

No. 756,714.

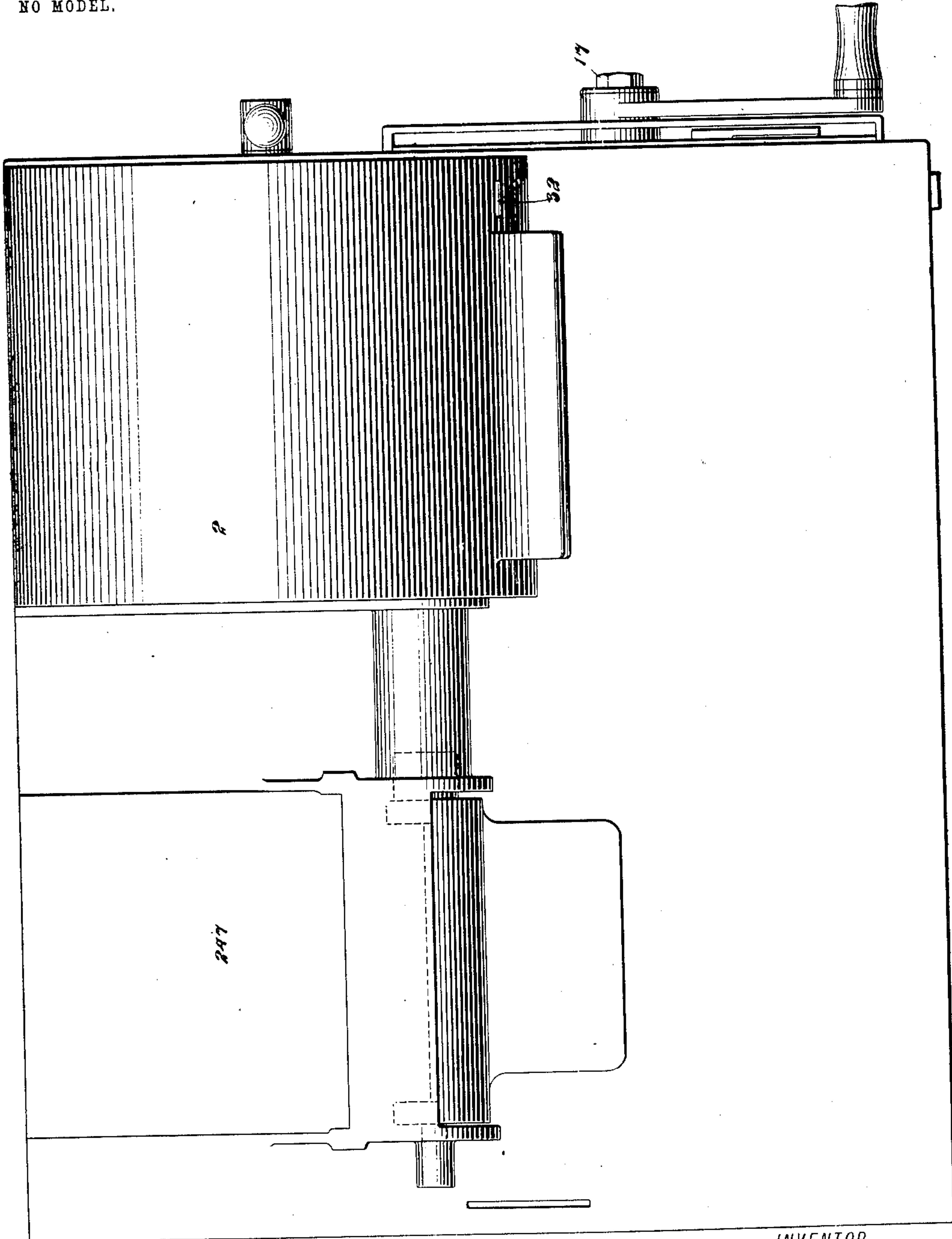
PATENTED APR. 5, 1904.

DETALMO DI BRAZZA SAVORGNAN.
MACHINE FOR REGISTERING MAIL MATTER.

APPLICATION FILED SEPT. 28, 1896.

NO MODEL.

18 SHEETS—SHEET 1.



WITNESSES:

Edward Thorpe
C. R. Ferguson

INVENTOR

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Wm. H. S.

ATTORNEYS.

No. 756,714.

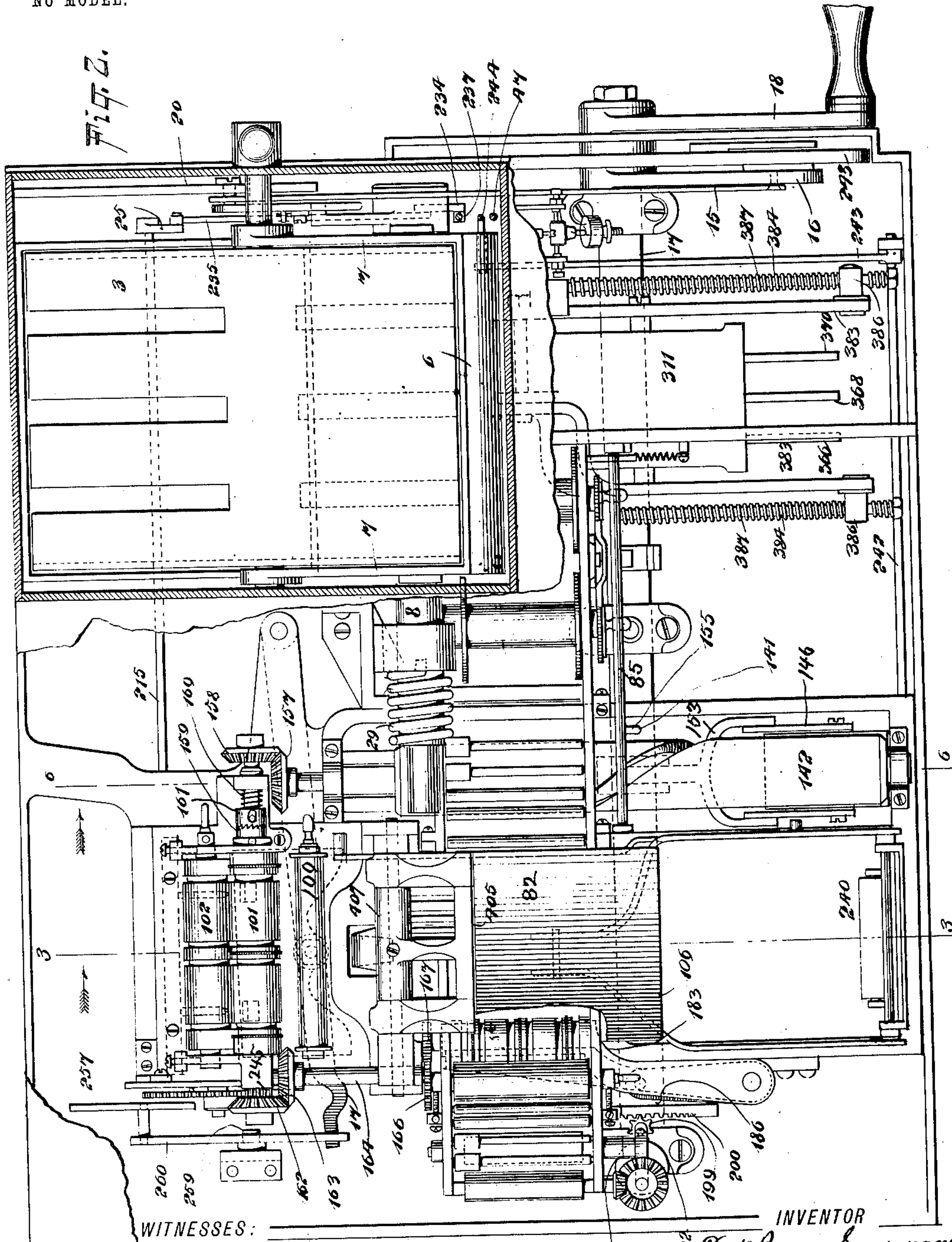
PATENTED APR. 5, 1904.

DETALMO DI BRAZZA SAVORGNAN.
MACHINE FOR REGISTERING MAIL MATTER.

APPLICATION FILED SEPT. 28, 1896.

18 SHEETS—SHEET 2.

NO MODEL.



William P. Gaebel.
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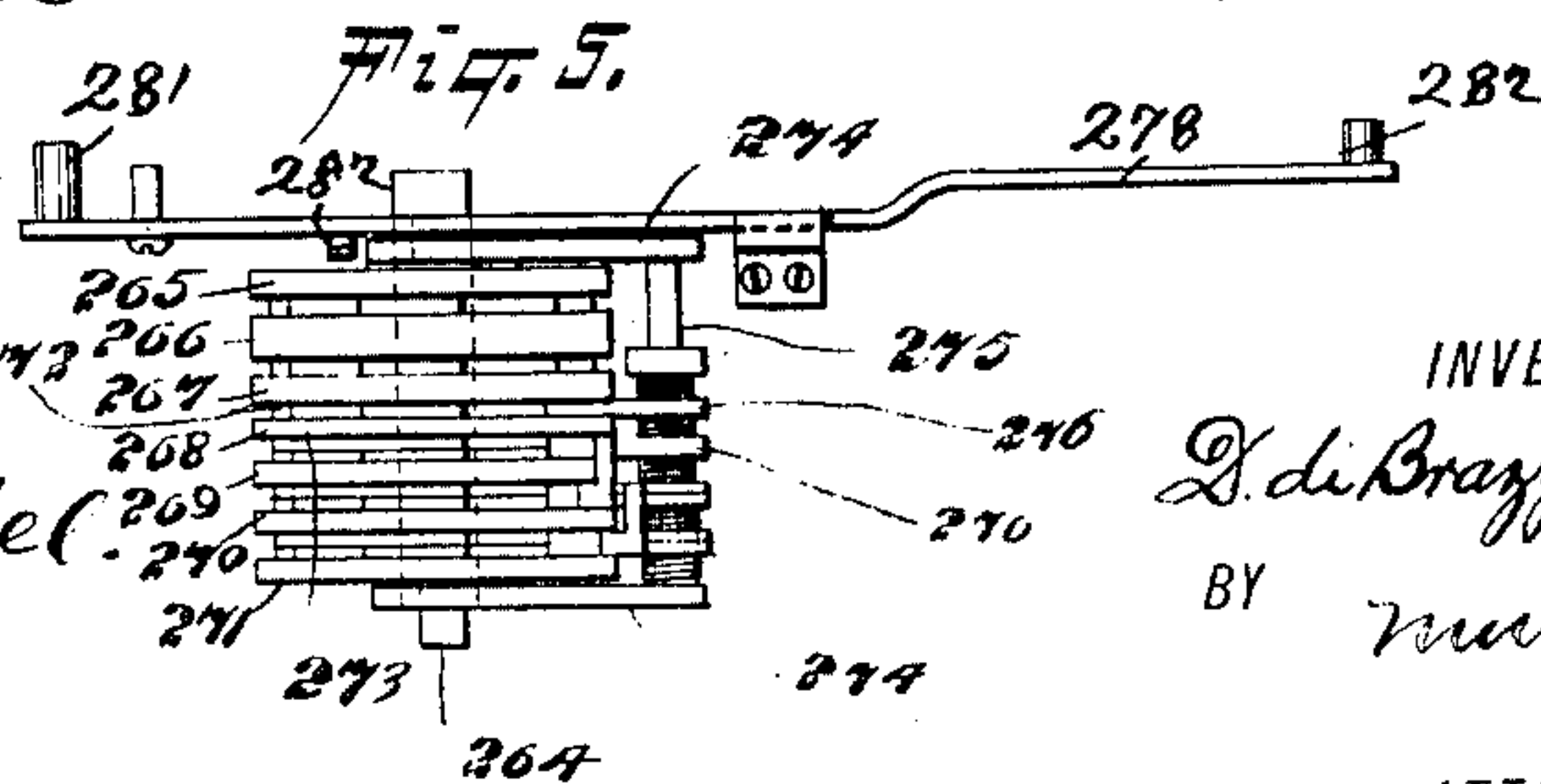
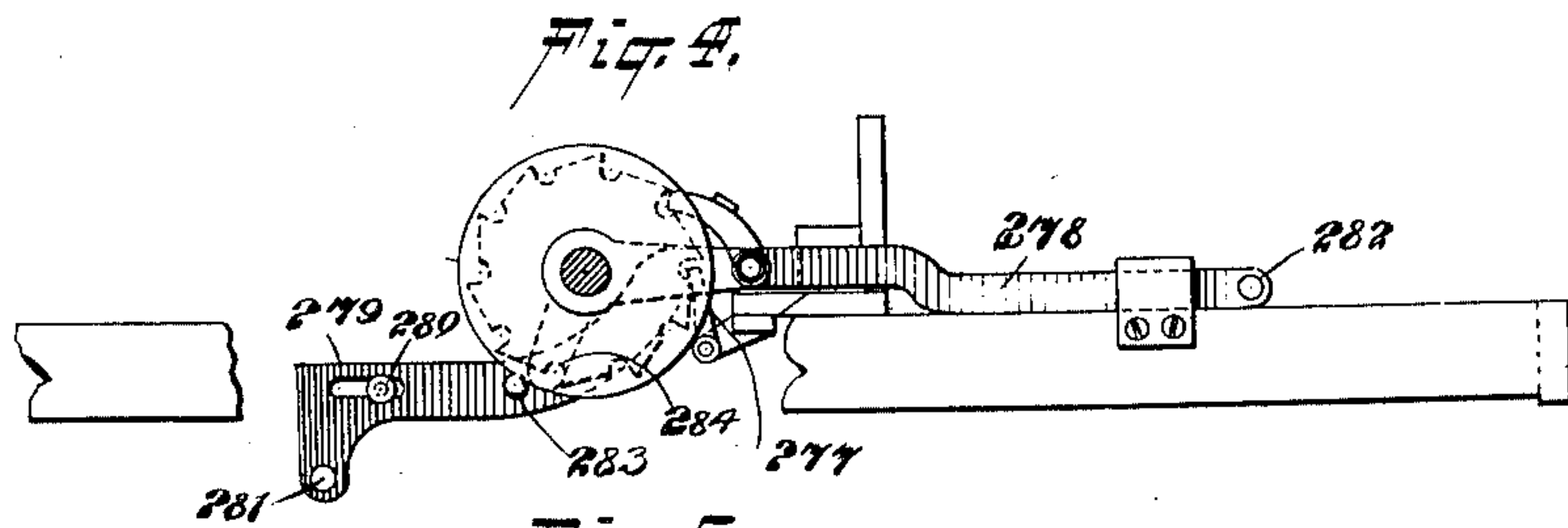
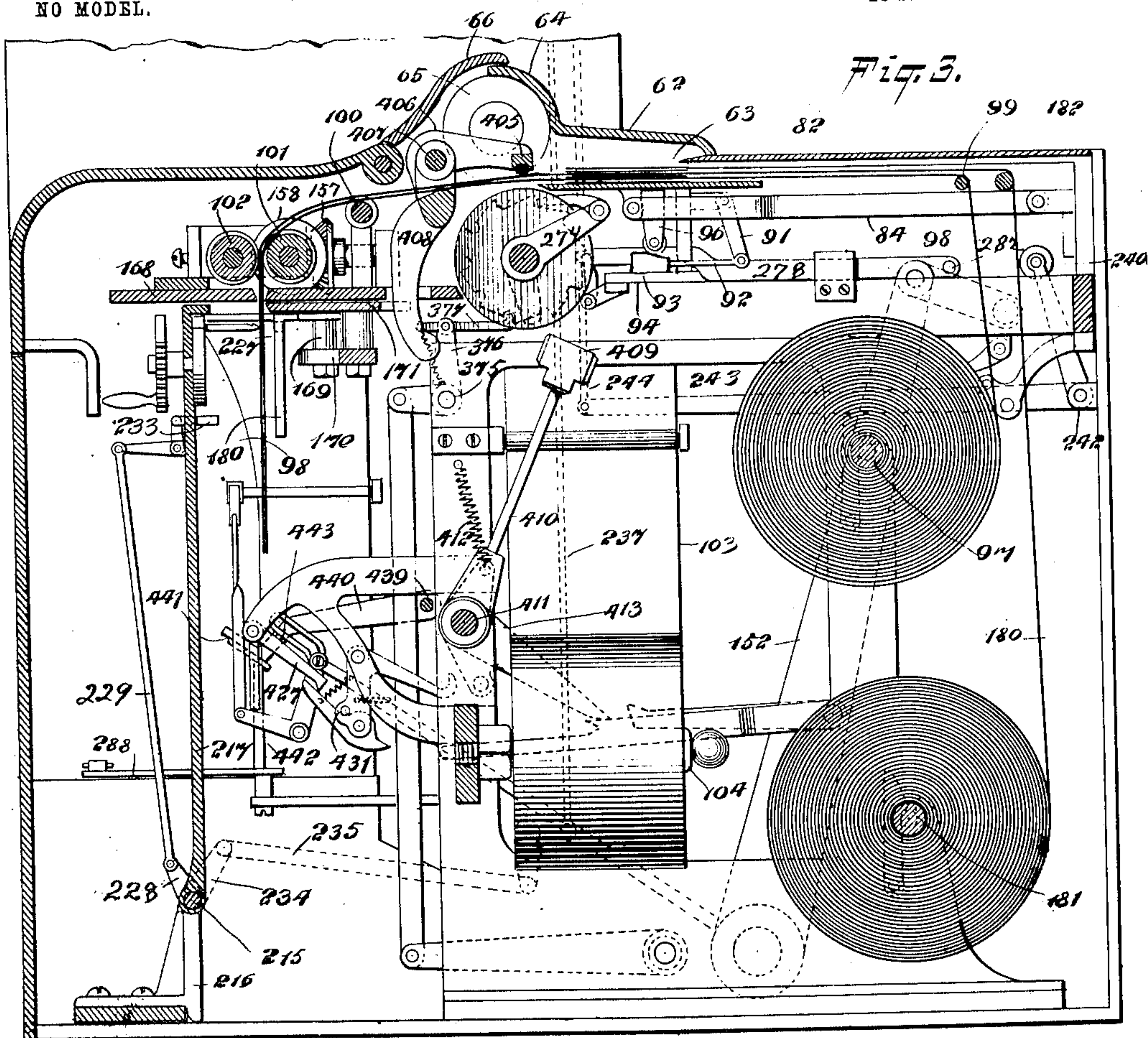
PATENTED APR. 5, 1904.

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NO MODEL.

18 SHEETS—SHEET 3.



WITNESSES:

William P. Goebel
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No. 756,714.

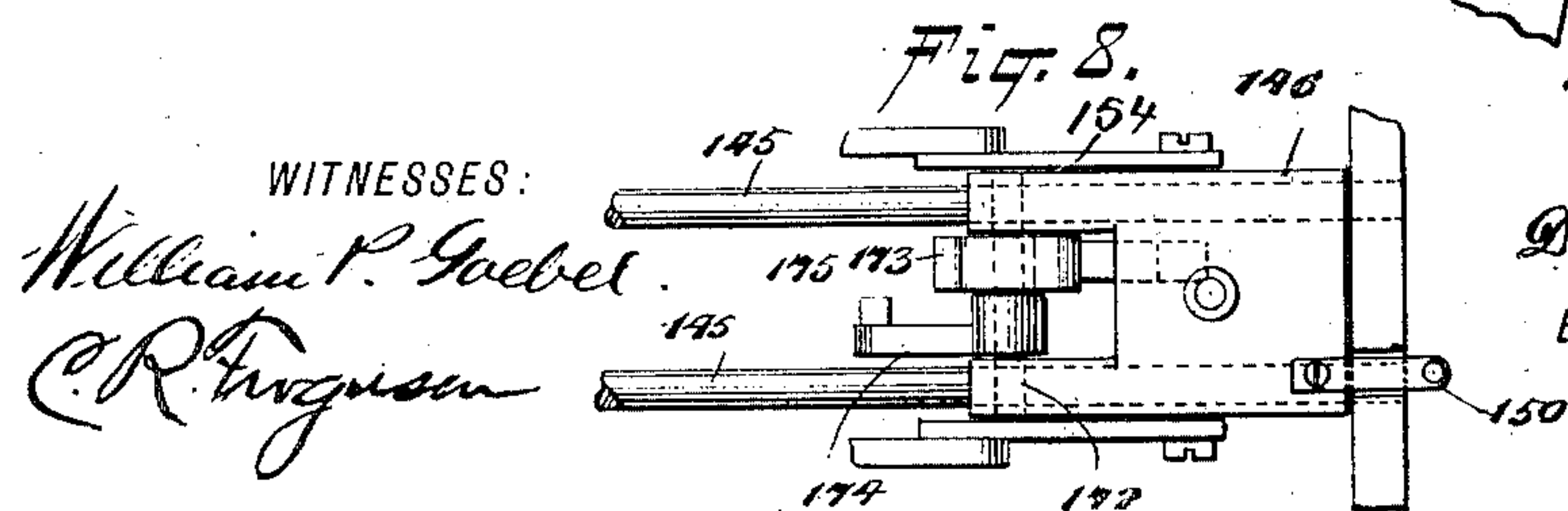
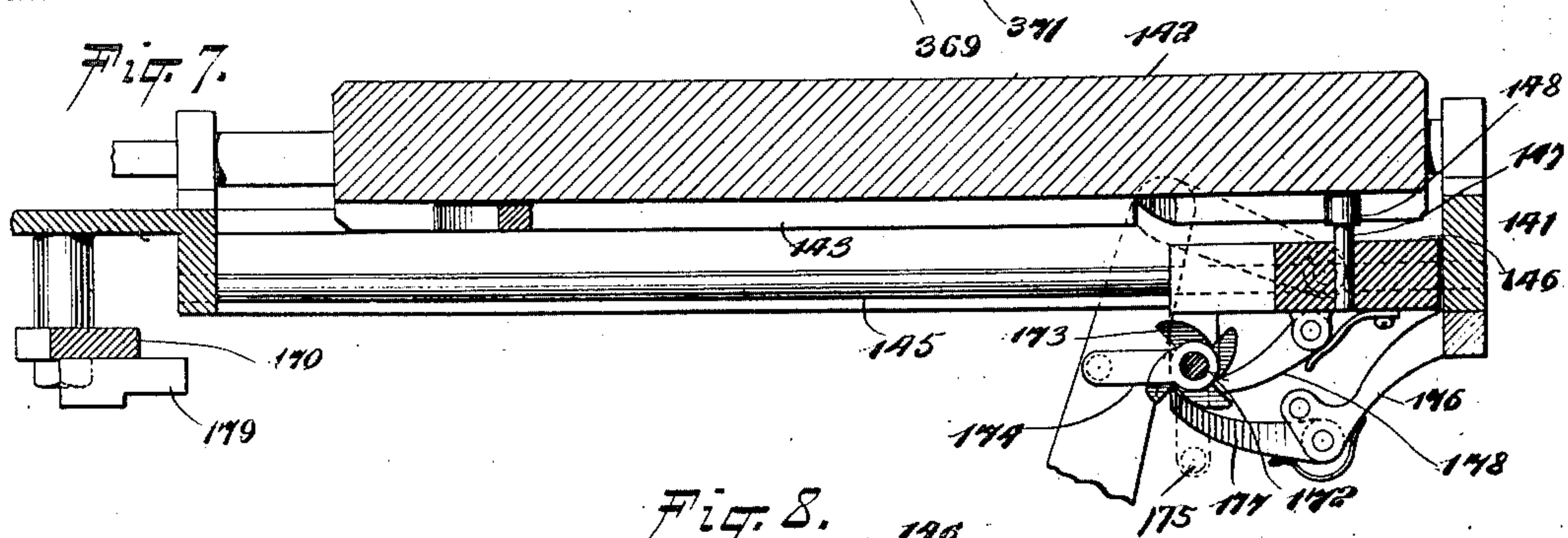
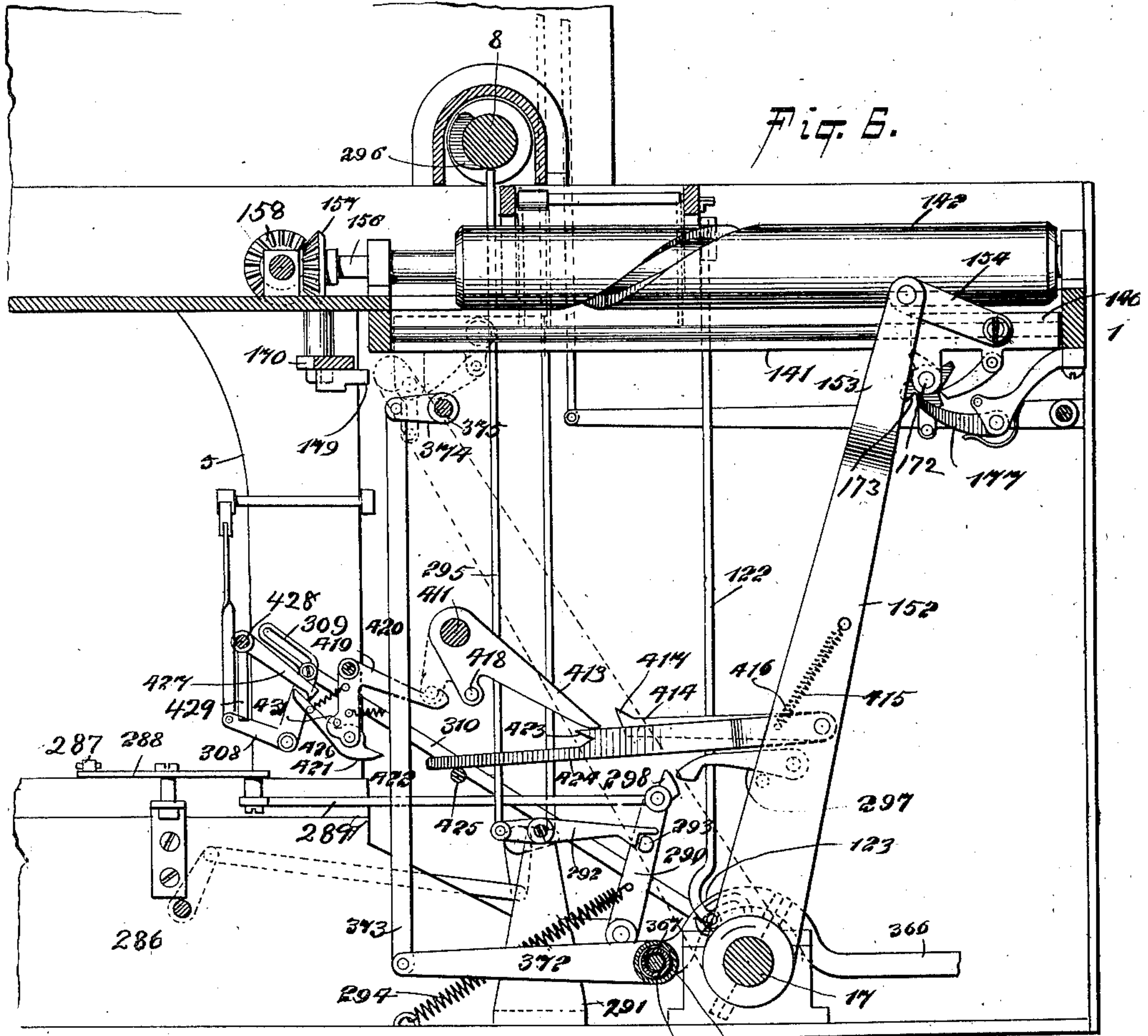
PATENTED APR. 5, 1904.

