

No. 692,789.

Patented Feb. 4, 1902.

W. R. LANDFEAR.
MACHINE FOR PACKING CIGARETTES.

(Application filed Oct. 25, 1900.)

(No Model.)

5 Sheets—Sheet 1.

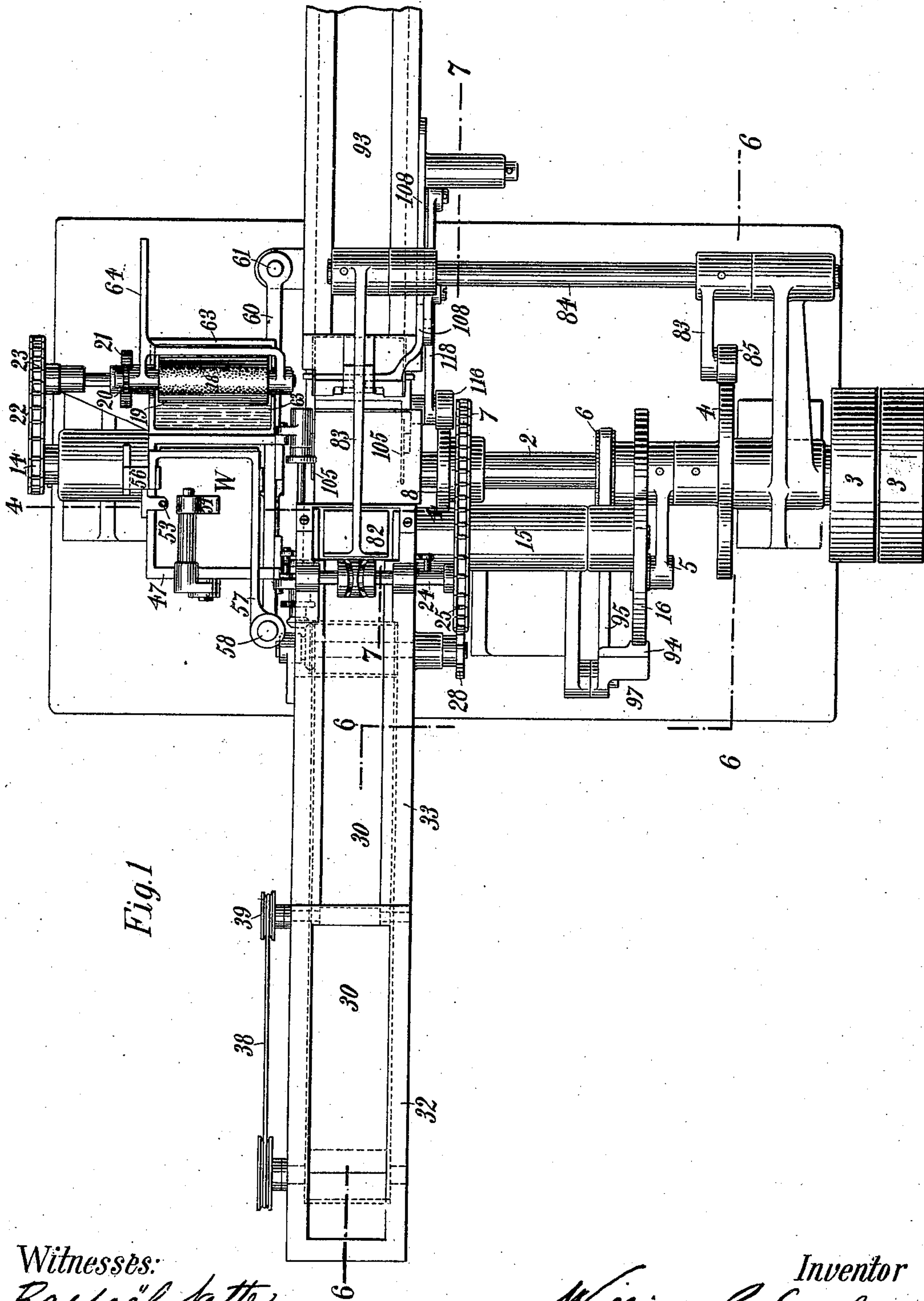


Fig. 1

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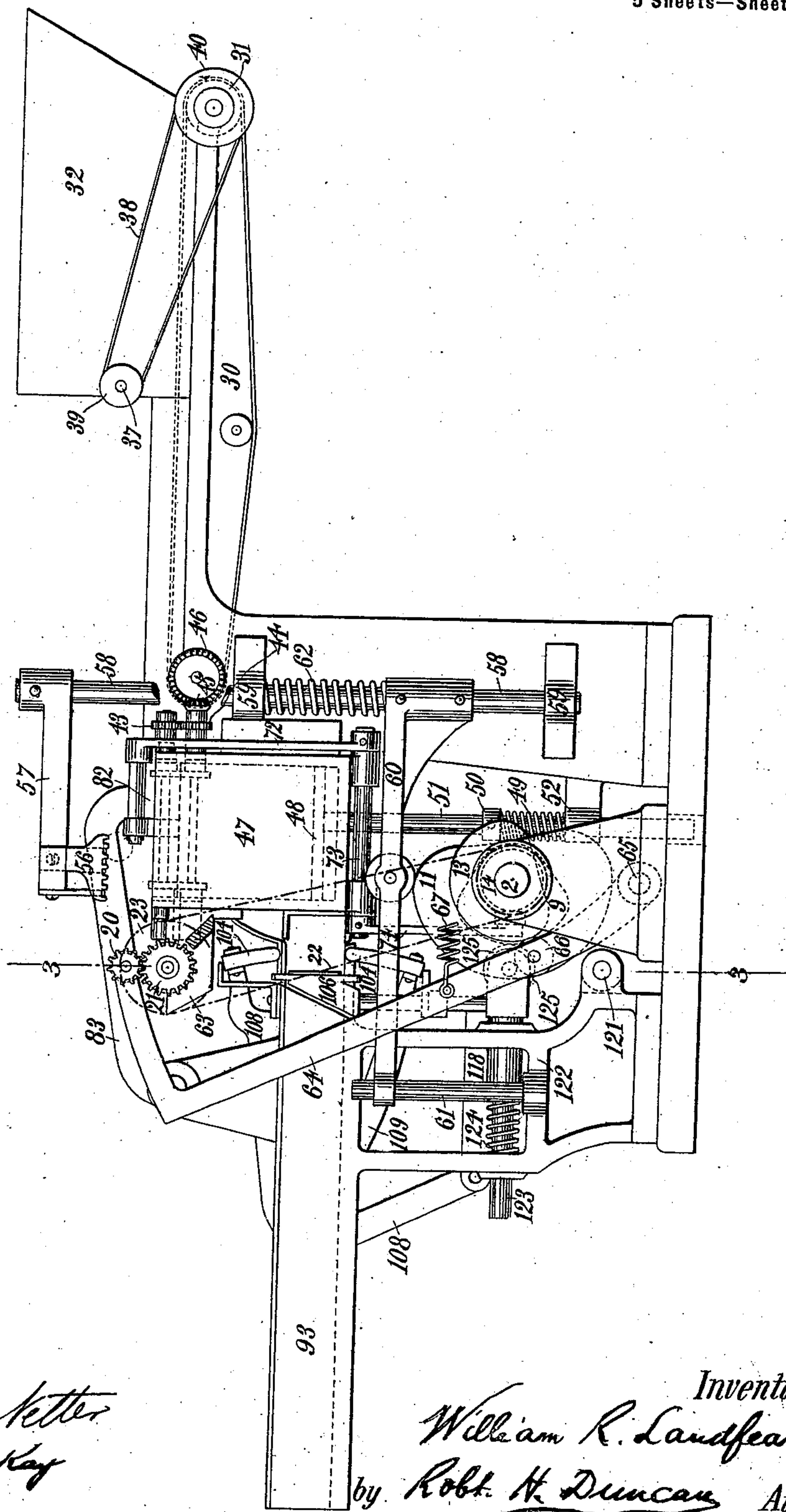
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Fig. 2



