

No. 776,503.

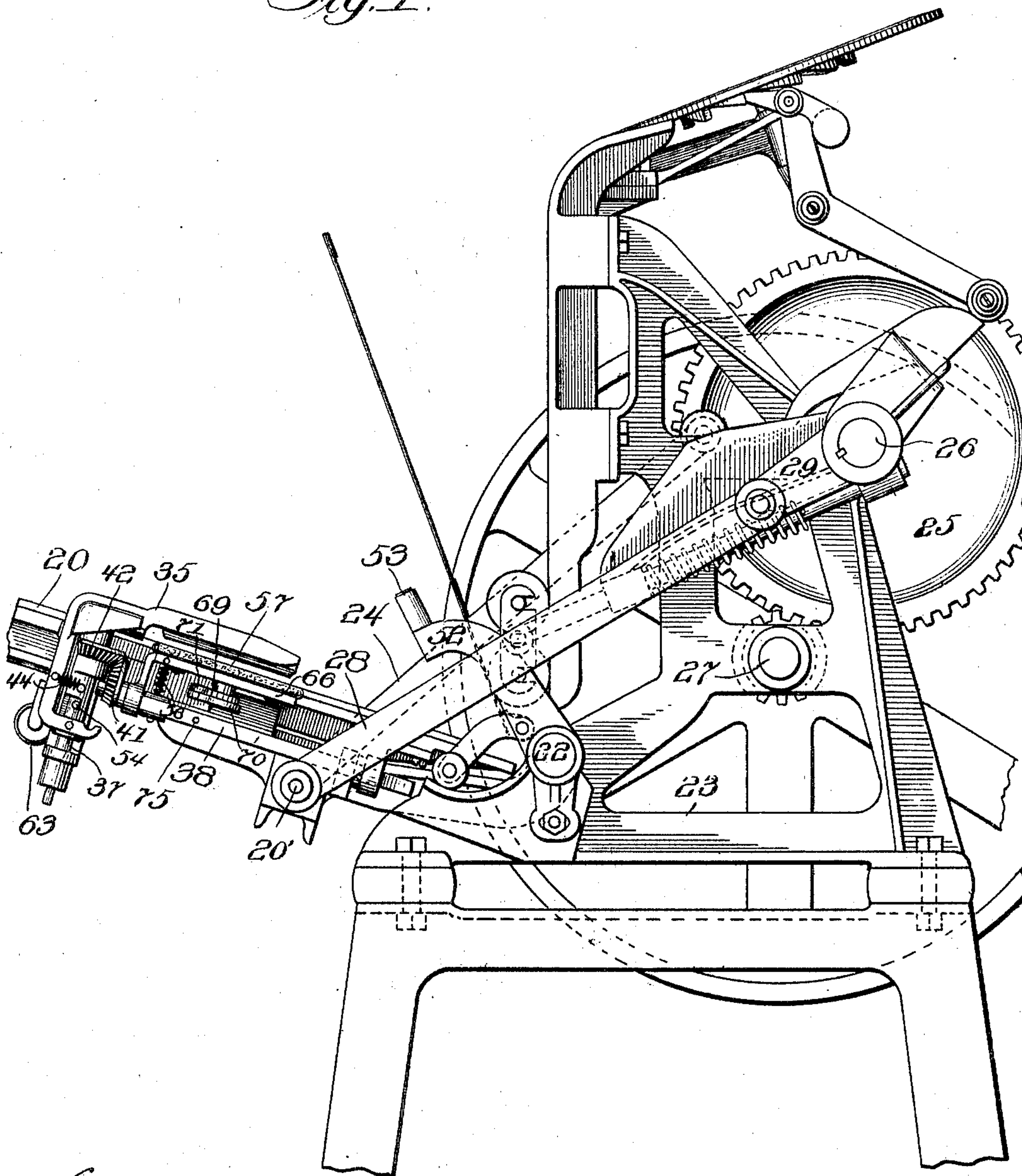
PATENTED DEC. 6, 1904.