DETALMO DI BRAZZA SAVORGNAN.
MACHINE FOR REGISTERING MAIL MATTER.

APPLICATION FILED SEPT. 28, 1896.

NO MODEL.

18 SHEETS—SHEET 4.



WITNESSES:

William P. Gaebel.
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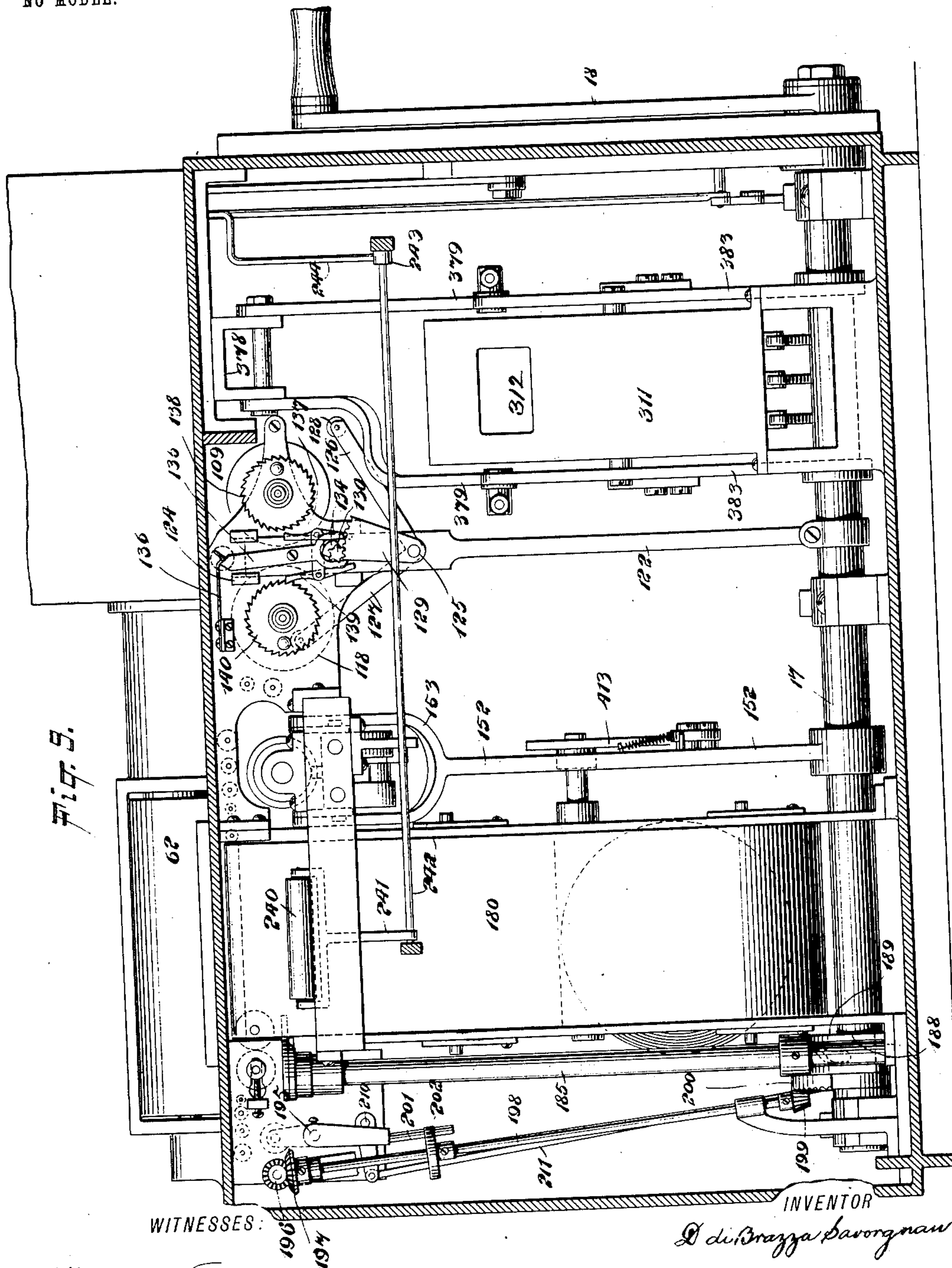
PATENTED APR. 5, 1904.

DETALMO DI BRAZZA SAVORGNAV.
MACHINE FOR REGISTERING MAIL MATTER.

APPLICATION FILED SEPT. 28, 1896.

18 SHEETS—SHEET 5.

NO MODEL.



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WITNESSES:

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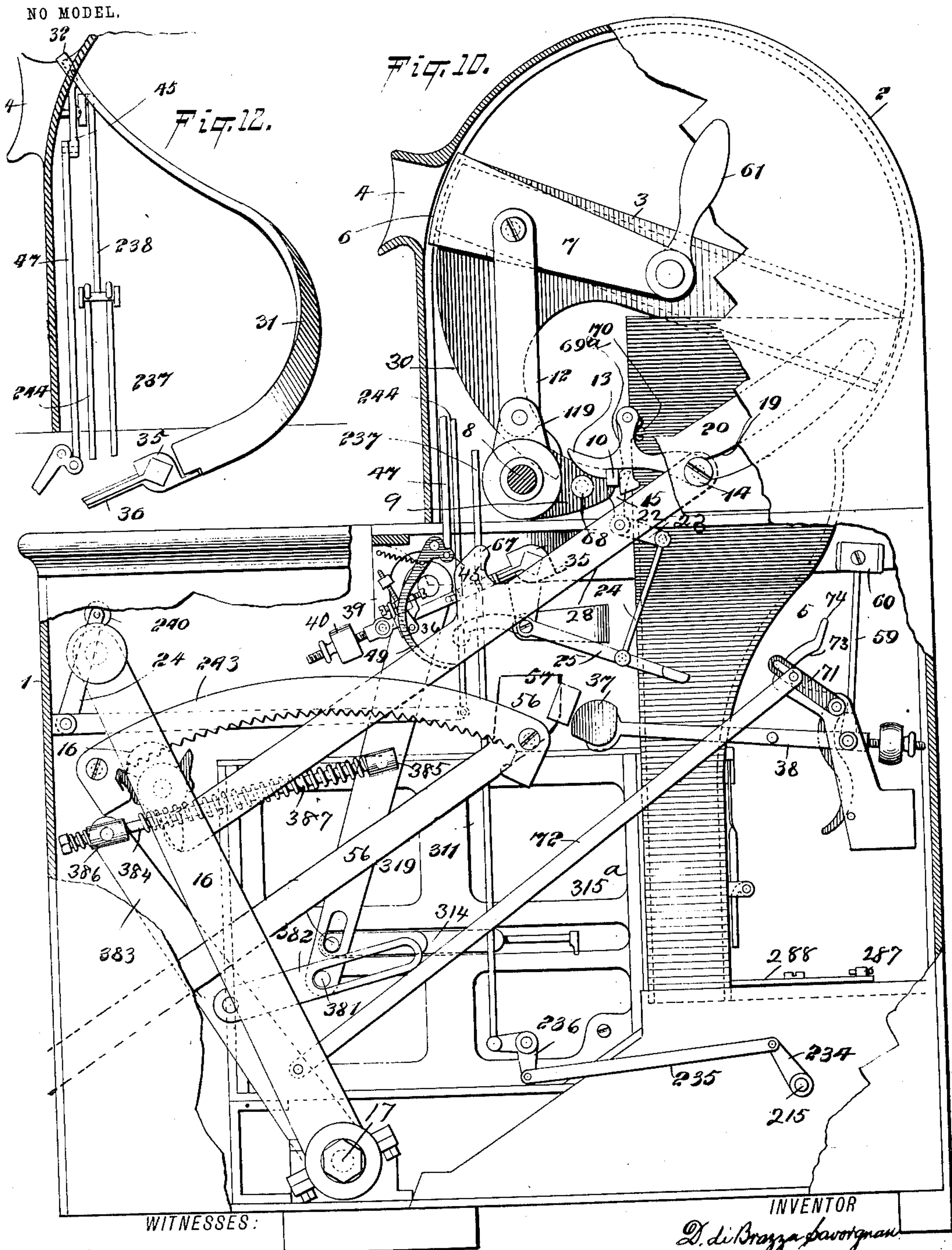
No. 756,714.

PATENTED APR. 5, 1904.

DETALMO DI BRAZZA SAVORGNAN.
MACHINE FOR REGISTERING MAIL MATTER.

APPLICATION FILED SEPT. 28, 1898.

18 SHEETS—SHEET 6.



WITNESSES:
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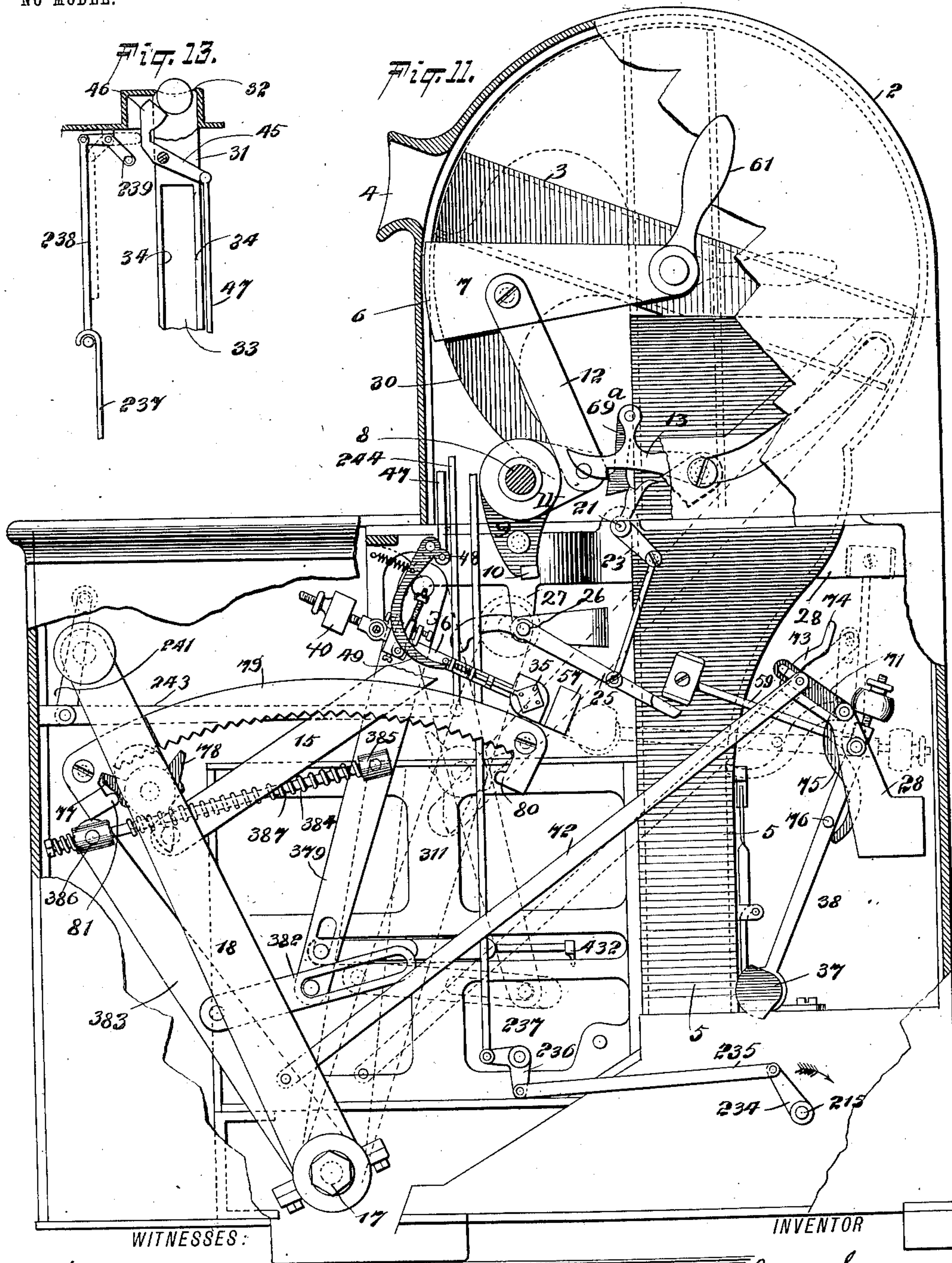
PATENTED APR. 5, 1904.

DETALMO DI BRAZZA SAVORGNaN.
MACHINE FOR REGISTERING MAIL MATTER.

APPLICATION FILED SEPT. 28, 1896.

18 SHEETS—SHEET 7.

NO MODEL.



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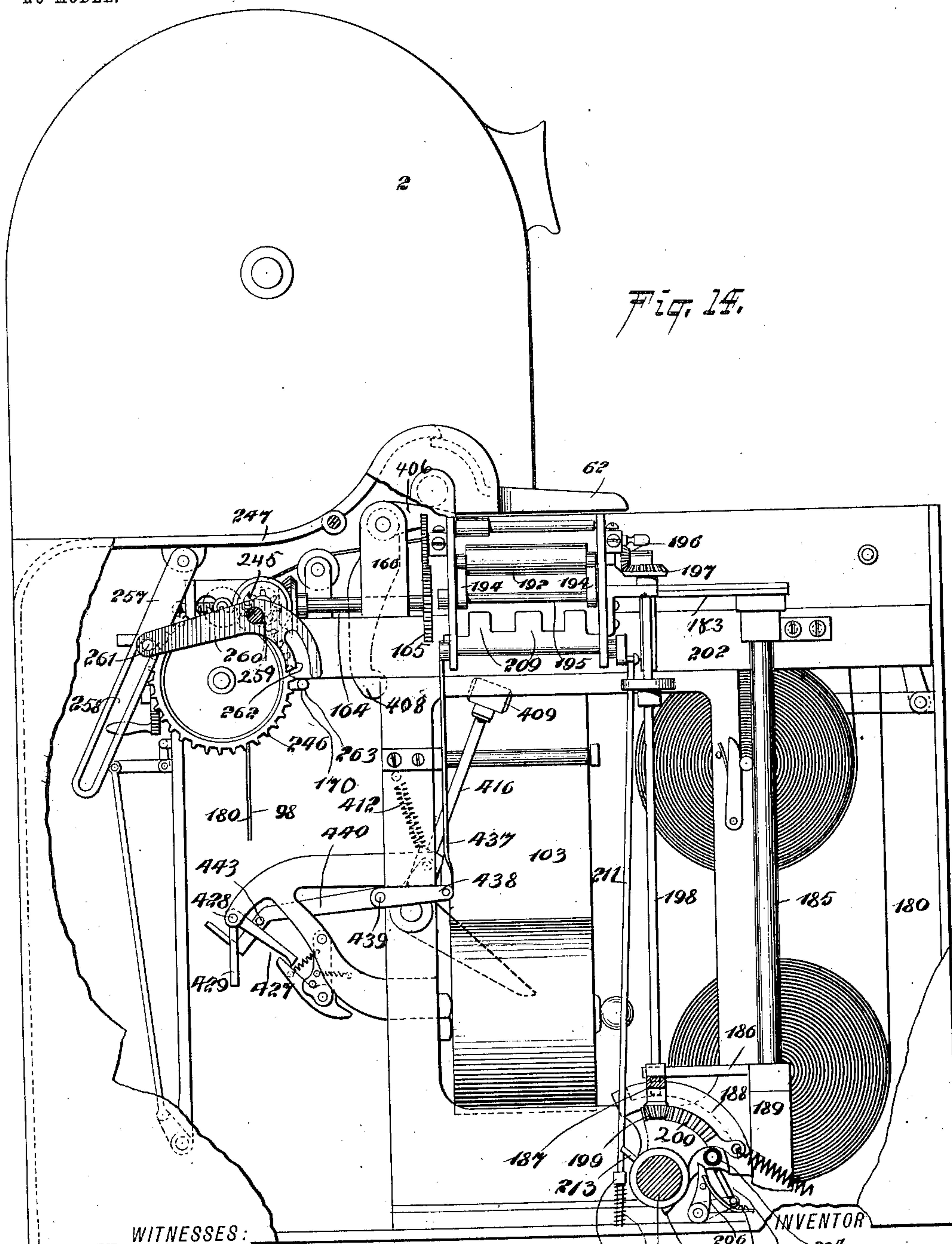
PATENTED APR. 5, 1904.

DETALMO DI BRAZZA SAVORGNAN.
MACHINE FOR REGISTERING MAIL MATTER.

APPLICATION FILED SEPT. 28, 1896.

18 SHEETS—SHEET 8.

NO MODEL.



William P. Gaebel
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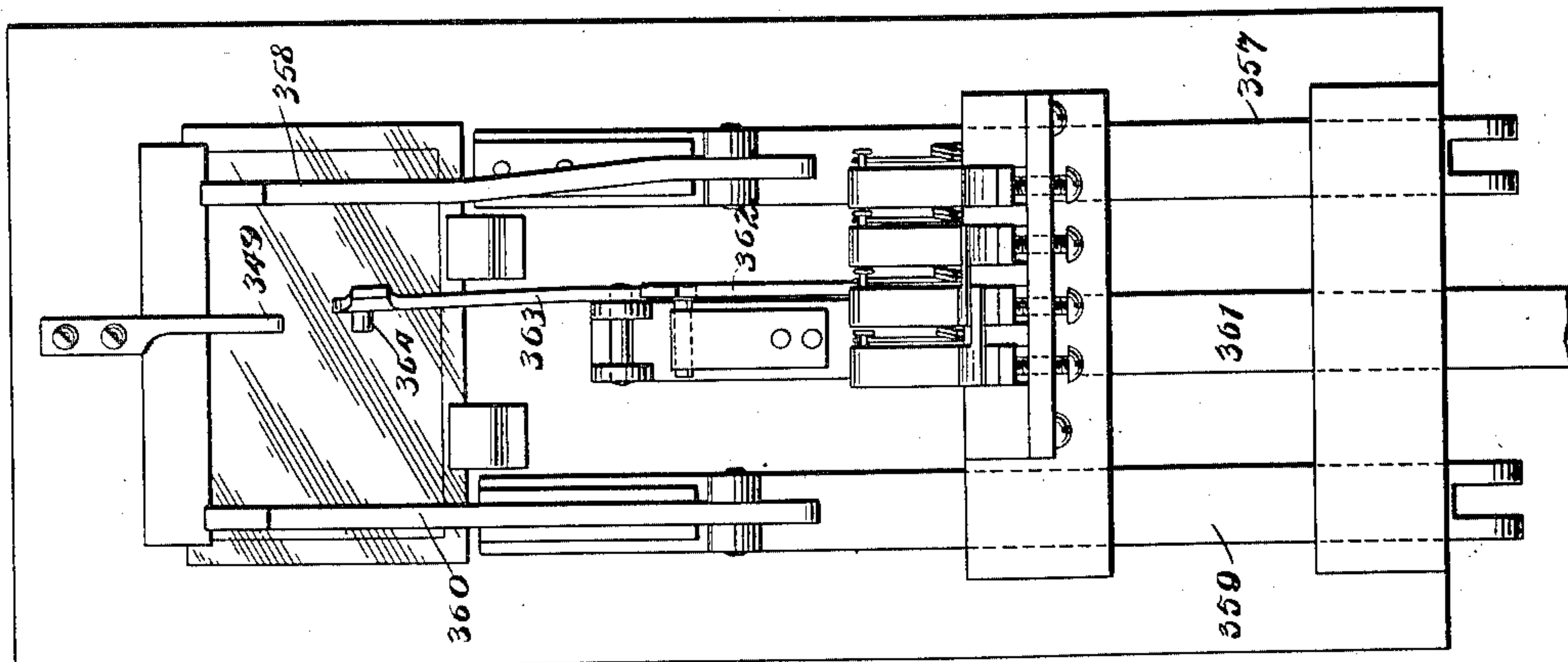
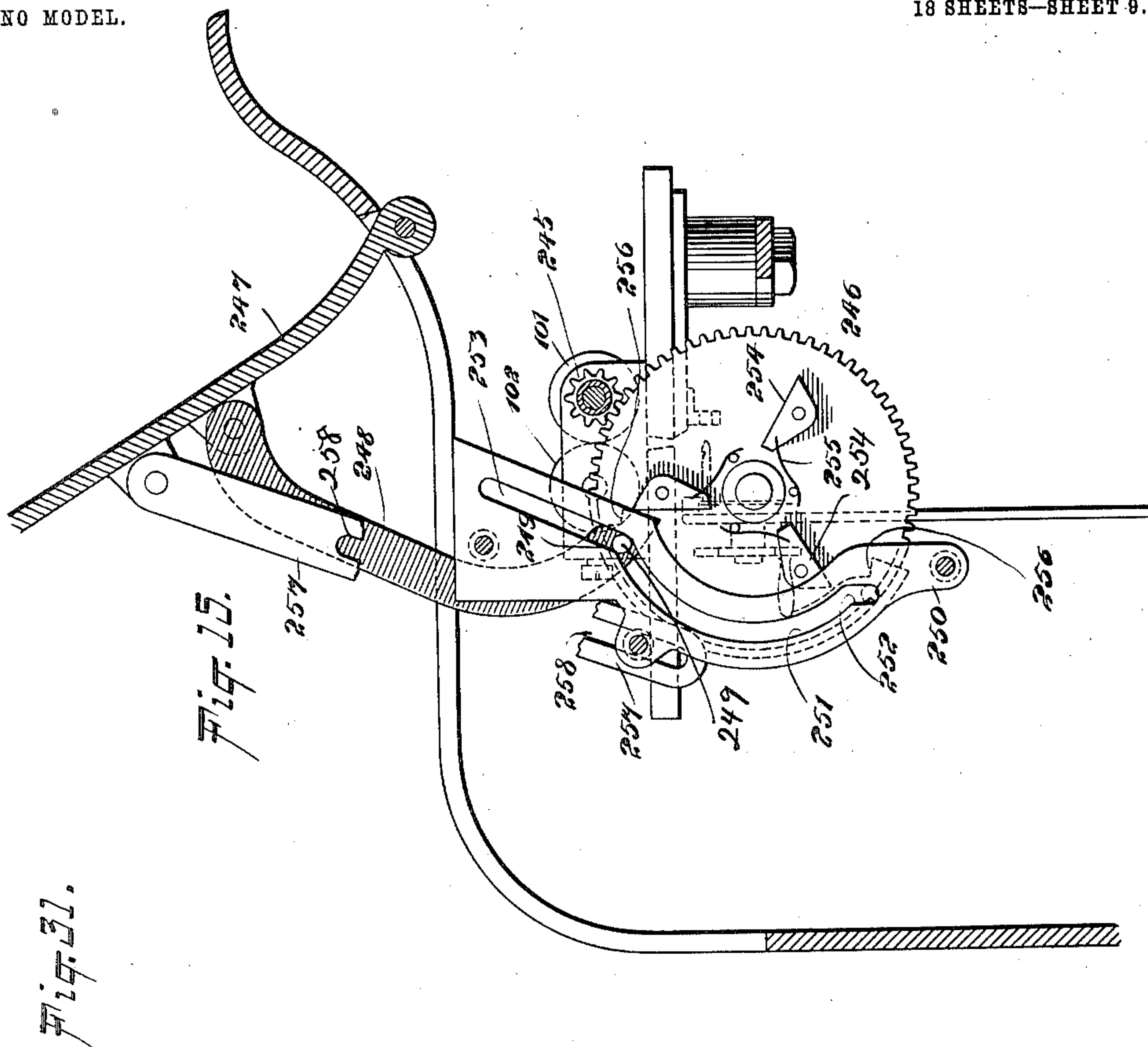
PATENTED APR. 5, 1904.

