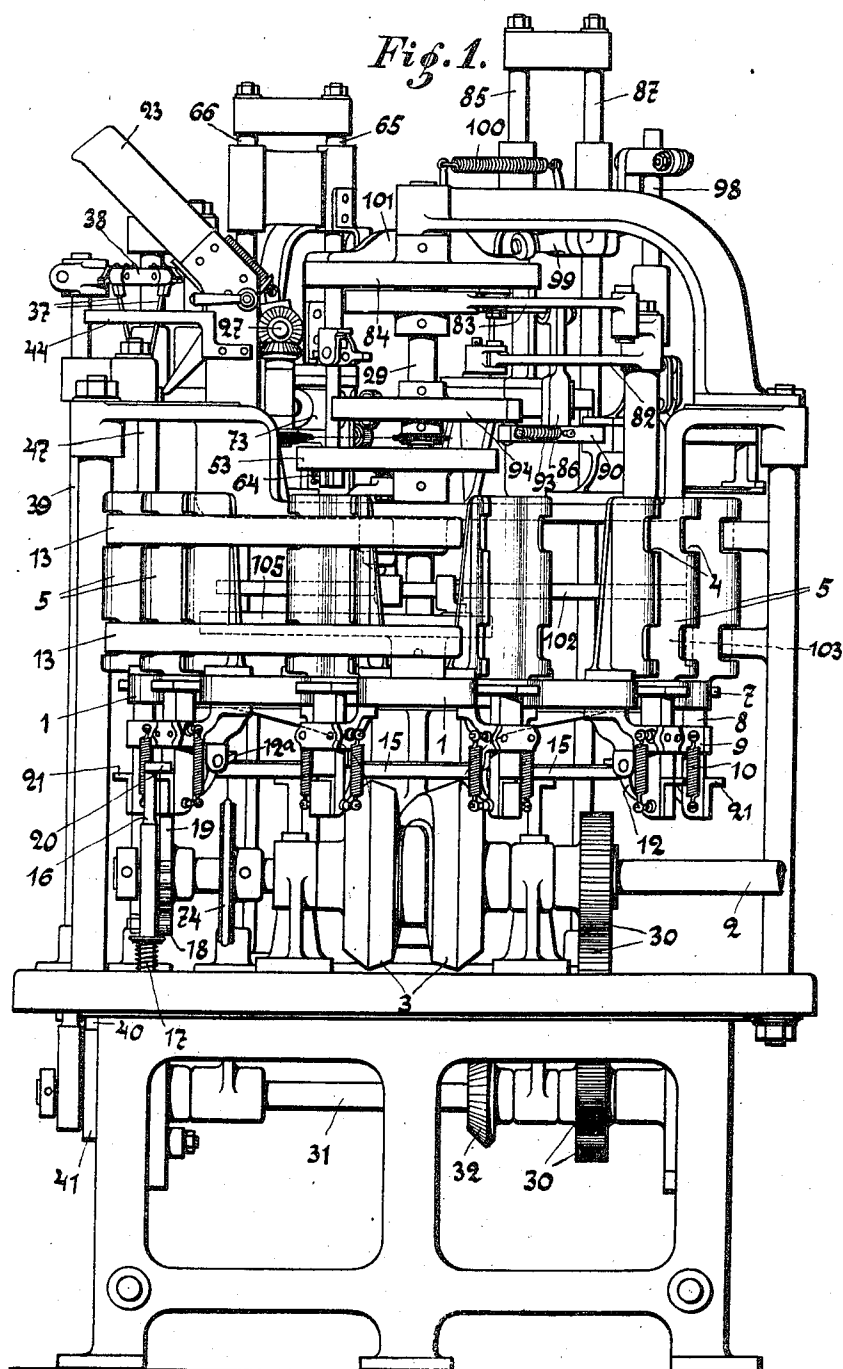


E. JAGENBERG.
MACHINE FOR FILLING AND CLOSING PAPER BAGS.
APPLICATION FILED NOV. 27, 1909.

981,765.

Patented Jan. 17, 1911.

12 SHEETS—SHEET 1.



Witnesses:
Edward Aborn.
W. B. Schulz.

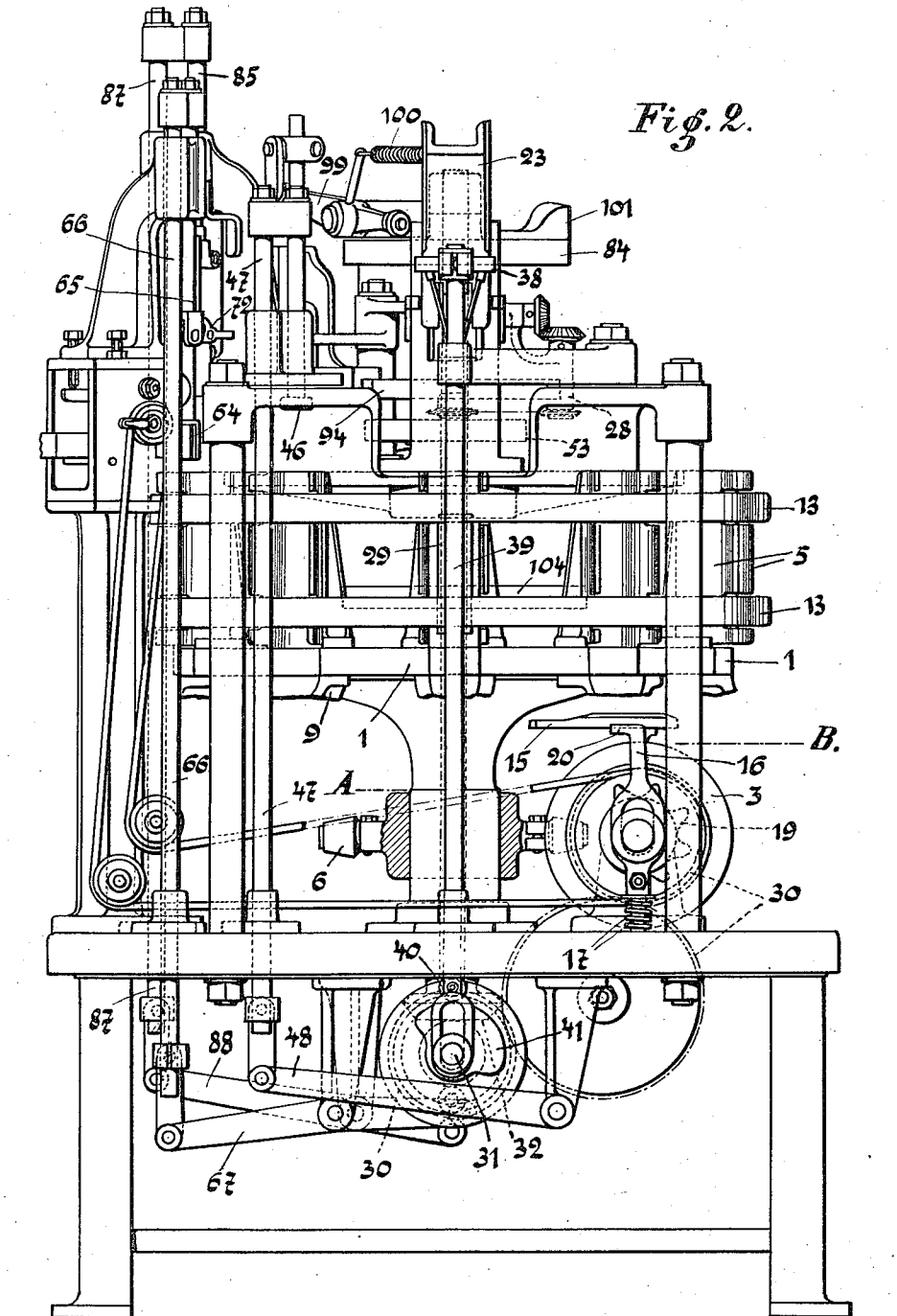
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by his attorney
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12 SHEETS—SHEET 2.



