 toward the carriage so as to bring one end of one pair of segments 157, 158 into contact with the bag, the scoring segment pressing against the bag just below the folding block at the base of the flap, and indenting or creasing it lightly to assist in folding down the flap while the adhesive applying segment deposits on the front ply of the bag a straight line of adhesive material nearly across the whole face of the front ply, so that the flap *b* when folded will engage the adhesive material.

In order to steady the bag during the pasting and folding operation, I provide a vertically disposed bracket 159, (see Figs. 1, 5 and 26) carrying at its upper end a guiding disk 160 which lightly engages the face of the bag considerably below the plane of the folding block, and to this bracket I also preferably secure a curved guard 161 of thin spring metal, near the bottom supporting rail 92, and extending around a portion of the carriage toward the shifting plate (see Fig. 1) to prevent the bags from slipping off of the rail 92, before they are gripped by the folding block.

The paste receptacle is preferably provided with a water jacket 162 indicated in dotted lines in Fig. 30 in case an adhesive material is employed, which requires to be used hot. 163 represents a filling tube for

the water jacket (Fig. 26) and 164 represents a bracket for supporting a gas burner, or other heating device for the water jacket.

Beneath the carriage or drum 90 is a horizontal carrier 170 mounted on the lower end of the drum shaft 93. This carrier consists in this instance of a disk having annular portions of screen fabric to permit dust and small particles to pass through and having adjacent to the center a hub in the form of the frustum of a cone, as at 171.

173 is a vertical guide plate mounted on the rear of the machine and following the curve of the periphery of the carrier 170, and provided at its upper end with a blade 174 adjacent to the outer face of the drum which engages the bags just after the folding blocks are raised therefrom and detaches them from the drum, the plate 173 guiding them down upon the carrier 170. As the bags fall, they will lie in a radial position and the conical hub 171 assists in sliding them outwardly toward the guide plate 173 which prevents them from sliding off accidentally.

At the front of the machine I provide a delivery chute 175, inclined downwardly from a point adjacent to the edge of the carrier 170, and a stationary brush 176, secured to the machine frame is also employed to prevent the filled and pasted bags from passing the chute, thus delivering the bags one after another down the inclined chute, from which they may be conducted to any desired point or may be dealt with in any desired manner.

172 represents a curved guard rail extending around the edge of the carrier 170, from the guide plate 173 to chute 175, to prevent the bags from being thrown off of the carrier.

Power is applied for driving the machine by fast and loose pulleys 180, 181 on shaft 30, and a belt shipper 182 is conveniently provided, said shipper being carried on the slide 183, operated by a lever 184 connected to said slide by a link 185.

The operation of the machine is as follows: The material to be packed is supplied to the tube 9, leading to the hopper 5, continuously or at intervals in any desired manner and finds its way by gravity to the hopper. The machine being put in operation, the lever 60 carrying the bag magazine is raised by its operative connections. The foremost bag B in the magazine is held in the position shown in Fig. 13, below the filling chute, the jaws of which are closed in position to enter the bag, and the fixed jaw engages the lip *b* of the first bag when the lever is in its lowered position. As the bag magazine is raised by the lever 60, the filling chute is forced into the mouth of the bag as shown in Fig. 14, and as the lever nears its highest position it engages the lower end of the plunger rod 49, and raises the plunger (see Fig. 21) causing the head 50 to raise the arm or plate 38 of the movable jaw 32, and separate the jaws within the bag, as shown in Fig. 15. The rotation of the measuring cups within the hopper 5 is timed so as to discharge the contents of one of said cups into the filling chute, which guides it into the bag as shown in Fig. 15. As soon as the material has been deposited in the bag, the slide 33 is actuated by its cam so as to draw the filling chute rearwardly with the filled bag which will pass between the retaining plates 74 of the bag magazine and the bag is then held within the upper part of the guiding chute 96, as shown in Fig. 16. The lever 60 carrying the bag magazine then starts to descend, releasing the plunger 49, which is retracted by its spring 51, thus releasing the movable jaw 32, which closes upon the fixed jaw, releasing the bag and permitting it to fall through chute 96 to the position shown in full lines Fig. 24, where it is arrested by the rail 92 of the carriage, is held in substantially vertical position by the spring shifting plate 97 and is prevented from lateral movement by the positioning stop or detent 101, until one of the flat faces 91 of the carriage is opposite the bag when the detent 105 is projected to engage the other edge of the bag, the positioning stop is retracted and the shifting plate 97 is actuated by its cam to throw the bag over against the flat face of the carriage as shown in dotted lines, with the flap *b* beneath the folding block 110, and holds it lightly in that position as it is moved laterally with the carriage until it is engaged by one pair of the pasting and scoring segments. The lower end of the bag is also lightly held by the curved guide 161 near the bottom to prevent it from slipping off of the rail 92. While the bag just referred to is being carried around by the carriage, other bags are successively filled and discharged into the guiding chute 96 as previously described, so that the operation of the machine is continuous. As a bag leaves the positioning stop 101, it passes toward the front of the machine, where it is engaged by one pair of the pasting and scoring segments 157, 158 as previously described, and is lightly engaged by the edge of the disk 160, thus holding it until the folding block is turned down to seal the flap, the upper end of the bag and the folded flap being pressed between the folding block and the cushioned face of the pressure block as before described to insure the proper sealing, after which the bag is carried around to the rear side of the machine when the folding block is raised, the pressure block retracted, and the sealed bag is removed by the blade 174 and falls upon the carrier 170 which brings it to the

