

No. 883,399.

PATENTED MAR. 31, 1908.

R. GRIESER.

FEEDING MECHANISM FOR RELIEFOGRAPHS.

APPLICATION FILED JULY 14, 1906.

4 SHEETS—SHEET 1.

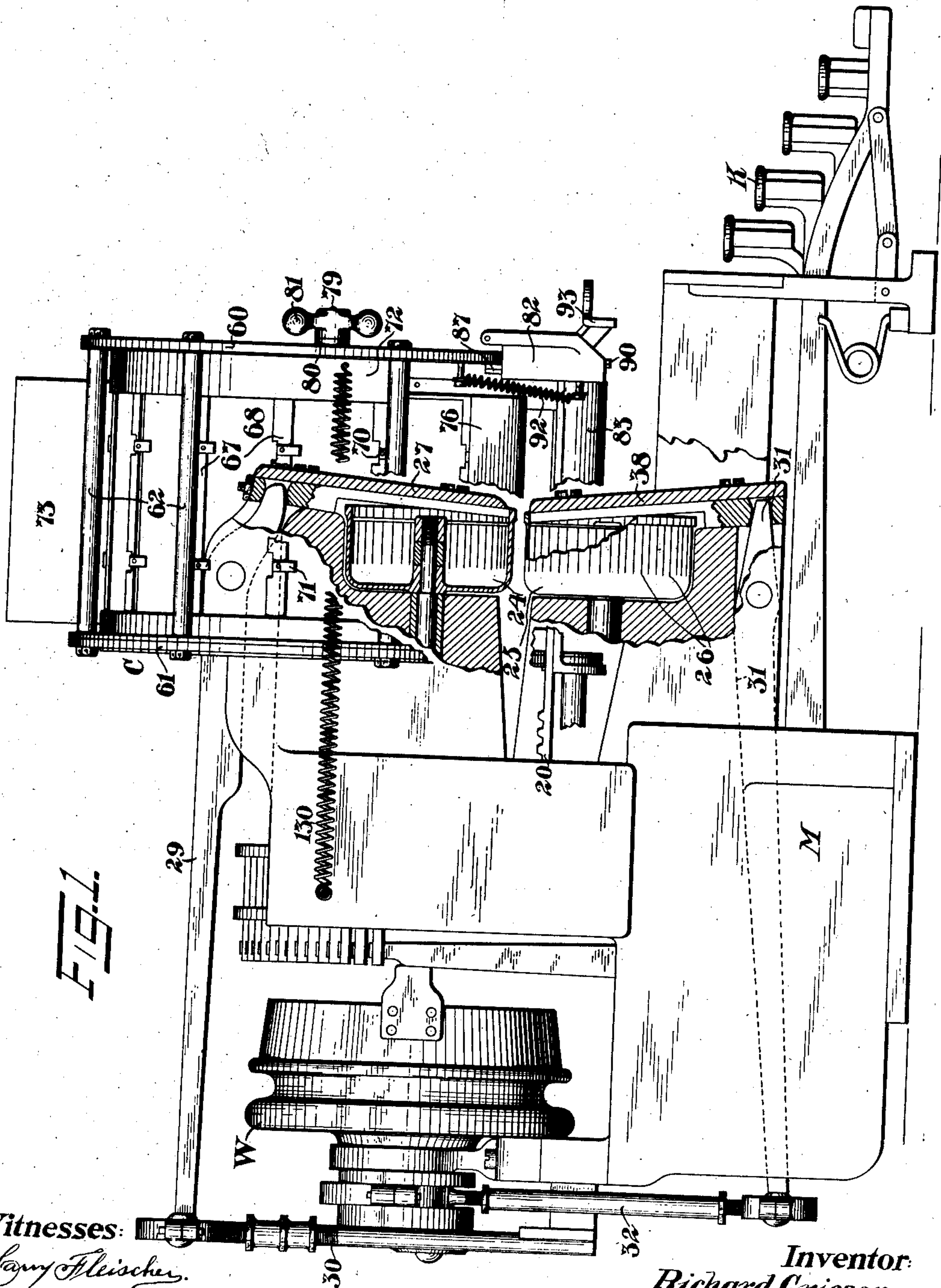


FIG. 1.

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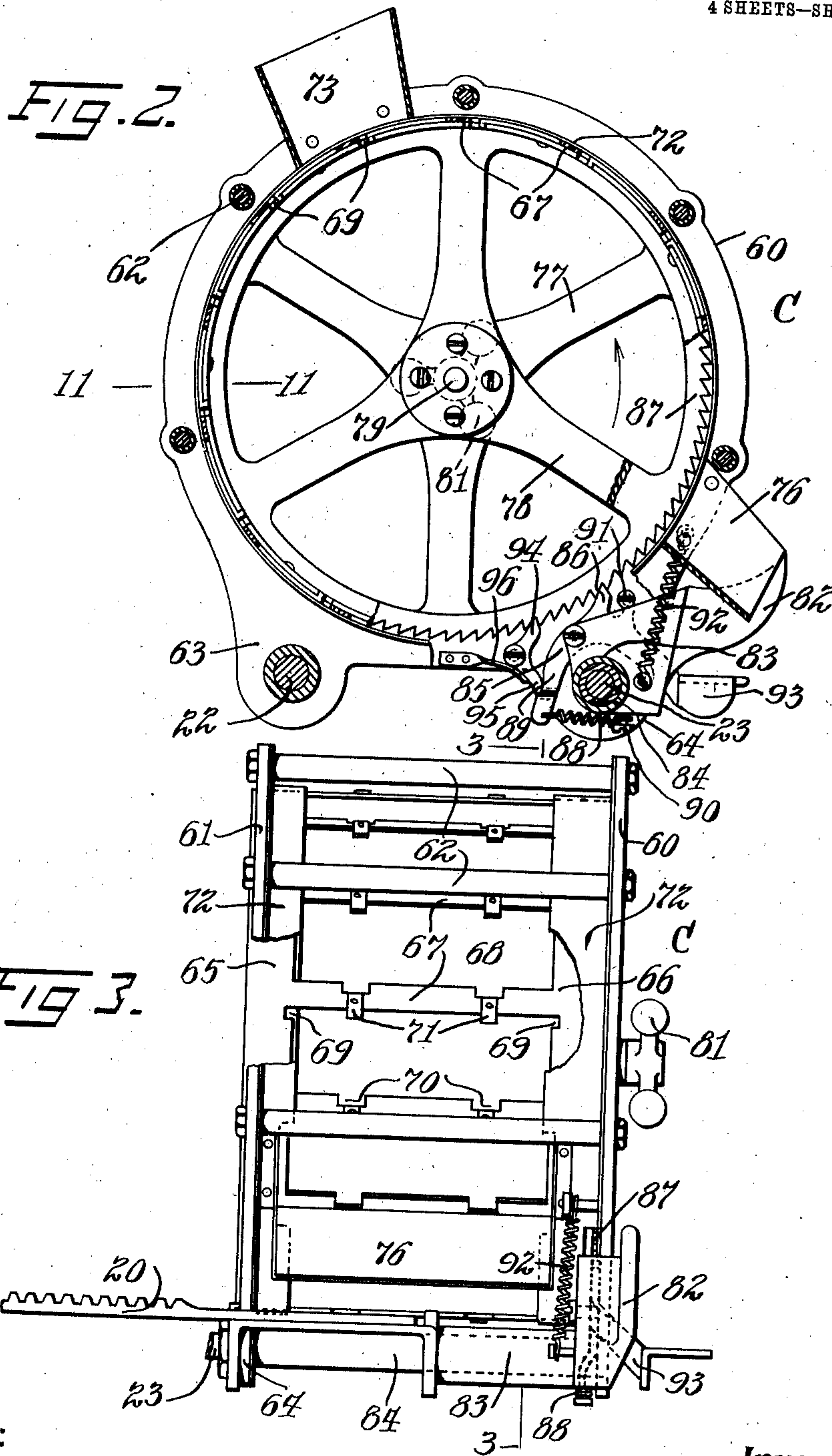
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4 SHEETS—SHEET 2.