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Fig. 3

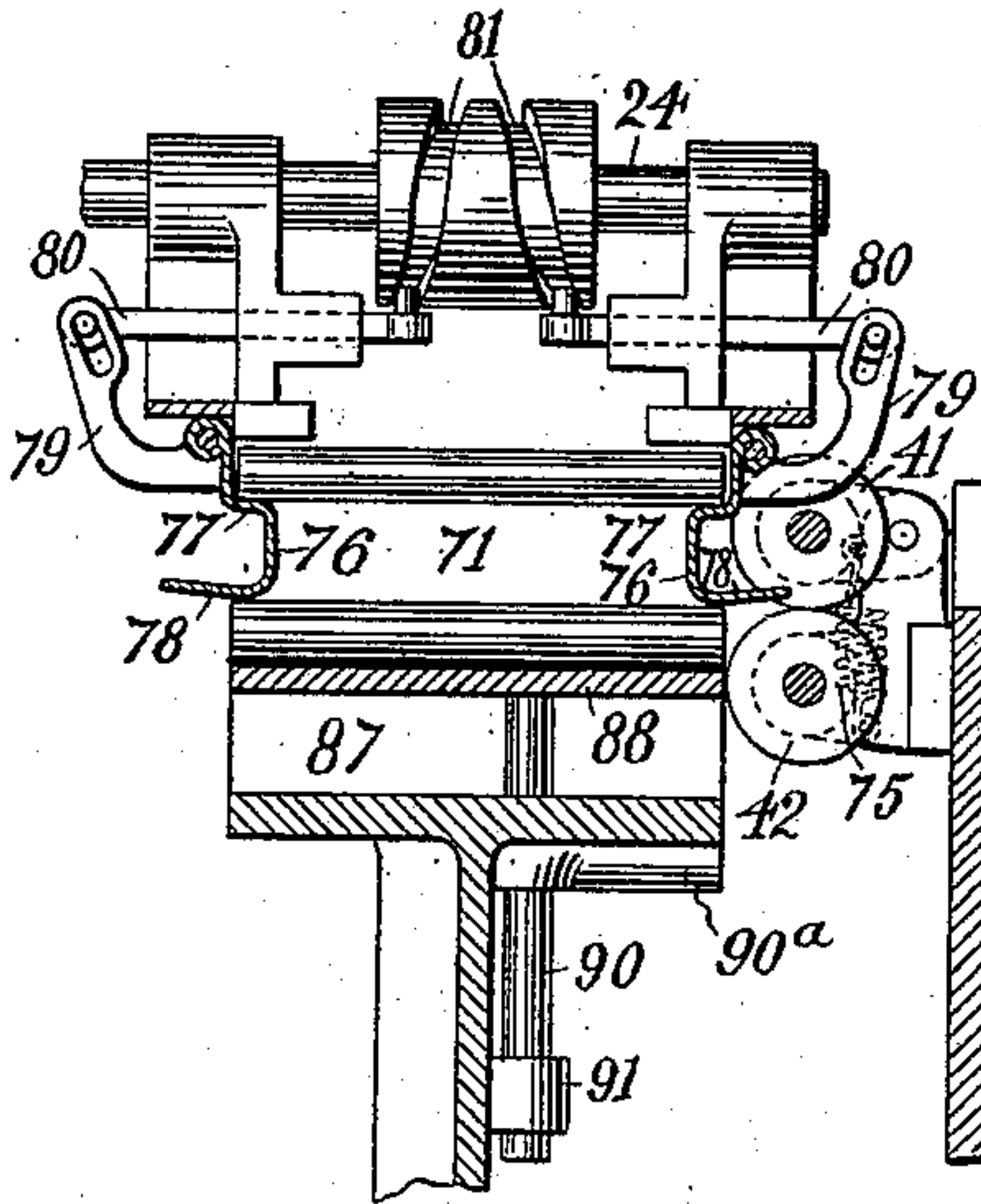
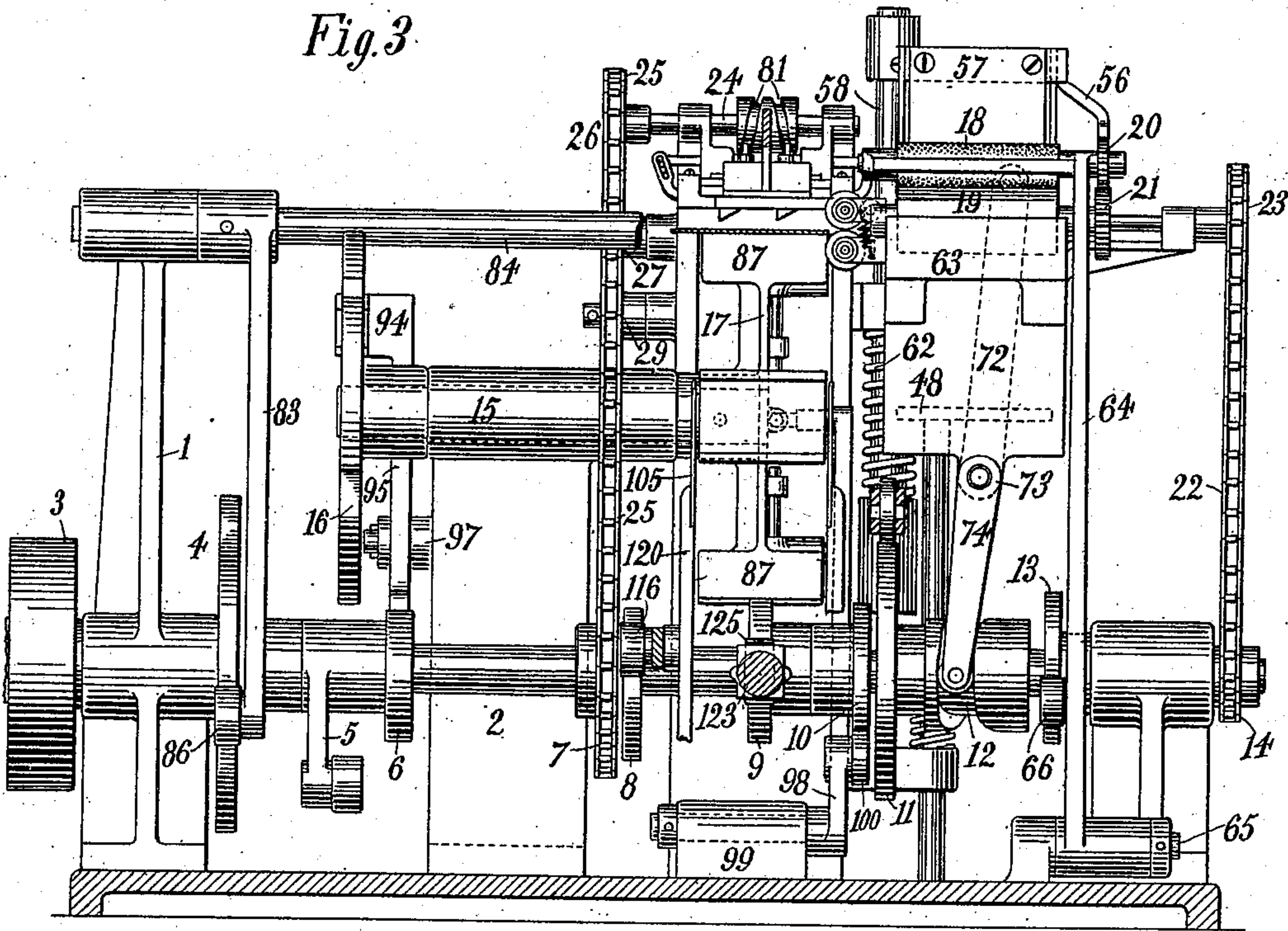