front of the machine and it is discharged by the brush 176 upon the delivery chute 175.

In some instances where it is desired to fill the bags with a measured quantity of a material which is apt to pile up at the mouth of the measuring cups or vessels and cause slightly unequal amounts to be delivered thereby, I employ the device shown in Fig. 31 to equalize the quantity in the measuring cups or vessels as far as possible. This consists of a scraper 190 in the form of a bail mounted on a rock shaft 191 extending through the hopper (here lettered 5^a) and provided with an arm 192 connected pivotally with a bar 193 having a forked end 194 to engage the shaft 15^a to guide it, and a stud or roll 195 to engage a double cam 196 on the said shaft, a spring 197 serving to retract said bar 193 and hold the roll in engagement with the cam. As each of the measuring cups or vessels passes the bail 190 the latter is operated by the action of the spring and cam to sweep over the top of the cup, and scrape off any surplus material which falls to the bottom of the hopper 5^a, thus insuring an even feed of the material which can be accurately regulated by adjusting the capacity of the cups as before described, said cups being identical in construction with those previously described.

I do not desire to be limited to the exact details of construction herein described and shown as slight variations may be made therein without departing from the invention.

It will be noted that the segments for applying the adhesive material are located in the horizontal plane of the apertures or slots 125 in the carriage through which the pressure blocks are projected. It, therefore, follows that if any of the bag engaging faces of the carriage should fail to receive a bag for any reason, the operation of the paste wheel will merely bring it opposite to said aperture or slot 125, and no adhesive material will be deposited on any part of the carriage. This is an important point, as it saves the time which would otherwise be lost by stopping the machine to clean the parts from the paste or glue.

In some instances I prefer to provide the vertical bars 65, 65 of the bag magazine with stripping arms 65^a, 65^a secured thereto and adjustable vertically thereon. These stripping arms as shown, extend on opposite sides of the filling chute, and as the bag magazine descends they will assist in removing the bag from the chute. These stripping arms may be dispensed with in some cases especially where material having considerable weight is charged into the bags, but when a very small quantity of light material is put in each bag these fingers insure the removal of each bag.

The specific form of measuring device shown and described is not claimed herein as it forms the subject matter of a divisional application for Letters Patent of the United States filed by me Nov. 30, 1908 and given Serial No. 465,118.

What I claim and desire to secure by Letters Patent is:—

1. In a bag filling machine, the combination with means for holding a bag to be filled, of a filling chute having a horizontal reciprocatory movement bodily in line with the bag holding means, and provided with a pair of separable jaws, and means for introducing the filling chute into the bag and means for separating said jaws, substantially as described.