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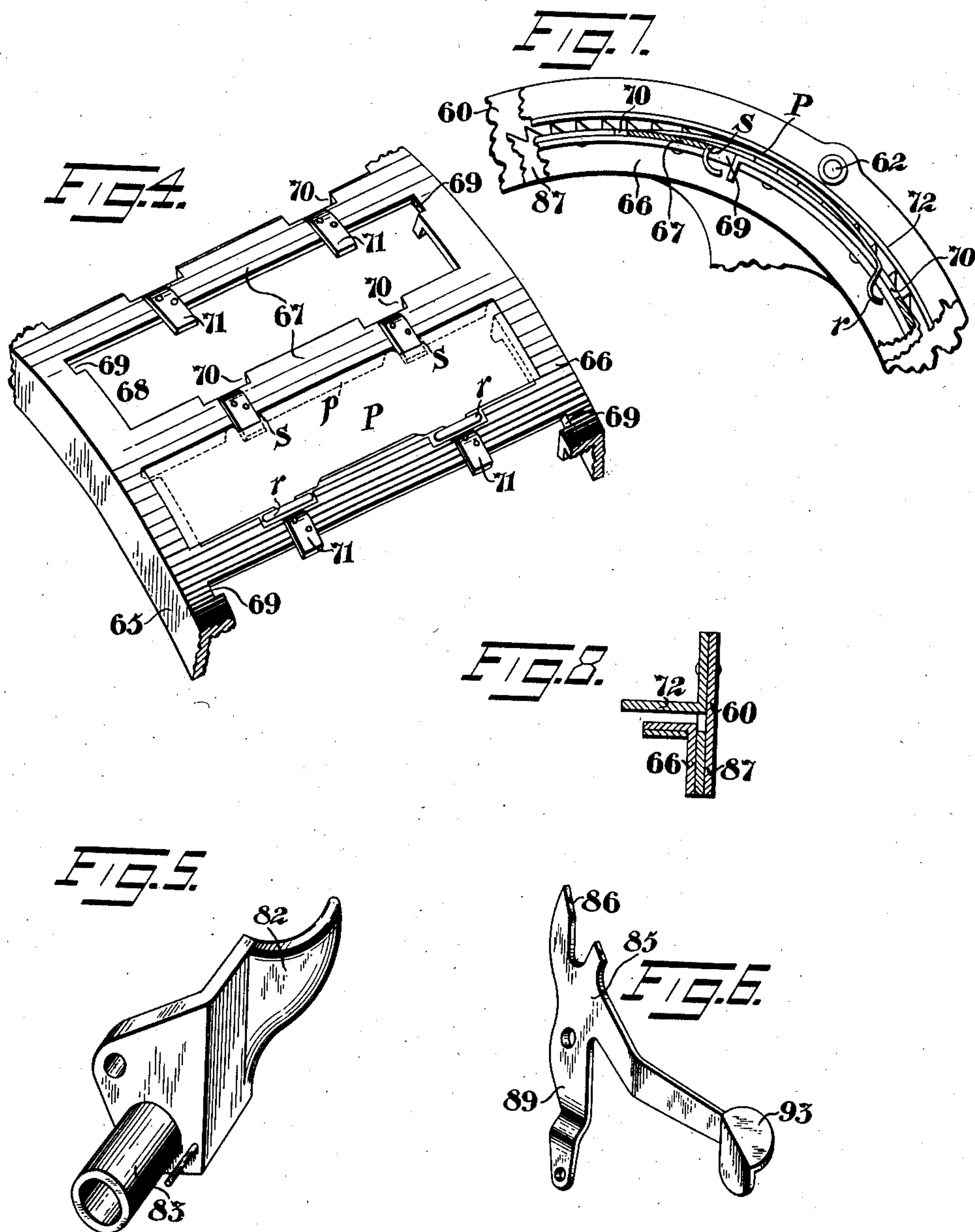
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4 SHEETS—SHEET 4.

FIG. 9.

FIG. 12.