DETALMO DI BRAZZA SAVORGNAN.
MACHINE FOR REGISTERING MAIL MATTER.

APPLICATION FILED SEPT. 28, 1896.

NO MODEL.

18 SHEETS—SHEET 9.



WITNESSES:

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No. 756,714.

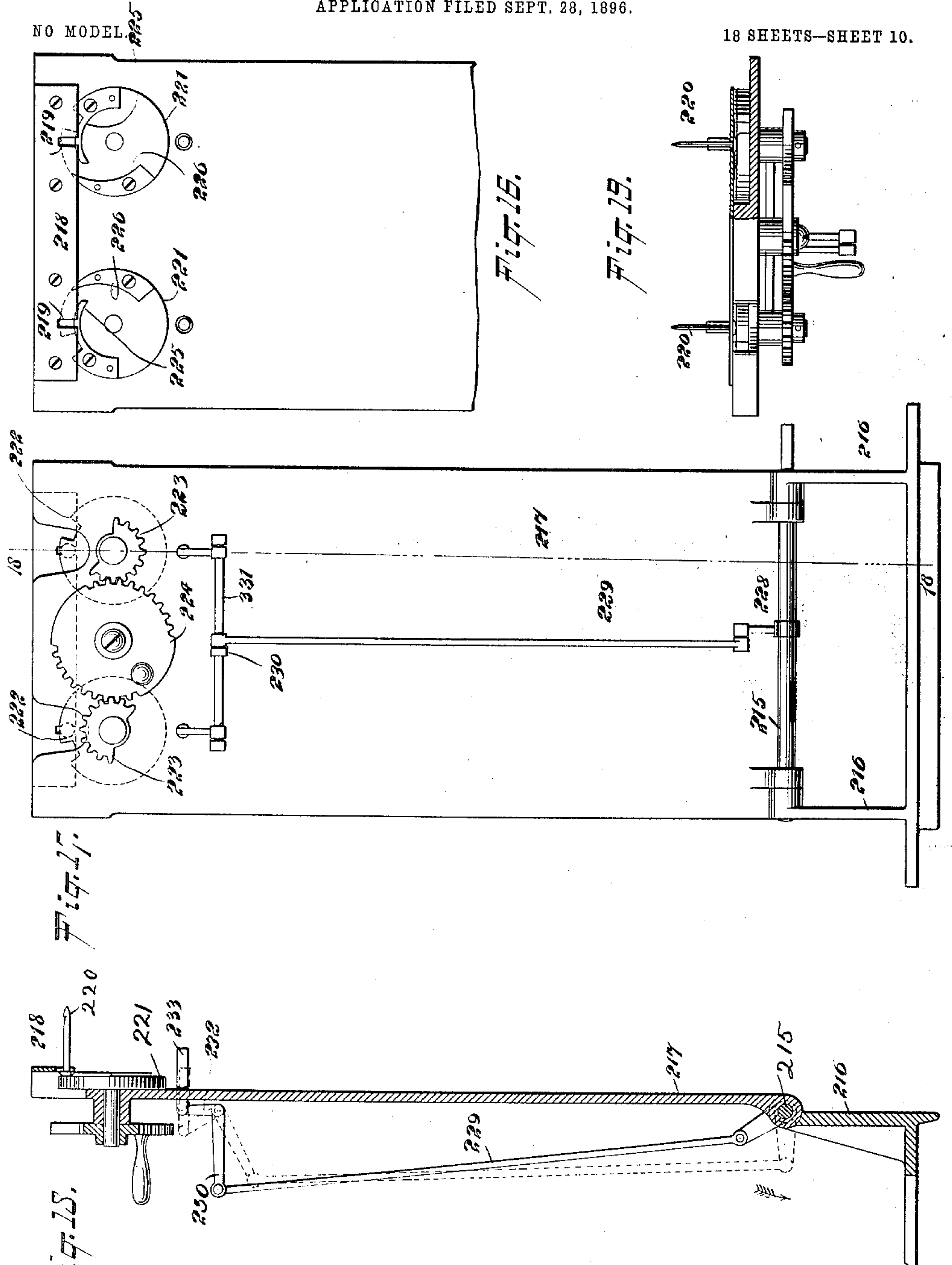
PATENTED APR. 5, 1904.

DETALMO DI BRAZZA SAVORGNAN.
MACHINE FOR REGISTERING MAIL MATTER.

APPLICATION FILED SEPT. 28, 1896.

NO MODEL

18 SHEETS—SHEET 10.



WITNESSES:
Edward Thorpe.
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No. 756,714.

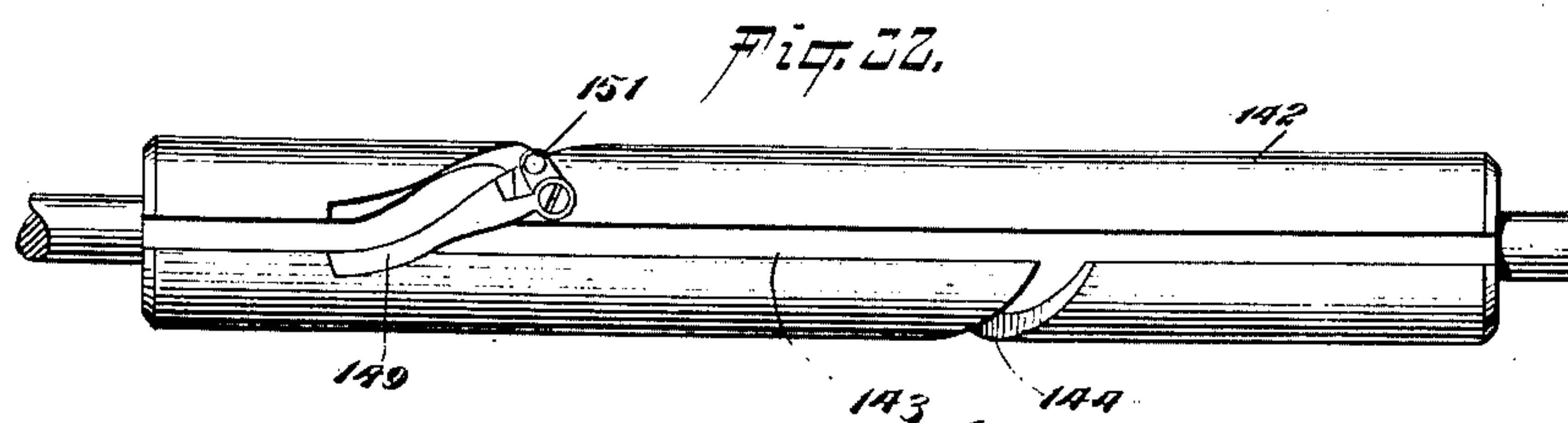
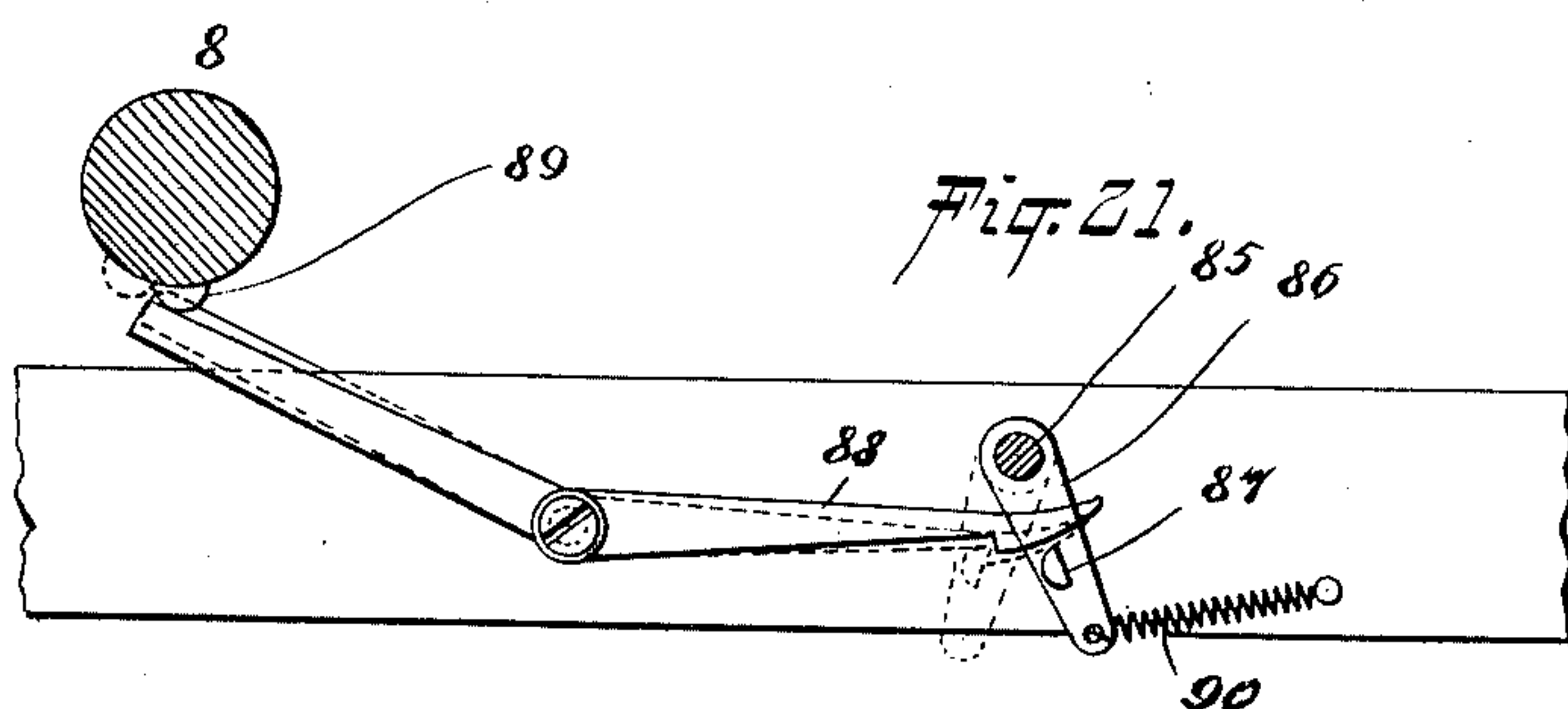
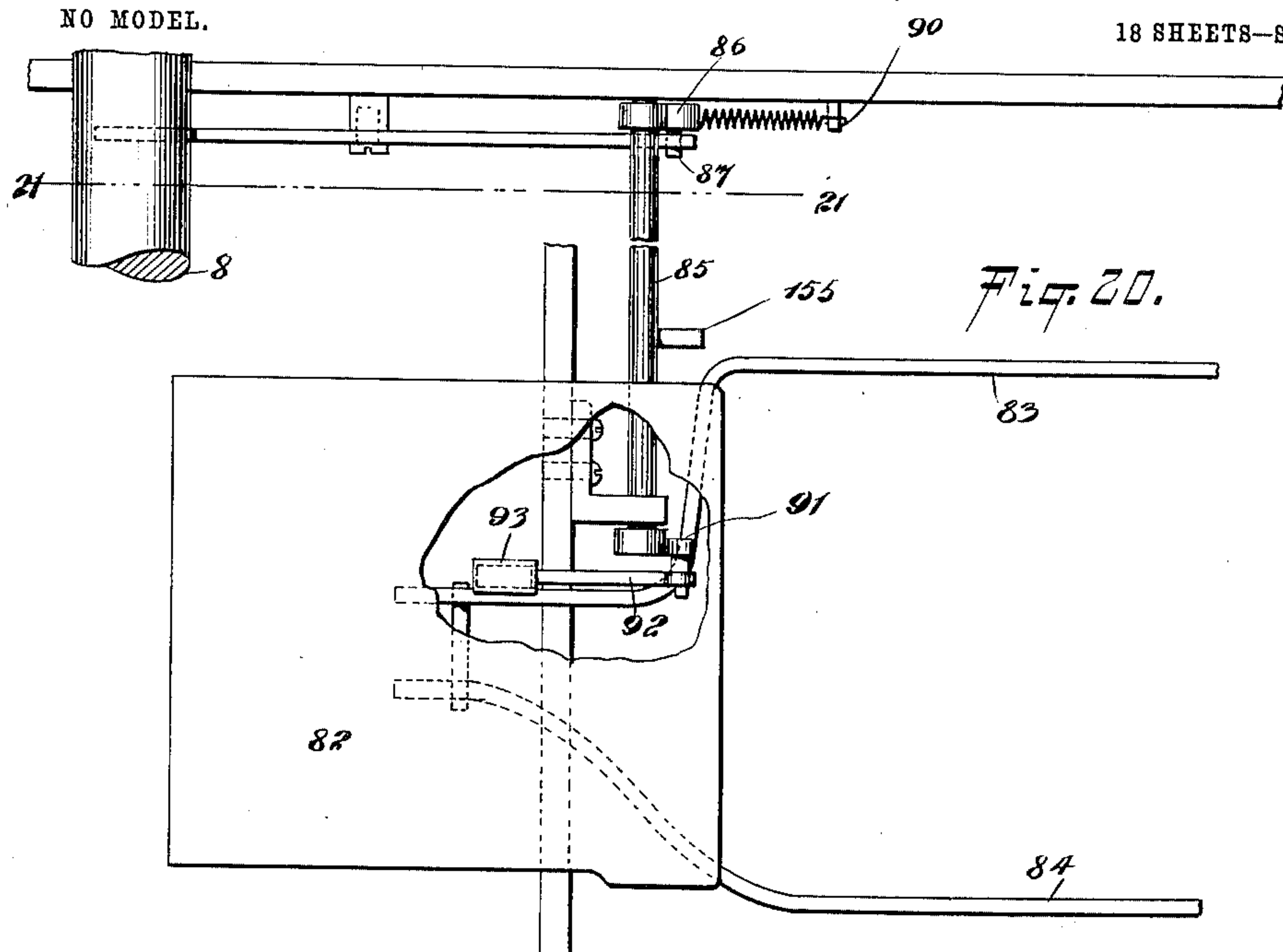
PATENTED APR. 5, 1904.

DETALMO DI BRAZZA SAVORGNA.
MACHINE FOR REGISTERING MAIL MATTER.

APPLICATION FILED SEPT. 28, 1896.

NO MODEL.

18 SHEETS—SHEET 11.



WITNESSES:

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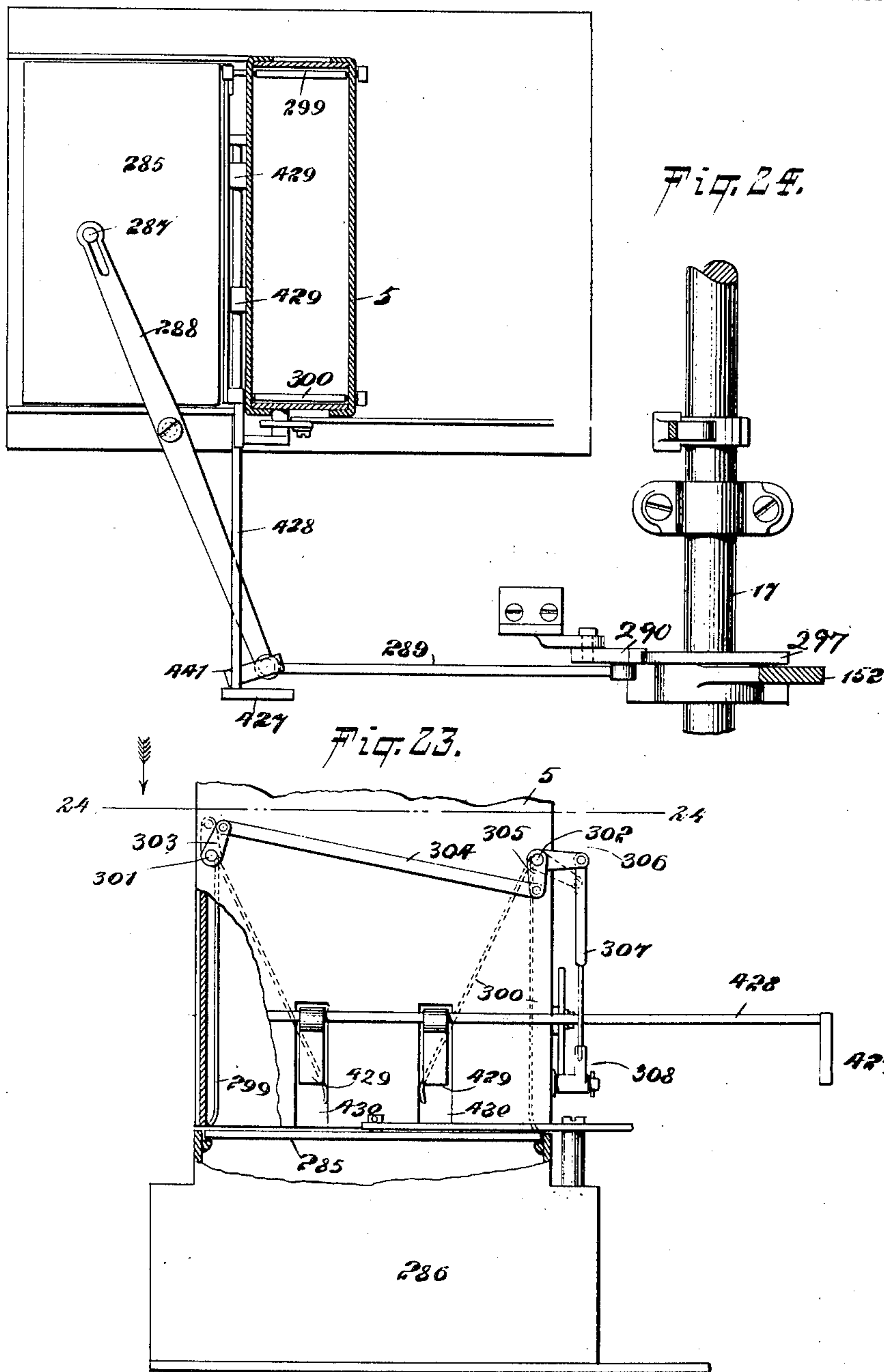
PATENTED APR. 5, 1904.

DETALMO DI BRAZZA SAVORGNAN.
MACHINE FOR REGISTERING MAIL MATTER.

APPLICATION FILED SEPT. 28, 1896.

NO MODEL.

18 SHEETS—SHEET 12.



WITNESSES:

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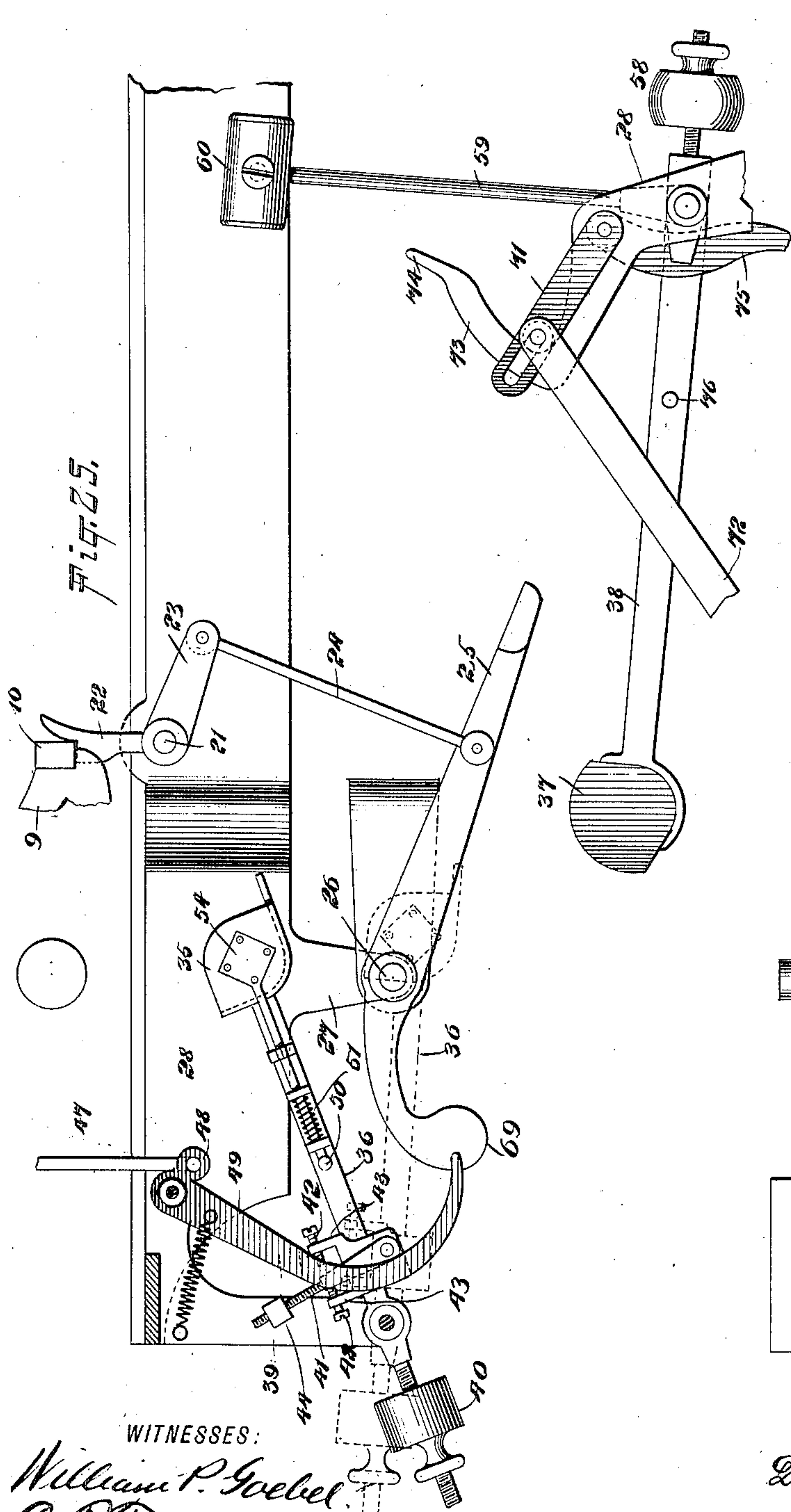
PATENTED APR. 5, 1904.

DETALMO DI BRAZZA SAVORGNAN.
MACHINE FOR REGISTERING MAIL MATTER.

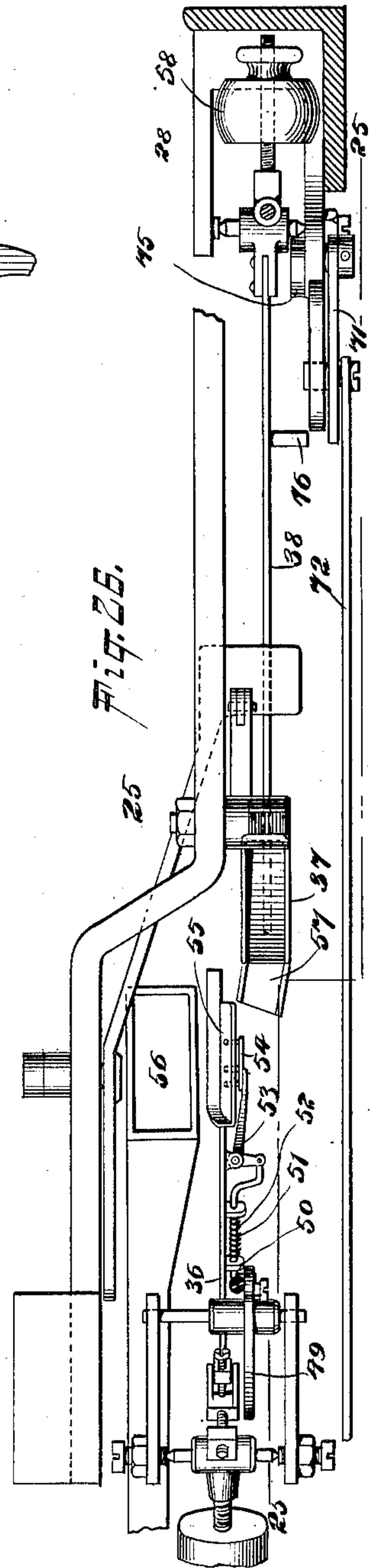
APPLICATION FILED SEPT. 28, 1896.