Witnesses:
Edward Schorr.
W. B. Schulz.

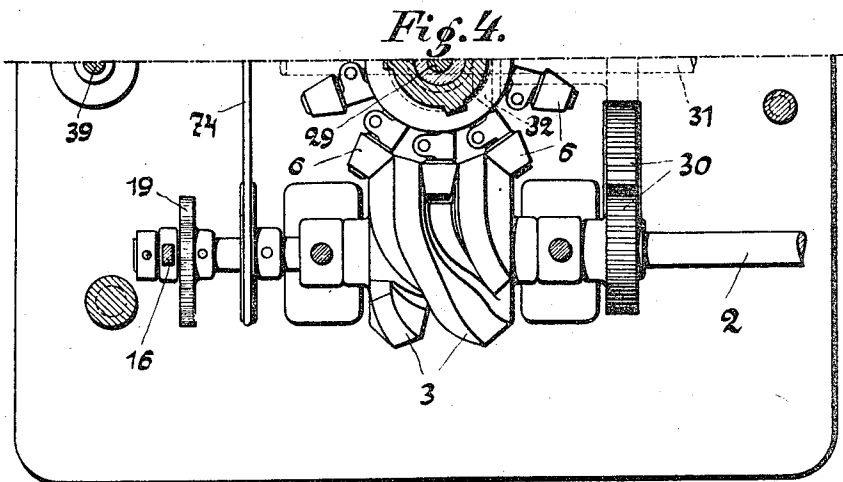
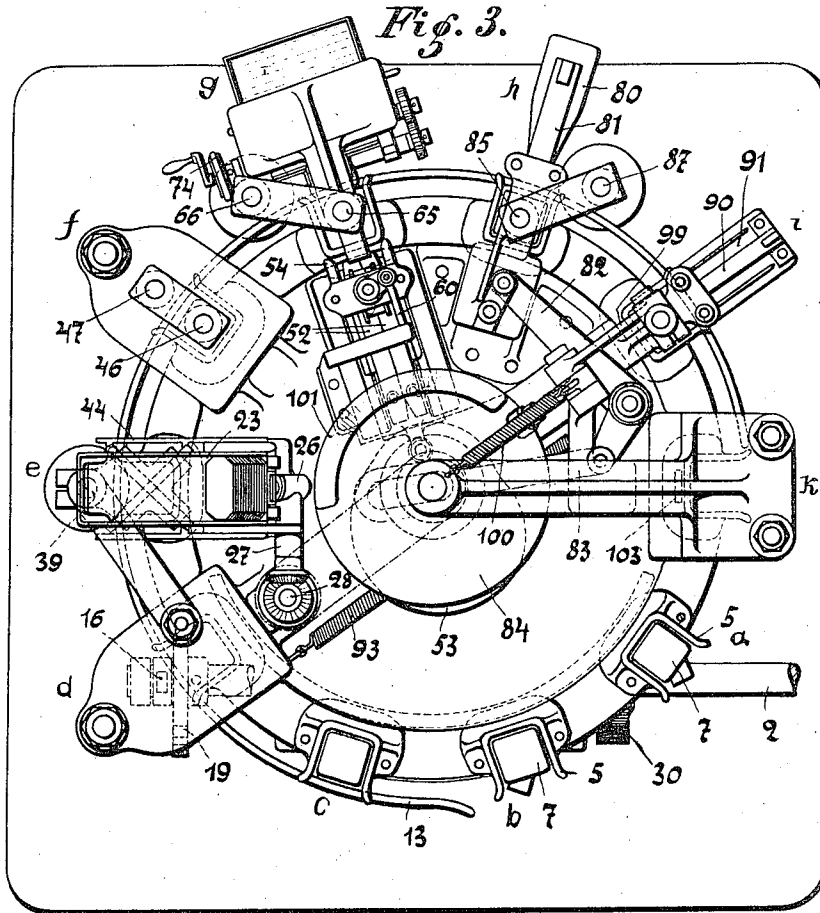
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12 SHEETS—SHEET 3.



Witnesses:
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12 SHEETS—SHEET 4.

Fig. 5.

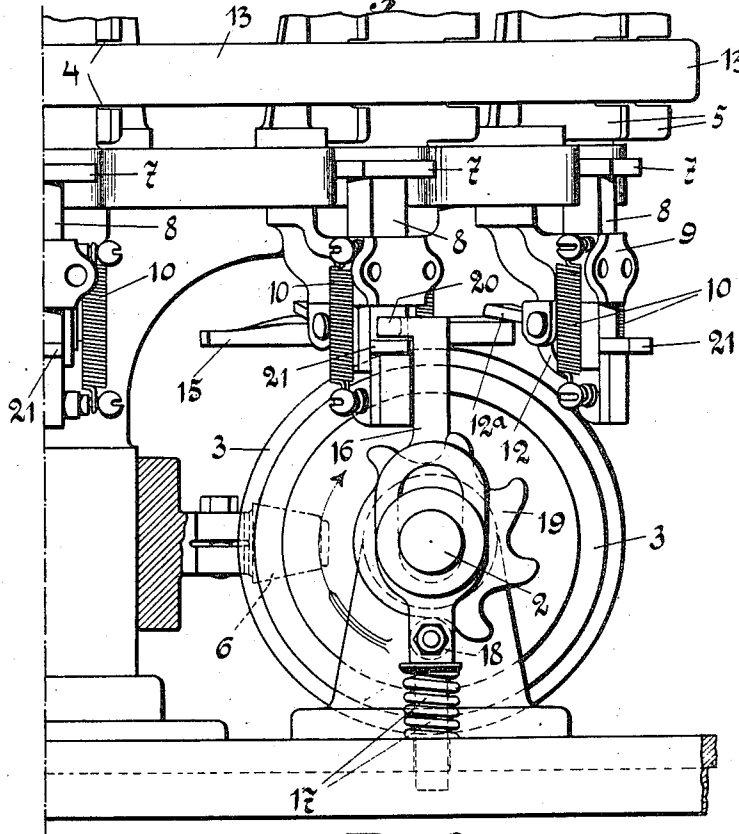
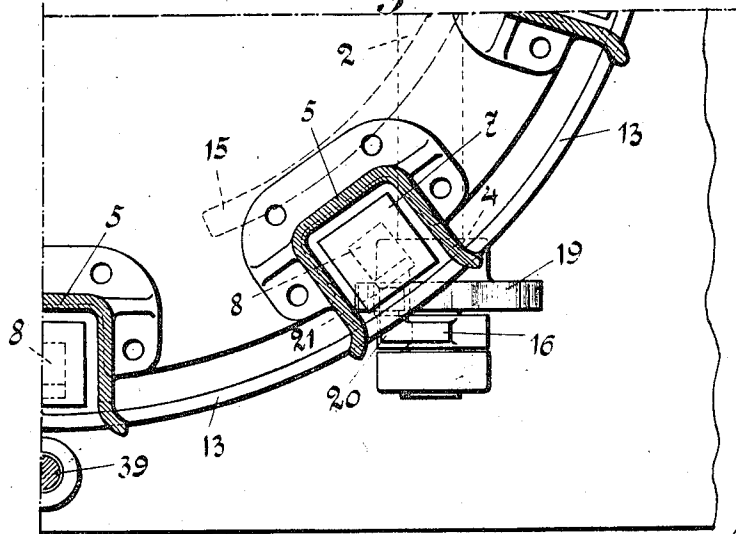


Fig. 6.