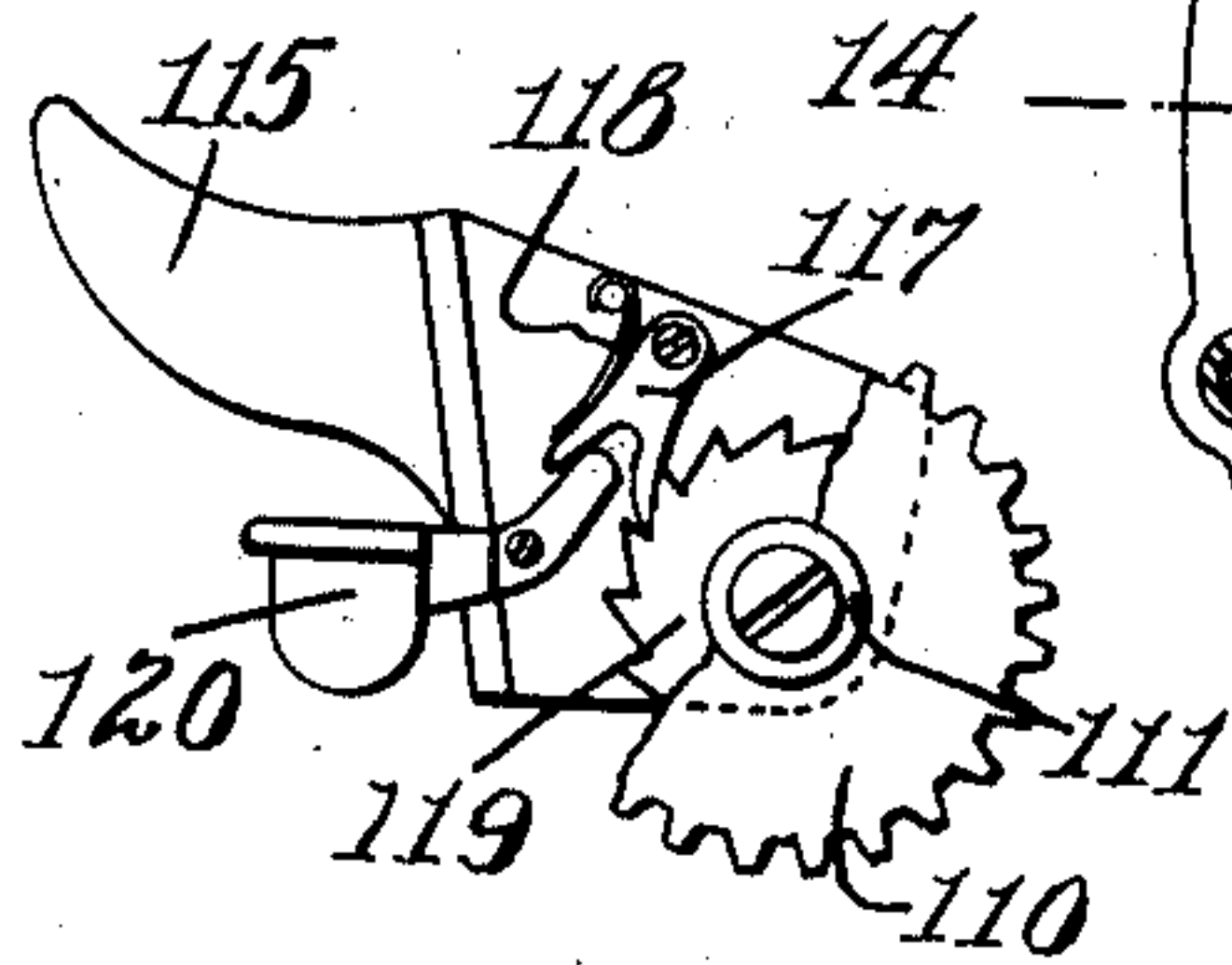


FIG. 13.

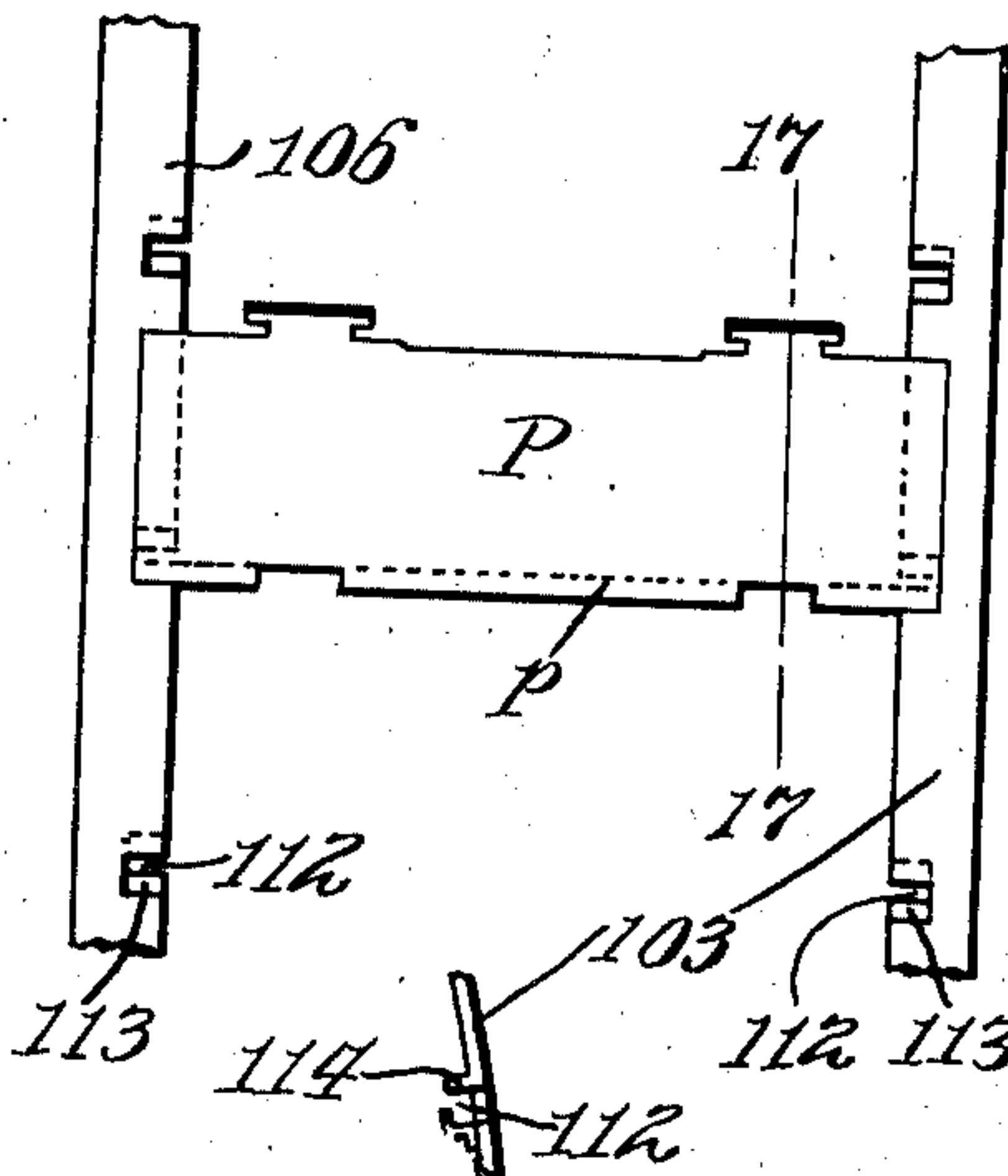


FIG. 14.