2. In a bag filling machine, the combination with means for holding a bag, of a filling chute having a horizontal reciprocatory movement bodily in line with said bag holding means and provided with a fixed and movable jaw, mechanism for moving said bag holding means vertically toward and from said chute, and means connected with the said movable jaw for moving it from and toward the fixed jaw, and means for reciprocating said filling chute, substantially as described.

3. In a bag filling machine, the combination with bag holding means, of a filling chute comprising a pair of vertically disposed separable jaws, said bag holding means and filling chute being provided, the one with means for moving it toward the other, to insert the chute in the bag to be filled, means for separating said jaws, means for introducing the material to be bagged into said chute, and means for reciprocating said filling chute bodily in a horizontal direction to bring it into operative relation with the bag holding means and to withdraw the filled bag, substantially as described.

4. In a bag filling machine, the combination with bag holding means, of a filling chute comprising a pair of separable jaws, means for moving the bag holding means toward said chute to insert the chute in the bag to be filled, devices for separating said jaws, means for supplying material to be bagged, to said chute at intervals, means for reciprocating said chute bodily in a horizontal direction in line with the bag holding means and means for closing said jaws to release the filled bag, substantially as described.

5. In a bag filling machine, the combination with bag holding means, of a filling chute comprising a pair of separable jaws, and means for normally holding said jaws in closed position, means for moving the bag holding means vertically toward and from the filling chute, devices for separating said jaws, a feeding device for the material to be bagged having a discharge device located above said filling chute, means for moving

said filling chute horizontally toward and from the bag holding means, and means for receiving the filled bag when it is released from the filling chute, substantially as described.

6. In a bag filling machine, the combination with bag holding means, of a filling chute comprising separable jaws, and a spring holding said jaws normally in close relation to enter a bag, said bag holding means and chute being provided, the one with mechanism for moving it vertically toward the other, to insert the chute in a bag to be filled, means for separating said jaws and holding them separated, means for introducing the material to be bagged into said chute, means for moving said chute away from said bag holding means, to remove the bag from engagement therefrom, and means for causing the jaws to be released by said separating means after the chute has moved away from the bag holding means to permit the filled bag to fall from said chute, substantially as described.

7. In a bag filling machine, the combination with bag holding means, of a filling chute comprising a fixed and a movable jaw, a horizontal slide carrying said jaws, means for holding said jaws together, means for moving the bag holding means vertically toward the said chute to insert said jaws into a bag to be filled, means for actuating the movable jaw to separate the jaws, devices for introducing material to be bagged into said chute, means for reciprocating said slide, and means for returning said movable jaw to normal closed position, substantially as described.

8. In a bag filling machine, the combination with bag holding means movable vertically, of a filling chute comprising separable jaws, a spring holding said jaws normally in close relation with each other, a horizontal slide carrying said jaws, means for reciprocating said slide, a device for separating said jaws, and a part connected with the vertically movable bag holding means for engaging and operating said jaw separating device, substantially as described.

9. In a bag filling machine, the combination with bag holding means movable vertically, of a filling chute comprising a fixed and a movable jaw, a spring normally holding said jaws in close relation, means for moving said chute bodily in a horizontal direction away from said bag holding means, a plunger, a part connected with the bag holding means for engaging and operating said plunger, the movable jaw having an actuating part in the path of said plunger for separating said jaws, substantially as described.

10. In a bag filling machine, the combination with vertically movable bag holding means, of a filling chute comprising a fixed jaw and a pivotally mounted jaw, having an actuating part, a horizontal slide carrying said jaws, means for reciprocating said slide, a vertically movable plunger adapted to engage the actuating part of said pivotally mounted jaw, a part connected with the bag holding means for engaging the lower end of said plunger, a spring normally holding said pivotally mounted jaw in close relation with the fixed jaw, and means for delivering the material to be bagged to said filling chute, substantially as described.

11. In a bag filling machine, the combination with a hopper, means for delivering a measured quantity of material therefrom at intervals, a discharge spout for said hopper, a filling chute located below said spout, and comprising a pair of separable jaws, bag holding means located below said chute and movable vertically toward and from said chute, means for separating the jaws of said chute, means for moving said chute bodily horizontally to remove the filled bag from the bag holding means, and guiding means located at one side of the bag holding means for receiving the filled bags, substantially as described.