Witnesses:
Edward Schorr.
H. B. Schuck.

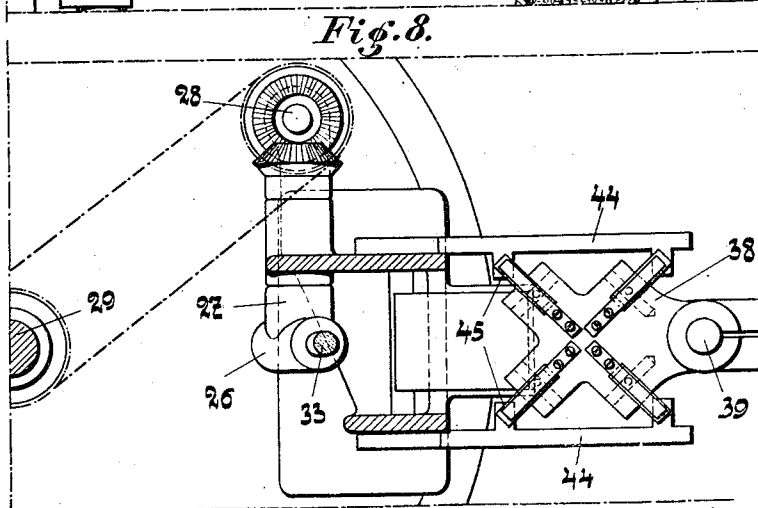
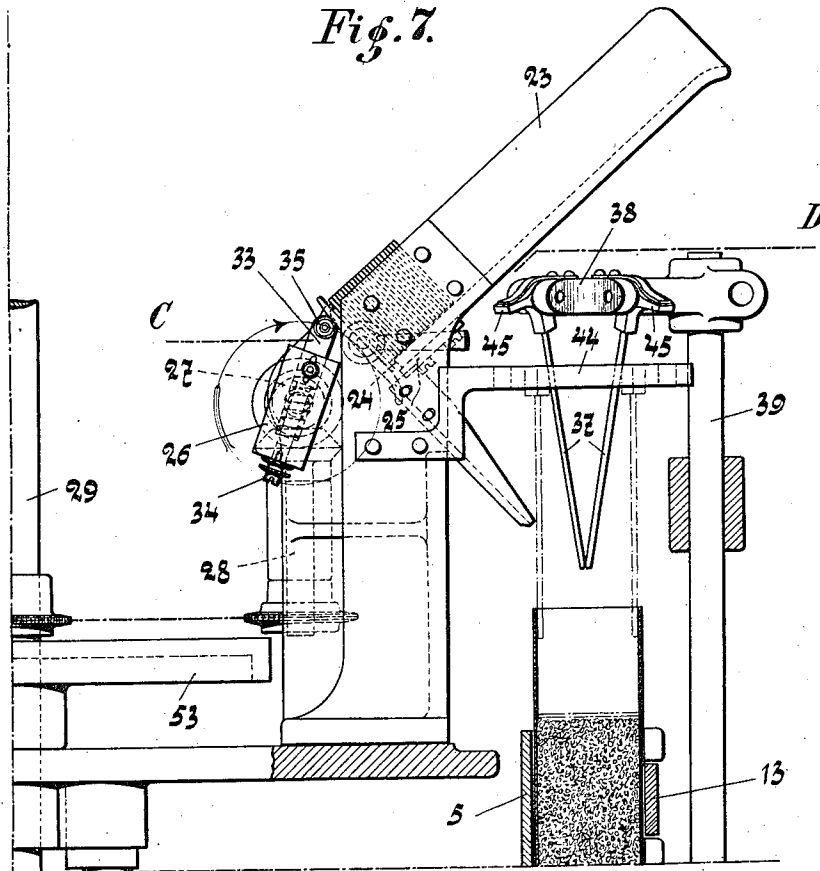
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12 SHEETS—SHEET 5.



Witnesses:
Edward Schorr.
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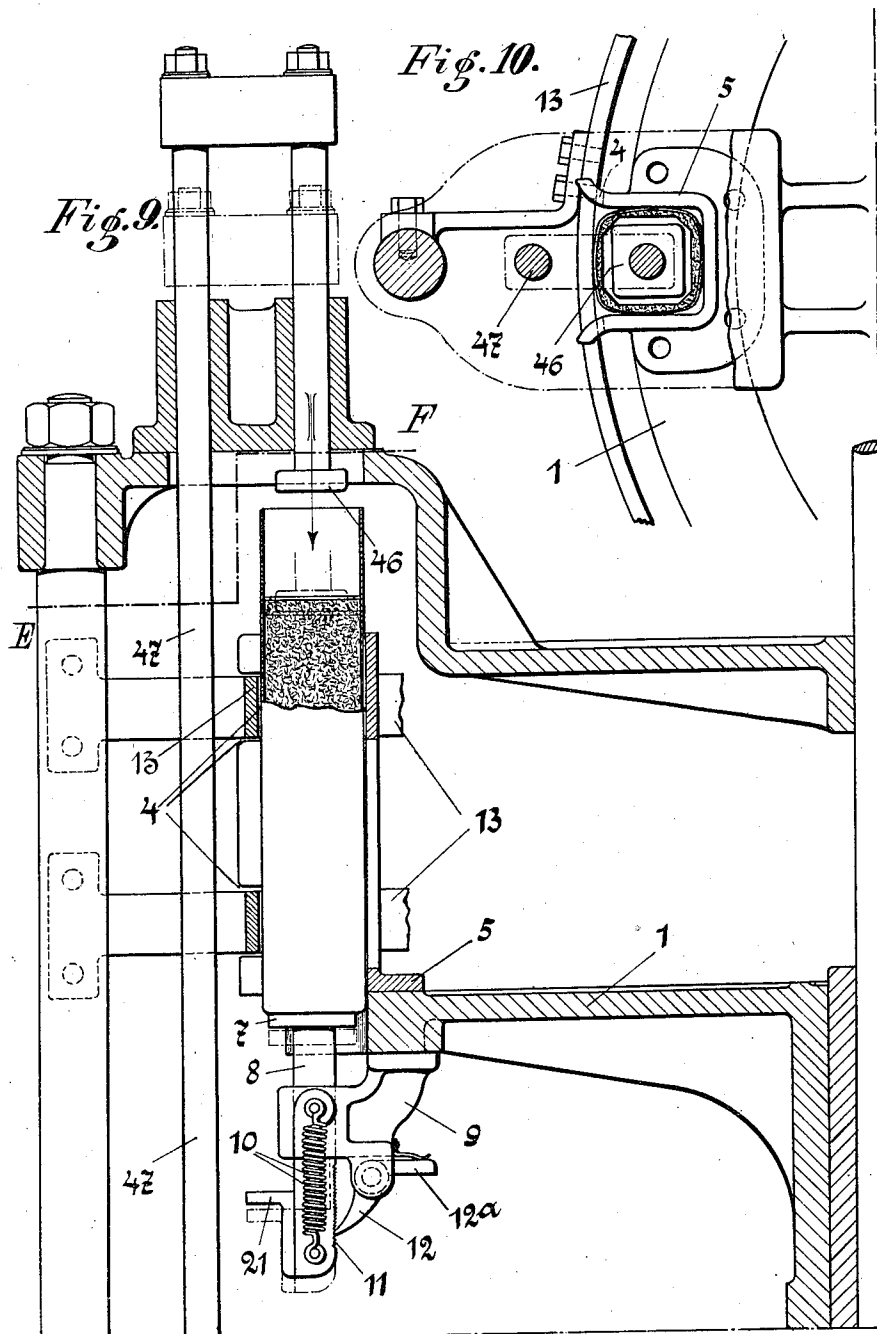
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12 SHEETS—SHEET 6.