NO MODEL.

18 SHEETS—SHEET 13.



WITNESSES:
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C. R. Ferguson.



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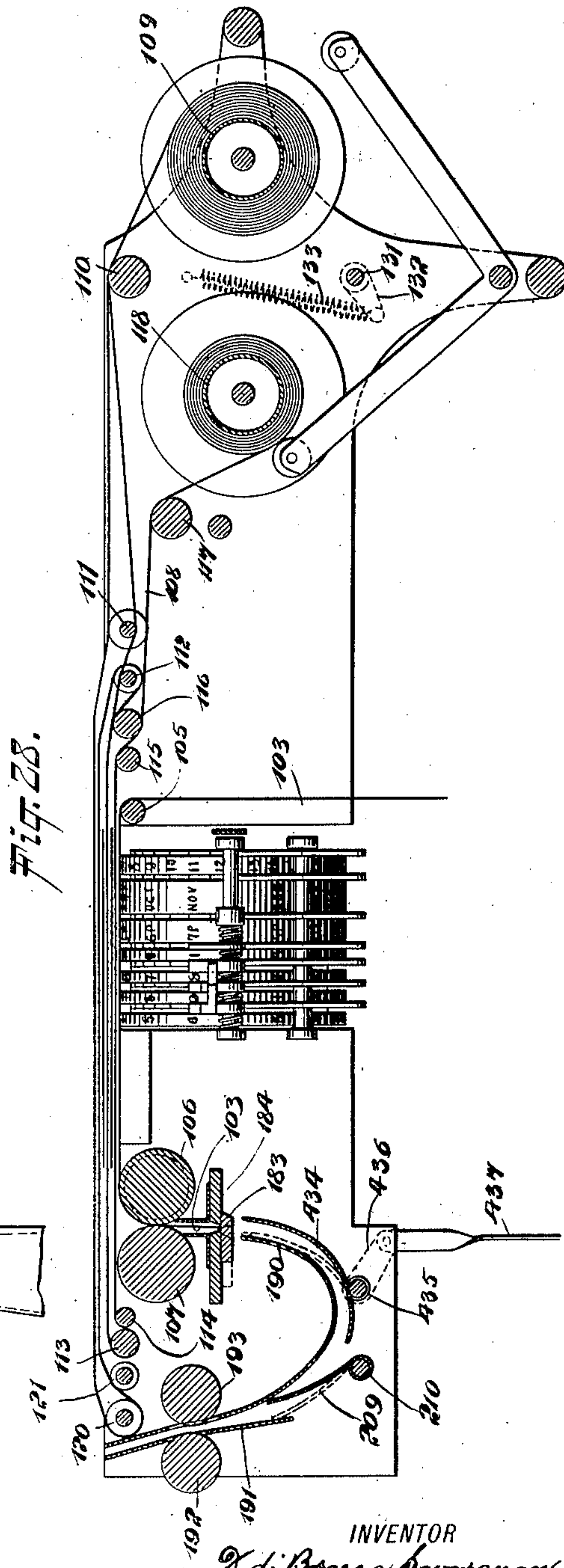
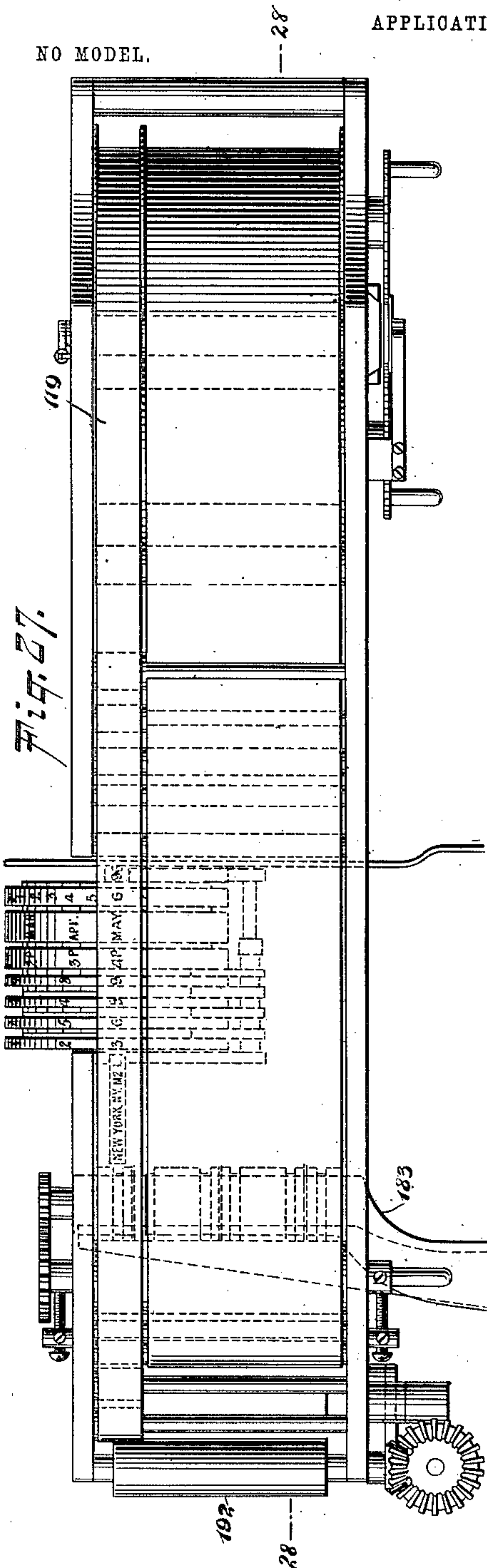
PATENTED APR. 5, 1904.

DETALMO DI BRAZZA SAVORGNAN.
MACHINE FOR REGISTERING MAIL MATTER.

APPLICATION FILED SEPT. 28, 1896.

NO MODEL.

18 SHEETS—SHEET 14.



WITNESSES:

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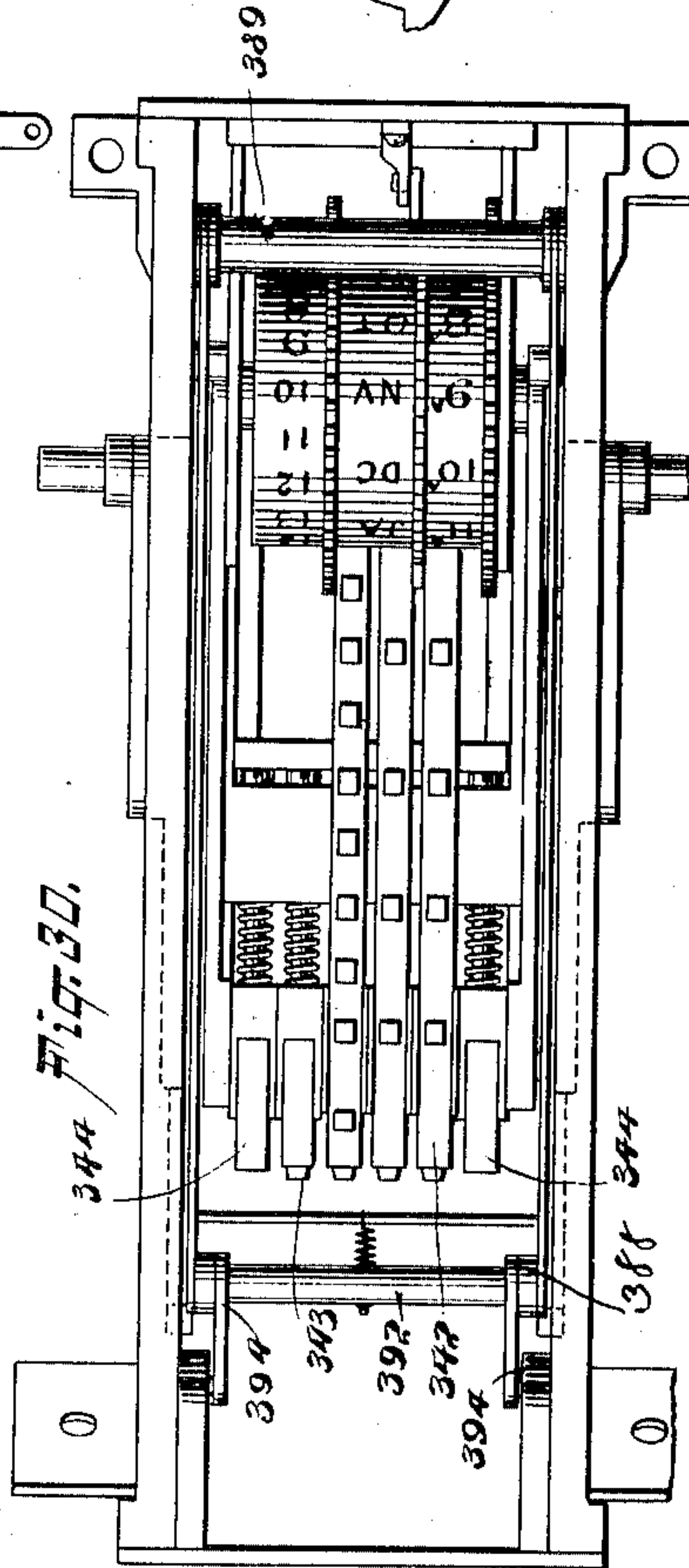
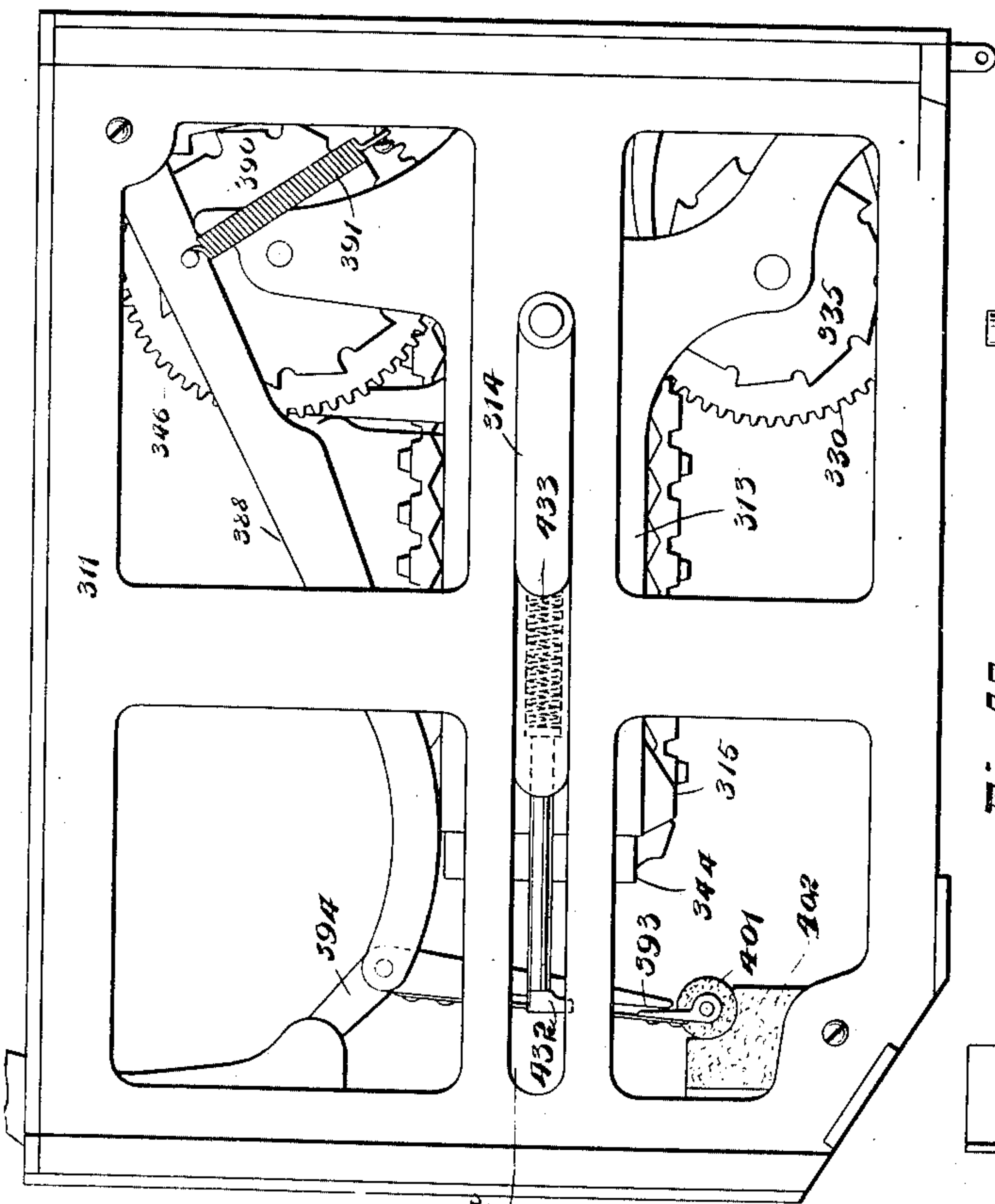
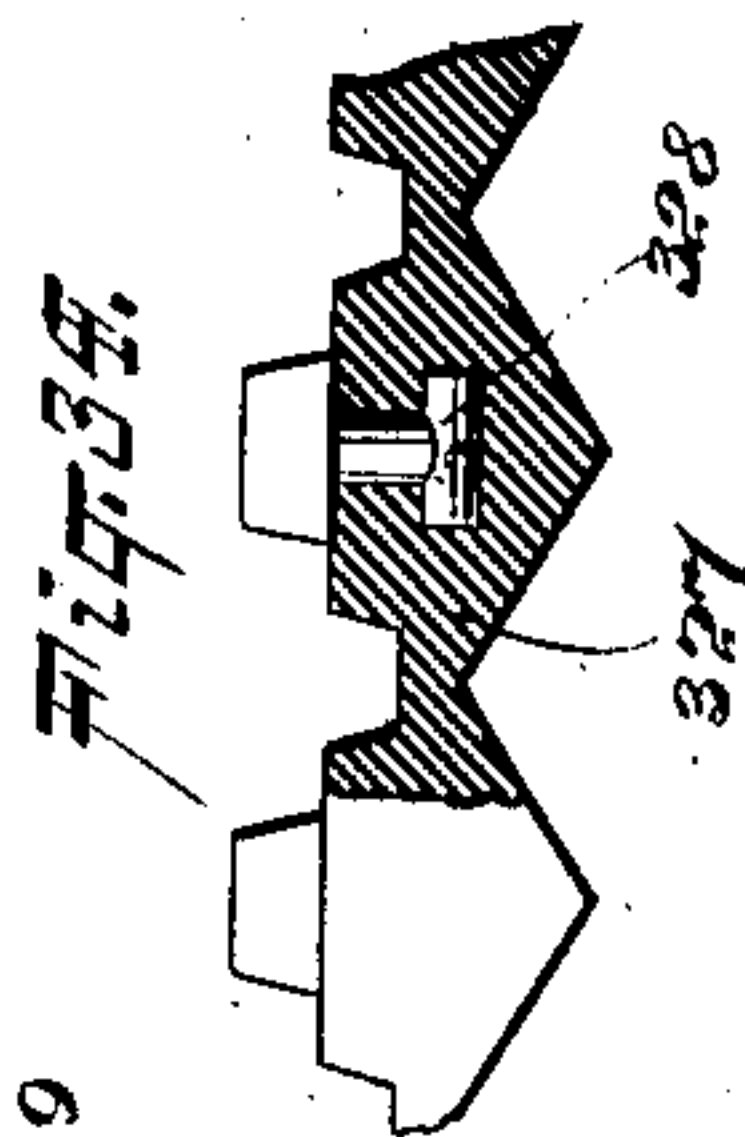
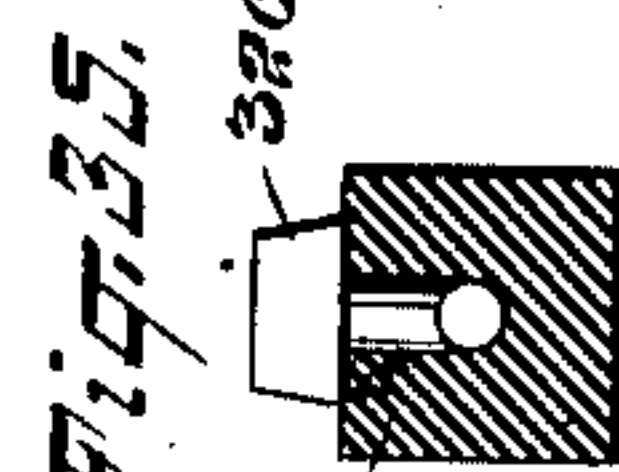
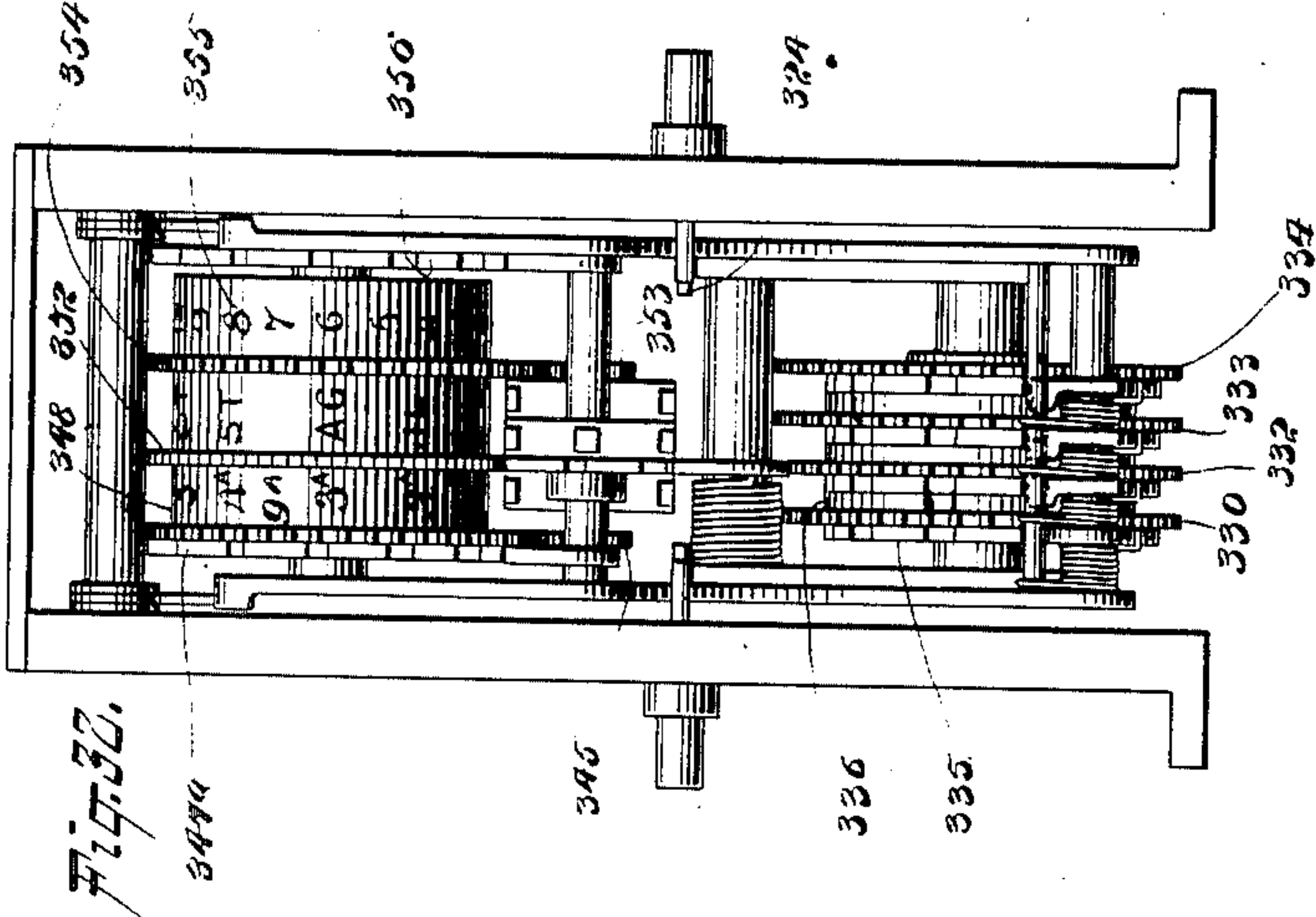
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DETALMO DI BRAZZA SAVORGNAN.
MACHINE FOR REGISTERING MAIL MATTER.

APPLICATION FILED SEPT. 28, 1896.

NO MODEL.

18 SHEETS—SHEET 15.



WITNESSES:

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Fig. 29.

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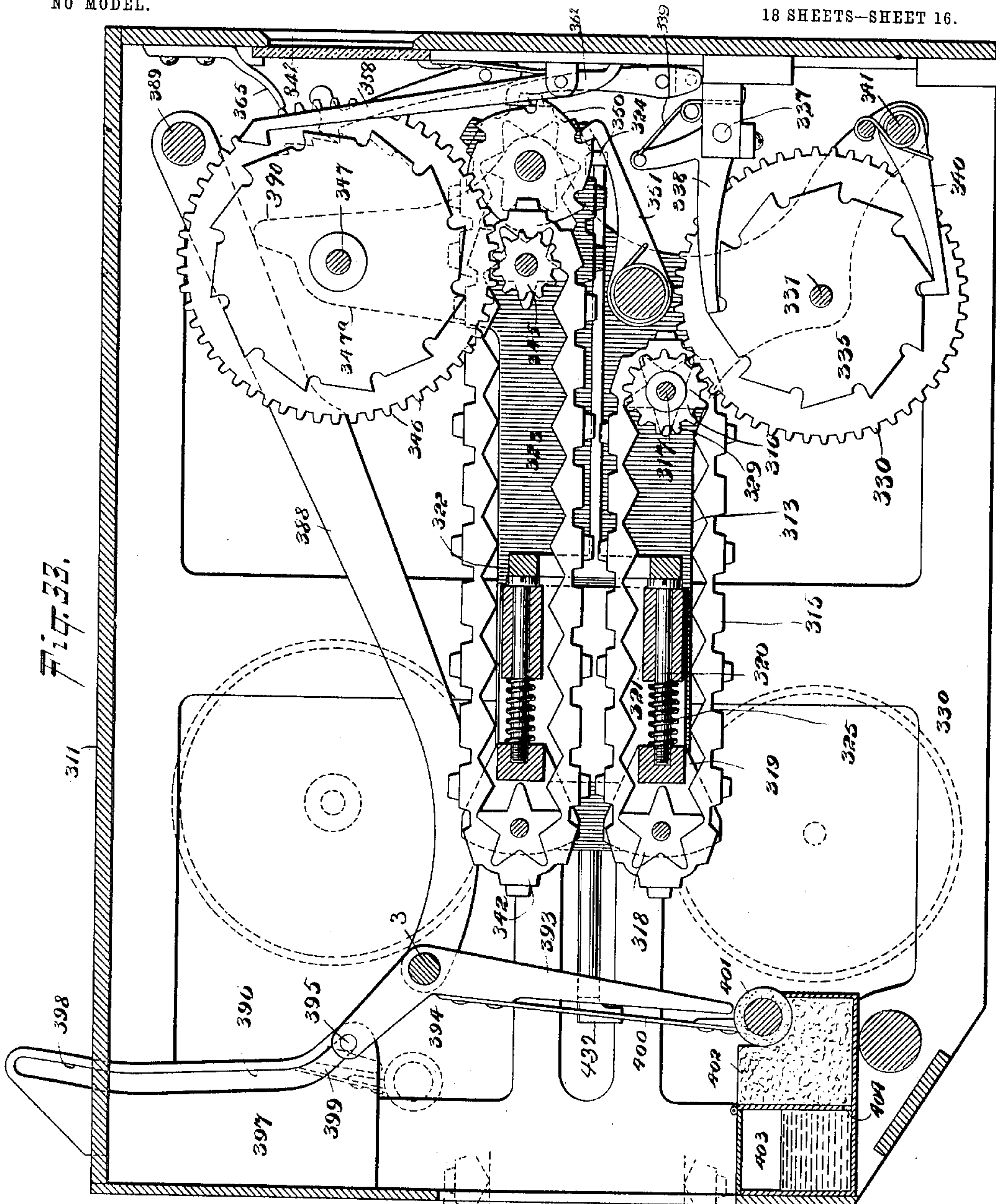
PATENTED APR. 5, 1904.