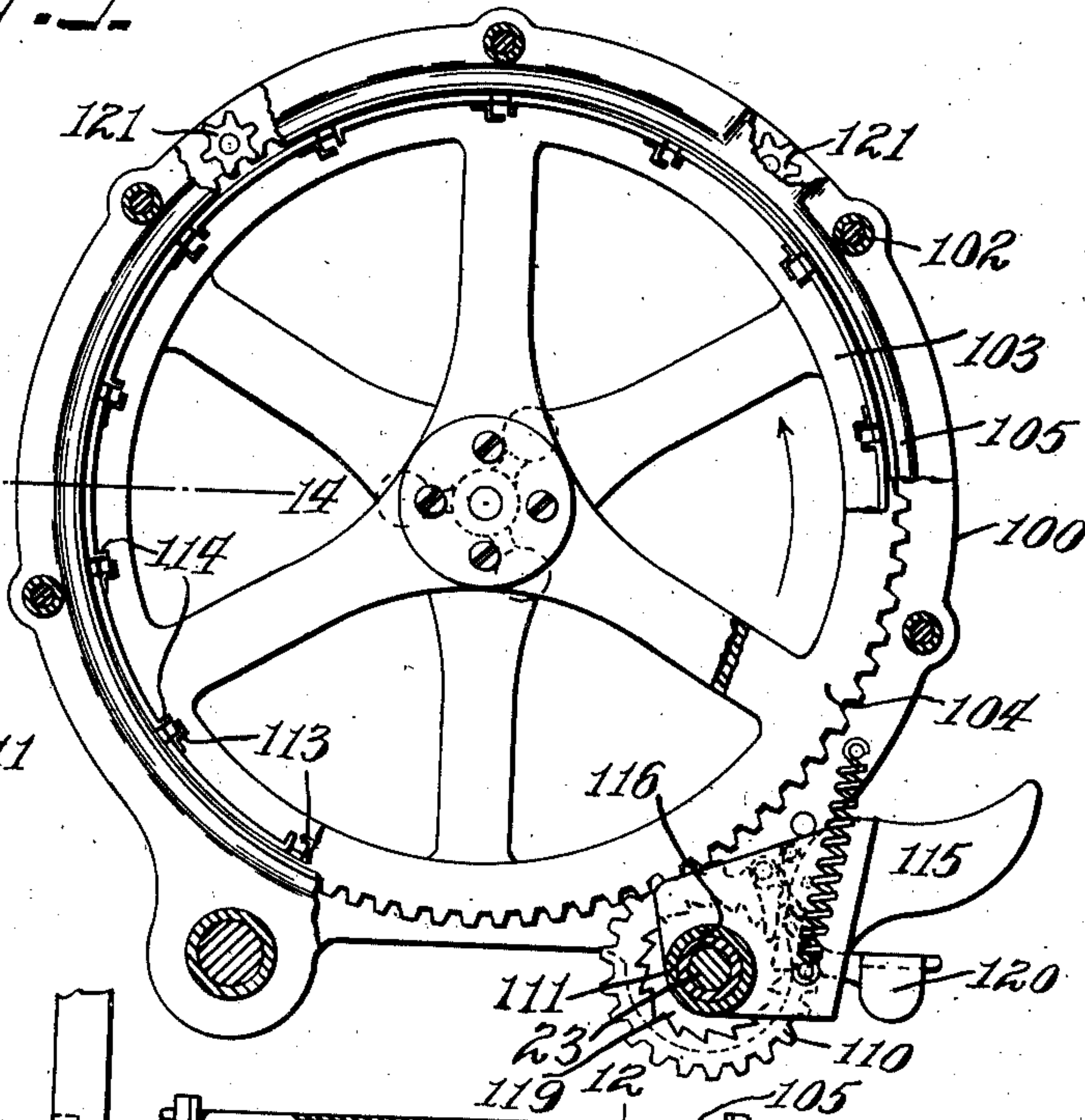
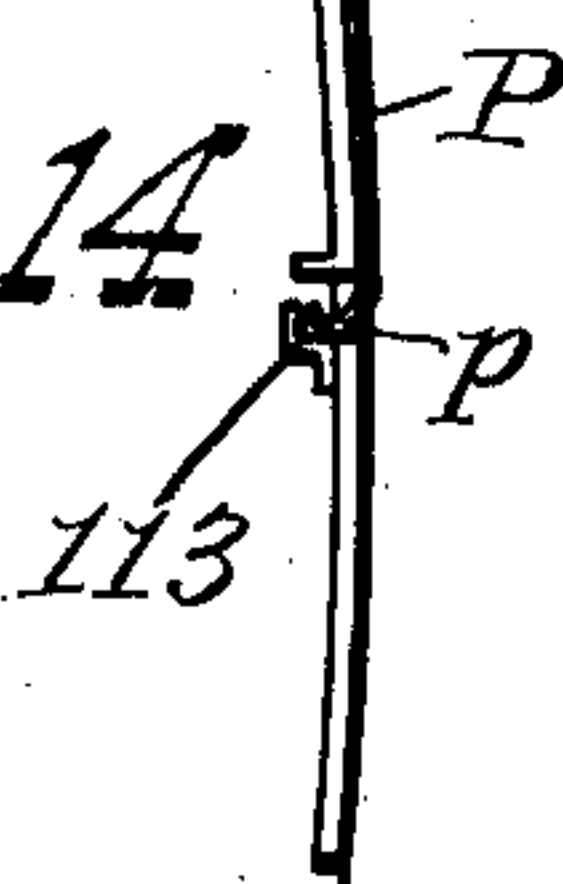


FIG. 10.