Witnesses:
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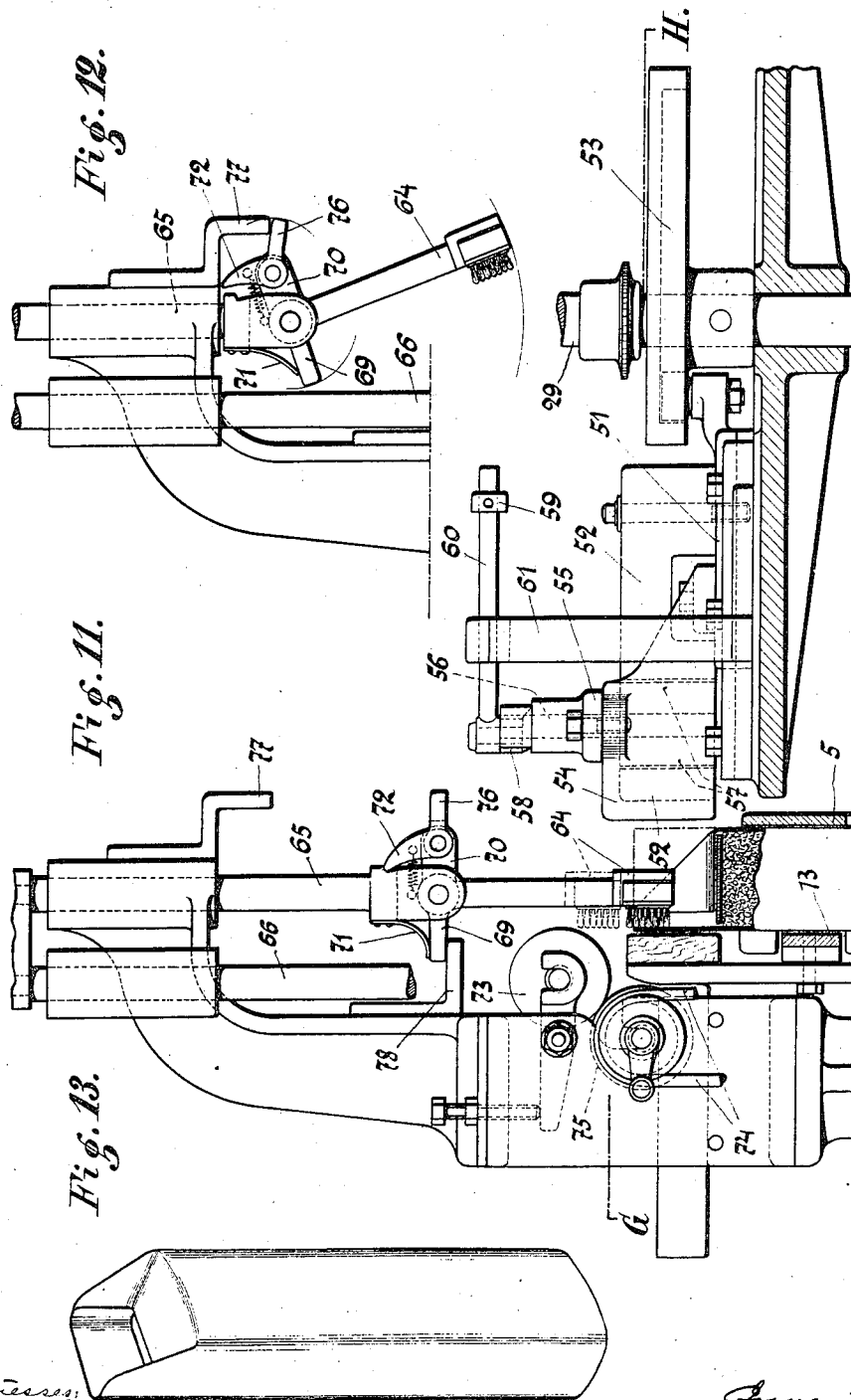
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981,765.

Patented Jan. 17, 1911.

12 SHEETS—SHEET 7.



Witnesses:
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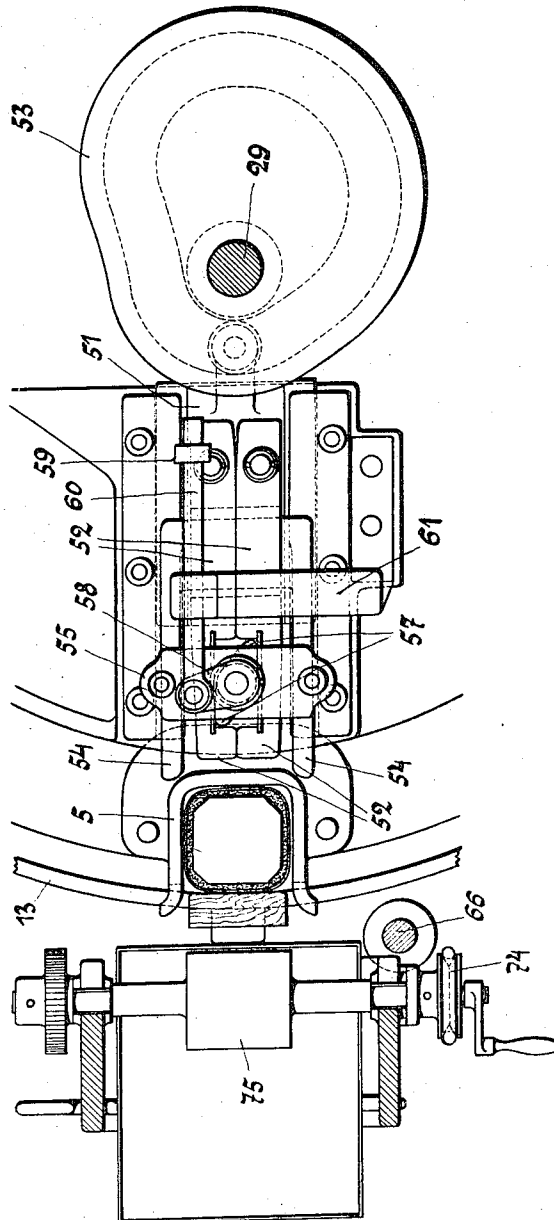
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E. JAGENBERG.
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Patented Jan. 17, 1911.
12 SHEETS—SHEET 8.