12. In a bag filling machine, the combination with a hopper provided with a stationary delivery spout, a rotary measuring device in said hopper and means for intermittently operating the same, of a horizontally movable filling chute located below said spout and independent thereof, said chute comprising a pair of separable jaws, a bag magazine located below said filling chute, and movable vertically toward and from said chute, mechanism for moving the bag magazine, mechanism for separating the jaws of the filling chute when the bag magazine is at substantially its highest position and a guiding device located laterally with respect to the bag magazine and adapted to receive the filled bags from the filling chute, substantially as described.

13. In a bag filling machine, the combination with filling mechanism, of a bag magazine, having a curved bottom, and a bag feeding device movable in a curved path above said bottom, substantially as described.

14. In a bag filling machine, the combination with filling mechanism, of a bag magazine, having a curved bottom for supporting the bags, a pivotally mounted part, and a feeding plunger adjustably connected thereto and movable concentrically with respect to said pivotal connection, substantially as described.

15. In a bag filling machine, the combination with filling mechanism, of a bag magazine having a curved bottom, a pivoted frame located above said bottom, a feeding plunger pivotally mounted in said frame and provided with means for engaging the rear-

most bag, and devices for holding said plunger rigid with respect to said pivoted frame, substantially as described.

16. In a bag filling machine, the combination with filling mechanism, of a bag magazine provided with a curved bottom, a pivotally mounted frame located above said bottom, an adjustable bag feeding device pivoted in said frame, and provided with devices located at a distance from its pivotal connection for engaging said frame and holding said feeding device in adjusted position, substantially as described.

17. In a bag filling machine, the combination with filling mechanism, of a bag magazine provided with a curved bottom plate, a pair of side plates pivoted above said bottom, and provided with a plurality of recesses arranged in the arc of a circle, a feeding plunger pivoted in said side plates at points concentric with the arc of said series of recesses, and yielding locking projections secured to said plunger in position to engage said recesses, substantially as described.

18. In a bag filling machine, the combination with filling mechanism, of a bag magazine comprising among its members, a concave supporting bottom, vertically disposed supports extending above the same, a pair of side plates pivoted to said supports and provided with curved portions adjacent to said bottom and a feeding plunger adjustably secured to and movable with said plates, and provided with means for engaging the rearmost bag, substantially as described.

19. In a bag filling machine, the combination with filling mechanism, of a bag magazine comprising among its members a concave supporting bottom, vertically disposed supports extending above the same, a pair of side plates pivoted to said supports and provided with curved portions adjacent to said bottom, a feeding plunger adjustably secured to said side plates, and a plurality of spring arms secured to said plunger and adapted to engage the rearmost bag, substantially as described.

20. In a bag filling machine, the combination with filling mechanism, of a bag magazine provided with a curved bottom, for supporting the bags, a frame pivotally mounted above and substantially concentrically to said bottom, a bag feeding device mounted in said frame and provided with devices for engaging the rearmost bag, and a weight secured to said pivoted frame, substantially as described.

21. In a bag filling machine, the combination with bag filling chute provided with separable jaws, of a pivoted lever, a bag magazine supported thereon, below said chute, means for feeding the bags in said magazine, means for raising said lever to force the outermost bag of the magazine upon said jaws, and for lowering the lever, devices for separating said jaws and means for moving said filling chute laterally while the jaws are separated to remove the outermost bag from the magazine, substantially as described.

22. In a bag filling machine, the combination with means for delivering a measured quantity of material, of a feeding chute comprising a pair of separable jaws, a lever pivoted below said chute, a bag magazine supported on one end of said lever, means for counterbalancing said lever, operative connections for raising and lowering the end of the lever carrying the bag magazine, a guiding device for the filled bags located out of the path of the bag magazine, means for separating the jaws of the filling chute, and means for shifting the filling chute bodily from a position above the position of the outermost bag in the magazine to a position above said guiding device, substantially as described.