Fig. 4

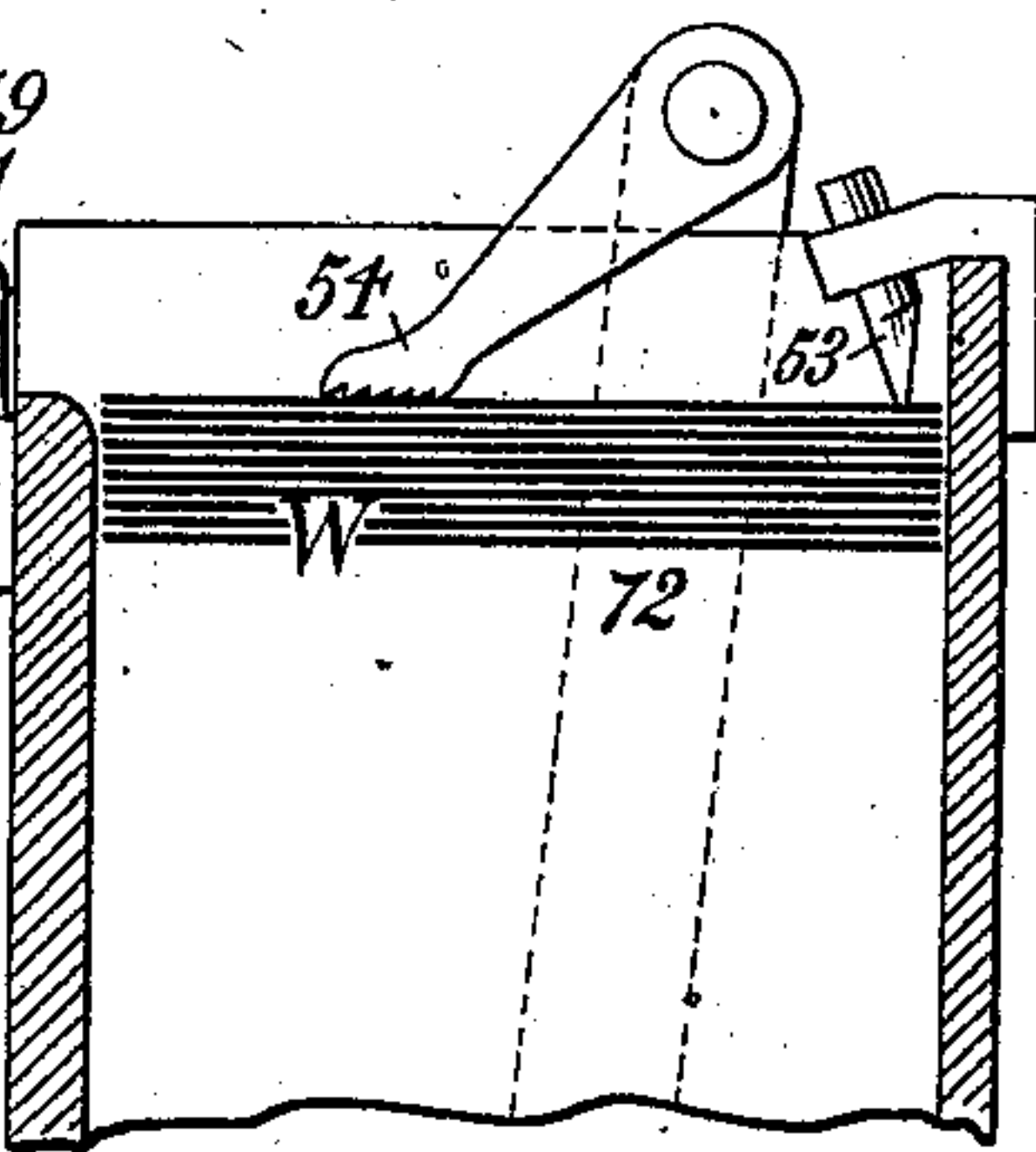
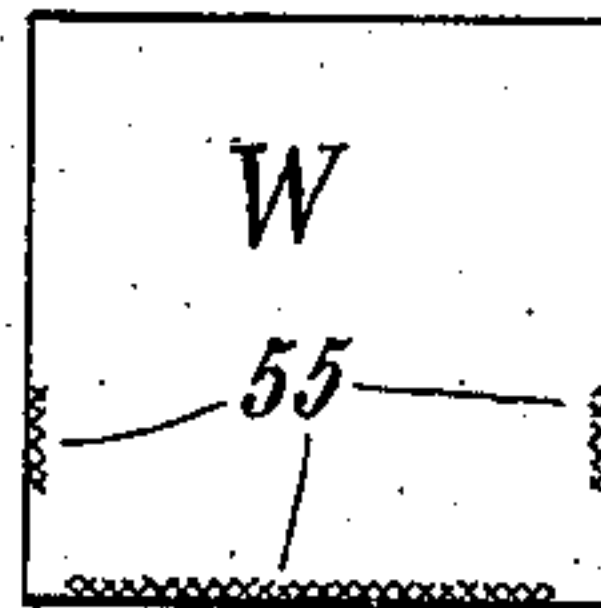