981,765.

Fig. 14.



Witnesses
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12 SHEETS—SHEET 9.

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Fig. 15.

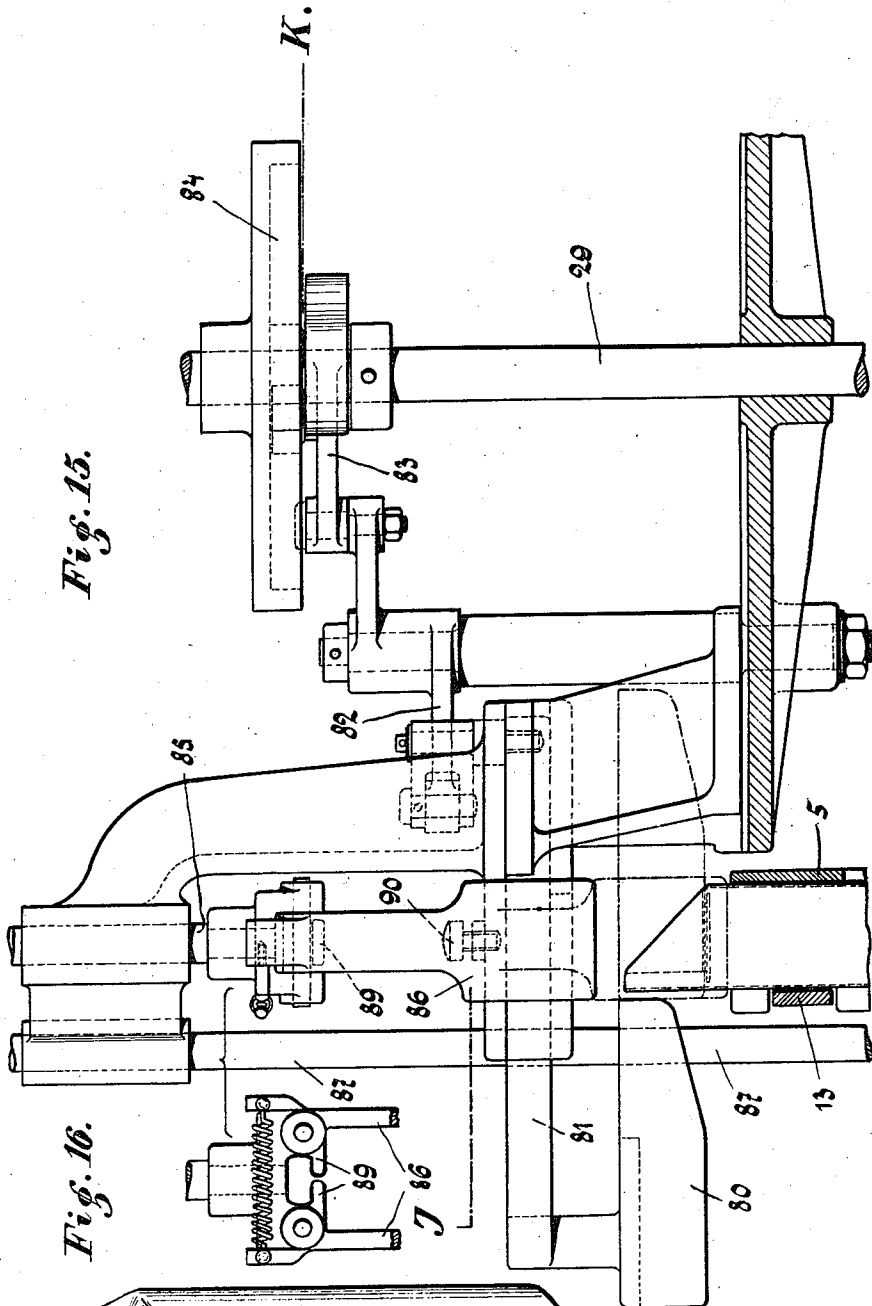
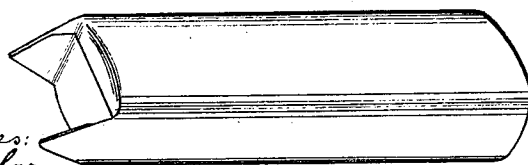


Fig. 16.



Witnesses:
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12 SHEETS—SHEET 10.

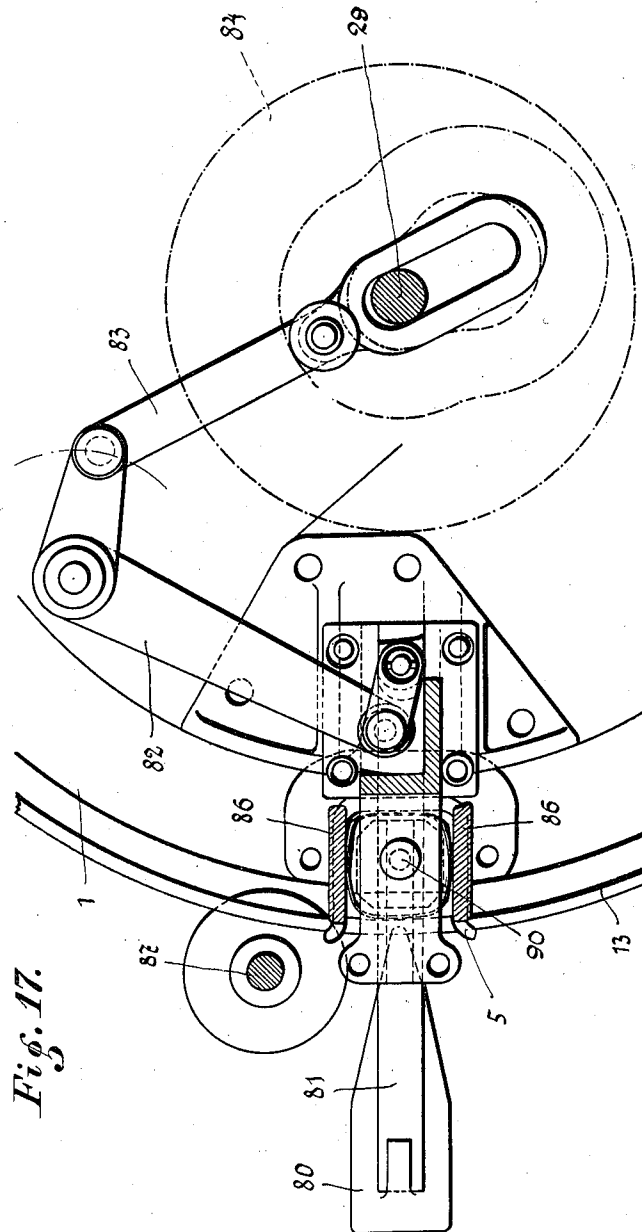


Fig. 17.