J. S. DUNCAN.
PRINTING MACHINE.
APPLICATION FILED MAY 18, 1904.

NO MODEL.

5 SHEETS—SHEET 1.

Fig. 1.



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5 SHEETS—SHEET 2.

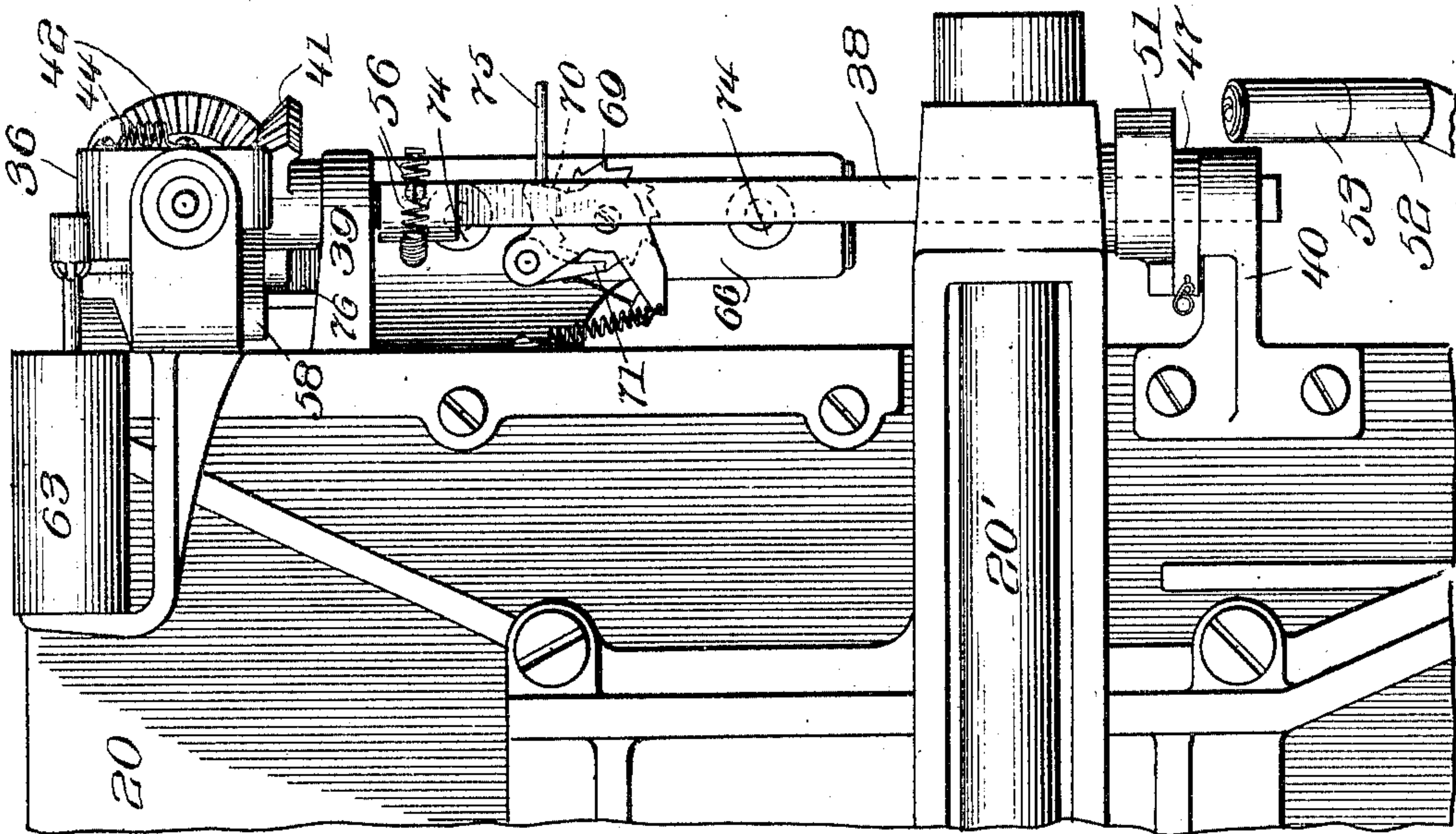


Fig. 1.