Fig. 5



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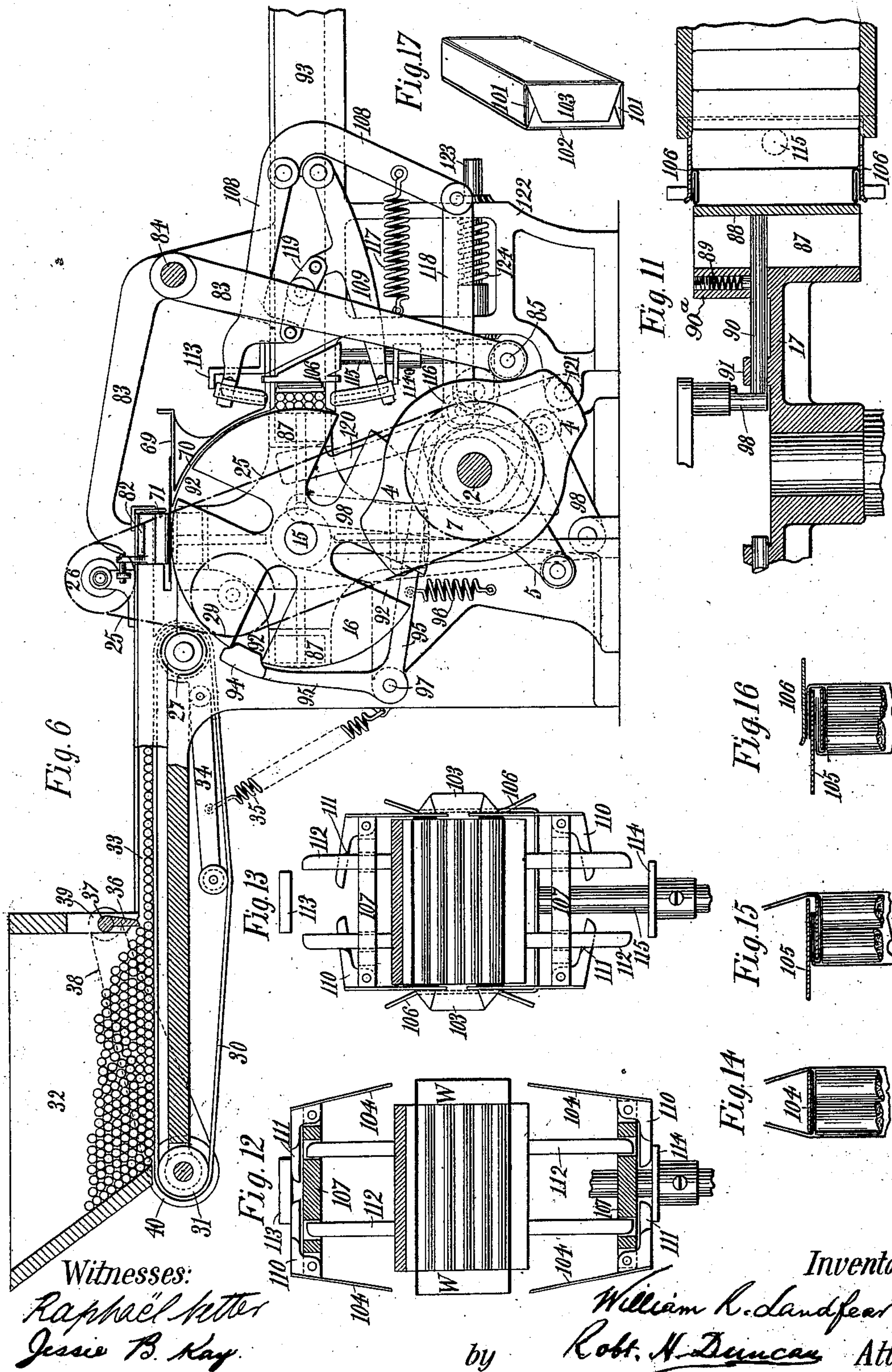
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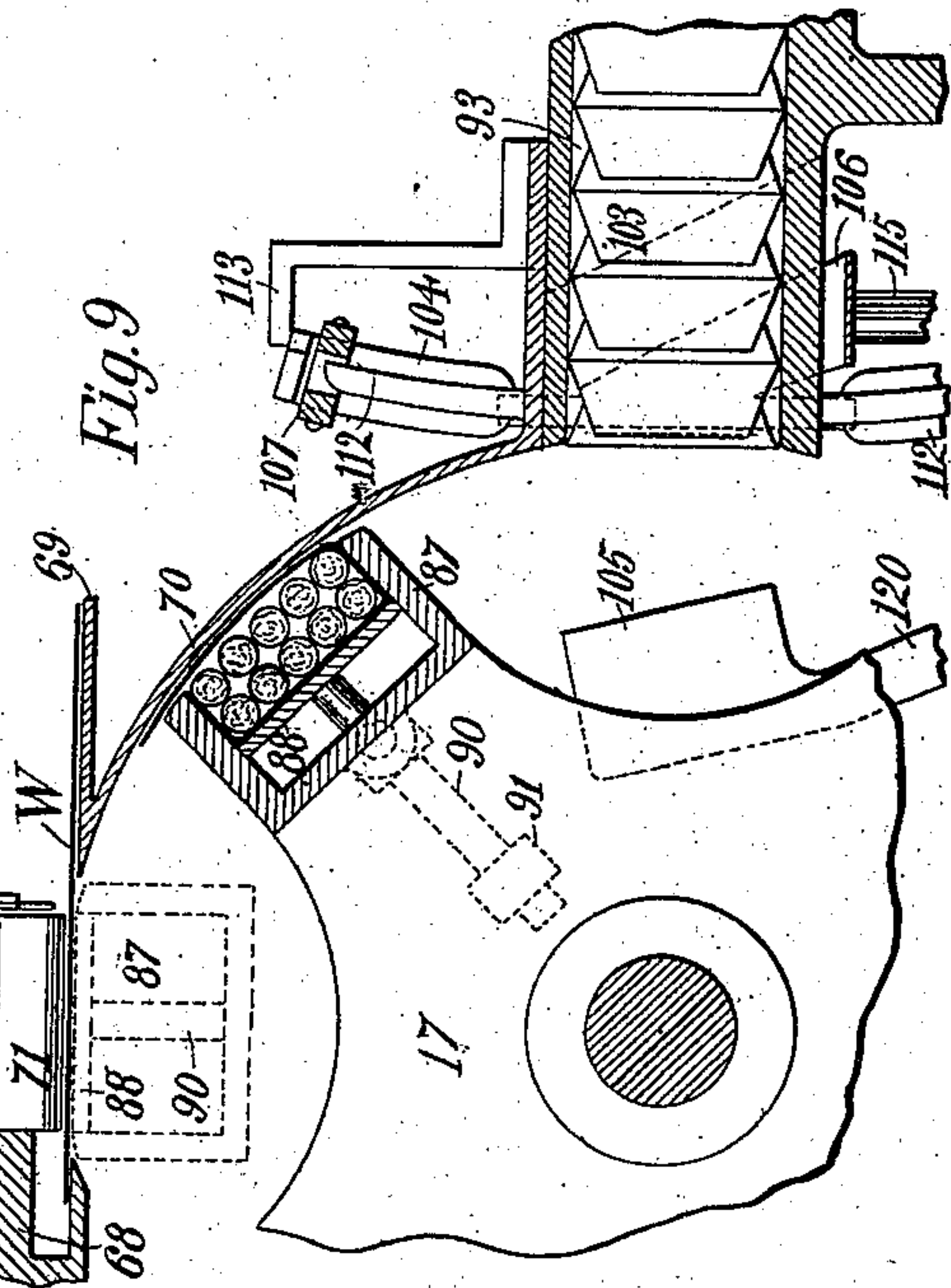