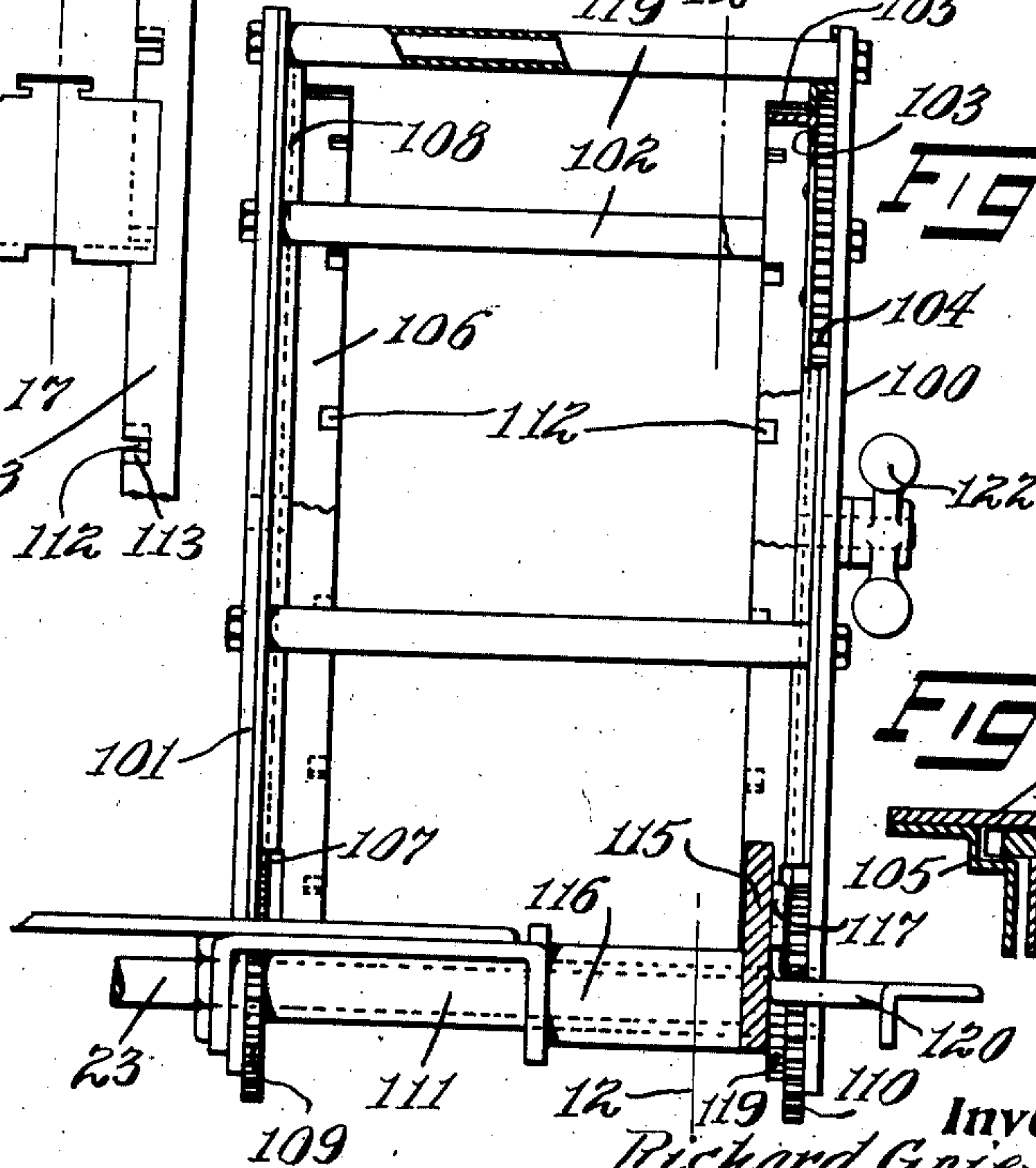
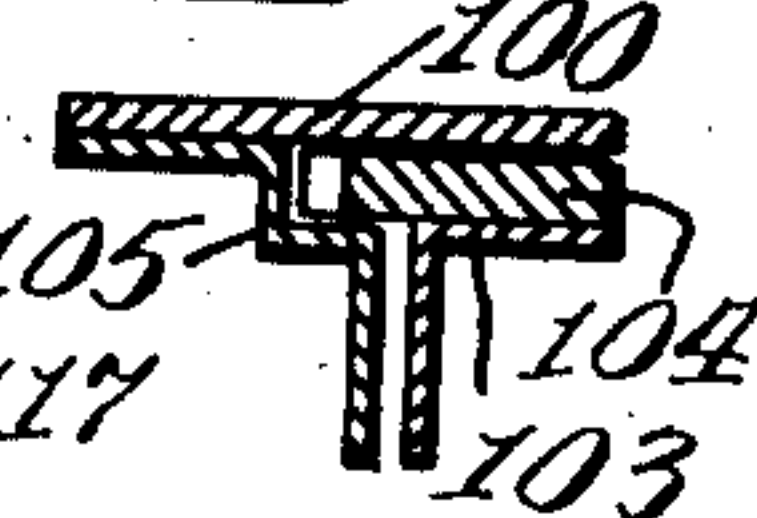


FIG. 11.



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UNITED STATES PATENT OFFICE.

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FEEDING MECHANISM FOR RELIEFOGRAPHS.

No. 883,399.

Specification of Letters Patent.

Patented March 31, 1908.

Application filed July 14, 1906. Serial No. 326,203.

To all whom it may concern:

Be it known that I, RICHARD GRIESER, a citizen of the United States, residing in New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Feeding Mechanism for Reliefographs, of which the following is a specification.

This invention has reference to machines in the nature of typewriting machines, wherein by the operation of a set of keys corresponding to various letters, numbers or other characters, such characters are printed or impressed upon a suitable printing or writing surface or member.

The invention has special application to the form of machines for performing such work by means of die members that are in pairs male and female, for the purpose of raising or indenting such characters on thin sheet metal, or other impressionable material.