DETALMO DI BRAZZA SAVORGNAN.
MACHINE FOR REGISTERING MAIL MATTER.

APPLICATION FILED SEPT. 28, 1896.

NO MODEL.

18 SHEETS—SHEET 16.



WITNESSES:

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No. 756,714.

PATENTED APR. 5, 1904.

DETALMO DI BRAZZA SAVORGNAN.
MACHINE FOR REGISTERING MAIL MATTER.

APPLICATION FILED SEPT. 28, 1896.

18 SHEETS—SHEET 17.

NO MODEL.

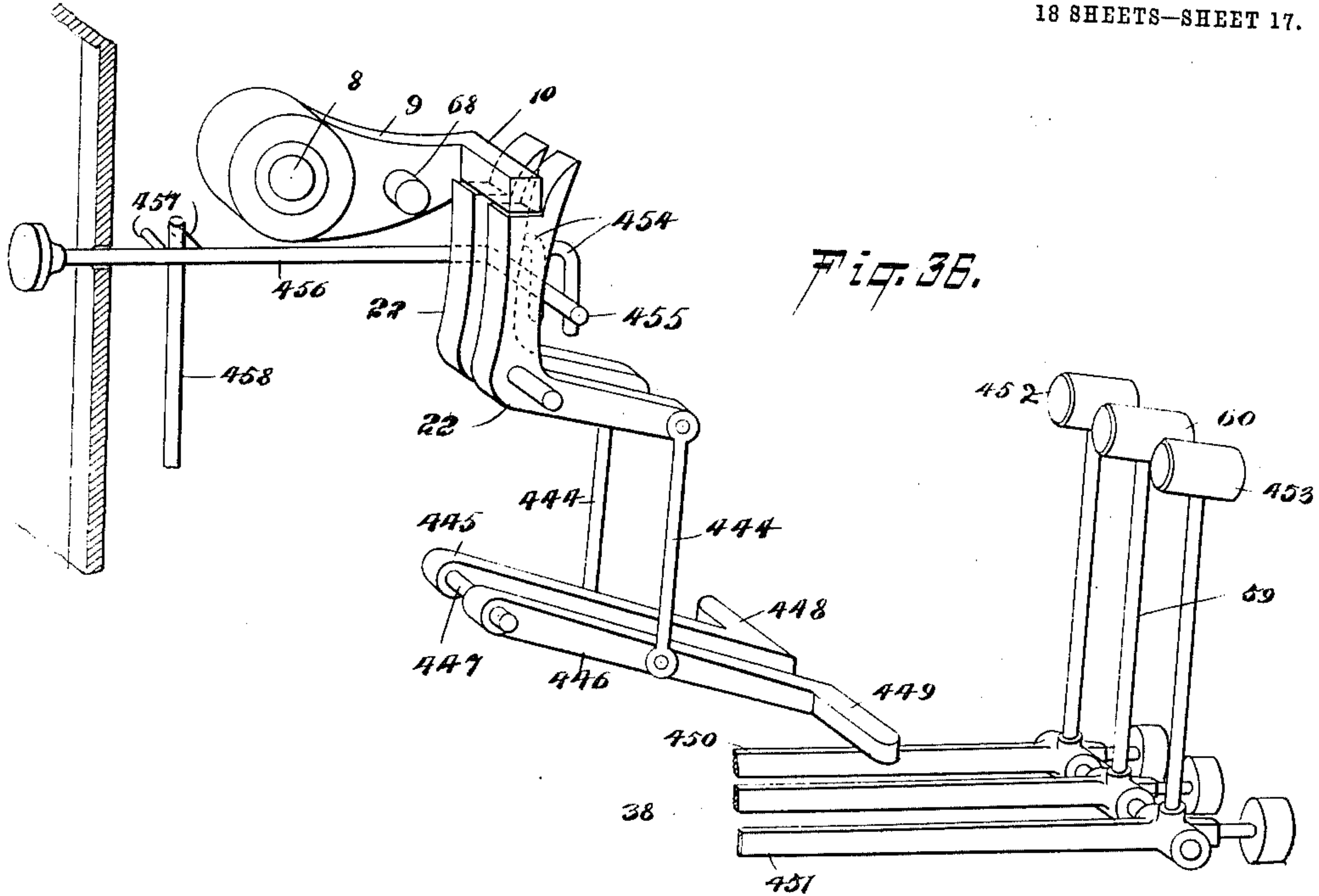


Fig. 36.

Fig. 37.

a	b	c
1205 \$5	1205 \$5	1205 \$5
1206 \$10	1206 \$10	1206 \$10
1207 \$15	1207 \$15	1207 \$15
1208 \$20	1208 \$20	1208 \$20

WITNESSES:

William T. Gaebel
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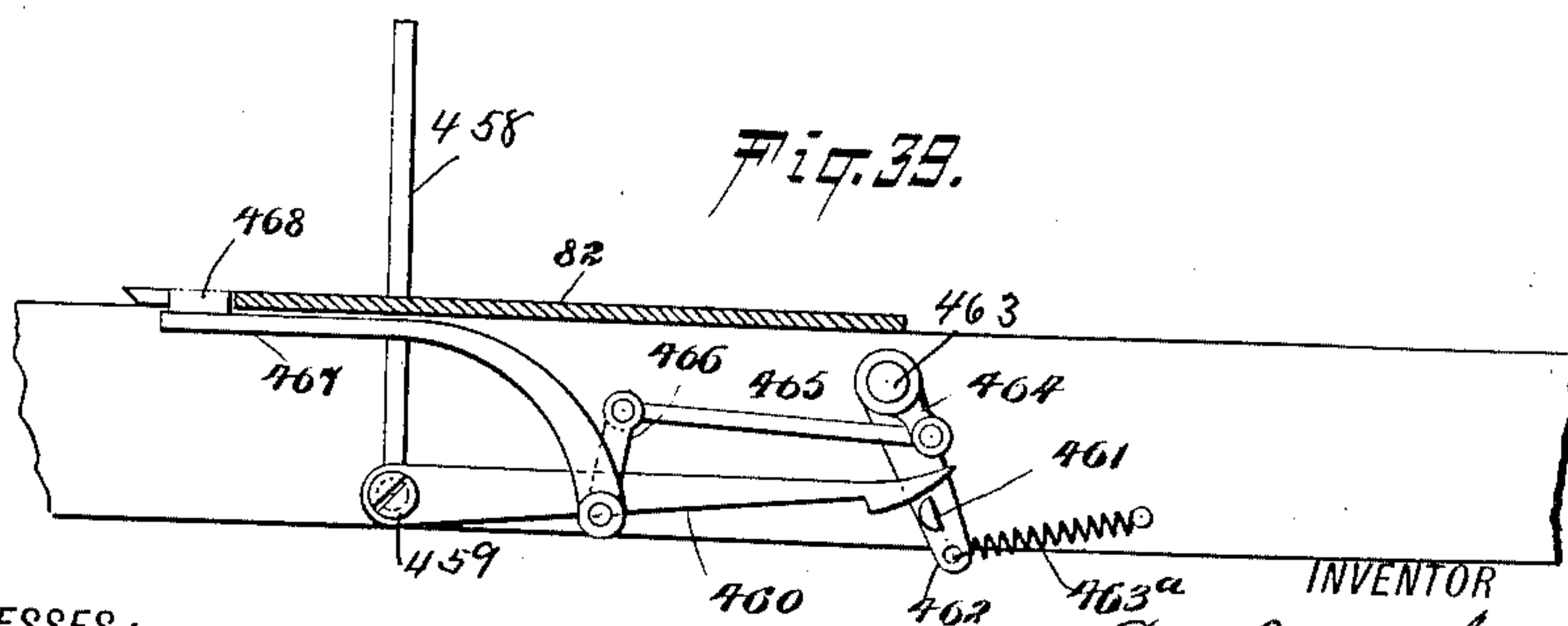
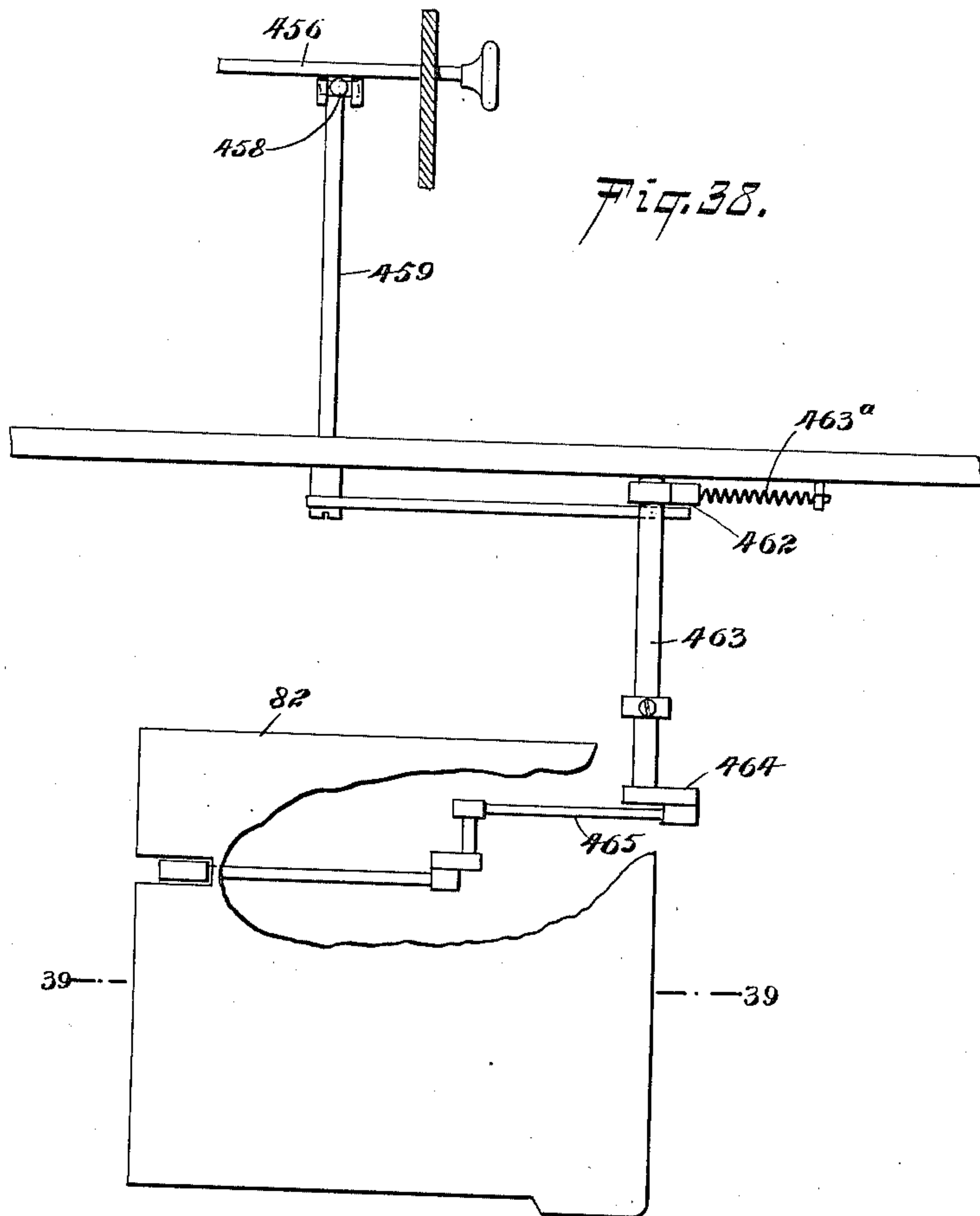
PATENTED APR. 5, 1904.

DETALMO DI BRAZZA SAVORGNAN.
MACHINE FOR REGISTERING MAIL MATTER.

APPLICATION FILED SEPT. 28, 1896.

NO MODEL.

18 SHEETS—SHEET 18.



WITNESSES:
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UNITED STATES PATENT OFFICE.

DETALMO DI BRAZZA SAVORGNAN, OF ROME, ITALY, ASSIGNOR TO CORA
A. S. DI BRAZZA SAVORGNAN, OF ROME, ITALY.

MACHINE FOR REGISTERING MAIL-MATTER.

SPECIFICATION forming part of Letters Patent No. 756,714, dated April 5, 1904.

Application filed September 28, 1896. Serial No. 607,156. (No model.)

To all whom it may concern:

Be it known that I, DETALMO DI BRAZZA SAVORGNAN, of Rome, Italy, have invented a new and Improved Machine for Registering
5 Mail-Matter, of which the following is a full, clear, and exact description.

This invention relates to machines for registering mail-matter, and the object is to provide a machine for this purpose that may be
10 easily operated by a person sending the mail-matter after the proper coin or coins shall have been inserted or after the postage shall have been otherwise paid, and, further, to so
15 construct the machine that a copy or copies of the original receipt delivered to the party sending the mail-matter will be retained in the machine and bound in book form, the said retained copy or copies being for the use
20 of the postal authorities, and, further, to so construct the machine that mail-matter deposited will be consecutively numbered and numbers printed on the receipts to correspond with the numbers on the mail-matter deposited.

25 I will describe a machine embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification,
30 in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a top plan view principally showing the casing in which a machine embodying my invention is placed. Fig. 2 is a plan view
35 of the machine with the top of the casing removed. Fig. 3 is a section on the line 3 3 of Fig. 2. Fig. 4 is a detail view showing numbering-wheels and their operating mechanism. Fig. 5 is a top plan view thereof. Fig.
40 6 is a section on the line 6 6 of Fig. 2. Fig. 7 is a sectional elevation of a carriage employed and its operating parts. Fig. 8 is a top plan view of said carriage. Fig. 9 is a front elevation with the front of the casing removed. Fig. 10 is an end elevation with
45 the casing broken away. Fig. 11 is a similar view to Fig. 10, but showing certain parts in a different position. Fig. 12 is a side elevation of a coin-chute. Fig. 13 shows a por-

tion of said coin-chute. Fig. 14 is an end ele- 50
vation of the machine with a portion of the casing broken away. Fig. 15 is a sectional detail view drawn on an enlarged scale. Fig.
16 is an elevation showing a portion of a binding device employed. Fig. 17 is an ele- 55
vation of said device, showing the opposite side. Fig. 18 is a section through the line 18 18 of Fig. 17. Fig. 19 is a top plan view of said device. Fig. 20 is a plan view of a writing-
table employed and also showing means for 60
elevating the same. Fig. 21 is a section on the line 21 21 of Fig. 20. Fig. 22 is a bottom plan view of a shaft used in feeding the paper strips to be printed upon. Fig. 23 is an ele-
vation showing a portion of a letter-chute em- 65
ployed. Fig. 24 is a section on the line 24 24 of Fig. 23. Fig. 25 is a side view, drawn on an enlarged scale, showing coin-pans employed. Fig. 26 is a top view thereof. Fig. 27 is a top
plan view showing printing devices and means 70
for carrying forward the strips of paper to be printed upon. Fig. 28 is a section substantially on the line 28 28 of Fig. 27. Fig. 29 is a side elevation of printing mechanism employed. Fig. 30 is a top plan view thereof. 75
Fig. 31 is an end view thereof. Fig. 32 shows the opposite end of said printing mechanism. Fig. 33 is a longitudinal vertical section of said printing mechanism drawn on an en-
larged scale. Fig. 34 is a longitudinal sec- 80
tion of a portion of a type-carrier employed. Fig. 35 is a transverse section thereof. Fig. 36 is a perspective view showing a modification. Fig. 37 shows an insurance-strip that may be employed at certain times. Fig. 85
38 is a modification showing a means for making an impression on the receipt when the machine is adapted for use upon depositing or affixing a postage-stamp to a duplicate re-
ceipt, and Fig. 39 is a section substantially 90
through the line 39 39 of Fig. 38.

The machine comprises a suitable casing 1, having on its top a dome-shaped receptacle 2, within which is mounted to rotate a letter-carrying chute 3. This letter-carrying chute 3 95
has trunnion-bearings at its ends through the dome-shaped receptacle 2, and it is open at its opposite ends, one open end being adapted to

communicate with an inlet 4, leading through the wall of the dome-shaped receptacle 2, and the other end being adapted to communicate with a letter-chute 5, extended downward through the body of the casing 1 and communicating at its lower end with a suitable receptacle for mail-matter. A closure 6, having arms 7 mounted to swing loosely on the trunnions of the letter-carrying chute 3, is designed to close the inlet 4 to prevent the insertion of letters or other mail-matter into the chute 3.

Mounted on a shaft 8, extended transversely through the dome-shaped receptacle 2, is a finger 9, having at its end an outwardly-extended lug 10, and also affixed to this shaft 8 at right angles to the finger 9 are arms 11, to which the lower ends of links 12 are pivotally connected, the upper ends of said links 12 being pivotally connected to the arms 7 of the closure 6. When the machine is in its closed position, as indicated in Fig. 10, the lug 10 on the finger 9 will be engaged by a latch 13, pivoted at one end on a stud 14, mounted on a lever 15, having pivotal connection with an operating-lever 16, extended from the main shaft 17. The said main shaft 17 extends outward through one side of the casing 1 and is provided with a crank 18. The stud 14 passes through and is movable in an arc-shaped slot 19, formed in a plate 20, arranged within the dome-shaped receptacle 2. The under edge of the latch 13 is curved upward from its latching portion to its end, thus forming a curved surface that may ride upon the lug 10 when the several parts are moved to a closed and locking position. It is obvious that when the latch is in engagement with the lug 10, as indicated in Fig. 10, motion cannot be imparted to the levers 15 and 16.

Pivoted on a shaft 21 is a dog 22, adapted to engage at its upper end with the under side of the lug 10, and also on this shaft 21 and extended substantially at right angles to the dog 22 is an arm 23, having pivotally connected to its free end a link 24, the lower end of said link 24 being pivoted to a tappet-lever 25, the said tappet-lever 25 being pivoted on a lug 26 on a hanger 27, depending from a frame portion 28 of the machine.

Around the shaft 8 is coiled a spring 29, one end of said spring being attached to the shaft and the other end of the spring being attached to a fixed frame portion of the machine. Obviously when the dog 22 is moved from its engagement with the lug 10 the said spring 29 will rotate the shaft 8, causing the finger 9 to move downward to the position indicated in Fig. 11, and at the same time the links 12 will cause the closure 6 to move downward to the position indicated in Fig. 11, and thus allow access to the chute 3. It will be observed that the chute 3 has on its lower side a depending segmental strip 30, which will serve to close the inlet 4 when the chute 3 is rotated to its

vertical position. (Indicated by dotted lines in Fig. 11.)

I will now describe the means for releasing the locking mechanism upon the deposit of a coin of proper denomination or weight. Extended downward through the dome-shaped receptacle 2 is a coin-chute 31. This coin-chute 31 has an opening 32 through the front wall of the dome-shaped receptacle 2, and it is curved inward and downward in such a manner that its upper portion will extend transversely of the machine and its lower portion will extend vertically of the machine. The horizontally-disposed portion of the chute is provided with a slot-opening 33, the sides of which are formed by inwardly-extended flanges 34. These flanges 34 will be of sufficient width to engage with a coin of proper size, but should a coin of smaller size be placed in the chute the same will fall outward through the slot-opening 33, thus rendering said small coin inoperative with relation to the locking device. The lower end of the coin-chute 31 communicates with a coin-pan 35, mounted on a rocking lever 36, and from this coin-pan 35 a coin of proper denomination is discharged into a coin-pan 37, mounted on a swinging arm 38. As the coin-pan 35 first receives the coin, I will designate it as the "receiving-pan," and designate the pan 37 as the "depositing-pan."

The arm 36 of the coin-receiving pan 35 is fulcrumed to a bracket 39, depending from the frame portion 28, and at its end the said arm is provided with an adjustable weight 40 for counterbalancing the pan 35. Pivotally mounted on the arm 36 is what may be termed an "accelerating-arm" 41. This arm 41 extends upward above the arm 36 and is movable between tappets 42, adjustable in lugs 43, extended upward from the arm 36. These tappets 42 may be adjusted toward or from the arm 41 to regulate the movement of said arm. This arm 41 is provided with a threaded portion, upon which is mounted an interiorly-screw-threaded weight 44. It will be seen that the pivotal point of this arm 41 is just forward of the pivotal arm 36, and the object of the weighted arm 41 is to accelerate the movement of the arm 36 at a certain time in its downward movement, so as to discharge a coin therefrom. This operation will take place when the arm 36 is substantially in the position indicated by dotted lines in Fig. 25. At this time the front edge of the arm 41 will move against the front tappet 42 with considerable force.

It may be here stated that should a coin of light weight be placed in the pan 35 it will remain substantially in the position indicated by the dotted lines until the next deposit of a coin in the chute 31. The insertion of a coin in the upper end of the chute 31 will operate to return the pan 35 to its normal upper position in line with the lower end of the chute. The means for causing this operation consists

in a lever 45, having a head 46 extended into the chute 31 at its upper end and adapted to be engaged by a coin inserted in said upper end of the chute. This lever 45 is pivoted to the under side of the chute 31, and it has a link connection 47 with a lug 48, extended at substantially right angles from a curved arm 49, and near its pivotal point with the frame portion 28. The arm 49 is curved downward and inward and is adapted to engage its front curved edge with a lug 50, extended outward from the arm 36. The lug 50, as here shown, is attached to a rod 51, having bearings in ears extended outward from the arm 36. A spring 52 is attached at one end to the rod 51 and at the other end to one of the ears projected from the arm 36. The rod 51 is connected at one end to the shorter arm of an angle-lever 53, pivotally mounted on the arm 36. The longer arm of this angle-lever 53 supports an ejector-plate 54. The said ejector-plate 54 is provided with a series of pins 55, designed to be forced through perforations in the side wall of the pan 36 to eject a coin of inferior weight. It will be seen that the pan 35 is open at one side and is slanted vertically, so that a coin may lie with its flat side against the wall of the pan.

In operation the insertion of a coin in the mouth or inlet of the chute 31 will engage with and rock the lever 45. This rocking of the lever 45 will rock the curved arm 49 into engagement with the lug 50. The radius of movement of the arm 49 being so much greater than that of the lever 45, it is obvious that the arm 49 may move a sufficient distance to return the pan 35 to its normal upward position. During this upward movement of the pan 35 the arm 49, engaging with the lug 50, will move the rod 51 longitudinally, and this movement of the rod 51 will rock the angle-lever 53 to move the pins 55 into the pan 35, and should a coin of inferior weight be in the pan it will, as before stated, move the said pan only to the position shown in dotted lines in Fig. 25. The said pins 55 will eject the coin of inferior weight from the pan 35 and from which it will fall into a chute 56, leading outward through the casing. A coin of the proper weight, however, will move the pan 35 downward into line with a guide 57, designed to direct the coin into the depositing-pan 37.

The arm 38 of the pan 37 is pivotally mounted in the frame 28, and it is provided at its extension rearward of its pivotal point with a counterbalance 58. Extended upward from the pivotal point of the arm 38 is a rod 59, upon the upper end of which is attached a hammer 60, designed to engage with the tappet-lever 25 as the coin-pan 37 moves downward to discharge a coin, as indicated in Fig. 11. This striking of the hammer 60 against the tappet-lever 25 will rock the same, and consequently draw the dog 22 out of engagement with the lug 10, so that the shaft 8

may be rotated by means of its spring, heretofore described, and at this time the closure 6 will be moved so that mail-matter may be inserted in the chute 3. Then upon rotating the chute 3 by means of the handle 61 on one of its trunnions the mail-matter may be discharged from the chute 3 into the chute 5, where it will have certain printed matter placed upon it, as will be hereinafter described.

To the shaft 8, which extends outward through one wall of the dome-shaped casing 2, is attached a door 62, adapted to close an opening 63 in the top wall of the casing 1. This door 62 has a curved portion 64, and upon the shaft are mounted rings 65. These rings 65 are secured to the curved portion 64 of the door, and this curved portion 64 is designed to move in a hood portion 66 on the casing. It is obvious, therefore, that the door 62 will be opened simultaneously with the closure 6, for a purpose hereinafter described.

Before describing the printing and recording devices used in connection with the machine I will describe the means for returning the closure 6 to its closing position and the door 62 to its closing position and also the means for operating the locking devices and for returning the pan 37 to its normal upward position. On the lever 15 is a finger 67, adapted to engage with a pin 68, extended outward from the finger 9. When the main shaft 17 is rotated by means of the crank 18, the lever 16 will cause the lever 15 to move longitudinally, and during this movement the finger 67, engaging with the pin 68, will move the finger 9 toward its locking position against the resistance of the spring on the shaft 8. The tappet-lever 25 is counterbalanced, as at 69, and when the hammer 60 is raised from said tappet-lever the counterbalance will rock said tappet-lever, and consequently move the dog 22 into position for engaging under the lug 10. Of course during the upward movement of the finger 9 the front edge of said lug will strike the adjacent edge of the dog 22 and rock it slightly, and when the lug shall have reached a point above the dog the counterbalance will operate to move the dog under the lug.