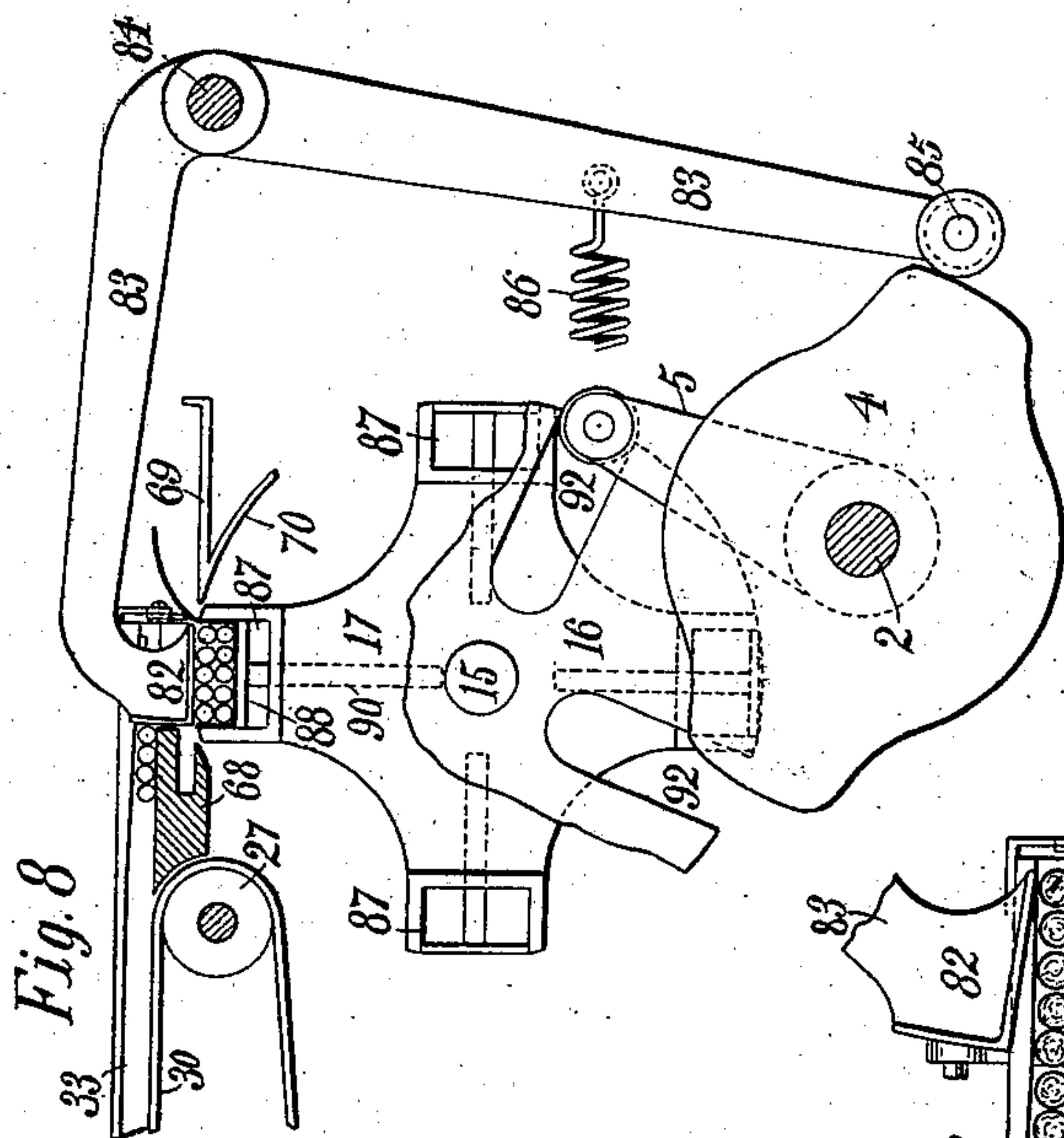
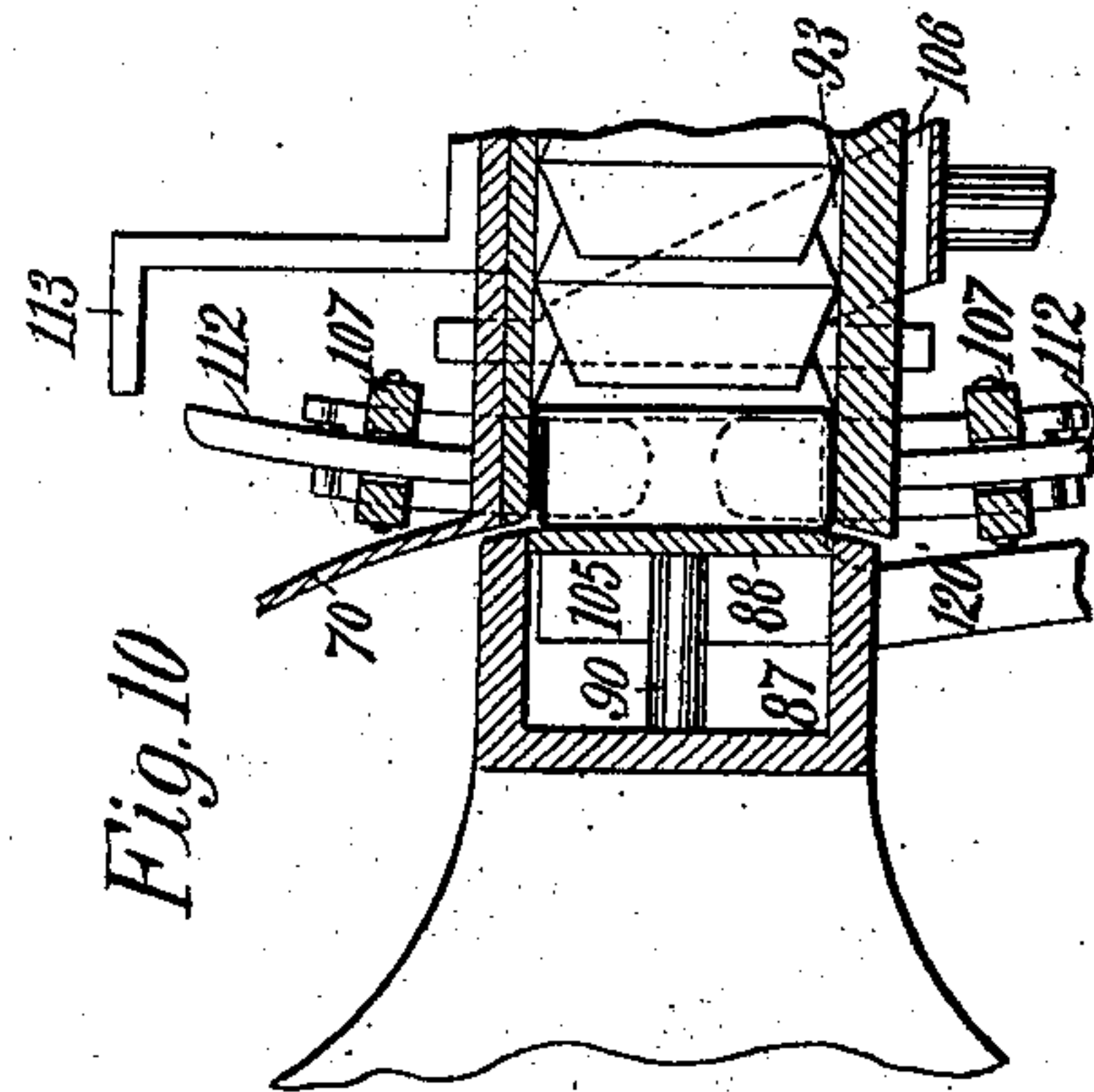
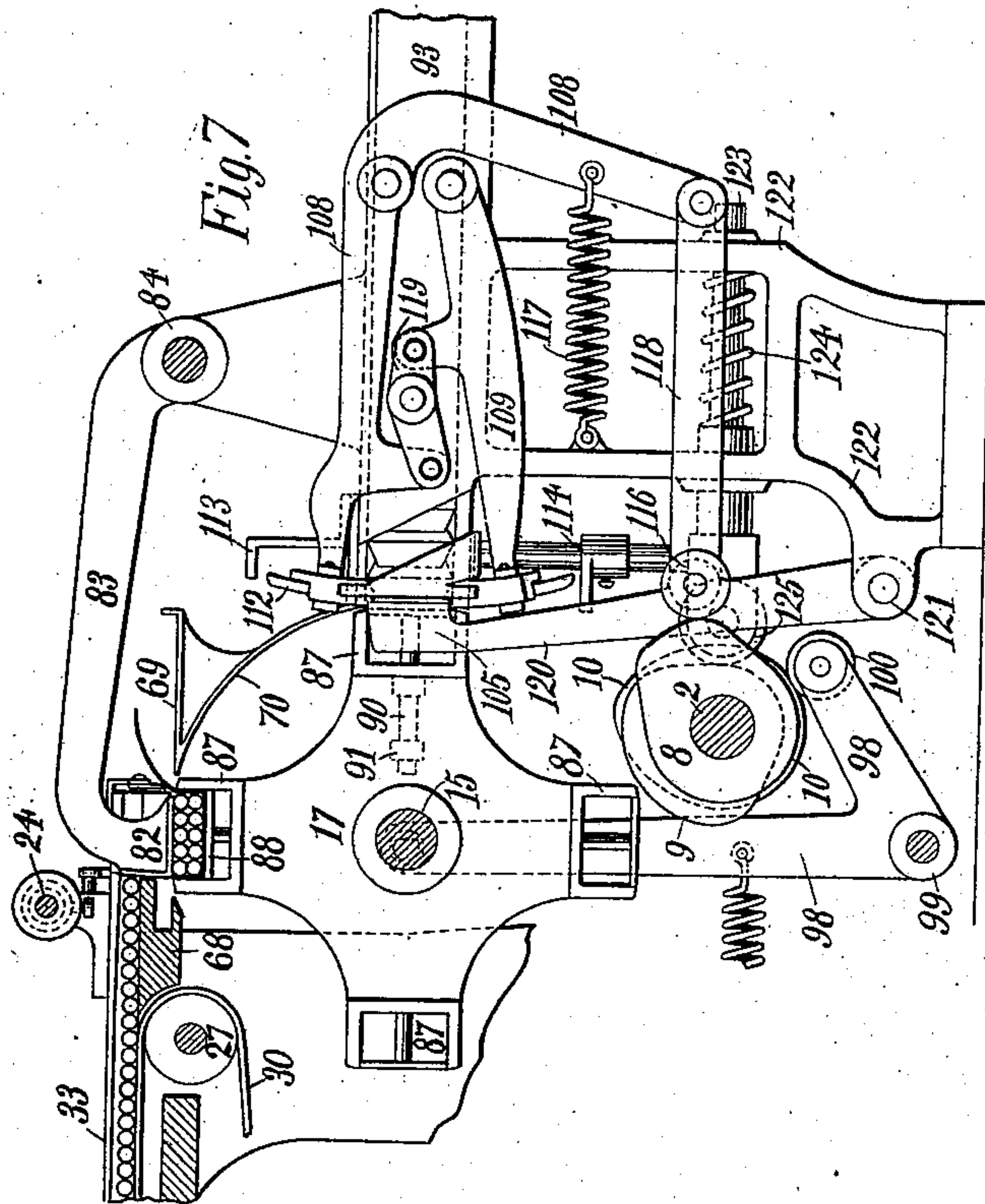
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5 Sheets—Sheet 5.