The invention is especially designed for the machines termed reliefographs, and patented to W. E. Crane, May 11th, 1897 Numbers 582,177 and 582,178. In these reliefographs, there are a pair of cylindrical members carrying the male and female disks; and these members are rotated to bring the corresponding characters on each into apposition, a short distance apart. The sheet metal is inserted between such positioned die members, and thereupon one or both of such members are moved toward the other, engaging the sheet metal between them to raise such character on the metal. The metal plate must be shifted after each impression in the manner of a typewriter carriage movement, so that the impressions align to produce the desired writing. There must also be a line shift of the plate to produce the usual succession of lines of writing. In these machines the sheet metal is fed in the form of a long strip or web, and where used for printing addresses, containing about four or five lines, the web must be severed between each address. And for facilitating the removable connection of a number of these address plates for use in a printing machine, the plates are removably hinged together. By this means any plate can be removed and another substituted, or the two adjacent plates can be joined together. A construction of this kind is illustrated in an application for Letters Patent of the

United States, filed September 8th, 1905, Serial Number 277,618.

One object of the present invention is to provide a carriage or supporting mechanism whereby these separate plates to be printed with addresses or the like, can be fed to the carriage, and thence carried around to the proper printing position between the male and female dies, and thereupon advanced from such position and discharged. The carriage is especially adapted to engage the printing plates having the hinge connections set forth in my application above referred to.

A further object is to provide means whereby the carriage will be properly spaced after each impression of a character; and also means whereby the proper line spacing movement of the plate will be effected.

In the drawings showing embodiments of my invention as applied to a reliefograph Figure 1 represents a side elevation. Fig. 2 shows one form of carriage device in section, being on line 3—3 indicated in Fig. 3. Fig. 3 is a side elevation of parts shown in Fig. 2. Fig. 4 is a fragmentary view of the rotary frame member of the carriage. Fig. 5 shows the operating lever for the rotary member of the carriage. Fig. 6 shows the pawl member for the operating lever. Fig. 7, is a fragmentary view of the frame. Fig. 8 is a view on the line 11—11 indicated in Fig. 2. Fig. 9 is a section on line 12—12 of Fig. 10, partly broken. Fig. 10 shows the mechanism of Fig. 9 in end elevation, partly in section. Fig. 11 is a section taken on the line 14—14 indicated in Fig. 9. Fig. 12 shows detached the lever device for operating the line shift of the carriage mechanism shown in Fig. 9. Fig. 13 is a fragmentary view of the rotary parts shown in Fig. 9 with a printing plate in position; and Fig. 14 is a section on the line 17—17 indicated in Fig. 13.

Fig. 1 represents the invention as applied to an addressograph somewhat similar to that shown in the said patent to Crane. There is a frame denoted generally by M, and power is applied to a driving wheel W by belt or other means. From the driving wheel, the type wheels 24 and 25 are driven by suitable means not shown, which type wheels are each provided with a circular series of spring bars 26 containing type, those on one wheel forming the male dies and the other wheel having complementary female dies; the type wheels being connected by means not shown

to rotate in unison. These wheels are normally rotated from the driving wheel or shaft and by the operation of one of the keys K, by suitable mechanism, the complementary characters on the wheels corresponding to such key are brought to rest in their nearest opposite positions, and it is in such position that the carriage C brings the printing plate between the said complementary type. Slides 27 and 28 suitably guided in the frame are now operated to spring these two type toward each other and produce an impression. The slide 27 is operated by a lever 29 through movement of a connecting rod 30 operated by a cam and clutch mechanism connected with the driving wheel W. In a similar manner, the slide 28 is operated by lever 31, through connecting rod 32 and cam and clutch mechanism. Such cam and clutch mechanism being set forth in the said Crane patent.

The carriage comprises a frame member consisting of two ring plates 60 and 61 rigidly connected by tie rods 62 near their peripheries, forming the skeleton of a cylinder. This frame has suitable bearing portions 63 and 64 which slide along the guide rods 22 and 23, that are rigidly secured to the frame M. In this frame rotates a carrier, a portion of which is shown separately in Fig. 4. This carrier comprises two flanged ring members 65 and 66 integrally connected by cross bars 67 at intervals, leaving spaces 68 of sufficient dimensions to permit the insertion of one of the impression plates P therein. When the impression plate is provided with a cylindrical bent portion *p*, or hinge connection with adjacent plate, the opening 68 at each side is provided with a recess 69 into which such hinge extension projects; and also with recesses 70 to engage projecting hinge parts *r*, of the plates. Two lugs 71 extend from the cross bar 67 for engagement with the under surface of the plate P at its recess portions S. These latter detents prevent the plate falling through at any time, especially should the plate fall edgewise and tend to pass through the recesses 69 and the space immediately therebetween. As indicated in Fig. 7, the carrier ring member 65 is offset from a flange portion 72 a sufficient distance to permit the passage of the plate P; as indicated in Fig. 8. The flange portion 72 is cut away at the top, where a hopper 73 is mounted, the hopper being sufficiently large to admit one plate to be laid flat therein and guided to position on the carrier. A number of such plates can be superposed in the hopper if desired.

As the carrier rotates in the direction of the arrow shown in Fig. 2, the hinge portion of the plate falling in the recess 69 will be engaged by the carrier, and the plate will be moved around therewith. When it reaches its lowermost position, the plate will be lo-

cated between the impression cylinders 24 and 25, and the plate will be substantially horizontal in such position. The carriage having been moved outward, the operation of the carriage feed not shown, will, through suitable rack 20 advance the carriage intermittently to produce the spacing for the successive character impressions. Means are provided for holding the carrier against rotary motion during such printing, and also for producing sufficient turning to effect line spacing. When each plate has been printed as desired, the rotation of the carrier is continued until the plate reaches the outlet chute 76. At this place the flange 72 is cut away so that the plate is no longer supported at its ends and it will fall by gravity down the chute 76; being automatically discharged from the carriage. The outer frame of the carrier is provided with a three armed plate 77 at each end. And the inner frame carrier is also provided with a three-armed plate 78, at the outer end, from which extends a stub shaft 79 rotating in a suitable hub 80 in the outer plate 60. A handle 81 is attached to the shaft 79, for rotating the carrier.