Witnesses:
Edward Schorn
W. B. Schuch

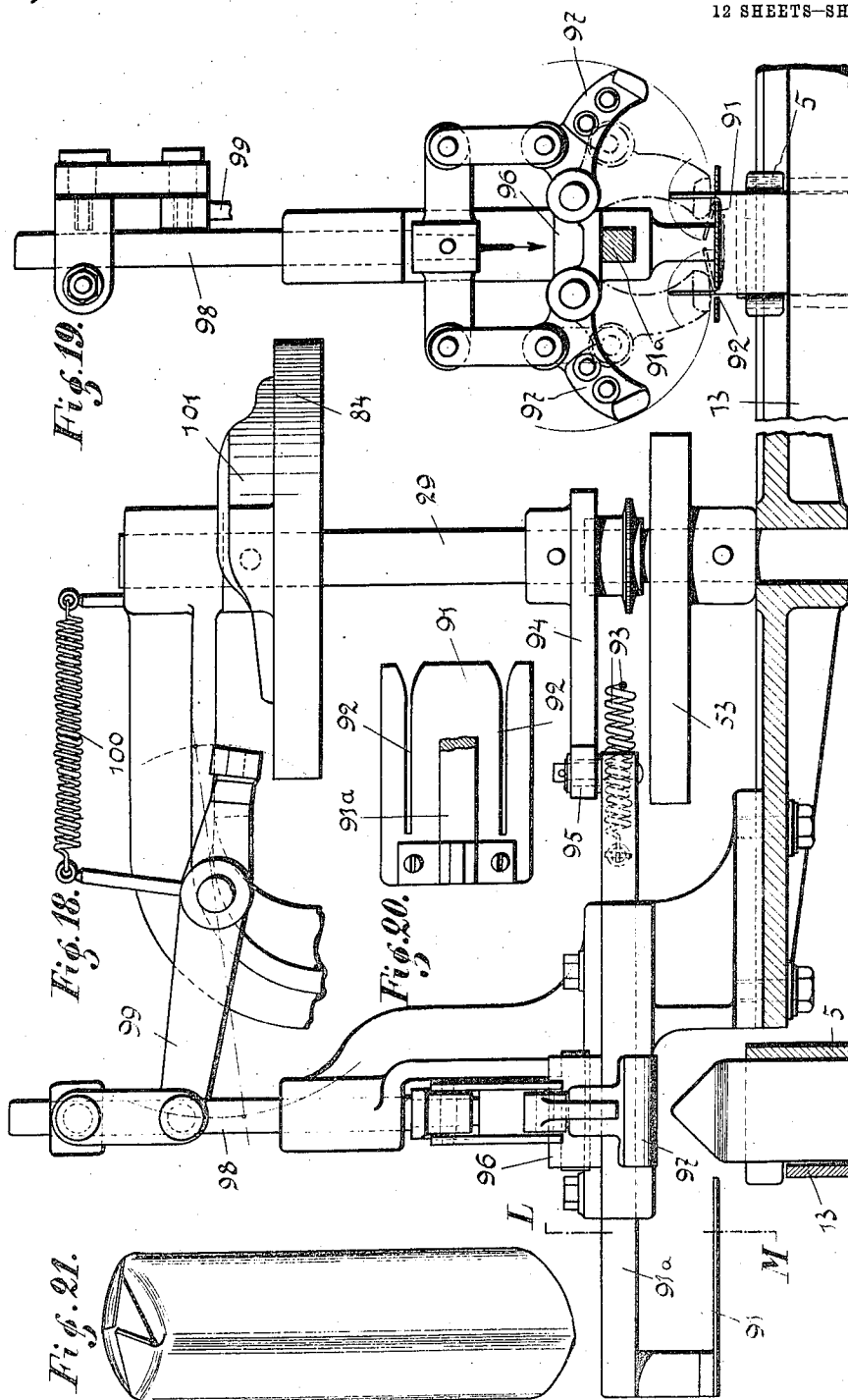
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12 SHEETS—SHEET 11.

981,765.



Witnesses:
Edward Behn.
W. R. Schulz.

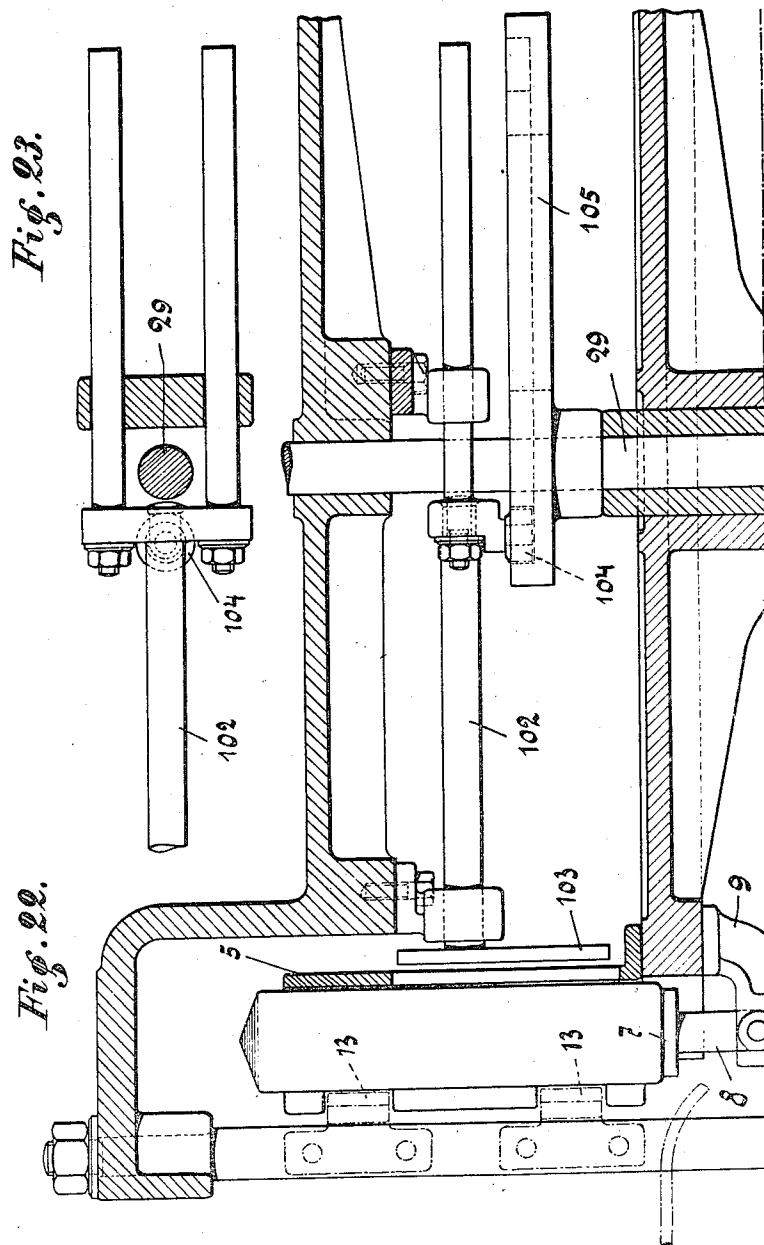
Inventor:
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APPLICATION FILED NOV. 27, 1909.

981,765.

Patented Jan. 17, 1911.

12 SHEETS—SHEET 12.



Witnesses:
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UNITED STATES PATENT OFFICE

EMIL JAGENBERG, OF DUSSELDORF, GERMANY.

MACHINE FOR FILLING AND CLOSING PAPER BAGS.

981,765.