To prevent the closure 6 and the door 62 from being closed and locked without operating the levers 15 and 16, I employ a swinging stop 69^a, pivotally mounted on the latch 13 and normally pressed forward by means of a spring 70. When the finger 9 is moved downward, the spring 70 will force the lower end of the stop 69^a into the line of movement of the lug 10 of said finger and hold the latch out of engagement with the finger 9. Therefore it is obvious that the shaft 8 will be rotated by its spring when the door is released and again open the door. When the said levers 15 and 16 are operated outward, the latch and stop will be carried rearward with the

lever 15, and therefore the finger may be turned to its normal locking position.

Fulcrumed to the frame 28 is a lever 71, from which a rod 72 extends to a pivotal connection with the lever 16. The connection between the rod 72 and the lever 71 consists of a pin extended from the rod 72 through a slot formed in the end of the lever. This pin extends laterally and is engaged with the under side of a curved finger 73, extended from the frame 28. This finger 73 curves rearward and upward and terminates in a portion 74, which extends at an acute angle from the finger 73. On the stud to which the lever 71 is connected is a hook-shaped finger 75, adapted to engage with a pin 76, extended outward from the arm 38 of the pan 37. Obviously when the shaft 17 is rotated the rod 72 will rock the lever 71, and thus rock the finger 75 into engagement with the pin 76. The continued movement of the parts will move the pan 37 to the position shown in dotted lines in said figure. After the stud extended through the slot in the lever 71 shall have passed to the portion 74 on the finger 73 the said stud may move upward in the slot without imparting further movement to the lever 71, and this movement of the stud on the portion 74 will steady the hammer 60, preventing vibration, which might cause it to fall forward and open the machine. Upon a reverse movement of the shaft 17 the parts 71 and 75 will be returned, of course, to their normal downward position, and this reverse movement of the shaft will of course engage the latch 13 over the lug 10.

To prevent a reverse movement of the lever 16 before it shall have made a complete movement in either of its directions, I provide the upper end of said lever with a pivoted dog, comprising teeth 77 and 78, respectively, adapted to engage with the teeth of a curved rack 79, secured in the casing of the machine. During the forward movement of the lever 16 the tooth 77 of the dog will engage with the rack-teeth, and when the said lever shall have completed its movement in this direction an inwardly-extended lug 80 at one end of the rack 79 will engage with the tooth 78 and rock the said tooth 78 into engagement with the rack, of course releasing the tooth 77 from the rack. Upon the completion of the return movement a lug 81 on this end of the rack 79 will engage the tooth 77 and rock it into engagement with the rack, releasing the tooth 78 therefrom.

Arranged beneath the opening 63 is a writing table or platform 82, over which strips of paper are designed to pass to receive the writing of the party registering a letter. As it is possible that the strips of paper might become loose on said table by a person writing upon the same, I provide means for clamping the paper between said table and the inner side of the top wall of the casing 1. For this purpose I have shown the table 82 as movable

vertically. The table 82 is pivotally mounted on arms 83 and 84, these arms 83 and 84 at their opposite ends being pivoted to lugs extending inward from the casing.

Extended transversely of the table 82 is a shaft 85, upon one end of which is mounted an arm 86, having an outwardly-extended pin 87, adapted to be engaged by the hook portion of a fulcrumed lever 88. The opposite end of said lever 88 bears upon the periphery of the shaft 8, and this shaft 8 is provided at one side with a projection 89, which upon engaging with the lever 88 will rock the same and allow a spring 90, attached at one end to the arm 86 and at the other end to the casing or to the frame therein, to rock the shaft 85. The inner end of the shaft 85 is provided with an arm 91, from which a link 92 extends to a connection with a block 93, mounted to slide on a guideway 94. The upper surface of this block 93 is beveled or inclined downward toward its front end or toward the link 92, and upon this inclined upper surface rests a roller 95, having journal-bearings in a hanger 96, extended downward from the under side of the table 82. Obviously when the shaft 85 is rotated by means of the spring 90 the block 93 will be drawn forward, and thus force the table upward to clamp the paper between it and the inner side of the upper wall of the casing 1. The means for rotating the shaft 85 to return the parts to their normal position I will describe hereinafter.

Extended from a spindle 97, mounted in the casing, is a strip of paper 98. This strip of paper 98 extends over an idler-roller 99 and thence over the table 82, then over an idler 100, and then between feed-rollers 101 and 102, underneath which duplicate receipts will be cut from the sheet of paper and subsequently bound in book form, as will be more fully described hereinafter. Movable transversely beneath the strips of paper just described is another strip of paper, 103, fed from a spindle 104 in the casing. This strip 103 may be termed the "original" receipt-strip, as the receipt is to be discharged from the machine to be retained by the party registering the mail-matter. This strip of paper 103 extends over an idler-roller 105 and then between feed-rollers 106 and 107.

To cause an impression on the several lower strips of the paper of the writing placed upon the upper strip of paper, I employ a carbon ribbon 108. This carbon ribbon 108 extends from a spindle 109, journaled in the casing, over an idler-roller 110, under an idler-roller 111, over an idler-roller 112, then between the first and second strips of paper, then between rollers 113 and 114, back between the second and third strips of paper, over a roller 115, under a roller 116, and over a roller 117 to a spindle 118. A narrow carbon ribbon 119 also extends from one end of the spindle 109 over the idler 110, thence across the up-

per strip of paper, and also across a set of numbering and dating wheels to be herein-after described, and then between rollers 120 and 121, back over the upper strip of paper, 5 thence around an enlarged portion of the idler 112, thence around the roller 116 and over the roller 117 to one end of the spindle 118. The object in providing two spindles 109 and 118 is to provide means for running 10 the carbon ribbons back and forth or from one spindle to the other, and therefore means must be employed for reversing the movements of said spindles.

I will now describe a means for operating the 15 carbon or inking ribbons. This means consists of a rod 122, having a lost-motion connection at its lower end with the main shaft 17. As here shown, the main shaft 17 is provided with a segmental yoke 123, into which 20 a pin or roller on the lower end of the rod 122 extends. The upper end of the rod 122 extends through guideways 124. Pivottally connected to the rod 122 at 125 are oppositely-extended arms 126 and 127, each arm having, 25 as here shown, a roller-bearing 128 at its end. The roller of the arm 126 is designed at a certain time to bear upon the ribbon as it winds upon the spindle 109, and the roller on the arm 127 is designed at a certain time to bear 30 upon the ribbon as it winds upon the spindle 118.

Rigidly mounted on the pivot 125 is a segment-rack 129, engaging with a pinion 130 on a shaft 131, which shaft at its opposite end 35 has a crank-arm 132, from which a spring 133 extends to a fixed portion of the casing or a frame therein. Also mounted on this shaft 131 near the pinion 130 is a cam 134, adapted to engage alternately the depending fingers 40 of a lever 135, pivoted between its ends to the rod 122. The upper end of this lever 135 is extended to a point, as plainly shown in Fig. 9, and is intended to be engaged by downwardly-inclined portions at the end of a retarding- 45 spring 136, the said spring 136 being secured to a bracket attached to the frame. Pivottally connected to one side of the lever 135 is a dog 137, designed to engage a ratchet-wheel 138 on the shaft of the spindle 109, and on the 50 opposite side of said lever 135 is a similar dog 139, designed to engage with a ratchet-wheel 140 on the shaft of the spindle 118. The operation of this winding mechanism is as follows: Assuming the ribbon to be winding upon the spindle 118, the arm 127 bearing thereon 55 will be gradually rocked as the ribbon enlarges its circumference on the spindle. This movement of the arm 127 will of course move the arm 126 toward the spindle 109 and also move the segment-rack 129, and through this 60 segment-rack 129 the pinion 130 will be rotated, gradually moving the cam 134 in the forked or fingered end of the lever 135. When the rack 129 shall have reached nearly to the 65 end of its movement, the spring 133 by draw-

ing upon the crank-arm 132 will operate to quickly rotate the shaft 131, throwing the pointed end of the lever 135 to the opposite side of the engaging portion of the retarding-spring 136. This movement of course will 70 throw the roller on the end of the arm 126 into engagement with the ribbon on the spindle 109, and at this time the dog 137 will be in engagement with the ratchet-wheel 138 and the dog 139 disengaged from the ratchet- 75 wheel 140. A step-by-step rotary movement is imparted to the ribbon-spindles by an upward movement of the rod 122. This upward movement is imparted when the shaft 17 is returned to its normal position by means of the 80 end wall of the yoke 123 coming into contact with the pin on the end of the rod 122. As there is considerable lost motion between the pin on the rod 122 and the yoke 123, it is obvious that the shaft 17 may rotate a certain 85 distance without imparting rotary motion to the rod 122. On the forward rotation of the shaft 17 the opposite end of the yoke 123 will engage with the pin on the rod 122 and draw 90 said rod downward to place its pawl in operative position with the next tooth on a ratchet-wheel.

I will now describe the means for operating the feed-rollers 101 and 106. Mounted in a frame 141 in the casing 1 is a roller 142, pro- 95 vided on its under side with a longitudinal channel or groove 143 and also having a spiral groove 144, which opens at its ends into the channel or groove 143. Below the roller 142 and mounted to slide on rods 145, supported 100 in the frame 141, is a carriage 146. Extended upward from this carriage 146 is a pin 147, provided with an antifriction-roller 148, which engages in the channel or groove 143 and is also adapted to engage in the spiral groove 105 144 during the backward movement of said carriage on the rods 145. To shift the antifriction-roller 148 into the spiral groove 144, I employ a switch-finger 149, pivottally connected at one end to the under side of the 110 roller 142 and extended across the channel or groove 143, the end of said switch being normally seated in a depression formed in the side wall of said channel or groove, as plainly indicated in Fig. 22. As the carriage 146 115 moves forward the roller 148, engaging the rear edge of the switch 149, will move the said switch to the opposite side of the channel or groove, so that the carriage may continue its movement beyond the end of the 120 switch. During this forward movement of the carriage 146 a pin 150 on an arm extended rearward from the rear end of said carriage 146 will engage with a pin 151 on an arm 125 extended substantially at right angles from the switch 149 at its pivotal point, and this engagement of the pin 150 with the pin 151 will return said switch to its normal position, as indicated in Fig. 22. This returning of 130 the switch will take place after the roller 148

shall have passed beyond its end. Upon the return movement of the carriage 146 the roller 148 will be guided by the switch 149 into the spiral channel or groove 144, and of course the continued backward movement of the carriage will impart a rotary motion to the roller 142.

The back-and-forth or reciprocating motion of the carriage 146 is imparted from the main shaft 17 by means of a lever 152, having arms 153 at its upper end, from which links 154 extend to pivotal connections with the carriage 146. It may be here stated that upon a forward movement of the carriage 146 one of the arms 153 will engage with a pin 155 on the shaft 85 and cause a rotation of said shaft to return the block 93 to its original position to allow the table 82 to lower, and of course during this movement the hook end of the lever 88 will engage over the lug 87 on the crank-arm 86 to retain the parts in this position until a subsequent operation of the machine.

Extended from the forward end of the roller 142 is a shaft 156, provided with a bevel-gear 157, meshing with a bevel-gear 158 on the shaft of the feed-roller 101. The shaft of the feed-roller 101 is made in two sections 159 and 160, the section 159 being made tubular and the section 160 extending through the same. It will be seen that the bevel-gear 158 is mounted on the section 160 of the shaft. Movable longitudinally on the shaft-section 160 is a clutch-section 161, adapted to engage with a clutch-section on the tubular section 159 of the shaft. A spring is arranged around the shaft-section 160 between the bearing for said shaft and the clutch-section 161. It is obvious by this construction that a rotary movement of the shaft 142 will impart a rotary movement to the feed-roller 101 while the clutch-sections are in engagement. The object of the clutch connection is to allow a rotary movement to be imparted to the feed-roller 101 independently of the roller 142 for a purpose to be hereinafter described. Upon the opposite end of the shaft-section 160 is a bevel-gear 162, meshing with a bevel-gear 163, mounted on a shaft 164, extended at right angles to the feed-roller 101. Upon this shaft 164 is a gear-wheel 165, meshing with a pinion 166 on the shaft of the feed-roller 107, and this pinion 166 meshes with a pinion 167 on the shaft of the feed-roller 106.

As before stated, the duplicate receipts are to be fed between the rollers 101 and 102. The roller 102 may have bearings in movable blocks, so that the same may be adjusted with proper relation to the roller 101 to be rotated thereby by friction. The paper fed between the rollers 101 and 102 is carried down a suitable distance—such, for instance, as the length of the two receipts upon a strip—and then these two receipts are to be severed or cut from the body portion of the paper strips and bound in book form, and the mechanism for this purpose I will now describe.

Extended downward from a slotted table

168 underneath the feed-rollers is a lug 169, upon which is pivoted a lever 170. This lever 170 extends longitudinally of the feed-rollers, and at a point approximately opposite the longitudinal center of the feed-rollers the said lever has a loose connection with a cutter-blade 171, mounted to move in guideways underneath the table 168. Obviously when the cutter-blade 171 moves across the slot in the table 168 the four receipts will be severed from the main strip, one edge of said slot in the table forming a fixed blade for the cutter. Motion is imparted to the lever 170, and consequently to the cutter-blade 171, by a movement of the carriage 146.

As before stated, it is desired that the strips of paper containing a number of duplicate receipts shall be fed downward between the feed-rollers before the said strips are separated from the main strips, and therefore I provide means whereby the cutter will be operated only upon each fourth forward movement of the carriage 146. The said means consists of a shaft 172, having bearings in hangers depending from the carriage 146 and upon which is mounted a four-toothed wheel 173 and also upon which is mounted an arm 174, having a laterally-extended finger 175. The teeth of said wheel 173 are on their front surfaces extended radially, and the rear surface of each tooth is curved from its end to the base of the radial surface of the next tooth.

Pivotaly connected to an arm 176, extending from the end of the frame 141, is a dog 177, adapted to engage with the radial surfaces of the teeth of the wheel 173 upon each backward movement of the carriage 146 and rotate said wheel one step. The wheel is prevented from backward movement by means of a pawl 178, pivoted to the carriage and held by spring-pressure against the wheel 173. When the parts are in the position indicated in Figs. 7 and 8, the finger 175 when the carriage 146 reaches nearly to the end of its movement will engage with a tappet 179 on the lever 170, and the continued movement of the carriage, of course, will rock said lever and cause the operation of the movable cutter-blade. Upon the return movement of the carriage 146 the dog 177 will engage with a tooth of the wheel 173 and rotate it one step, consequently moving the arm to a substantially vertical position. Therefore upon the next forward movement of the carriage 146 the lever and knife will not be operated, and said operation cannot again take place until the wheel 173 shall have been rotated completely to again bring the parts 174 and 175 into position as indicated in Figs. 7 and 8.

As before stated, there are two strips of paper fed between the rollers 101 and 102. One of said strips, 98, I have described in detail as extended from the spindle 97. The other strip, 180, extends from a spindle 181, arranged below the spindle 97. This strip 180 extends

over an idler 182 and thence across the table 82 above the strip 98. Of course there will be a carbon ribbon arranged between the strips 98 and 180.

5 Arranged below the feed-rollers 106 and 107 and adapted to sever an original receipt from the main strip 103 of paper is a swinging cutter-blade 183, coacting with a fixed cutter-blade 184. This swinging blade 183 is at-
 10 tached to the upper end of an oscillating shaft 185, which at its lower end is provided with an arm 186, having a pin 187 extending into a substantially S-shaped cam-groove 188, formed in the periphery of a segment 189, rig-
 15 idly attached to the main shaft 17. Arranged below the cutter 183 is one end of a guideway consisting of plates 190 and 191. This guideway is intended to direct an original re-
 20 ceipt outward through an opening in the upper portion of the casing 1, where it may be received by the person registering the mail-matter. Near the outlet end of the guideway discharging-rollers 192 and 193 are arranged. The discharge-roller 192 projects slightly into
 25 the guideway through a slot opening in the plate 191, and the guide-roller 193 is designed to have a movement to and from the roller 192 and through an opening in the plate 190, whereby under certain conditions the rollers
 30 will not operate to discharge a receipt to the outlet, but will allow it to drop downward into the machine. The guide-roller 193 has its journal-bearings in arms 194, extended up-
 35 ward from the shaft 195. A journal of the roller 192 is provided with a bevel-gear 196, meshing with a bevel-gear 197 on an upwardly-inclined shaft 198. The lower end of this
 40 shaft 198 is provided with a bevel-gear 199, meshing with a segment-rack 200, loosely mounted on the main shaft 17 at the side of the segment 189.

The shaft 195 of the roller 193 is provided with a depending arm 201, engaging with a disk 202, secured to the vertical shaft 198.
 45 This disk 202 is provided in its periphery with a notch 203. When the depending arm 201 bears upon the periphery of the disk 202, the shaft 195 will be sufficiently rocked to bring the roller 193 into engagement with the roller
 50 192, so that the receipt may be fed outward by said rollers; but when said arm 201 drops into the notch 203 the roller 193 will move away from the roller 192, therefore allowing the severed receipt to drop down into the ma-
 55 chine, as will be hereinafter described.

It is intended that the rack 200 shall be moved forward or set during the forward movement of the cam-segment 189, and there it remains until the cam-segment shall have
 60 been returned to its normal position, and then the segment-rack will be drawn backward to impart motion to the shaft 198 to rotate the rollers 192 and 193 in a proper direction for feeding a receipt out of the machine. As here
 65 shown, a spring extends from the rear end of

the rack 200 to a fixed part of the machine and the cam-segment is provided with a pin 204, adapted to engage against the rear edge of the rack-segment. The hub of the rack-segment is provided with a tooth 205, adapted to be
 70 engaged by a spring-pressed dog 206, pivoted in the machine, and from the pivot of this dog 206 an arm 207 extends outward, and this arm 207 is provided with a laterally-extended pin adapted to be engaged by a finger 208, pro-
 75 jected from the rear edge of the cam-block 189. In operation upon rocking or rotating the shaft 17 the cam-segment 189 will be carried forward, and consequently rotate the shaft 185 to operate the cutter 183 to force a receipt
 80 from the main strip of paper. Upon this forward movement of the cam-segment the pin 204 engaging with the rack-segment will carry said rack-segment forward, and when it shall have reached the limit of this forward move-
 85 ment the dog 206 will engage underneath the tooth 205 and retain the rack-segment in its forward position. Upon the return movement of the cam-segment the finger 208 by striking against the pin on the arm extending
 90 from the pivot of the dog will rock said dog out of engagement with the tooth 205, and then the spring 203 will draw the rack rearward and rotate the shaft 198 to operate the discharge-roller 192. When the segment-rack
 95 is in its forward position, the notch in the disk 202 will be in position to receive the depending arm 201, and of course upon the backward movement of the rack the disk will be rotated to force the arm to its periphery, and thus
 100 move the roller 193 toward the roller 192.

When the rollers 192 and 193 are in their separated positions, it is desired that an opening shall be formed in the lower portion of the guideway, so that an unclaimed receipt,
 105 should one be left in the chute, will fall downward into the body of the casing. For this purpose I employ switch-fingers 209, mounted on a rocking shaft 210 and movable across the guideway formed by the plates 190 and 191 at
 110 a point directly under the rollers 192 and 193. When the rollers 192 and 193 are in their operative positions, the ends of the switch-fingers 209 will engage against the plate 190, as indicated in full lines in Fig. 28, so that an
 115 unclaimed receipt may drop down between said fingers and the plate 191. When, however, the rollers are in their operative position to discharge a receipt, the fingers will be in the position indicated by dotted lines in
 120 said Fig. 28.

To cause the movements of the switch-fingers 209, I employ a rod 211, engaging at its upper end with a crank on the shaft 210 and
 125 having at its lower end a tappet 212, designed to be engaged by a pin 213 on the hub of the rack-segment 200 when said rack-segment is moved into its setting or forward position. When in such forward position, the pin 213 will force the rod 211 downward against the

resistance of a spring 214 and move the finger 209 to the position indicated by full lines in Fig. 28. Upon the return movement of the segment-rack the rod 211, being relieved from the pressure of the pin 213, will be moved upward by the spring 214, and thus the fingers 209 will be moved to the position indicated in dotted lines in Fig. 28.

I will now describe the means for binding the several duplicate receipts fed between the rollers 101 and 102 in book form. Mounted to swing on the shaft 215, supported in brackets 216, extended upward from the base of the machine, is a door 217. Secured to the upper portion of the door 217 and projected slightly beyond its inner surface is a transverse plate 218, provided with two notches 219, through which the shank portions of clips or paper-fasteners 220 may pass.

Mounted on shafts extended through the door 217 below the notches 219 are disks 221, each provided in its periphery with a notch 222, designed to be moved in line with the notches 219, so that the clips 220 may be inserted from the outer side of the door. It will be seen in Fig. 17 that the material of the door is cut away at the points coincident with the notches 219. There will be sufficient space between the inner face of the disks 221 and the adjacent face of the plate 218 to accommodate the thickness of the heads on the clips 220. The outer ends of the shafts bearing the disks 221 are provided with segment-gears 223, the respective segment-gears meshing with a gear 224, mounted to rotate on a stud on the outer side of the door 217. It is obvious that by rotating the gear 224 the disks 221 may be rotated to bring their notches 222 in line with the notches 219, so that the clips may be inserted. After inserting the clips the gear 224 will be operated to turn the disks in the reverse direction, so as to engage the outer sides of the heads on the clips, as plainly indicated in Fig. 17.

To hold the clips from downward movement while the receipts are being placed thereon, I provide the inner side of each disk 221 with a segment-plate 225, which will engage against the periphery of the heads at the under side. To remove the clips after a sufficient number of receipts shall have been placed thereon, I employ eccentric plates 226, which are secured to the inner side of the disks 221. These eccentric plates are curved from the periphery of the disks inward, so that when the disks are rotated the said eccentric plates will engage upon the upper side of the clip-heads and force the clips out of the notches 219. To force the severed receipts onto the clips 220, I employ arms 227, which depend from the under side of the cutter 171 slightly rearward of its cutting edge. These arms 227 are provided with perforations through which the ends of the clips may pass as the paper is forced upon the same. Of course after a predeter-

mined number of receipts shall have been placed upon the clips the several bound receipts are to be removed, as before described, and then the ends of the clips may be turned outward to bind the several receipts together.

It is desired that the machine be automatically rendered inoperative after a certain or predetermined number of receipts to form a book shall have been placed upon the clips 220. For this purpose I provide means for locking the lever 45 in the coin-chute 31 in such a manner that a coin cannot be inserted. The shaft 215 is mounted to rotate in its bearings on the brackets 216. The central portion of this shaft 215 has a crank-arm 228, to the end of which is pivoted a rod 229. The upper end of said rod 229 is pivoted to a crank-arm 230, extended outward from the transverse shaft 231, having pivotal bearings in lugs extended from the outer side of the door 217. On this shaft 231 pivotally-extended fingers 232 are mounted, and the upper ends of these fingers 232 are pivotally connected to push-fingers 233, extended through openings or perforations in the door 217. The inner ends of these push-fingers 233 are in the line of movement of the arms 227, extended downward from the cutter 171. Therefore when the last of a desired number of receipts shall have been placed upon the clips 220 the depending arms upon the last movement of the cutter will force the number of receipts against the fingers 233 sufficiently to rock the shaft 215.

On one end of the shaft 215 is a crank-arm 234, from which a link 235 extends to a pivotal connection with an angle-lever 236. The other arm of this angle-lever 236 is connected with a rod 237, which extends upward through the machine, and at its upper end this rod 237 is provided with a hook to engage over a section of a cross-piece on the lower end of a rod 238, connecting at its upper end with a pivoted angle-lever 239, having a laterally-projected pin adapted to engage with the edge of the lever 45. Upon the rocking of the shaft 215 the rods 237 and 238 will be drawn downward, and consequently the angle-lever 239 will be rocked into engagement with the lever 45 and force its head portion 46 across or into the chute 31, thus preventing the insertion of a coin. It is also desired that the machine be rendered inoperative should one of the strips of paper be broken or torn across. I have here shown means for this purpose in connection with the paper strip 180; but it is to be understood that such means may be employed in connection with the other strips. This means consists of a roller 240, adapted to bear on the outer surface of the paper strip 180, as here shown below its idler-roller 182. This roller 240 has its journal-bearings in a yoke attached to the upper end of a lever 241, mounted on a shaft 242, extended transversely of the machine, and having bearings in lugs extended inward from the casing 1. From

the opposite end of this shaft 242 an arm 243 extends forward and connects at its end with a rod 244, having a hook at its upper end engaging with the cross-piece on the lower end of the rod 238. Obviously should the paper strip 180 become broken or torn entirely across the roller 240 will move downward by gravity, and by rocking the shaft 242 will operate the arm 243, drawing the rods 244 and 238 downward, thus rocking the angle-lever 239 to force the head of the lever 45 into the coin-chute.