The construction set forth for operating the carrier intermittently to bring the plates to printing position, to lock them in such position, and to feed the plates and the proper distance for line spacing, comprises an operating arm 82 provided with a sleeve 83 that is rotatably mounted on a sleeve 84 secured to the frame 63. The arm has pivoted thereto a pawl member 85, carrying a pawl 86 that is pressed into engagement with a gear portion 87 on the frame 66, by means of a spring 88 secured between an arm 89 on the pawl member and a pin 90 on the operating arm 82. The arm is held in its upward position against a stop pin 91 by a coil spring 92, and when moved downward will move the pawl portion 86 upward; and since the latter is pressed against the ratchet wheel by the spring 88, the ratchet wheel will be advanced, turning the carrier. When it is desired to release the pawl 86 in order to turn the carrier freely, an arm 93 on the pawl member is depressed which will rock the pawl portion 86 out of engagement with the ratchet wheel.

Means are also provided for locking the carrier in the position to which shifted by the pawl 86 against movement rearward during the return of the pawl, which latter is tightly pressed against the ratchet wheel by the spring 88 and might thereby produce a reverse movement of the carrier. In the construction shown a pawl 94 is pivoted on the frame member 60 and is pressed into engagement with the ratchet wheel 87 by a plate spring 96. This pawl has an arm 95 that is engaged by the arm 89 of the pawl member 85, and when the pawl member is rocked by its arm 93 to disengage the pawl 86, the

pawl 94 will also be swung outward to disengage the ratchet wheel.

A slightly modified form of carriage member is illustrated in Figs. 9 to 14 inclusive. In this construction there is a frame comprising two end members 100 and 101 connected by bars 102. Inside of this frame rotate separate ring members, that are not connected as are the ring members, in the other construction, except by means serving to simultaneously rotate them. On one side is a ring comprising a flange member 103 to which is secured a gear 104. This ring is guided by a bent plate 105 secured to the plate 100. On the other side is a ring member comprising an angular plate 106 to which is also secured a gear 107. These members are secured between the side member 101 and a bent plate 108. These two rings are caused to rotate in unison by means of gears 109 and 110, fast on a sleeve 111 that is loosely mounted on the rod 23. For engaging the plates P, the ring members are provided with recesses 112, into which extend the hinge portion *p* of the plates P as indicated in Figs. 13 and 14. In order to prevent the plates passing edgewise through the space including the recesses 112, bent plates 113 are secured to the inner side of the ring members, and project opposite the recesses 112, permitting the plate to enter but a limited distance into the recess. At such recesses are also provided lug portions 114 bent inward from the rings, to act as stops for the hinge portion of the plates. The means for intermittently advancing the carrier in this modified construction is somewhat similar to that just described. A rock arm 115 is pivoted on a sleeve 116, and carries a pawl 117 pressed by a spring 118 into engagement with a ratchet wheel 119 fast on the sleeve 111. When the arm 115 is rocked this ratchet wheel will rotate the two gears that will drive the ring members of the carrier in unison. When it is desired to release the carriage, a rock arm 120 pivoted on the arm 115 serves to rock the pawl 118 away from its ratchet wheel. The ring member gears 104 and 107 are supported at their upper portions by gear 121 carried by the frame. The frame in this form is rotated by handle 122.

If desired, a spring 130 can be used connecting the carriage C with the frame member, which will tend to draw the carriage rearward. This will prevent any lost motion in the ratchet mechanism of the carriage.

In the operation of the device, one or a number of the blanks or plates P to receive the impressions are superposed in the hopper 73, in the proper position with the roll portion *p* of the hinge downward as the carrier rotates and the socket portion 69 comes underneath the hinge portion *p* they will fall therein, but the lugs 71 will prevent this portion of the hinge falling through the opening,

while the other longitudinal edge of the hinge will rest on the cross portion of the carrier, with the hinge portions *r* extending into the recesses 70. The advancement of the carrier will carry one hinge plate along with it, the lowermost one of a pile being advanced as each successive opening in the carrier passes the hopper. The carrier is advanced for the line spacing by the operating member 82 when depressed as above described. When the blanks P reach the chute 76 they will fall out from the carrier by gravity. The operation of the modified carrier shown in Figs. 9 to 14 is substantially the same.

Having thus described my invention, I claim:

1. The combination with a pair of cooperating impression members movable relatively to and from a certain fixed position, of a carriage member, and a carrier rotatable on the carriage member, the carriage and carrier being organized to support a series of printing blanks and to advance the blanks successively to said printing position by the rotation of the carrier.

2. The combination with a pair of cooperating impression members movable relatively to and from a certain fixed position, of a carriage member, a carrier rotatable on the carriage member, the carriage and carrier being organized to support a series of printing blanks and to advance the blanks successively to said printing position by the rotation of the carrier, and a hopper arranged at the upper portion of the carriage and arranged to feed the blanks to be advanced, the carriage being provided with an exit portion at which the blanks are delivered after passing the impression position.

3. The combination with a pair of cooperating impression members movable relatively to and from a certain fixed position, of a carriage member, and a carrier rotatable on the carriage member, the carriage and carrier being organized to support a series of printing blanks and to advance the blanks successively to said printing position by the rotation of the carrier, the carriage being supported for bodily movement in the path of the axis of the rotary member.

4. The combination with a pair of cooperating impression members movable relatively to and from a certain fixed position, of a carriage member, a carrier rotatable on the carriage member, the carriage and carrier being organized to support a series of printing blanks and to advance the blanks successively to said printing position by the rotation of the carrier, the carriage being supported for bodily movement in the path of the axis of the rotary member, and means for intermittently moving the carriage.

5. The combination with a pair of cooperating impression members movable relatively to and from a certain fixed position, of

a carriage member, a carrier rotatable on the carriage member, the carriage and carrier being organized to support a series of printing blanks and to advance the blanks successively to said printing position by the rotation of the carrier, the carriage being supported for bodily movement in the path of the axis of the rotary member, and means for moving the carriage at each operation of the impression device to present a fresh place on the plate to be impressed.

6. The combination with a pair of cooperating impression members movable relatively to and from a certain fixed position, of a carriage member, a carrier rotatable on the carriage member, the carriage and carrier being organized to support a series of printing blanks and to advance the blanks successively to said printing position by the rotation of the carrier, a controlling member, and means for causing said member to turn the carrier a certain distance at each operation thereof.