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UNITED STATES PATENT OFFICE.

WILLIAM R. LANDFEAR, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF TO RICHARD H. WRIGHT, OF NEW YORK, N. Y.

MACHINE FOR PACKING CIGARETTES.

SPECIFICATION forming part of Letters Patent No. 692,789, dated February 4, 1902.

Application filed October 25, 1900. Serial No. 34,278. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. LANDFEAR, a citizen of the United States, residing in the city of New York, borough of Brooklyn, in the county of Kings and State of New York, (whose post-office address is No. 258 Madison street, in said borough of Brooklyn,) have invented a new and useful Improvement in Machines for Packing Cigarettes, of which the following is a specification, reference being had to the accompanying drawings, forming a part of the same.

The present invention relates to machines for separating a definite number of cigarettes from a mass and inclosing them in wrappers to form convenient packages.

The machine as hereinafter described, and shown in the accompanying drawings, includes devices or mechanisms for attaining the following results, viz: applying paste to the package-wrappers and feeding them to the cigarette pockets or molds; separating or counting out from a mass of cigarettes the desired number for a package and pressing them, together with a wrapper, into a mold; folding the opposite side edges of the wrapper into an overlapping pasted seam; folding the ends of the packages into laps and sealing them in place and expelling the packages from the machine.

The invention consists, stated generally, in the construction of various devices and in the combinations and subcombinations of devices by which the machine is adapted to attain the results, or some of them, heretofore enumerated, as hereinafter more fully described, and recited in the claims.

The accompanying drawings (five sheets) illustrate one form of machine embodying the invention, in which—

Figure 1 is a top or plan view of the machine. Fig. 2 is a side elevation as seen from the right of Fig. 1. Fig. 3 is a sectional view along the broken line 3 3 of Fig. 2. Fig. 4 is a short sectional view along the line 4 4 of Fig. 1 to show the wrapper-feeding and cigarette-retaining devices. Fig. 5 is a plan view of a wrapper after the paste has been applied. Fig. 6 is a sectional view along the broken line 6 6 of Fig. 1. Fig. 7 is a sectional view along broken line 7 7 of Fig. 1, showing the

mold-wheel, the wrapper and cigarettes in place in the mold, and end-folding devices. Fig. 8 is a detail view, partly in section, showing the means for rotating the mold-wheel and operating the presser which forces the cigarettes into the mold. Fig. 9 is a detail view, partly in section, showing a mold carrying a wrapper and cigarettes as it is moving from its receiving to its discharging position under the folding-guide and completed packages in the expelling-channel. Fig. 10 is a sectional view of a discharged mold in alinement with the expelling-channel and showing end-folders and finished packages. Fig. 11 is a detail sectional view of a mold with spring-controlled movable bottom, also showing the last end-lap folders. Figs. 12, 13, 14, 15, and 16 are detail sectional views showing the construction and operation of devices for forming the end laps of the packages; and Fig. 17 is a view in perspective of a completed package.

Principal devices for actuating the operative parts of the machine.—In the drawings, 1 represents the frame of the machine, in which is journaled the main shaft 2, driven by pulleys 3 and carrying the following actuating parts, viz: cam 4, star-wheel-driving arm 5, star-wheel-locking cam 6, sprocket-wheel 7, end-package-folding cams 8 and 9, cam 10 for discharging packages from molds, cam 11 for raising the paste-applying devices, barrel-cam 12 for pushing the wrappers into feed-rollers, cam 13 for operating the paste-applying roller, and sprocket-wheel 14, whose connections with the various operative devices will be hereinafter more fully described. A short shaft 15, journaled in the frame above the main shaft, carries upon one of its ends a star-wheel 16, so arranged relatively to the arm 5 on the main shaft that it and its shaft, as well as the mold-wheel 17, fixed to the opposite end of the shaft, are intermittently rotated, as hereinafter more fully explained. The paste-rolls 18 and 19 are connected by gears 20 and 21, and roll 19 is rotated by a chain belt 22 passing over sprocket-wheel 23 on shaft of roll 19 and over sprocket-wheel 14 on the end of main shaft 2. Shaft 24, carrying a double-barrel cam on the top of the machine, is rotated by chain belt 25

passing over sprocket-wheel 26 on one end of shaft 24 and over sprocket-wheel 7 on the main shaft. This same chain belt 25 also rotates roller 27 through its engagement with a sprocket-wheel 28 on the shaft of roller 27, the desired engagement being made by passing the chain over guiding-wheel 29, journaled on a stud secured to the frame of the machine. The roller 27 drives an endless apron or belt 30, which passes over the roller 27 and a rear roller 31 and forms the bottom of the cigarette hopper or receptacle 32 and of its trough-like extension 33, the desired tension being given to the belt by a roller on arm 34, pivoted to the frame at one of its ends and controlled by a contractile spring 35. At the forward end of the hopper is located a rotating beater or sweeper 36, attached to shaft 37, which is rotated by belt 38 passing over pulley 39 on shaft 37 and pulley 40 on shaft of roller 31. The rollers 41 and 42 for feeding the wrappers to the molds are connected by gears 43 and 44 and are rotated by a bevel-gear 45 on the shaft of roller 44, meshing with a bevel-gear 46 on the shaft of driven roller 27.

Devices for applying paste to the wrappers and feeding them to the cigarette-molds.—The package-wrappers W are placed in a receptacle 47 and rest upon a vertically-movable bottom or platform 48, whose upward movement is controlled by a spiral expansion-spring 49, interposed between a boss 50, fixed to a downwardly-projecting rod 51, attached to the platform and the bracket-eye 52, through which the lower end of the rod is free to pass. This spring constantly forces the platform and the pile of wrappers thereon upward against a fixed blade 53, located at the rear of the pile, with sufficient force to cause the point of the blade to pierce two or more of the wrapper-sheets, and also against the roughened foot of the pusher 54, the point of the blade and the foot of the pusher being located in substantially the same plane with the bite of the feed-rolls 41 and 42 and the top of the mold when the latter is in its cigarette-receiving position. Lines of paste 55 (see Fig. 5) are applied to the edges of each top wrapper of the pile by means of fingers 56, projecting downward from a vertically-movable frame 57, which is attached to a rod or endwise-moving shaft 58, passing freely through bracket-eyes 59, fixed to the frame of the machine. The frame 57 is moved to and held in its upward position by the engagement of cam 11 on the main shaft 2 with arm 60, fixed at one end to the rod 58, while its opposite end slides on a fixed guide-rod 61. An expansion-spring 62, interposed between the attachment of arm 60 to rod 58 and the upper eye 59, operates to force the frame 57 downward as soon as the shape of the cam will permit and bring the paste-applying fingers into contact with the wrapper. Paste is applied to the fingers 56 when they are in their raised position by the following-de-

scribed means, viz.: Paste of the proper consistency is contained in a reservoir 63, mounted on the frame of the machine, in which is a delivery-roll 19 and a taker or applying roll 18, both rotated as heretofore described. The roll 18 is attached to a bent rock-lever 64, pivoted on stud 65, and is rocked by the engagement of cam-roller 66, pivoted to the lever with cam 13 on main shaft 2, and is held in contact with the cam by contractile spring 67, attached to the lever and some fixed point in the machine, the cam 13 being of such shape as to carry roll 18 forward under and in contact with the ends of fingers 56 to apply the requisite quantity of paste thereto and then carry it backward to its intermeshed position with roll 19. The paste-applying ends of the fingers are preferably notched or serrated and are of such extent and so located relatively to the wrapper as to apply a line of paste to one edge of the wrapper to seal the seam of its overlapped side edges and to apply short lines of paste to the opposite edges to seal the final end laps of the package, as shown in Fig. 5.

The wrappers are fed to position over the molds from the top of the pile by the forward movement of the pusher 54, which pushes the forward end of the top wrapper into the bite of the feed-rollers 41 and 42, which feed it onto a level platform made up centrally of the movable bottom of a mold and on one side thereof of a recess in the bridge-piece 68 and on the other side of a plain surface 69, attached to the top of the folding and retaining guide 70, as seen in Fig. 9, thus bringing the wrapper into the proper position over a mold and under an opening 71 in the bottom of trough 33 to receive the desired number of cigarettes for a package and to inclose them in the wrapper by pressing them, with a portion of the wrapper, into the mold and by other operations hereinafter described. The pusher 54 is pivoted to rock-lever 72 on shaft 73 and is rocked forward and backward to the desired extent by its engagement through lever 74 with barrel-cam 12 on main shaft 2. When the pusher acts upon the top wrapper to push it to the feeding-rolls, the blade 53 cuts through the rear edge of the wrapper and releases it, while it holds the lower wrappers of the pile during the forward movement of the top wrapper. The feed-rolls 41 and 42 are suitably journaled in supports attached to the frame of the machine, the support of the lower roll being preferably fixed, while that of the upper roll is pivoted, and the requisite feeding contact between the rolls is secured by a contractile spring 75, attached at its opposite ends to the supports, and the rolls are driven by connections hereinbefore described with the main shaft.