23. In a bag filling machine, the combination with a filling chute provided with separable jaws, of a pivoted lever having a vertically movable portion, a bag magazine carried thereby and located below said filling chute and provided with a curved bottom, and means for feeding the bags over said curved bottom, means for raising and lowering the end of said lever carrying the bag magazine, means for separating the jaws of said chute and means for shifting said chute horizontally away from the path of the magazine, substantially as described.

24. In a bag filling machine, the combination with means for filling bags successively, of a horizontal rotating carriage provided with horizontal bag supporting means and a series of bag engaging faces around the periphery of said carriage, folding mechanism carried by said carriage adjacent to each of said faces, and a positioning device having a bag engaging part adjacent to the carriage, and means for retracting said positioning device, substantially as described.

25. In a bag filling machine, the combination with bag filling devices, of a horizontal rotary carriage below the same, provided with a supporting device for the lower end of the bag, and a plurality of folding devices, a movable shifting device adjacent to the carriage and below the bag filling mechanism, a positioning device adjacent to said shifting device, means for retracting said positioning device, and means for actuating said shifting device to shift the bag into engagement with said carriage, substantially as described.

26. In a bag filling machine, the combination with the bag filling devices, of a horizontal rotary carriage provided with supporting means to engage the lower edges of the bags, and having a plurality of vertically disposed bag engaging faces, a folding

device located on the carriage above each of said faces, a carrying detent adjacent to each of said faces, means for projecting said carrying detent, a positioning stop having a part adjacent to said carriage, and means for retracting said stop, substantially as described.

27. In a bag filling machine, the combination with bag filling mechanism, of a horizontal rotary carriage provided with horizontal means for supporting the lower ends of the filled bags, and a plurality of bag engaging faces above said supporting means, a shifting plate located adjacent to the carriage and beneath the bag filling mechanism, and adapted to receive the filled bags therefrom, a positioning stop adjacent to said shifting plate, a carrying detent on the carriage adjacent to each of said faces, and means for projecting the same, a folding device on the carriage adjacent to each of said faces, pasting mechanism, means for actuating said shifting plate and means for retracting said positioning stop, substantially as described.

28. In a bag filling machine, the combination with the filling chute and means for supplying material thereto, a bag magazine movable vertically toward and from the filling chute, means for moving the filling chute horizontally to disengage a filled bag from the magazine, a guiding chute for receiving the filled bags from the filling chute, a horizontal rotary carriage located adjacent to the lower end of the guiding chute and provided with horizontal bag supporting means, a movable shifting device adjacent to the bottom of said guiding chute, the movable positioning stop, folding devices on said carriage, carrying detents on said carriage and means for projecting said detents to engage the bags adjacent to said guiding chute, substantially as described.

29. In a bag filling machine, the combination with a horizontally movable filling chute, provided with separable jaws, and operating mechanism therefor, a bag magazine below said chute and movable vertically with respect thereto, a shifting plate below said filling chute, a horizontal rotary carriage adjacent to said shifting device, having an annular bag supporting rail and a plurality of bag engaging faces, a folding mechanism on said carriage adjacent to each of said faces, a positioning stop, carrying detents on said carriage and means for projecting the same, and a pasting device having a part in the path of the bags as they are carried by said carriage, substantially as described.

30. In a bag filling machine, the combination with a rotary carriage provided with a bag engaging face, a folding block mounted on the carriage adjacent to said face, means for moving said folding block down over a portion of said face and a pressure block mounted in an aperture in said face and movable toward and from the folding block, substantially as described.

31. In a bag filling machine, the combination with a rotary carriage provided with a bag engaging face, a folding block mounted on the carriage adjacent to said face, means for moving said folding block down over a portion of said face, said face being provided with a horizontally disposed aperture extending substantially the width of a bag, a pressure block mounted in said aperture, and provided with a cushion face, and means for reciprocating said pressure block, substantially as described.

32. In a bag filling machine, the combination with a rotary carriage provided with a bag engaging face, a folding block mounted on the carriage adjacent to said face, means for moving said folding block down over a portion of said face, said face being provided with a horizontally disposed aperture of a length substantially equal to the width of a bag, and a rotary device for applying adhesive material having a bag engaging portion in line with said aperture, substantially as described.