7. The combination with a pair of cooperating impression members movable relatively to and from a certain fixed position, of a carriage member, a carrier rotatable on the carriage member, the carriage and carrier being organized to support a series of printing blanks and to advance the blanks successively to said printing position by the rotation of the carrier, an actuating lever, and means for causing said lever to turn the carrier the distance of a line space at each operation of the lever.

8. The combination with a pair of cooperating impression members movable relatively to and from a certain fixed position, of a carriage member, a carrier rotatable on the carriage member, the carriage and carrier being organized to support a series of printing blanks and to advance the blanks successively to said printing position by the rotation of the carrier, an actuating lever, means for causing the actuating lever to turn the rotary member the distance of a line space at each operation of the lever, and a lever arranged to disconnect said actuating means to permit the rotary member to turn freely.

9. The combination with a pair of cooperating impression members movable relatively to and from a certain fixed position, of a carriage member, a carrier rotatable on the carriage member, the carriage and carrier being organized to support a series of printing blanks and to advance the blanks successively to said printing position by the rotation of the carrier, means for turning the carrier in the carriage frame comprising a pivoted arm, a ratchet wheel fast on the carrier, a pawl pivoted on said arm, a spring connecting the pawl and arm tending to force the pawl in engagement with said ratchet wheel to operate the ratchet wheel when the arm is rocked, and a spring between the arm and the carriage frame tend-

ing to retract the arm to normal position when rocked.

10. The combination with a pair of cooperating impression members movable relatively to and from a certain fixed position, of a carriage member, a carrier rotatable on the carriage member, the carriage and carrier being organized to support a series of printing blanks and to advance the blanks successively to said printing position by the rotation of the said member, means for turning the carrier in the carriage frame, comprising a pivoted arm, a ratchet wheel fast on the carrier, a pawl pivoted on said arm, a spring between the pawl and arm tending to force the pawl in engagement with said ratchet wheel to operate the ratchet wheel when the arm is rocked, a spring between the arm and carriage frame tending to retract the arm to normal position when rocked, said pawl having an extension arm for holding it out of engaging position, a second pawl on the frame, a spring arranged to normally press said pawl into engagement with the ratchet wheel, and an arm on said first mentioned pawl arranged to engage the second pawl and swing it out of engaging position when the first pawl is moved out of its engaging position.

11. The combination with a pair of cooperating impression members supported to be relatively movable to impress at a certain fixed position, of a carriage member comprising a frame, a carrier rotatable in the frame, and said carrier and frame being organized to engage and support a series of printing blanks between the periphery of the carrier and a portion of the frame, whereby the blanks are advanced from a position at the top of the frame to a position at the bottom of the frame, said frame being located relative to the impression device to bring the blanks in said lower position between the impression members to be engaged thereby, the carrier and frame being further organized to eject the blanks upon further advancement beyond the printing impression position.

12. The combination with a pair of cooperating impression members supported to be relatively movable to impress at a certain fixed position, of a carriage member comprising a frame, and a carrier rotatable in the frame, said carrier and frame being organized to engage and support a series of printing blanks between the periphery of the carrier and a portion of the frame, whereby the blanks are advanced from a position at the top of the frame to a position at the bottom of the frame, said frame being located relative to the impression device to bring the blanks in said lower position between the impression members to be engaged thereby, the carrier and frame being further organized to eject the blanks upon further ad-

vancement beyond the printing impression position, the carrier being organized to engage the printing blanks at their margins and provided with openings at said margins whereby to engage projections formed on the blanks to properly locate the printing blanks and prevent their displacement.

13. The combination with a pair of co-operating impression members supported to be relatively movable to impress at a certain fixed position, of a carriage member comprising a frame, a carrier rotatable in the frame, said carrier and frame being organized to engage and support a series of printing blanks between the periphery of the carrier and a portion of the frame whereby the blanks are advanced from a position at the top of the frame to a position at the bottom of the frame, said frame being located relative to the impression device to bring the blanks in said lower position between the impression members to be engaged thereby, the carrier and frame being further organized to eject the blanks upon further advancement beyond the printing impression position, the carrier being organized to engage the printing blanks at their margins and provided with openings at said margins whereby to engage projections formed on the blanks to properly locate the printing plates and prevent their displacement, and stop lugs on the carrier for preventing the blanks slipping through the carrier into the interior.

14. The combination with a pair of co-operating impression devices movable relatively toward and from a printing position of a carriage frame, and a carrier rotatable in the frame, the frame having a hopper at the upper portion arranged to receive a superposed pile of impression blanks, the carrier having band portions at each end arranged to engage the end portions of the blanks, said bands having openings therein arranged to engage projecting portions of the plates to space the blanks a fixed distance apart on the carrier, the frame having bands arranged a short distance removed from said bands respectively to engage the opposite faces of the blanks as advanced, the frame having such bands removed at a place beyond the impression position whereby upon rotation of the carrier

past the printing position the blanks will fall out of the carriage.

15. The combination with a pair of co-operating impression devices movable relatively toward and from a printing position of a carriage frame, and a carrier rotatable in the frame, the frame having a hopper at the upper portion arranged to receive a superposed pile of impression blanks, the carrier having band portions at each end arranged to engage the end portions of the blanks, said bands having openings therein arranged to engage projecting portions of the blanks to space the blanks a fixed distance apart on the carrier, the frame having bands arranged a short distance removed from said bands respectively to engage the opposite faces of the blanks as advanced, the frame having such bands removed at a place beyond the impression position whereby upon rotation of the carrier past the printing position the blanks will fall out of the carriage, the carrier having lugs inside of the bands opposite said openings to prevent the blanks passing through said openings.

16. The combination with the impression device, of a carriage frame, ring members supported to rotate concentrically one at each side of the frame, means for causing simultaneous rotation of said ring members, a hopper at the upper portion of the frame arranged to contain a superposed pile of impression blanks with their ends resting on said ring members, said rings having openings therein for engaging projecting portions of the blanks to space the plates a certain distance apart on the ring members, a band arranged a short distance outside of each ring member and supported by the frame, whereby the turning of the ring members will carry the blanks between the ring members and the bands around to a lower printing position, said band being omitted at a place beyond the printing position whereby the blanks will leave the carrier by gravity upon the rotation of the ring members, and means for causing a simultaneous rotation of said ring members.

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Witnesses:

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