Devices for separating or counting out the desired number of cigarettes for a package from a mass and pressing them into the molds with the wrappers.—The cigarettes are placed by hand or otherwise in a hopper 32, so that their

lengths will coincide with its width, and are fed forward into the trough 33 by the endless belt or apron 30, which forms the bottom on which the cigarettes rest. The height of the trough is such as to permit only a single line or row of cigarettes to pass along it, and to prevent the cigarettes from clogging the trough-entrance and interfering with their constant and uniform feed through the trough a backward-rotating sweeper 36 is arranged to sweep or toss the interposed cigarettes backward and leave the lower layer free to pass into the trough without obstruction. The connections with the main shaft 2, by which the endless belt 30 and the sweeper 36 are actuated, have already been described. At the extreme forward end of the bottom of trough 33 and beyond the belt 30 is an opening 71, whose length is equal to the combined diameters of the number of cigarettes desired for a single layer of the package to be formed, and the cigarettes are fed over this opening by the forward push of the following cigarettes carried by the belt and are temporarily held over the opening by swinging pieces 76, provided with inner flanges 77, which are in line with the bottom of the trough and on which the ends of the cigarettes rest, and outer and lower flanges 78, which operate to hold the layers of cigarettes in proper position after they have been pressed into the molds. These swinging pieces, as clearly shown in Fig. 4, are hinged to fixed points and are connected to bent arms 79, which in turn are connected to bent arms 79, which in turn are connected by cam-rods 80 with double-barrel cam 81 on shaft 24, which is suitably journaled to the frame of the machine and driven by its connection with the main shaft 2, as heretofore described. By the operation of the cam 81 through the connections named the pieces 76 are alternately swung outward to permit a layer of cigarettes to be carried into the mold and then inward to bring the flanges 78 above this layer and the flanges 77 in position to receive the next layer.

It is desirable that the layers of cigarettes should be transferred from the flanges 77 to the wrapper and forced into the mold with great care, so as to maintain their relative regularity, and for this purpose a presser or follower 82 is employed, which is arranged and operated to come down upon each layer as it rests upon the flanges 77 and follow it down upon the wrapper as the end pieces 76 are swung outward and then press the wrapper and layer into the receiving-mold. This presser is the properly-shaped free end of a rock-lever 83, fixed to rock-shaft 84, which is rocked by the engagement of roller 85 on the other arm of lever 83 with cam 4 on main shaft 2, the lever being held in cam contact by a contractile spring 86. This cam is so shaped that each complete rotation thereof will operate through the lever connection to twice lower and raise the presser to the limit of its movement, its downward movement being to the level of the top of the mold, whereby the first

layer will be fully pressed into the mold, and the second layer by its interposition will force the first layer farther into the mold, and by this operation the wrapper will be folded around the edges and one side of the two combined layers of cigarettes, as seen in Fig. 8.

Mold-wheel and its movements—Construction of the molds and means for discharging the partially-formed packages to the end-folding position.—As shown in the drawings, the mold-wheel 17 carries four similar molds 87, each provided with a movable bottom 88, and devices, as hereinafter described, are provided to move each bottom within its mold to and from its mouth and to hold it stationary in whatever position it may be in when the moving devices cease to operate upon it. For the purpose of holding the bottom in any desired position in the mold there is attached to it an inwardly-projecting guide rod or stem 90, which passes through an enlargement or boss 90^a, located below the mold, and this enlargement is provided with a recess or bore in which is secured an expansion-spring 89, as shown in Fig. 11. This spring operates to exert a constant frictional pressure upon the rod 90 sufficient to hold the bottom 88 stationary when not acted upon by the moving devices, so that when the bottom is moved to the mouth of the mold to discharge a package therefrom it will remain in that position till the rotation of the wheel brings the mold to the cigarette receiving or filling position, where the bottom is in place to receive and support the wrapper and the first layer of cigarettes as they are fed upon it, and when they are forced into the mold by the plunger or presser 82 the movable bottom is also moved inward by the same force and by its close contact with the partly-formed package prevents the crumpling of the wrapper and the displacement of the cigarettes, and when the moving force ceases to operate the bottom remains stationary through the frictional bearing upon its rod 90 and supports the package till it is pushed farther inward by the action of the plunger to force another layer of cigarettes into the mold, or, briefly, the movable bottom provides a support for the wrapper and the cigarettes as they are forced from the top to the bottom of the mold and also provides a convenient device when moved in the opposite direction for discharging the package from the mold. The wheel 17 and its driving star-wheel 16 are mounted upon short shaft 15 and are intermittently rotated by the engagement of roller on arm 5 on main shaft 2 with the openings 92 in the star-wheel. The relation of the mold-wheel, the star-wheel, and the driving-arm 5 is such that for each rotation of shaft 2 and arm 5 the mold-wheel will be rotated 90 degrees and one of the molds will rest directly beneath the opening 71, through which the cigarettes are delivered from the trough 33, as heretofore described, while the next-advanced mold will come to rest directly in front of the end-folding and

package-expelling channel 93, hereinafter described.

To provide for the instant stopping of the mold-wheel and locking it in its mold receiving and discharging positions, a dog 94 on the end of rock-lever 95 is arranged to ride on the periphery of the star-wheel 16 and to drop into the openings 92 under the pull of spring 96, attached to the lever and to the frame of the machine, the lever 95 being pivoted to stud 97 and operating to lift the dog 94 from the openings 92 by the engagement of its lower end with cam 6 on main shaft 2. Immediately a mold has received the desired number of cigarettes for a package the rotation of the mold-wheel carries the filled mold under the folding and retaining plate 70, by which the free edge of the wrapper is folded down upon the upper layer of cigarettes and held in position until the mold is brought to its discharging position in front of the channel 93, as seen in Figs. 9 and 10. The partially-formed package is now discharged from its mold into the channel by the outward movement of the bottom 88 of the mold, which is effected by the pushing contact of the end of bent rock-lever 98 against the end of the supporting-rod 90 of the movable bottom, the lever being pivotally fulcrumed in bracket 99 and rocked to the desired extent by the engagement of its cam-roller 100 with cam 10 on main shaft 2, with which it is held in contact by a contractile spring. As the package is pushed into the channel 93 the extreme edge of the wrapper, which carries a line of paste, is folded over the opposite wrapper edge, and the overlapped seam is held and sealed by the pressure exerted thereon as the package is pushed along the channel by the impact of the folding packages.

Devices for forming the end laps of the packages.—When a partially-formed package has been discharged from a mold into the channel 93, the ends of the wrapper project beyond the walls of the channel on either side and are in position to be folded into the desired laps 101, 102, and 103 in the order named, as shown in Fig. 17, to complete the package by the operation of end edge folders 104 and end side folders 105 and 106. There are two pairs of folders 104, one pair arranged to operate on each end of the package to form four laps 101 simultaneously, and the folders of each pair are pivoted to a connecting-bar 107, which bars are mounted upon the ends of swinging levers 108 and 109 in such manner that when the free ends of the levers are moved toward each other the four folders will be brought in contact with the end edges of the wrapper and form two laps 101 on each end of the package. Each folder 104 is provided with a tailpiece 110, which is pivoted to and overhangs its connecting-bar, and in these tailpieces are formed cam-shaped openings or slots 111, with which the fingers 112, fixed to the upper and lower walls of channel 93, are brought in contact as the con-