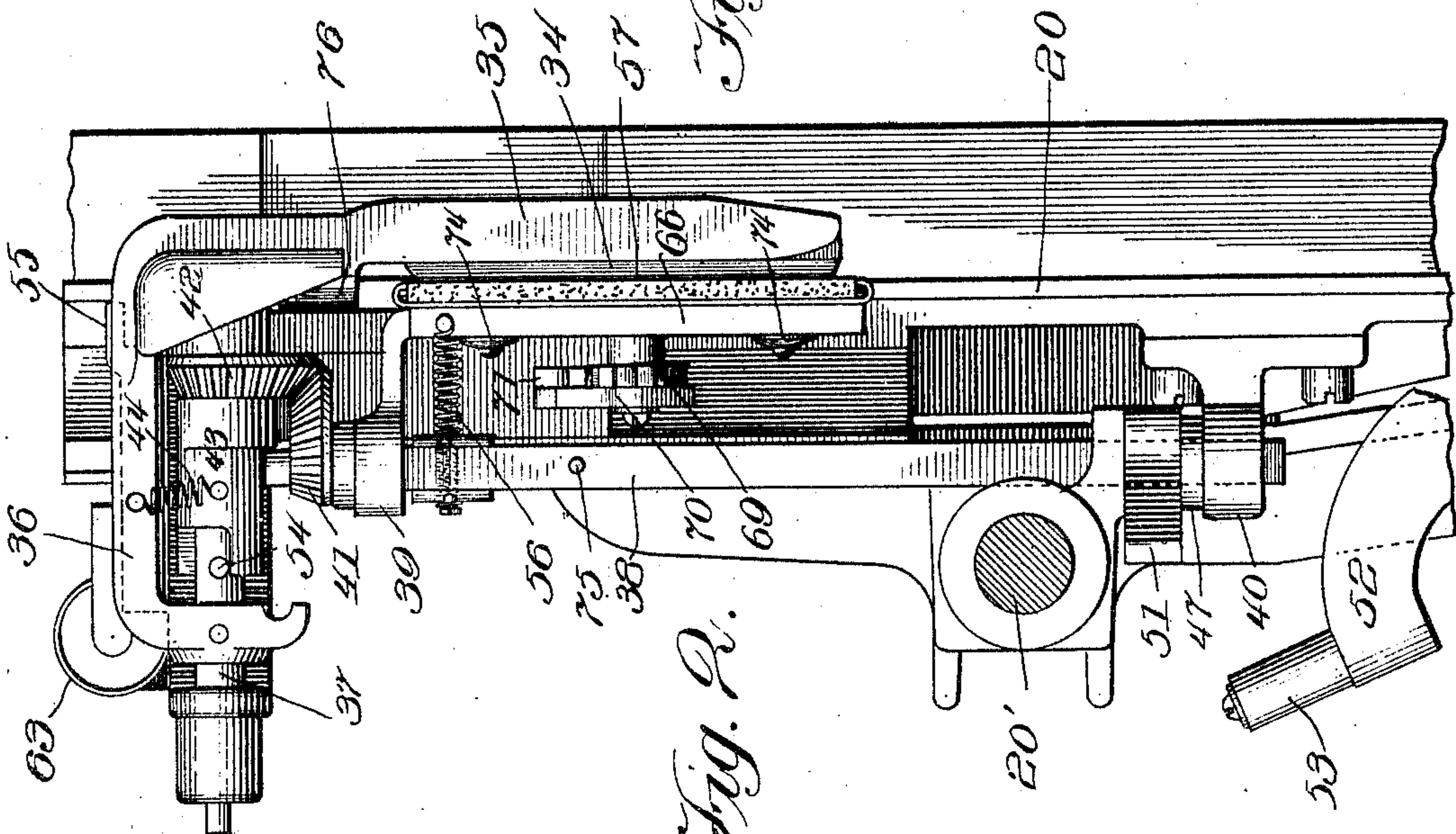


Fig. 2.