Specification of Letters Patent. Patented Jan. 17, 1911.

Application filed November 27, 1909. Serial No. 530,110.

To all whom it may concern:

Be it known that I, EMIL JAGENBERG, a citizen of the German Empire, residing at Dusseldorf, Germany, have invented a new and Improved Machine for Filling and Closing Paper Bags, of which the following is a specification.

This invention relates to a machine of novel construction for filling and closing paper bags, small sacks, paper boxes and similar articles. The machine comprises a rotary carrier that presents the bag in succession to the various filling and closing means. These means shake the filled bag to effect a leveling and uniform distribution of the charge, insert a card or similar article therein, adjust the bag to a predetermined height, and then fold down successively the front, back and side flaps. In this way the bag is evenly filled and tightly closed in a quick and reliable manner.

In the accompanying drawing: Figure 1 is a right hand side elevation of a machine embodying my invention; Fig. 2 a left-hand side elevation thereof; Fig. 3 a plan; Fig. 4 a section on line A—B, Fig. 2; Fig. 5 a side view of the bag shaking means; Fig. 6 a plan thereof; Fig. 7 a vertical section of the card charging mechanism; Fig. 8 a plan thereof; Fig. 9 a longitudinal section of the bag leveling device; Fig. 10 a plan thereof; Fig. 11 a side view of the front flap folder and pasting mechanism; Fig. 12 a similar view showing the parts in a different position; Fig. 13 a perspective view of the bag after being subjected to the front flap folding and pasting mechanism; Fig. 14 a plan of such mechanism; Fig. 15 a side view of the back flap folder; Fig. 16 a perspective view of the bag after being subjected to the back flap folder; Fig. 17 a sectional plan of the back flap folder; Fig. 18 a side view of the side flap folder; Fig. 19 a front view thereof; Fig. 20 a plan of the folding plate; Fig. 21 a perspective view of the folded bag complete; Fig. 22 a section through the stripper mechanism, and Fig. 23 a detail thereof.

Upon a power shaft 2 is mounted a worm 3 having a steep pitch for about one third of its length. The worm operates a rotary carrier 1 adapted to present the bag to the successive shaking, leveling, closing and other devices, and provided with a number of work holders 5, and a corresponding number of rollers 6. These rollers are adapted

to consecutively engage worm 3, by the pitch of which the carrier is advanced a distance sufficient to carry a holder 5 from one of the operating devices to the succeeding device.

Each holder is composed of an upright box open at one side, and of a supporting plate 7. The latter is by rod 8 guided in an arm 9 of head 1, and is influenced by a spring 10 which engages rod 8, and tends to raise plate 7. Rod 8 is provided with teeth 11 (Fig. 9) engaged by a pawl 12. During part of the rotation of carrier 1, pawl 12 is held out of engagement with rack 11, by a rail 15, that engages an arm 12^a of the pawl (Fig. 5).

The bags to be filled are received by two of the holders at *a* and *b*, and conveyed by the carrier to a suitable manual or automatic filling device located at *c*. During this operation and subsequently thereto, the bags are held in their upright position by rails 13 engaging notches 4, and located in front of the bags.

The bags are shaken at *d*, at which point there is located beneath the holder, a rod 16 having an upper nose or projection 20. Rod 16 is raised by a spring 17, and carries a projection or roller 18, arranged within the path of a disk 19 having a plurality of projections and mounted on shaft 2. Rod 16 passes with its projection 20 over a projection 21 of rod 8 pertaining to that holder 5 which has been moved toward *c*. When carrier 1 is arrested, disk 19 will by its projections and the roller 18 draw down rod 16 at short intervals against action of spring 17. Rod 16 will in turn draw down rod 8, which is likewise raised by its spring after each depression. In this way plate 7 receives a shaking movement, which is imparted to the bag supported thereon, so that the contents of the latter are uniformly distributed over the entire width of the bag.

After the shaking operation, the bag is by the carrier advanced to point *e*, where a card, folded directions for use, or similar device is introduced into the bag. The cards are contained in an obliquely arranged open magazine 23 (Fig. 7) having a lower egress slit 24. In front of this slit is provided an adjustable plate 25, that may be set according to the thickness of the cards, and permits but a single card to pass at a time out of the magazine. The card ejecting means comprise a rotary arm 26 mounted at right

angles to a shaft 27 which is by bevel gear driven from shaft 28, said shaft being in turn driven from shaft 29. The latter is driven from shaft 2, transmission 30, countershaft 31, and bevel gear wheels 32. Arm 26 encompasses a movable spring-influenced pin 33, carrying at one end a nut 34, by which the pin can be drawn to a greater or less extent into the arm. At its other end the pin is hook-shaped or pointed and provided with laterally arranged rollers 35. During the rotation of the arm, the beak of the pin will enter a slit of the magazine bottom to grasp and withdraw the lowermost card. Rollers 35 will during this operation engage the magazine bottom, so that its beak will move in parallelism therewith. The hook transmits the card to a hopper from which it falls into the bag held open by a spreader. As shown the spreader is composed of four arms 37 which are pivoted to a cross piece 38, vertically adjustable on shaft 39. This shaft has a roller 40 engaging eccentric disk 41 of shaft 31 (Fig. 1), so that shaft 39 will descend by gravity when the narrow side of the disk is presented to the roller. The spreader arms are provided with tappets 45, that engage stops 44 so that the holders are turned or spread in a horizontal direction shortly preceding the end of the stroke. After the card has been introduced into the bag, shaft 39 together with arms 37 is again raised by disk 41.

In order to tightly close the charged bag, whether the same be filled to a greater or less extent, it is subjected to the plunger mechanism located at the point *f*. Here the bag is so set that the surface of its contents is placed at a specific elevation. Above the bag is located a plunger 46 connected to a rod 47. To this rod is pivoted a lever 48, having a roller that engages a disk fast on shaft 31, whereby the plunger is reciprocated. The plunger enters the bag and bears upon the charge contained therein, so that it will force the bag against the action of spring-influenced bottom plate 7, down to a predetermined elevation. During the subsequent ascent of the plunger, the bottom plate is by pawl 12 held against ascent so that it will remain at the level to which it has been set by the plunger.

At *g* is located the mechanism for folding the bag into the form shown in Fig. 13, and to cover its back flap with an adhesive. The folding means comprise a slide 51, provided with a pair of rotatable jaws 52, and a pair of fixed jaws 54. The forward end of slide 51 engages by a roller, an eccentric disk 53 of shaft 29. Jaws 54 are provided with a bearing 55, in which is journaled a spindle 56. This spindle has lower tappets 57 engaging corresponding grooves of jaws 52, and an upper crank arm 58. To the latter is fulcrumed a rod 60 carrying stop 59 and

guided in an upright 61 of the machine frame. Slide 51 is advanced by eccentric 53 during which movement jaws 52 will fold down that portion of the bag which extends forwardly above its charge, while at the same time jaws 54 will be moved sidewise along such protruding bag end. During this advance of the slide, rod 60 will by stop 59 strike post 61, whereby spindle 56 is turned, to spread jaws 52 by tappets 57. The jaws will thus spread the side flaps and press the same against jaws 54, so that the superposed layers are laid tightly against each other more especially at the folds.