Prior to closing the coin-chute by means of the rod 237 and its connecting part there will remain on each of the paper strips 98 and 180 at the portions above the feed-rollers 101 and 102 two duplicate receipts, and these duplicate receipts of course must be moved downward between the rollers to be bound with the other receipts already on the clips 220, and as each sheet on the clips contains four receipts it is desirable to move the paper above the feed-rollers through the length of at least two receipts and then to sever the said two last receipt-sheets from the body of the strips to be bound in the book.

I will now describe a means for automatically performing this operation. Arranged on the tubular section 159 of the shaft for the feed-roller 101 and adjacent to the gear 162 is a pinion 245, meshing with a gear-wheel 246, mounted to rotate on a stud on a depending portion of the frame carrying the feed-rollers. Rearward of the door or cover 62 the casing 1 is provided with an upwardly-swinging cover 247. Pivotally connected to a lug on the under side of this cover 247 is a curved lever 248, having near its lower end a pin 249, engaging in a cam-slot in a hanger 250. This cam-slot has a curved portion 251 concentric with the axis of the gear-wheel 246. At the lower end this curved slot 251 communicates with a vertical slot 252. At its upper end the slot 251 communicates with a straight slot 253, which is inclined toward the pivotal point of the cover 247.

Pivotally connected to the outer surface of the wheel 246 at equally-distant points are blocks 254. Each block at its inner end is engaged by a spring 255, the said spring at its opposite end being attached to a pin extended outward from the gear-wheel. At its opposite or outer end each block at the end engaged by the spring is curved or inclined outward. The end of the lever 248 is provided with a hook portion 256, adapted to engage the outer end of a block 254. It is to be understood that the wheels 245 and 246 are of such relative size that a one-third revolution of the wheel 246 will cause the feed-rollers 101 and 102 to rotate a sufficient number of times to feed the required lengths of paper.

In operation when the cover 247 is opening the hook end of the lever 248 will be caused to engage with the block 254. Then by con-

tinued movement of the cover it is obvious that the curved slot 251 will cause the hook to remain in engagement with the block, and thus a one-third revolution will be imparted to the gear-wheel 246. When the cover is closed, the end of the lever 248, engaging the curved outer end of the next block 254 of the series, will rock said block on its pivot against the resistance of its spring, allowing the end of the lever to pass below the block, as indicated by dotted lines in Fig. 15. After the movement of the parts just described to feed the paper it is necessary to sever the strips so fed from the main strips, and this is done in the following manner: Pivotally connected to the under side of the cover 247 is a draw-bar 257, provided with a longitudinal slot 258. Fulcrumed to a stud 259 in the machine-casing is a lever 260, having at one end a pin 261, engaging in the slot 258 of the draw-bar 257. The opposite end of this lever 260 is curved downward and is provided with curved fingers 262 and 263. These curved fingers 262 and 263 are designed to engage the opposite sides of the end of the lever 170. After the cover 247 shall have been moved a sufficient distance to operate the feeding mechanism a continued movement will cause the lower end wall of the slot 258 in the bar 257 to engage with the pin on the lever 260 and a further movement will rock said lever 260, so that its curved finger 263, engaging with the end of the lever 170, will swing said lever and move the cutter 171 through the paper. The extension-slot 253 in the hanger 250 will allow for the continued upward movement of the lever 248. When the cover 247 is moved to its closed position, the upper end wall of the slot 258 will engage with the pin 261 of the lever 260 and rock said lever, so that the curved finger 262, engaging with the lever 170, will return said lever to its normal position and of course return the cutter to its normal position.

I will now describe a means for printing upon the several receipts the time of day for collection, the month, the day of the month, the year, the place of registering, and also for consecutively numbering the sets of receipts. Upon the shaft 264, arranged below the paper strips at the end of the table 82, are a number of printing-disks 265, 266, 267, 268, 269, 270, and 271. The disk 265 has figures on its periphery from "1" to "31," designating the days of a month. The disk 266 has type on its periphery for the several months of a year. The disk 267 has on its periphery characters indicating the time of the next collection, and the several disks 268 to 271, inclusive, are for the consecutive numbering of receipts and are operated automatically, the first three disks being operated by hand-levers in connection with other printing devices, as will appear hereinafter.

The consecutive-numbering disks are con-

constructed and operated as follows: The disk 268, which is the units-disk, is provided on one of its sides with a ratchet-wheel 272, having ten teeth, and on its opposite side with a plate 273, provided with a single tooth or depression. The next disk, or tens-disk, is similarly constructed with a ratchet-wheel consisting of ten teeth on its side adjacent to the single-toothed plate on the units-disk, and on its opposite side this tens-disk is provided with a single-toothed plate. It is to be understood that the circumference of each plate will be equal to the circumference of its adjacent ratchet-wheel.

Mounted to swing on the shaft 264 is a yoke comprising arms 274, connected at their free ends by a cross-bar 275. It will be seen that one arm, 274, is arranged at one end of the series of printing-disks and the other arm is arranged at the other end of said printing-disks. On the cross-bar 275 is arranged to swing a series of spring-pressed pawls 276, adapted to engage, respectively, with the ratchet-wheels of the disks to operate the same. As plainly shown in Figs. 4 and 5, there are lateral projections on the pawls 276, the projection from one pawl engaging upon the next pawl. Engaging with each ratchet-wheel 272 is a pivoted retarding-pawl 277, designed to prevent a backward rotation of the disk. Each numbering-disk will have on its periphery a series of figures ranging from "0" to "9" in the usual manner. Assuming the several disks to be set at zero, an upward movement of the yoke comprising the cross-bar 275 will cause the pawl 276, engaging with the ratchet-wheel on the units-disk to move said units-disk one step. At this time the pawl for the tens-disk by riding on the periphery of the plate on the opposite side of the units-disk will be held out of engagement with the ratchet-wheel on the tens-disk, and so of course will the other pawls be held out of engagement with the ratchet-wheels of the hundreds and thousands disks.

After the units-wheel shall have been rotated until its figure "9" is in printing position it is obvious that the next number to be printed is "10." Therefore the tens-wheel must be rotated one step during the next movement of the units-wheel. While the figure "9" on the units-wheel is in its printing position the notch or tooth of the plate on the units-wheels will be in line with one of the notches or teeth of the ratchet-wheel of the tens-disk. Therefore the pawl for said ratchet-wheel of the tens-disk will engage against the tooth of both the plate on the units-disk and a tooth of the ratchet-wheel on the tens-disk. Then by the next operation of the pawl the two disks will be rotated together, and this of course may be continued up to the limit of the numbering devices.

I will now describe a means for turning the numbering-disks. Mounted to move longitudinally through suitable guides is a push-bar

278. This push-bar extends across the end disk 265, and the forward end of this push-bar is provided with a slot 279, through which a pin 280 passes. A pin 281 extends laterally from the downwardly-projecting portion of this end of the push-bar and is designed to be engaged by one of the arms 153 of the lever 152 on the forward movement of said lever, and the opposite end of the push-bar 278 has a laterally-extending pin 282, designed to be engaged by said arm 153 of the lever 152 on the backward or return movement of said lever. The push-bar 278 also carries a pin 283, designed to engage a downwardly-extending finger 284 on one of the arms 274. As the said lever is moved rearward one of its arms engaging with the pin 282 will move the push-bar 278 longitudinally, and the pin 283, engaging with the finger 284, will rock the yoke upon which the pawls 276 are carried, and this movement of the pawls will rotate a numbering-disk. On the forward movement of said lever the arm on the said lever engaging with the pin 281 will move the push-bar 278 in the opposite direction, thus moving the pin 283 out of engagement with the finger 284, so that the yoke carrying the pawls may drop for a subsequent operation. Upon the rotation of the shaft 8 to open the door 62 it is desired to automatically close the lower end of the letter-chute 5. The means for closing the lower end of said chute consists in a plate 285, mounted to slide on suitable guideways arranged in the receiving-box 286 underneath the letter-chute. A pin 287, extended upward from the plate 285, projects into a slot opening in one end of a lever 288. The said lever 288 is pivoted between its ends to a stud extended upward from the receiving-box 286, and from its outer end a link 289 extends to a pivotal connection with a lever 290, pivoted at its lower end to an extension on a frame 291. On this frame 291 is fulcrumed a dog 292, having a notch at one end, the wall of said notch being adapted to form a stop for the lever 290 by engaging with a pin 293 on said lever. A spring 294 is connected at one end to said lever 290 below the pin 293 and at the other end is connected to the base of the machine. The end of the dog 292 opposite that adapted for engagement with the pin 293 is pivotally connected to a rod 295, which extends upward through the machine and is adapted to be engaged at its upper end by a cam-lug 296 on the shaft 8. It will therefore be seen that when the shaft 8 rotates in a manner herein-after described the rod 295 will be forced downward to disengage the dog 292 from the pin 293, and at this time the spring 294 by drawing the lever 290 forward will operate to slide the plate 285 across the lower end of the letter-chute 5.

The plate 285 is moved outward to open the lower end of the letter-chute by the backward movement of the lever 152 in the following

manner: Pivotally connected to the lever 152 is a hook 297, adapted to engage with the hook end 298 on the upper end of the lever 290. It will be seen in Fig. 6 that the surface of the hook 297 with which the hook portion 298 will engage is beveled downward and forward, and the engaging surface of the hook 298 is reversely inclined or beveled. The opposite edge of the hook 298 is inclined downward and rearward. Upon the forward movement of the lever 152 the hook 297 will ride over the hook 298. Then on the backward movement of said lever 152 the lever 290 will be drawn back to its normal position, consequently moving the slide-plate 285 outward or to its normal position, and at the end of the movement of the lever 290 the dog 292 will drop into locking engagement with the pin 293.

It will be understood that the slide 285 will be in its closing position before a letter is deposited in the chute. After the letter shall have been deposited it must be properly centered in the chute, so that the printing to be placed on the envelop will be in the proper place. I therefore provide the inner side of the chute 5 with centering-plates 299 and 300. The plate 299 at its upper end is connected to a shaft 301, extended across the inner side of the chute 5, and the plate 300 is similarly mounted on a shaft 302, extended across the opposite side of the chute. On the outer end of the shaft 301 is an upwardly-disposed crank-arm 303, from which a link 304 extends to a pivotal connection with a crank-arm 305, extended downward from the shaft 302. Extended outward from the shaft 302 and substantially at right angles to the crank-arm 305 is a crank-arm 306. It will be seen by this construction that upon drawing downward the crank-arm 306 the shafts 301 and 302 will be rocked in opposite directions, and thus the lower ends of the plates 299 and 300 will be caused to approach. It may be here stated that these plates 299 and 300 are very thin and resilient.

From the crank-arm 306 a link 307 extends downward to a pivotal connection with one arm of a bell-crank lever 308, fulcrumed on a stud extending from the side of the letter-chute 5. The other arm of this bell-crank lever has a forwardly and upwardly inclined slotted portion 309, and in this slide 309 is adapted to move a pin on a rod 310, the lower end of said rod 310 being connected to a lug on the shaft 17. It will be seen that the slotted portion 309 will allow a certain movement of the rod 310 without imparting motion to the bell-crank lever 308. Upon the pin on the bar 310 reaching the end of the slot, however, in the portion 309 the bell-crank lever will be rocked, and consequently the plates 299 and 300 will be moved to center a letter.

I will now describe the means for printing certain matter upon an envelop while the same

is in the letter-chute 5. Arranged within the casing 1 in front of the letter-chute 5 is a frame 311, having an opening 312 in its end registering with an opening through the front wall of the letter-chute 5. Movable in this frame 311 is a carriage consisting of side plates 313. Each side plate 313 has on its outer side a block 314, movable in a longitudinal slot 315^a in the side of the frame 311. The carriage comprising the side plates 313 is designed to carry certain printing devices. Some of these printing devices consist of type for printing the place of mailing, the number of the station, and similar matter upon an envelop, and other printing devices are designed for printing the time of day for making collections, the day of the month, and the year, and other printing devices are arranged for consecutively numbering the letter. The type for consecutively numbering letters are mounted on endless rubber bands 315. There may be any number of these endless bands for consecutive numbering. I have here shown four of such bands, the first of which is the units-band, the next the tens-band, the next the hundreds, and the next the thousands band. The inner edges of these endless bands are provided with sprocket-teeth substantially V-shaped, adapted to engage the star-shaped sprocket-wheels 316, mounted to rotate on a shaft 317, extended across the rear end of the carriage 313, and the said bands also engage around star-shaped sprocket-wheels 318, each mounted to rotate in a block 319, mounted to slide longitudinally in the forward portion of the carriage 313.

From each block 319 a stem 320 extends rearward loosely through a perforation in a transverse strip 321, rigidly fixed in the carriage. The rear ends of the stems 320 normally bear against a rectangular frame 322, mounted to slide longitudinally of the carriage 313. As here shown, this rectangular frame 322 has side pieces 323, movable in guide-slots formed in the inner sides of the carriage side pieces 313, and the rear ends of these strips 323 are designed to engage with pins 324, rigidly mounted in the frame 311. This rectangular frame 322 I will term a "justifier," inasmuch as it is intended on the backward movement of the carriage 313 and when the strips 323 shall strike against the pins 324 that the said rectangular frame shall force all the stems longitudinally forward and line up the type carried by the sliding blocks.

Arranged between each block 319 and the strip 323 is a spring 325, by means of which a yielding movement is provided for the type relatively to the carriage. This is made necessary to accommodate the device to different thicknesses of letters or packages that may be placed in the machine and operated upon by the printing devices. Each endless type-band 315 carries a number of metal type 326, and the type are removably connected with

the band. As here shown, each type 326 has a stem portion 327, provided with a transverse shoe 328, and this shoe and shank may be forced downward into a hole formed in the band. Of course the band will yield sufficiently to allow the insertion of the shank and shoe.

I will now describe a means for setting the consecutively-numbering bands. Attached to each sprocket-wheel 316 is a pinion 329. The pinion of the first or units band engages with a gear-wheel 330, mounted on a shaft 331, the pinion of the next or tens band engages with a gear-wheel 332 on said shaft, the pinion of the next band engages with a gear-wheel 333 on said shaft, and the pinion of the last band engages with a gear-wheel 334 on said shaft. The gear-wheel 330 has attached to one side a ratchet-wheel 335, provided with ten teeth, and on its opposite side it is provided with a disk 336, having a single tooth. The other gear-wheels are similarly provided with ratchet-wheels and disks, excepting the last gear-wheel 334, from which the disk may be omitted.

Pivotaly mounted on a rod 337, extended across the rear portion of the frame 311, are a number of pawls 338, each adapted to engage with a ratchet-wheel 335. The said pawls are pressed yieldingly on the ratchet-wheels by means of springs 339. Each ratchet-wheel 335 is engaged by a spring-pressed stop-pawl 340, mounted on a bar 341, supported in downwardly-extended portions of the carriage 313. These stop-pawls are designed to prevent a backward rotation of the gear-wheels and other parts thereon. The pawl 338 between the units and tens gear-wheel will rest upon the disk of the units-wheel and also upon the periphery of the ratchet-wheel on the tens-wheel. Therefore the units-wheel may be moved nine steps without imparting motion to the tens-wheel; but upon the tenth step the tooth of the disk on the units-wheel will be in line with a tooth of the ratchet-wheel on the tens-wheel. Therefore the units and tens wheels will be caused to move down, and of course upon a complete rotation of the tens-wheel the hundreds-wheel will be similarly rotated or moved one step, and therefore the several type-bands will be operated for consecutive numbering. This setting of the devices, it will be understood, is done upon the backward or rearward movement of the carriage 313.

Carried by the carriage 313, above the set of endless type belts or bands 315, is a similar set of endless type belts or bands 342. These bands 342 are mounted in precisely the same manner as the bands first described. One of said bands has type for printing the time for collecting the mail, the next may have type indicating the month of the year, the next has type indicating the day of the month, and arranged next to this last band is a type 343 for indicating the year. This type 343 is mounted

in a block 319 in a precisely similar manner to the other bands. Blocks 344 may be yieldingly mounted at each side of the other printing devices. One of these blocks may be provided with type indicating the place of mailing and the other may be provided with other type for indicating a particular statement. It is designed that these several type-bands 342 shall be set by hand, as occasion requires, and at the same time it is desired to set the disks 265, 266, and 267.

Attached to the rear sprocket-wheel, carrying the first type-band 342, is a pinion 345, meshing with a gear-wheel 346, mounted on a shaft 347, supported in upwardly-extended arms on the carriage 313. On one side of this gear-wheel 346 is secured a sprocket-wheel 347^a, having a number of teeth equaling the number of type on the type-band which it operates—that is, twelve. On the opposite side of this gear-wheel 346 is mounted an annular flange 348, upon which are placed characters represented by the type on the type-band. These characters are designed to be seen through a glass-covered opening 349, so that an operator can see when the type-band is rotated to its proper position, the relative positions of the type on the type-band and the characters on the flange 348 of course being such that when the proper type is in printing position on the band a type or printing character corresponding thereto on the flange 348 will be opposite the sight-opening 349.

The type-band 342 next to the one just described has its rear sprocket-wheel mounted on a shaft rearward of the sprocket-wheel for the band first described, and on this sprocket-wheel is secured a ratchet-wheel 350, held from backward movement by means of a spring-pressed pawl 351. Mounted on the shaft 347, above the ratchet-wheel 350, is a ratchet-wheel 352, and on this ratchet-wheel is mounted a drum having characters corresponding to those on the type-band just described in connection with the ratchet-wheel 350 and designed to be seen through the sight-opening 349.

On the shaft supporting the pinion 345 is another pinion 353, which is attached to the sprocket-wheel carrying the last type-band of the series. This pinion 353 meshes with a gear-wheel 354 on the shaft 347, and secured to one side of this gear-wheel 354 is a drum or flange 355, having characters on it corresponding to those on said last-named type-band and designed to be seen through the sight-opening 349. Mounted to rotate with the gear-wheel 354 and the drum or flange 355 is a ratchet-wheel 356, having teeth equaling in number the number of type on the last type-band of the series and designed to be seen through the sight-opening 349.

Movable vertically on the inner side of the rear wall of the casing 311 is a rod 357, and to the upper portion of this rod 357 is pivot-

ally connected a dog 358, designed to be engaged with the ratchet-wheel 347^a; also, mounted to move vertically on said rear wall is a bar or rod 359, having pivotally connected to its upper portion a dog 360, adapted for engagement with the ratchet-wheel 356; also, mounted to move vertically on this rear wall is another rod or bar 361, having attached to its upper portion a dog 362, adapted for engagement with the ratchet-wheel 350. There is also pivotally connected to this bar 361 a spring-yielding dog 363, adapted for engagement with the ratchet-wheel 352. The dogs 358, 360, and 362 are provided with suitable springs to hold them in yielding engagement with their ratchet-wheels. The upper end of the dog 363 is provided with a laterally-extended pin 364, adapted to engage with a downwardly and forwardly curved finger 365, extended from the inner side of the frame 311, so that upon the extreme upward movement of the dog 363 the finger 365 will move the same out of engagement with the ratchet-wheel 352. It will be seen by this construction that by the operation of the several rods 357, 359, and 361 the several type-bands 342 may be independently set by a downward movement of the rod 357, the dog 358 will engage with the ratchet-wheel 347^a and through it rotate the gear-wheel 346, which will impart a movement to the first type-band 342, and the same operation will of course take place by movements of the other bars.

The disks 265, 266, and 267 are set simultaneously with the bands by the following means: The lower end of the bar or rod 357 is pivotally connected to an operating-lever 366, which extends to a connection with a hollow shaft 367. The rod or bar 361 at the lower end is pivotally connected to a lever 368, extended to a connection with a hollow shaft 369, arranged within the hollow shaft 367, and from the lower end of the rod or bar 359 a lever 370 extends to a connection with a shaft 371, arranged within the hollow shaft 369. From the hollow shaft 367 an arm 372 extends forward, and from this arm 372 a link 373 extends upward to a connection with a crank 374 on a shaft 375. On this shaft 375 is an upwardly-extended arm 376, to which is pivotally connected a dog 377, held in spring-yielding engagement with the ratchet-wheel on the disk 265. Similar levers and operating means extend between the shafts 369 and 371 and the ratchet-wheels of the disks 266 and 267. It will be seen that the levers 366, 368, and 370 extend beyond the back wall of the frame 311, so that they may be grasped to operate the same. The casing 1 will be provided at this point with a suitable door through which access to the levers may be obtained.

I will now describe a means for moving the carriage 313 forward to print upon a letter

within the chute 5. Pivotally connected to a bracket 378, secured to the inner side of the top of the casing 1, are depending arms 379. At their lower ends these arms 379 have slot-openings into which lugs 380, extended outward from the carriage 313, engage. Below this engagement with the carriage the said arms 379 are each provided with a pin 381, engaging in a slot-opening in a link 382. The links 382 extend to pivotal engagement with levers 383, connected to and extended upward from the main shaft 17. Extended between each arm 379 and each lever 383 is a rod 384. The rod 384 at one end is connected to a block 385, which has a swinging connection with the arm 379, and at the opposite end the said rod 384 is movable longitudinally through a block 386, mounted to swing on the lever 383. Between the blocks 385 and 386 and surrounding the rod 384 is a coil-spring 387, whereby there may be a yielding movement between the levers 383 and the arm 379 when the carriage 313 shall have reached the end of its movement, thus allowing the main shaft 17 to be rocked a slightly greater distance than is necessary to move the carriage to its printing position.

It will be seen in Fig. 11 that the first movement forward of the carriage 313 is through the medium of the links 382; but when the carriage shall have reached the extent of movement imparted by said links it may be still further moved by the arm 379 moving forward relatively to the links—that is, with the pins 382 moved to the outer ends of the slots in the links.

I will now describe the means for inking the type carried on the carriage 313 during the forward movement of said carriage. This means comprises levers 388, mounted to swing on a shaft 389, arranged in the frame 311 at its rear end. There is a lever 388 at each side of the frame 311, and these levers curve downward and forward. Near the rear end the lower edges of the levers 388 engage upon projections 390 on the arms extended upward from the carriage 313, so that during a forward movement of said carriage the levers will be rocked upward. They are held in contact with the projections 390 by means of springs 391, attached at one end to the levers and at the opposite end to the frame 311. The ends of the levers 388 are connected by a cross-bar 392, and extended downwardly from this cross-bar 392 are arms 393. The said arms 393 are mounted to oscillate on the cross-bar 392, and each arm 393 has an upwardly-extended arm 394, provided with an outwardly-extended pin 395, which engages in a cam-groove 396 in a plate 397, attached to the frame 311. This cam-groove between its ends is practically straight and arranged at a forward upward angle. This straight portion terminates in a rearwardly-inclined portion 398 and its lower

end terminates in a rearwardly-inclined portion 399.

Attached to each arm 393 is a spring-arm 400. These spring-arms are attached to the front side of the arms 393, near the top thereof, and extend downward below the ends of said arms. The lower ends of the spring-arms are provided with bearings for the journals of the inking-roller 401. This inking-roller 401 normally rests against a pad of absorbent material 402, arranged in a suitable tray, and ink is supplied to this absorbent material from a tank 403 through a port 404. As the carriage 313 moves forward the levers 388 will be raised, and the pin 395, moving through the slot portions 399, will move the inking-roller toward the type-bands. Then the continued movement of the carriage and upward movements of the levers 388, moving the pins 395 through the central straight portion of the slot, will wipe said roller 401 over the type, leaving ink thereon. The spring-arms 400 will allow a sufficient yielding to the inking-roller to engage lightly with the type. Upon the pins 395 reaching the portion 398 of the cam-slot the inking-roller 401 will be moved slightly forward and above the line of movement of the type on the carriage and type-bands, so that said carriage may proceed to carry the type to print upon an envelop in the letter-chute 5.

I will now describe a means for causing an impression of the characters of the printing-disks 265 to 271 upon the strips of paper. Extended transversely across said printing-disks above the paper is a platen 405, which may have a length somewhat greater than the combined width of said printing-disks, and on its extended ends said platen may be provided with type for printing any desired data—such, for instance, as shown in Fig. 27. This platen 405 is mounted on arms 406, extended from the rock-shaft 407. This rock-shaft 407 has a downwardly-extended arm 408, the end of which is designed to be struck by a hammer 409 on a stem 410, extended upward from a rock-shaft 411. A spring 412 is provided for impelling the hammer forward upon its release, which said forward movement by striking the arm 408 will move the platen 405 downward with sufficient force to cause the printing.