33. In a bag filling machine, the combination with a rotary carriage provided with a bag engaging face, a folding block mounted on the carriage adjacent to said face, means for moving said folding block down over a portion of said face, said face being provided with a horizontally disposed slot, a rotary device for applying adhesive material to a bag, having a part in line with said slot, a pressure block mounted in said slot, means for retracting said block out of the path of said adhesive material applying device and for projecting it to compress portions of the bag between it and the folding block, substantially as described.

34. In a bag filling machine, the combination with bag filling devices, of a horizontal rotary carriage provided with a plurality of vertically disposed bag engaging faces and bag supporting means adjacent to the lower ends of said faces, a pivoted folding block mounted adjacent to each of said faces and normally held in folding position, means for raising said folding blocks successively at a predetermined portion of the travel of said carriage, and means for delivering filled bags successively to said carriage at a point where the folding blocks are in raised position, substantially as described.

35. In a bag filling machine, the combination with means for filling and delivering bags, of a horizontally rotating carriage provided with a plurality of vertically disposed bag engaging faces, means for supporting the bags adjacent to said faces, a movable folding block mounted on said carriage above each of said faces, and provided with a fold-

ing face, means for moving each of said blocks to bring its folding face parallel with and opposed to a portion of the adjacent bag engaging face of the carriage, to clamp the folded portions of the bag, a device for applying adhesive material, having a horizontally disposed bag engaging part located below the plane of said folding block when the latter is in raised position, and means for moving said folding blocks into folding position after they have passed said adhesive applying device, substantially as described.

36. In a bag filling machine, the combination with a horizontal rotary carriage, means for supporting the filled bags in a vertical position thereon, and folding devices carried by said carriage, of a rotary device, segmental bag engaging devices carried thereby and having peripheral portions of a length substantially equal to the width of the bag flaps a receptacle for adhesive material and a distributing device for conveying adhesive material from the receptacle to said segments, substantially as described.

37. In a bag filling machine, the combination with a rotary carriage, means for supporting bags in vertical position thereon, and folding devices carried by said carriage, of a rotary adhesive material applying device, for engaging portions of the bags on said carriage, means for supplying adhesive material to the bag engaging portions of said rotary device and means for reciprocating said device toward and from the path of the bags on said carriage, substantially as described.

38. In a bag filling machine, the combination with a horizontal rotary carriage, means for supporting bags in a substantially vertical position thereon and a plurality of folding devices carried by said carriage, a receptacle for adhesive material, a distributing disk extending into said receptacle, a rotary device having peripheral portions adapted to engage said disk and also the bags on the carriage, a slide carrying said receptacle, disk and rotary device, and means for reciprocating said slide toward and from the carriage, substantially as described.

39. In a bag filling machine, the combination with the main frame, of a horizontal rotary carriage mounted thereon, means for supporting bags on the carriage in a substantially vertical position, a plurality of folding blocks mounted on said carriage, a horizontally movable slide, mounted on the main frame, adhesive material applying devices carried by said slide, including a receptacle, a rotary part adapted to receive adhesive material from the receptacle and apply it to the bags, a horizontal shaft for driving the said rotary part, driving means on the main frame having a sliding engagement with said shaft, and means for reciprocating said slide toward and from the carriage, substantially as described.

40. In a bag filling machine, the combination with a horizontal rotary carriage having a plurality of vertically disposed bag engaging faces and a pivoted folding block located above each of said faces, of a rotary scoring device having peripheral portions disposed horizontally and located adjacent to the plane of the folding block when the latter is in raised position, said scoring device being located adjacent to the travel of the bags on said carriage, substantially as described.

41. In a bag filling machine, the combination with a horizontal rotary carriage having a plurality of vertically disposed bag engaging faces and a pivoted folding block located above each of said faces, of a rotary device adjacent to said carriage provided with a horizontally disposed part provided with a curved bag engaging edge, for applying adhesive material to the bag, a horizontally disposed rotary scoring device having a curved bag engaging edge located above the adhesive material applying device, and means for supplying adhesive material to the said applying device, substantially as described.