Above the bag is mounted a brush or similar device 64 pivoted to rod 65, which is in turn by a cross arm rigidly connected to rod 66. The latter is at its lower end pivoted to a lever 67 which is actuated by an eccentric of shaft 31. The brush carrying arm is provided with a pair of tappets 69, 70, of which tappet 69 is adapted to be depressed by a spring 71. To tappet 70 is pivoted a pawl 72 which is spring-pressed into a notch of rod 65. The brush normally occupies the position shown in dotted lines Fig. 11. If slide 51 is advanced, brush 64 is raised by lever 67 to engage an adhesive transmitting roller 73. This roller is coated with the adhesive by a roller 75, operated by belt 74, and dipping into a paste pot. During the further upward movement of the brush, an arm 76 of pawl 72 will strike an abutment 77, that raises the pawl out of engagement with rod 65. The brush will now by spring 71 turn into the position shown in Fig. 12, so that it clears roller 73 during its descent.

Directly prior to the end of its downstroke, during which jaws 52, 54 will again recede, brush 64 will by arm 69 strike an abutment 78, whereby it is swung into the position shown in full lines Fig. 11. In this position the brush is pressed against the rear protruding portion of the bag, which is supported by a suitable brace, so that during this movement and during the subsequent short ascent of the brush, the inner face of the bag flap is covered with the adhesive.

At *h* the rear flap of the bag is folded as indicated in Fig. 16. In the plane of the top of the bag-charge is arranged a horizontally slidable folder 80. The folder has a wedge shaped forward end provided with an inclined bottom, and is attached by a rod 81, and arm 82 to a slotted lever 83. This lever encompasses shaft 29 and engages with a roller, a cam 84 of said shaft. Upon rotation of cam 84, folder 80 is moved to the right, so as to first engage the center of the back bag flaps near its top, and gradually press such flap downward and toward both sides.

Above the bag there are hung on a rod 85, a pair of jaws 86 having tappets 89. This

rod is by a cross piece connected to a rod 87 to which is pivoted a lever 88 operated by an eccentric of shaft 31. When folder 80 is advanced, jaws 86 are moved downwardly and outwardly over the side flaps of the bag, so as to hold them in position during the folding operation. When the jaws have approximately reached their lowermost position, tappets 89 will engage adjustable stops 90, whereby the jaws are so turned, that they will be tightly pressed against the side flaps, and press such flaps against folder 80, so that the superposed paper sheets will be forced tightly against each other.

At *i* the two side flaps of the bags are folded down upon the turned down front and rear flaps. To the machine frame is secured by rod 91^a, a horizontally movable folding plate or slide 91 arranged substantially on a level with the bag-charge. Plate 91 is provided with a pair of slits 92, the distance between which corresponds to the distance between the side flaps of the bag.

Rod 91^a has a roller 95, pressed by spring 93 against cam 94 of shaft 29. By these means plate 91 is moved toward the right, to be projected over the folded front and rear flaps, while the side flaps are received by slits 92. Above the bag is located a cross arm 96 to which are pivoted a pair of claws 97 that are linked to a vertically movable rod 98. This rod is in turn linked to a lever 99 that carries a roller and is influenced by a spring 100. The roller engages a cam surface 101 of disk 84, by which lever 99 is so turned when plate 91 is projected over the bag, that claws 97 are swung into the position indicated by dotted lines Fig. 19, and fold the lateral bag-flaps upon plate 91.

After the claws and the folding plate have receded, the bag is moved to position *k* where it is ejected from the holder and delivered to a chute or similar device. The ejecting of the bag is effected by means of a horizontally movable stripper 103 guided by a rod 102. This rod has a roller 104 engaging cam 105 of shaft 29. By this cam, rod 102 is advanced at the proper moment, to move stripper 103 against the bag, and push the same out of holder 5, after which the stripper recedes, and a further movement of the carriers takes place.

I claim:

1. A machine of the character described, comprising a rotative carrier, a plurality of bag holders secured thereto and having vertically movable bottom plates, means for shaking said plates, oscillative spreading arms adapted to engage the bag corners, means for dropping a card into the spread bag, means for vertically setting the bottom plate whereby the top of the charge occupies a predetermined level, means for closing the bag, and means for discharging the closed bag from its holder.

2. A machine of the character described, comprising a rotative carrier, a plurality of bag holders secured thereto and having vertically movable bottom plates, spring-influenced serrated rods depending from said plates, and pawls adapted to engage said rods and maintain the plates in their lowered position.

3. A machine of the character described, comprising a rotative carrier, a plurality of bag holders secured thereto and having vertically movable bottom plates, means for shaking said plates, oscillative spreading arms adapted to engage the bag corners, an inclined card magazine having a slotted base and a card egress opening above said base, a revolving arm below the base, a pointed spring-influenced pin slidable in said arm and adapted to enter the magazine through the base-slot thereby ejecting the bottom card through the egress opening into the spread bag, means for closing the bag, and means for discharging the closed bag from its holder.

4. A machine of the character described, comprising a rotative carrier, a plurality of bag holders secured thereto and having vertically movable bottom plates, means for shaking said plates, oscillative spreading arms adapted to engage the bag corners, an inclined card magazine having a slotted base and a card egress opening above said base, a revolving arm below the base, a pointed spring-influenced pin slidable in said arm and adapted to enter the magazine through the base-slot thereby ejecting the bottom card through the egress opening into the spread bag, a pair of rollers journaled to the pin and adapted to travel along the magazine base, means for closing the bag, and means for discharging the closed bag from its holder.

5. A machine of the character described, comprising a rotative carrier, a plurality of bag holders secured thereto and having vertically movable bottom plates, a vertically reciprocative rod, a plurality of spreading arms pivoted thereto, tappets on said arms, and stationary stops adapted to be engaged by said tappets upon the descent of the rod, thereby bringing the arms into engagement with the bag corners.

6. A machine of the character described, comprising a rotative carrier, a holder secured thereto and adapted to receive a bag, a slide having a pair of fixed first jaws adapted to straddle the upper part of the bag, a pair of second jaws pivoted to the slide intermediate the first jaws and having communicating recesses, and a pair of tappets engaging said recesses.

7. A machine of the character described, comprising a rotative carrier, a holder secured thereto and adapted to receive a bag, a vertically reciprocative brush pivotally

suspended above the bag, a glue roller, a pawl carried by the brush and adapted to effect an engagement of the brush with said roller during the ascent of the brush, a first
5 abutment adapted to be engaged by said pawl, a tappet on the brush, a spring engaging said tappet and tending to swing the brush away from the glue roller, and a second abutment adapted to be engaged by the
10 tappet.

8. A machine of the character described, comprising a rotative carrier, a holder secured thereto and adapted to receive a bag, a tapering rear bag flap folder adapted to
15 engage said bag, a pair of vertically reciprocative pivoted jaws adapted to straddle the folder, tappets on said jaws, and a stop

adapted to be engaged by the tappets whereby the jaws are pressed toward the folder.

9. A machine of the character described, 20 comprising a carrier, a bag holder secured thereto, and a side bag flap folder arranged in proximity to the carrier, said folder being provided with a horizontally movable
25 slide having a pair of slits adapted to receive the side flaps, and a pair of pivoted claws adapted to be projected over said flaps and to fold the same against said plate.

Signed by me at Barmen, Germany, this 12th day of November 1909.

EMIL JAGENBERG. [L. s.]

Witnesses:

OTTO KÖNIG,
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