necting-bars and the pairs of folders approach each other, whereby the folders of each pair are gradually swung toward each other and are given a combined lateral and rectilineal movement in forming the laps. The cam-fingers 112 pass through openings in the connecting-bars and are curved to conform to movement of the bars. The folders 104 of the upper pair are swung outwardly by contact of their tailpieces with a flange 113, fixed to the upper wall of the channel 93, while the folders of the lower pair are similarly affected by contact with a flange 114 on rod 115, which carries the folders 106. Lever 108, carrying the upper pair of folders, is pivoted to wall of channel 93 and is actuated by the engagement of a cam-roller 116 on the free end of arm 118 with cam 8 on main shaft 2, to which it is held by contractile spring 117, this arm being pivotally jointed to the lower end of lever 108. Lever 109, carrying the lower pair of folders, is operated by its link connection with lever 108, so that as lever 108 is moved downward or upward lever 109 will be moved to the same extent, but in the opposite direction. To accomplish this, lever 109 is pivoted to the wall of the channel, and the two levers are connected by rigid link 119, centrally pivoted to the wall of the channel and pivoted at each of its ends to projections on the respective levers. The pivot-holes in the ends of the link are slightly elongated to prevent binding. The pair of end side folders 105 are arranged to operate on each end of the package simultaneously, and for this purpose they are mounted upon swinging connected arms 120, pivoted at 121 to support 122 on the frame of the machine, and also connected to cam-roller 116, which engages with cam 8, as heretofore described, by which arrangement, connections, and relative distance of folders 104 and 105 from the package the folders 105 operate to form laps slightly after folders 104 form laps 101, the cam 8 being of such shape that these folders are held upon the folded laps until the last end side laps are made by folders 106, when the folders are withdrawn in the order of their advance. The folders 106, which form the last end laps, consist of the two upright parts of a saddle-piece which surrounds three sides of the channel 93 and is fixed to its carrying-rod 115, which is attached at its lower end to an endwise-moving shaft 123, journaled in support 122 and is moved inwardly or toward the mouth of the channel 93 to form laps 103 by an expansion-spring 124 and is moved in the opposite direction by the engagement of cam-roller 125 on shaft 123 with cam 9 on main shaft 2. As the saddle-piece is moved inwardly the front edges of its upright parts or the folders 106 come in contact with the wrapper upon either end of the package and form the last laps 103 and are held in their folding position till the folders 104 and 105 are withdrawn, whereby laps 103, to which paste has been applied, are brought

into contact with laps 102, and the folders 106 move toward the exit of the channel with the package as another package is pushed into the mouth of the channel. The line or
 5 row of completed packages is intermittently pushed along the channel to its exit end by the communicated pressure of each package as it is pushed into the mouth of the channel, and the channel is of such width relatively
 10 to the length of the packages that the end laps are by their contact with the walls of the channel pressed toward each other with the effect to securely seal the laps 103 in place. In order to hold in place the end laps of the
 15 last completed packages while the folders 106 move inwardly to form the laps of the next package, the rear edges of the folders 106 and the adjacent edge walls of the channel are cut away diagonally, so that either the inner
 20 surface of the folders or the inner surface of the walls of the channel will be in contact with the formed laps of all of the packages and hold them in place, as seen in Figs. 2, 6, 7, 9, and 10, which would not be the case were
 25 the contiguous edges of the folders and walls of the channel vertical.

The operation of the several devices and groups of devices or mechanisms which make up the operative parts of the machine has
 30 been so fully pointed out in connection with their construction and combination with other parts that it is considered unnecessary to further describe the operation of the machine as a whole.

35 It is evident that the various operative parts are so timed through their connections with the means by which they are actuated that they will perform their work in proper succession and at the proper times, so as not
 40 to interfere with each other; also, that the several cams and other actuating parts are so shaped and arranged as to give the devices operated thereby the movements requisite to perform the work heretofore fully pointed
 45 out. Finally, it is observed that it is not intended to limit the invention to a machine of the exact construction shown in the drawings and described therefrom or to a machine containing all the devices and combinations or
 50 equivalents therefor, as shown and described, inasmuch as it is evident that a machine may in many particulars be of radically different construction and yet in other particulars contain the principle of this invention and the
 55 devices and combinations or some of them hereinafter claimed.

What is claimed as new is—

1. The combination, substantially as set forth, in a machine for forming cigarette-pack-
 60 ages, of a mold adapted to receive a wrapper and several superposed layers of cigarettes, means for delivering the wrapper over the mouth of the mold, means for delivering the
 several layers of cigarettes successively over
 65 the wrapper, devices for forcing the first layer of cigarettes and the wrapper and each succeeding layer of cigarettes successively and

to the same extent into the mold and devices for retaining the wrapper and the first layer of cigarettes in the position in the mold to
 70 which they are forced either directly by the forcing devices or by the pressure of a superposed layer, whereby the wrapper and the several layers of cigarettes are gradually introduced to their final position in the mold. 75

2. The combination, substantially as set forth, in a machine for forming cigarette-pack-
 ages, with a mold, means for delivering a wrapper and several layers of cigarettes to
 80 such mold and means for introducing into the mold a wrapper and successive layers of cigarettes, of a movable mold-bottom and devices for holding such bottom in the position
 to which it is forced by the introduction of
 85 each successive layer of cigarettes, for the purpose set forth.

3. The combination, substantially as set forth, in a machine for forming cigarette-pack-
 ages, of a mold adapted to receive a wrapper and several layers of superposed cigarettes
 90 and provided with a movable bottom whose normal position is at the top of the mold, a plunger, and means for reciprocating the plunger and limiting its movement to the top
 of the mold, means for holding the mold in
 95 registration with the plunger while the latter makes several reciprocations, devices for delivering the wrapper over the mouth of the mold, devices for delivering the several layers
 of cigarettes for a package successively be-
 100 tween the mouth of the mold and the plunger and devices for holding the bottom of the mold stationary therein when the plunger is withdrawn, whereby one layer of cigarettes
 with the wrapper is pressed into the mold and
 105 supported by the movable bottom until a succeeding layer is pressed upon it to force it farther into the mold and so on until the mold is filled with the desired number of cigarette
 layers. 110

4. The combination substantially as set forth, in a machine for forming cigarette-pack-
 ages, with a mold for receiving layers of cigarettes and means for pressing the layers into
 115 the mold, of end pieces arranged and operating to be brought over the ends of the cigarettes and hold them temporarily in place in the mold.

5. The combination substantially as set forth, in a machine for forming cigarette-pack-
 120 ages, with a mold for receiving layers of cigarettes for a package, means for feeding the desired number of cigarettes for a package layer over the mold and means for pressing
 the layers into the mold, of end swinging
 125 pieces, as 76, provided with inwardly-projecting flanges, as 77, on which the ends of the cigarettes of a layer rest, and outwardly-projecting flanges, as 78, to hold the cigarettes of
 a layer in place when pressed into the mold. 130

6. The combination, substantially as set forth, in a machine for forming cigarette-pack-
 ages, of pivoted end pieces, as 76, arms, as
 79, connecting-rods, as 80, and a double-bar-

reled rotary cam, as 81, whereby the pieces 76 are positively swung outwardly and inwardly as described.

7. The combination, in a package-mold, of
5 a movable bottom, as 88, a guide-rod as 90, attached to such bottom, a boss, as 90^a, through which the rod passes, and a spring, as 89, located in such boss and arranged to bear against the rod, substantially as and for the
10 purpose set forth.

8. The combination substantially as set forth, in a machine for forming cigarette-packages, of a pair of end edge folders, as 104, carried upon the end of swinging arm, as 108, a
15 cross-bar, as 107, to which the folders are pivoted, tailpieces, as 110, provided with cams, as 111, and fingers, as 112, attached to some fixed point and passing through the cross-bar and operating upon the folders to give them
20 a lateral movement as they operate to form laps 101.

9. The combination substantially as set

forth, in a machine for forming cigarette-packages, with a channel, as 93, of end side folders, as 106, constructed and arranged to op- 25
erate in substantially the same line with the edge walls of the channel, means for moving the folders toward the entrance of the channel to form final laps, as 103, and means for moving them back to their normal position 30
simultaneously with the advance of the package and in contact with the formed laps.

10. The combination substantially as set forth, in a cigarette-packing machine, with a folding and expelling channel, as 93, having 35
the ends of its walls adjacent its mouth diagonal to the direction of the channel, of end side folders, as 106, having corresponding diagonal edges, substantially as and for the purpose set forth.

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