42. In a bag filling machine, the combination with a horizontal rotary carriage having a plurality of vertically disposed bag engaging faces and a pivoted folding block located above each of said faces, of a rotary device adjacent to said carriage provided with a horizontally disposed part provided with a curved bag engaging edge, for applying adhesive material to the bag, a horizontally disposed rotary scoring device having a curved bag engaging edge located above the adhesive material applying device, means for supplying adhesive material to said applying device, and means for reciprocating said scoring device and adhesive material applying device toward and from said carriage, substantially as described.

43. In a bag filling machine, the combination with means for filling and delivering bags, of a horizontally rotating carriage provided with a plurality of vertically disposed bag engaging faces, means for supporting the bags adjacent to said faces, a movable folding block mounted on said carriage above each of said faces, and provided with a folding face, means for moving each of said blocks to bring its folding face parallel with and opposed to a portion of the adjacent bag engaging face of the carriage, to clamp the folded portions of the bag, means for holding said folding blocks in folded position, means for raising said folding blocks at a predetermined point in the rotation of the carriage, to facilitate the placing of the bags thereon, and a stationarity

supported guiding device, having a bag engaging part opposite to the bag engaging faces of the carriage, for holding the bags in engagement therewith until they are clamped by said folding blocks, substantially as described.

44. In a bag filling machine, the combination with bag filling devices, of a horizontal rotary carriage below the same and adapted to receive the filled bags therefrom, a plurality of pivoted folding blocks on said carriage, devices for applying adhesive material to the bags, a rotary carrier located below said carriage, means for elevating said folding blocks during portions of the travel of said carriage, a device for detaching the bags from the carriage and causing them to fall upon the carrier and means for discharging the sealed bags from said carrier, substantially as described.

45. In a bag filling machine, the combination with means for filling bags, of a rotary horizontal carriage provided with a plurality of flattened bag engaging faces, a vertically adjustable horizontal supporting rail on said carriage adjacent to the bottom of said faces, a plurality of pivoted folding blocks on said carriage, one adjacent to the upper part of each of said faces, actuating devices for said folding blocks and a pasting mechanism, having a rotary part in the path of the bags while on said carriage, substantially as described.

46. In a bag filling machine, the combination with bag filling devices, of a horizontal rotary carriage, provided with a plurality of flat bag engaging faces, a horizontal support for a bag adjacent to the lower part of each face, a pivoted folding block adjacent to the upper part of each face, a horizontally sliding pressure block for coöperating with each folding device, and having portions adapted to be projected through a slot in the adjacent bag engaging face, a stationary cam for operating said folding blocks, and a stationary cam for actuating said sliding pressure blocks, substantially as described.

47. In a bag filling machine, the combination with means for filling and delivering bags, of a horizontally rotating carriage provided with a plurality of vertically disposed bag engaging faces, means for supporting the bags adjacent to said faces, a movable folding block mounted on said carriage above each of said faces, and provided with a folding face, operating devices for moving each of said blocks to bring its folding face parallel with and opposed to a portion of the adjacent bag engaging face of the carriage, to clamp the folded portions of the bag, and a stationarily supported yielding actuating device for engaging said operating devices successively, substantially as described.

48. In a bag filling machine, the combination with means for filling and delivering bags, of a horizontally rotating carriage provided with a plurality of vertically disposed bag engaging faces, means for supporting the bags adjacent to said faces, a movable folding block mounted on said carriage above each of said faces, and provided with a folding face, means for moving each of said blocks to bring its folding face parallel with and opposed to a portion of the adjacent bag engaging face of the carriage, to clamp the folded portions of the bag including a radially movable slide for each of said folding blocks, and links connecting said slides with said blocks, and a stationarily supported yielding cam, for engaging said slides successively and forcing said blocks into folded position, substantially as described.

49. In a bag filling machine, the combination with a rotary carriage, provided with a bag engaging face, a folding block mounted on the carriage adjacent to said face, a yielding device for positively moving the folding block into folding position with respect to said face, a sliding pressure block mounted on said carriage having a part opposite to the bag engaging portion of said folding block when in folding position and actuating means for said pressure block, substantially as described.