The rock-shaft 411 is provided with a downwardly-inclined arm 413, designed to be engaged by a push-bar 414, pivotally connected with the lever 152, and from this push-bar 414 a spring 415 extends to a connection with said lever 152. This spring 415 will allow a downward-swinging movement of the push-bar as the lever 152 is moved forward and will return the said push-bar to its normal position after the lever shall have been returned. The upward movement of said push-bar will be limited by a pin 416 on the lever. The push-bar 414 has an upwardly-extended substantially V-shaped end 417. The arm 413 is pro-

vided with an outwardly-extended pin 418, adapted to engage in the hook end of an angle-lever 419, pivoted on a shaft 420.

Pivoted to the upwardly-extended arm of the angle-lever 419 is a tripping-finger 421. This tripping-finger has an end 422, adapted to be engaged by a shoulder 423 on a push-bar 424, pivotally connected to the lever 152 and adapted to move in a substantially horizontal direction over a supporting-rod 425. The opposite end 426 of the tripping-finger 421 has a spring-yielding connection with the downwardly-extended arm of the angle-lever 419, and this end 426 of said tripping-lever is designed to engage with a finger 427, extended downward at an incline from a shaft 428, extended across the rear side of the letter-chute 5. On the shaft 428 are secured tappet-plates 429, which normally rest in slot-openings 430 through the back wall of the letter-chute 5.

In operation when a letter is in the chute 5 upon a forward movement of the lever 152, by means hereinafter described, the end of the push-bar 414 will engage the end of the arm 413, rocking said arm to engage the pin 418 over the hook on the end of the angle-lever 419. During the continued movement of said lever 152 the push-bar 414 will be swung downward to pass the end of the arm 413, and then the shoulder 423 of the push-bar 424, engaging with the end 422 of the tripping-finger 421, will rock the angle-lever 419 out of engagement with the pin 418, so that the spring 412 may force the hammer 409 forward against the arm 408. When the push-bar 424 is operating against the tripping-finger 421, a transverse pin 431 on the downwardly-extended portion of the lever 419 will prevent a rocking movement of the tripping-finger.

It is desired, should a person by accident or oversight fail to place a letter in the chute, that the printing devices should not operate. Therefore I provide means for moving the end 422 of the trip-lever 421 out of the line of movement of the shoulder 423 on the bar 424. This means consists of plungers 432, carried by the carriage 313. These plungers 432 have stem portions movable in horizontal perforations in the side portions of the carriage 313 and bear at their inner ends against springs 433. Should the carriage be moved forward while there is no letter in the chute 5, the said plungers 432 will engage against the tappet-plates 429 and by a continued movement rock the shaft 428, which will cause the finger 427 to rock the trip-finger 421 on its pivot, moving its end 422 out of the line of movement of the portion 423 on the bar 424. Therefore this bar may continue its movement and may be removed to its normal position, and during this time the pin 418 will remain in engagement with the angle-lever 419. Therefore the hammer 409 will not operate against the arm 408, and consequently no printing will be done. Should the letter, however,

be in the chute, the plungers 432 will engage against the same, and the springs 423 will allow the forward movement of the carriage to impress the type upon the letter, and of course during this movement the hammer 409 will be set and released upon the forward movement. It is desired also, should a letter be omitted from the letter-chute, that the receipt intended to be delivered to the person operating the machine shall be directed into the body of the machine, and to carry out this object I provide a swinging plate 434, which normally forms one wall of the delivery-chute underneath the rollers 106 and 107. This swinging plate 434 is mounted on a shaft 435, and from this shaft 435 a crank-arm 436 extends outward and has connection with a rod 437, the lower end of which is pivotally connected to a crank-arm 438, extended from a shaft 439, extending transversely of the machine. On this shaft 439, as shown in Figs. 3 and 14, is mounted a forwardly-extended arm 440, the end of which is inclined upward and forward and is adapted to engage with an oppositely-inclined plate 441 on a standard 442, extended upward from the lever 288, which operates the slide 285. A pin 443 extends laterally from the arm 440 and is designed to rest upon the upper side of the finger 427, connected to the shaft 428. While said pin is resting on the finger 427 the swinging plate 434 will be held in the position indicated by full lines in Fig. 28, so that a receipt may be directed between said plate and the plate 190, forming a portion of the chute.

When the carriage is moved forward while a letter is in the chute 5, as before stated, this finger or lever 427 will remain in the position shown in Fig. 3, thus holding the arm 440 upward; but should the carriage be operated while there is no letter in the letter-chute 5 the lever or finger 427 will be operated as above described, and this, of course, will release the arm 440, which will fall by gravity and rock the shaft 439, which will draw the plate 434 into the position indicated in dotted lines in Fig. 28, so that a receipt severed from the main body of the paper below the rollers 106 and 107 will fall into the body of the machine.

I will now describe a modification, referring particularly to Fig. 36, whereby the shaft 8 may be released either upon the insertion of a ten-cent piece or upon the insertion of two five-cent pieces. In this instance the lug 10 on the finger 9 is engaged by two dogs 22, similar to the dog 22 first described. The horizontally-disposed members or arms of these dogs 22 are respectively connected by means of links 444 with levers 445 446, pivoted or mounted to swing on a rod 447. At the end opposite the pivotal end the lever 445 is provided with an outwardly-extended portion 448, and the free end of the lever 446 is provided with an outwardly-extended por-

tion 449, the said portions 448 and 449 being extended in opposite directions.

Mounted on the shaft upon which the coin-pan arm 38 first described is pivoted are similar arms 450 and 451. These arms 450 and 451 are designed to have coin-pans at their outer ends similar to the pan 38 and to receive coin in the same manner. Extended upward from the pivotal point of the arm 450 is a hammer 452, and extended upward from the pivotal point of the arm 451 is a hammer 453. The levers 445 and 446 at their free ends are sufficiently close together to be both engaged by the hammer 60, so that upon the insertion of a ten-cent piece the said hammer 60 will be operated, and by striking both levers 445 and 446 will move both the dogs 22 out of engagement with the lug 10, so that the shaft 8 may rotate.

Should it be desired to pay the postage or the registry-fee with two five-cent pieces, one five-cent piece will be deposited in a chute from which it will be conveyed to the pan on the end of the arm 450, and this will operate the hammer 452, which striking upon the projection 448 of the lever 445 will release the dog 22 nearest the finger 9 from the lug 10. Then upon the deposit of another five-cent piece in the proper chute the said coin when dropped into the pan on the end of the arm 451 will operate the hammer 453, which by striking the projection 449 on the lever 446 will operate said lever to release the other dog 22 from the lug 10, and at this time the shaft 8 may rotate, as first described.

I will now describe the modification shown in Figs. 38 and 39, the mechanism therein shown being designed to impress upon the original receipt a mark indicating that the postage for the particular letter belonging to said receipt has been paid by means of a postage-stamp. Connected with the front sides of the dogs 22 are hooks 454, with which the hook end 455 of a rod 456 engages. This rod 456 extends outward through the front wall of the dome-shaped receptacle 2, where it is provided with a push-button. Extending from the rod 456 are pins 457, between which the upper end of a rod 458 engages. The lower end of this rod 458 is connected to a shaft 459, and to the opposite end of this shaft 459 is attached a hook-shaped latch 460, adapted to be engaged with a lug 461, extended outward from a crank-arm 462 on a horizontal shaft 463. From the lower end of the crank-arm 462 a spring 463^a extends to a fixed portion of the machine. The opposite end of the shaft 463 is provided with a crank 464, from which a link 465 extends to a connection with a crank-arm 466, on the shaft of which is attached a curved arm 467, bearing upon its end a type 468, designed to be pressed upward through a slot-opening in the table 82 to engage with the under strip of the several strips of paper. The operation of this device is as fol-

lows: The person registering a letter will write the proper directions, as before described, on the record-strip or duplicate receipt shown through the opening over the table 82 and will
 5 place a postage-stamp of the proper denomination on the same or on the letter. Then by pushing the rod 456 the dogs 22 will be released from the lug 10, so that the shaft 8 may rotate. It may be stated that this device
 10 may be used in connection with a single dog or where only one dog 22 is employed. This inward movement of the rod 456 will move the rod 458 to rock the shaft 459, and this rocking of the shaft 459 will raise the hook-latch
 15 460 out of engagement with the lug 461, so that the spring 463^a may operate the shaft 463 to move the type 468 into printing position.

In Fig. 37 I have shown a blank used for the purpose of insuring the delivery of a letter or other mail-matter, the same to be used in connection with the registering-machine described. The blank is divided off into spaces *a*, *b*, and *c*, the several spaces being correspondingly numbered and also having a corresponding amount in dollars or fractions thereof printed thereon. Of course the several spaces *a b c* may be on a sheet and progressively increasing in number and amounts represented. The insurer may sell each leaf
 25 or check for the fraction of a cent—that is, a portion comprising the spaces *b* and *c*—the portions *a* remaining as stubs in a book and in the insurer's possession. The purchaser may then proceed to insure his letter as follows: He will take the pieces *b* and *c* and after having put a piece of carbon between them and the blank or top sheet of paper in the machine will write his name and address and the name and address of the party for
 30 whom the letter is designed. This matter will be written on the portion *c* of the blank and of course will be transmitted to the several sheets of paper below it. He will then detach the piece *b*, and after having written
 40 on it the date and number of this letter, which he will find upon the receipt delivered to him, will drop it into a box at hand for that purpose. If after a time the letter does not reach its destination, the sender can go to the
 50 company and present the piece of check in his possession, also showing the receipt which he received from the machine. The company will investigate, and if it be true that the letter is lost they will pay him the amount stated
 55 on the check. The insurance company is sure that this check was used for this letter, because it finds on the record-book of the post-office an exact reproduction of the portion *c* and the company has the piece *b* which gives
 60 the time the check was used, and it will further be seen that the part retained by a purchaser cannot be used a second time.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

65 1. A machine for registering mail-matter,

comprising a casing adapted to receive the mail-matter, a printing device in said casing for printing upon the mail-matter, means for carrying a receipt-strip in said casing, printing devices for printing on said receipt-strip,
 70 means for operating the printing devices simultaneously, a cutter for severing a receipt from the body of the receipt-strip, and a binder operated by the cutter, substantially as specified. 75

2. A machine for registering mail-matter, comprising a casing adapted to receive mail-matter and having a door-closed opening, a printing device in the casing for printing upon the mail-matter, means for moving a receipt-strip across the door-closed opening of the casing, means for clamping the receipt-strip, means for delivering a receipt to the outer side of the machine, and means to prevent such delivery before the door shall have
 85 been closed, substantially as specified. 85

3. A machine for registering mail-matter, comprising a casing adapted to receive mail-matter, a printing device in the casing for printing upon the mail-matter, means for moving a receipt-strip in the casing, a printing device for printing on said receipt-strip, means for simultaneously operating the two printing devices, a cutter for severing a receipt from the body of the strip, and means coacting with
 90 the cutter for binding together a series of severed receipts, substantially as specified. 95

4. A machine for registering mail-matter, comprising a casing adapted to receive mail-matter, a printing device in the casing for printing upon the mail-matter, means for moving a receipt-strip in the casing, a printing device for printing on said receipt-strip, means for simultaneously operating said printing devices, a cutter operated by a movement of the mechanism for operating the printing devices, the said cutter operating to sever a receipt from the body of the strip, and means for operating said cutter without moving the first-named operating mechanism, substantially as specified. 105

5. A machine for registering mail-matter, comprising a casing having a door-closed opening at its top and adapted to receive mail-matter, a printing device for printing upon the mail-matter, means for moving a receipt-strip in the casing across the opening in its top, a printing device for printing on said receipt-strip, means for simultaneously operating the two printing devices, a table beneath the door-closed opening and over which the receipt-strip passes, and means for moving said table for clamping the receipt-strip in the casing, substantially as specified. 110

6. In a letter-registering machine, the combination with printing devices, and means for moving receipt-strips over the same, of a main shaft in the casing, a pair of spindles journaled in the casing, a carbon-ribbon having its ends attached to said spindles, ratchet- 125 130

wheels on said spindles, a vertically-movable rod operated by the main shaft, dogs on said rod for engaging with the ratchet-wheels, and oppositely-extended arms pivoted to the rod and adapted to engage with the ribbon winding upon the spindles, whereby the dog connections with the ratchets may be shifted to reverse the movement of the spindles, substantially as specified.

10 7. In a letter-registering machine, a device for moving a carbon-ribbon, comprising spindles mounted to rotate in the casing, a ratchet-wheel on each spindle, a rod operated vertically by means of a main shaft in the casing, dogs carried by said rod to alternately engage the ratchet-wheels, a lever pivoted to said rod and having depending fingers at its lower end, a cam mounted to rock on the rod and adapted for engagement with said fingers to move the lever, a pinion on the shaft of said cam, a segment-lever engaging with said pinion, and diverging arms carried by said segment portion and adapted for engagement with a ribbon winding upon the spindles, substantially as specified.

25 8. A letter-registering machine, comprising a casing, a main shaft in said casing, a printing device in the casing, means for moving a receipt-strip over said printing device, and comprising feed-rollers, a roller mounted in the casing and having a longitudinal channel or groove and a spiral channel or groove communicating at its ends with the longitudinal channel or groove, a switch in said groove, a carriage operated from the main shaft and having a pin for engaging in said channels or grooves, a cutter operated by a movement of the carriage and connections between said grooved rollers and the feed-rollers, for operating said feed-rollers, substantially as specified.

30 9. A machine for registering mail-matter, comprising a casing, printing devices in said casing, feed-rollers for moving a receipt-strip over the printing devices, a roller in the casing provided with a longitudinal channel or groove and a spiral channel or groove communicating at its ends with the longitudinal channel or groove, a switch at one end of said spiral channel or groove, a connection between said grooved rollers and the feed-rollers, a reciprocating carriage in the casing having a pin for engagement in the channels or grooves of the roller, means for causing the movement of said carriage, and a cutter for severing a receipt from the body of a strip, the said cutter being operated by a movement of the carriage, substantially as specified.

40 10. A machine for registering mail-matter, comprising a casing, printing devices in said casing, means for moving a receipt-strip over said printing devices, a cutter for severing a receipt from the body of the receipt-strips, a roller mounted in the casing and having a longitudinal groove on its under side and a

coil-groove communicating at its ends with the longitudinal groove, a reciprocating carriage having a pin for engagement in said grooves, a toothed wheel mounted on the carriage, an arm operated by said toothed wheel and adapted to engage with a part for operating the cutter, and a dog mounted in the casing and adapted to rotate said toothed wheel upon the return movement of the carriage, substantially as specified.

75 11. A machine for registering mail-matter, comprising a casing adapted to receive mail-matter, a printing device in said casing, for printing on the mail-matter, means for moving receipt-strips in said casing, means for moving a receipt-strip transversely to the first-named receipt-strips, a printing device for printing on said receipt-strips, means for clamping the strip while printing, means for operating both of the printing devices simultaneously, a swinging cutter for the first-named receipt-strips, a swinging cutter for the last-named receipt-strip, and means for operating both cutters independently, substantially as specified.

90 12. A machine for registering mail-matter, comprising a casing adapted to receive mail-matter, spring-fingers for centering the mail-matter, a printing device in said casing for printing upon the mail-matter, means for moving receipt-strips in said casing, one strip transversely to another, independently-operated horizontally-swinging cutters for severing the receipts from the strips, a printing device for printing on the receipt-strips, means for simultaneously operating said printing devices, and means for simultaneously setting said printing devices, substantially as specified.

105 13. A machine for registering mail-matter, comprising a casing adapted to receive mail-matter, a printing device in the casing for printing on the mail-matter, means for moving a receipt-strip in the casing, a printing device for printing on said receipt-strip, means for operating the two printing devices, a cutter for the receipt-strips, means for operating the same, a swinging door in the casing having a notched portion at its upper end adapted to receive the shanks of clips upon which the severed receipts are to be forced, disks mounted on said door and provided with notches, means for rotating said disks, the segment-plates on said disks, and the eccentric plates on said disks, substantially as specified.

120 14. A machine for registering mail-matter, comprising a casing, printing devices in said casing for printing on mail-matter deposited, feed-rollers for moving a receipt-strip in the casing, printing devices for printing on said receipt-strip, a cutter for severing a receipt from the body of the strip, a tubular shaft on which one of the feed-rollers is mounted, a shaft arranged in said tubular shaft and having a clutch engagement therewith, a gear on

said inner shaft, means for rotating said gear, a pinion on the tubular shaft, a gear-wheel meshing with said pinion, swinging blocks on said gear-wheel, a swinging door on the casing, a curved lever pivoted to the under side of said swinging door, a pin on the lower end of said lever engaging in a cam-slot formed in a supporting-frame, and a hook on said lever, for engaging with the swinging blocks on the gear-wheel, substantially as specified.

15. A machine for registering mail-matter, comprising a casing adapted to receive mail-matter, printing devices in the casing for printing on the mail-matter, means for moving a receipt-strip through said casing, a printing device for printing on the receipt-strip, feed-rollers for moving said receipt-strip, a tubular shaft on which one of said feed-rollers is mounted, a shaft extended through the tubular shaft and having a clutch connection therewith, means for rotating said shaft, a pinion on the tubular shaft, a gear-wheel meshing with said pinion, a swinging door, a lever carried by said door, for imparting a rotary movement to the gear-wheel, a cutter for severing a receipt, and means carried by the swinging door, for operating said cutters, substantially as specified.

16. A machine for registering mail-matter, comprising a casing, a mail-receiving chute in said casing, centering devices in the chute, a sliding door for the lower end of said mail-receiving chute, a printing device movable into the chute, and means for moving the sliding door, substantially as specified.

17. A machine for registering mail-matter, comprising a casing, a letter-receiving chute therein, a sliding door for the lower end of said chute, means for operating the same, centering devices consisting of swinging resilient plates in the chute, and means for swinging said plates, substantially as specified.

18. A machine for registering mail-matter, comprising a casing, a letter-receiving chute therein, tappet-plates pivotally movable in openings in the rear wall of said chute, a type-carriage movable relatively to the chute, plungers on said carriage adapted for engagement with the tappet-plates, a printing device in the carriage for printing upon a receipt-strip, a hammer for operating in connection with said tappet-plates, a shaft on which said hammer is mounted, a lever on said shaft, a main shaft, a lever extended from said main shaft, a push-rod pivoted to said lever and adapted to engage with the lever on the first-named shaft, a locking device for said lever on the first-named shaft, and means, comprising a rod carried by the lever on the main shaft, for releasing said locking device, substantially as specified.

19. A machine for registering mail-matter, comprising a casing adapted to receive mail-matter, a consecutive-numbering device in the casing for printing on the mail-matter, means for moving a receipt-strip through the casing,

a consecutive-numbering device for printing on said receipt-strip, means for simultaneously operating the two numbering devices, means for setting the first-named numbering device, means for setting the last-named numbering device, printing devices arranged near the first-named numbering devices, printing devices arranged near the last-named numbering devices, and means for setting all of said printing devices, substantially as specified.

20. A registering-machine for mail-matter, comprising a casing, a chute in said casing for receiving mail-matter, a carriage movable in a frame near the said chute, a series of endless type-bands mounted on said carriage, printing-type attached to said bands, and yielding blocks carrying sprocket-wheels with which said bands engage, substantially as specified.

21. A printing device, comprising an endless band of flexible material having sprocket-teeth on its inner edge, type mounted on said band, a carriage, a sprocket-wheel on said carriage with which the band engages, a block adapted to yield longitudinally of the carriage, and a sprocket-wheel on said block with which the band engages, substantially as specified.

22. A printing device, comprising a carriage movable in a frame, a series of endless rubber bands, each having sprocket-teeth in its inner edge, sprocket-wheels mounted in the carriage with which said bands engage, pinions mounted on the shafts of certain of the sprocket-wheels, gear-wheels engaging the said pinions, ratchet-wheels on certain of said gear-wheels, each ratchet-wheel being provided with ten teeth, disks secured to certain of said gear-wheels, each disk being provided with a single tooth, and pawls for operating said gear-wheels on the movement of the carriage, substantially as specified.

23. A printing device, comprising a carriage movable in a frame, a series of endless rubber belts mounted in said carriage, another set of endless rubber belts mounted in said carriage, means for rotating the first set of endless belts, means for operating the last-named set of endless belts, and removable printing-type carried by the belts, substantially as specified.

24. An endless type-band, consisting of rubber, and type carried by said band, each type having a shank portion and a shoe portion to engage in openings in the belt, substantially as specified.

25. A printing device, comprising a carriage, star-shaped sprocket-wheels mounted in one end of said carriage, star-shaped sprocket-wheels mounted in the opposite end of the carriage and adapted to move longitudinally of the carriage, endless type-bands engaging around the sprocket-wheels, and a justifier carried by the carriage for alining the last-named star-shaped wheels, substantially as specified.

26. A printing device, comprising a carriage, sprocket-wheels mounted therein, blocks

mounted on the forward end of said carriage, sprocket-wheels carried by said blocks, stems extended from the blocks and movable through the blocks longitudinally of the carriage, springs for moving said blocks in one direction, a frame for engaging with the free ends of the pins for justifying or alining the movable sprocket-wheels, and endless type-bands carried by the sprocket-wheels, substantially as specified.

27. A printing device, comprising a carriage, sprocket-wheels mounted in one end of said carriage, blocks mounted in the opposite end of said carriage, sprocket-wheels mounted on said blocks, stems extended rearward from said blocks, springs for moving the blocks forward, a rectangular frame movable in the carriage, for engagement with said stems, and endless type-bands mounted on the sprocket-wheels, substantially as specified.

28. A printing device, comprising a carriage, a frame in which said carriage is movable, sprocket-wheels carried by said carriage, endless type-bands mounted on the sprocket-wheels, removable metal type on the bands, a pinion mounted on a sprocket-wheel, gear-wheels meshing with said pinion, drums or flanges on said gear-wheels provided with consecutive numbers, ratchet-wheels on the gear-wheels, the said ratchet-wheels having a number of teeth equaling the number of type carried by the type-band, rods movable vertically with relation to the carriage, and dogs carried by said rods, for engaging the ratchet-wheels on the gear-wheels, substantially as specified.

29. In a machine for registering mail-matter, a casing, a letter-receiving chute therein, a printing device comprising a carriage movable into said letter-chute, endless type-bands carried by said carriage, a frame in which the carriage is movable, a main shaft in the casing, and connections between said main shaft and the carriage, whereby the carriage may be moved in both directions, substantially as specified.

30. In a machine for registering mail-matter, a casing, a letter-chute in said casing, a carriage movable in said casing, endless type-bands carried by the carriage, means for setting the type-bands, a frame in which the carriage is movable, means for moving said carriage, an inking device for the type, consisting of levers pivoted in the frame, downwardly-extended arms pivoted at the free ends of said levers, an inking-roller carried by these arms, and means for moving said inking-roller toward and from the type during a movement of the carriage, substantially as specified.

31. A machine for registering mail-matter, comprising a casing, a letter-receiving chute therein, a carriage movable into said chute, endless type-bands mounted on said carriage, an inking device operated by the movement

of the carriage, a main shaft in the casing, depending swinging arms having connection with the carriage, levers extended upward from the main shaft, and yielding connections between said levers and the depending swinging arms, substantially as specified.

32. In a machine for registering mail-matter, a casing, means for moving a receipt-strip in said casing, a printing device for printing on said strip, and comprising a number of rotary disks, a platen extended lengthwise of the printing device, a rock-shaft on which said platen is mounted, a downwardly-extended arm on said rock-shaft, a pivoted hammer for striking said arm to cause a movement of the platen, and a spring for causing the striking movement of the hammer, substantially as specified.

33. A consecutive-numbering device, comprising a number of rotary disks having a ten-toothed ratchet-wheel on one side and a single-toothed plate on the opposite side, the plate of one disk being arranged against the ratchet-wheel of another disk, a yoke mounted to swing on the shaft upon which the disks are mounted, pawls carried by said yoke and adapted to engage with the ratchet-wheels, a push-bar for operating said yoke, and a lever operated from the main shaft of the machine, for operating said push-bar, substantially as specified.

34. In a machine for registering mail-matter, a casing, means for moving a receipt-strip in said casing, a consecutive-numbering device in the casing for printing on said strip, and comprising a number of rotary disks having ratchet-wheels, pawls for engaging the said ratchet-wheels, a lateral projection from one pawl engaging upon the upper side of the next pawl, a yoke on which said pawls are mounted, a push-bar mounted to move longitudinally, a pin on said push-bar adapted to engage a downward projection from the yoke, a lever operated from the main shaft in the machine, and lateral projections on the opposite ends of the push-bar adapted to be engaged by the said lever, substantially as specified.

35. In a machine for registering mail-matter, a casing, a printing device in said casing for printing upon mail-matter therein, means for moving a receipt-strip in the casing, a printing device for printing on said strip, means for simultaneously operating the two printing devices, a discharge-guideway for receipts, discharging-rollers, one of which is movable toward and from said discharge-guideway, fingers movable across said guideway, and a plate movable in the opposite side of said guideway, substantially as specified.

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