50. In a bag filling machine, the combination with a horizontal rotary carriage provided with bag engaging faces, of a folding block pivotally mounted adjacent to each of said faces, actuating devices for each of said blocks, a stationarily supported device, provided with a spring actuated device located in the path of said actuating devices, a pressure block provided with a yielding face mounted on the carriage adjacent to each of said faces, and movable horizontally toward and from the folding block, when in folding position, and actuating devices for said pressure blocks, substantially as described.

51. In a bag filling machine, the combination with the filling chute, of the vertically movable bag magazine, means for moving it toward and from the filling chute, and vertically movable stripping fingers for stripping the filled bags from said chute, substantially as described.

52. In a bag filling machine, the combination with the filling chute, of the vertically movable bag magazine, means for moving it toward and from the filling chute, and vertically movable stripping fingers mounted on the bag magazine and extending adjacent to the chute for removing the filled bags therefrom as the magazine descends, substantially as described.

53. In a bag filling machine, the combination with a rotary carriage provided with a bag engaging face, a pivoted folding block

mounted on the carriage adjacent to said face, a lever for operating said block, a link connected to said block and to a part of said lever and adapted to lie in a straight line therewith to lock said block when the latter is in closed position, and devices located in the path of another part of said lever, for actuating the same, substantially as described.

54. In a bag filling machine, the combination with a rotary carriage provided with a bag engaging face, a pivoted folding block mounted on the carriage adjacent to said face, a lever for operating said block, a link connected to said block and to a part of said lever and adapted to lie in a straight line therewith to lock said block when the latter is in closed position, a cam in the path of said lever for unlocking said block and a yielding cam device in the path of said lever for locking said block, substantially as described.

In testimony whereof I affix my signature, in the presence of two witnesses.

WILLIAM RULISON.

Witnesses:

FRED. LINUS CARROLL,

MABEL G. MORRELL.

Correction in Letters Patent No. 936,169.

It is hereby certified that the first-mentioned assignee in Letters Patent No. 936,169, granted October 5, 1909, upon the application of William Rulison, of Johnstown, New York, for an improvement in "Bag Filling and Sealing Machines," should have been described and specified as *Rose M. Knox*, instead of "Rose M. Knox, executrix of Charles B. Knox, deceased;" and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 19th day of October, A. D., 1909.

[SEAL.]

C. C. BILLINGS,

Acting Commissioner of Patents.

mounted on the carriage adjacent to said face, a lever for operating said block, a link connected to said block and to a part of said lever and adapted to lie in a straight line therewith to lock said block when the latter is in closed position, and devices located in the path of another part of said lever, for actuating the same, substantially as described.

54. In a bag filling machine, the combination with a rotary carriage provided with a bag engaging face, a pivoted folding block mounted on the carriage adjacent to said face, a lever for operating said block, a link connected to said block and to a part of said lever and adapted to lie in a straight line therewith to lock said block when the latter is in closed position, a cam in the path of said lever for unlocking said block and a yielding cam device in the path of said lever for locking said block, substantially as described.

In testimony whereof I affix my signature, in the presence of two witnesses.

WILLIAM RULISON.

Witnesses:

FRED. LINUS CARROLL,

MABEL G. MORRELL.

Correction in Letters Patent No. 936,169.

It is hereby certified that the first-mentioned assignee in Letters Patent No. 936,169, granted October 5, 1909, upon the application of William Rulison, of Johnstown, New York, for an improvement in "Bag Filling and Sealing Machines," should have been described and specified as *Rose M. Knox*, instead of "Rose M. Knox, executrix of Charles B. Knox, deceased;" and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 19th day of October, A. D., 1909.

[SEAL.]

C. C. BILLINGS,

Acting Commissioner of Patents.

Correction in Letters Patent No. 936,169.

It is hereby certified that the first-mentioned assignee in Letters Patent No. 936,169, granted October 5, 1909, upon the application of William Rulison, of Johnstown, New York, for an improvement in "Bag Filling and Sealing Machines," should have been described and specified as *Rose M. Knox*, instead of "Rose M. Knox, executrix of Charles B. Knox, deceased;" and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 19th day of October, A. D., 1909.

[SEAL.]

C. C. BILLINGS,

Acting Commissioner of Patents.