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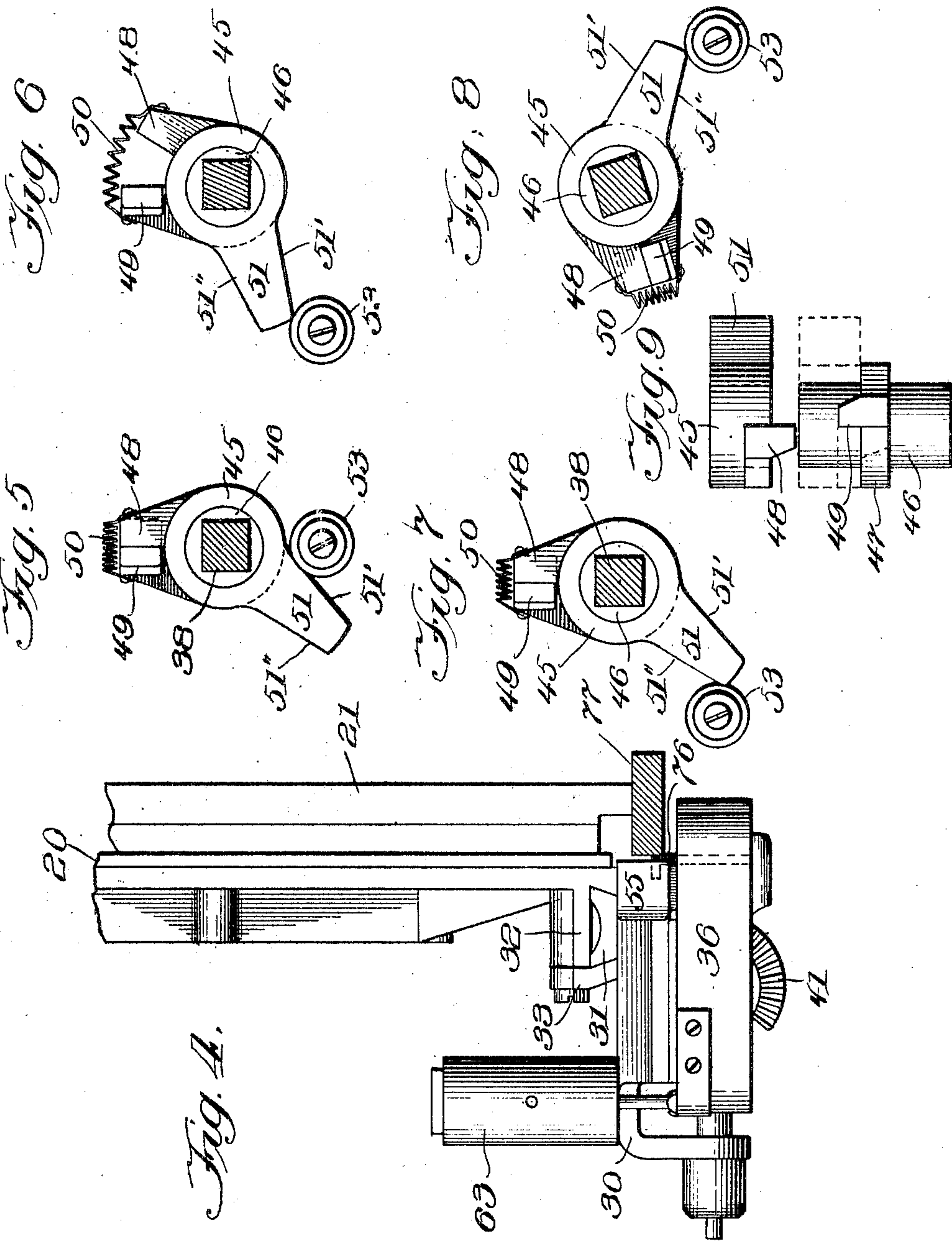
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5 SHEETS—SHEET 3.



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5 SHEETS—SHEET 4.

Fig. 11.

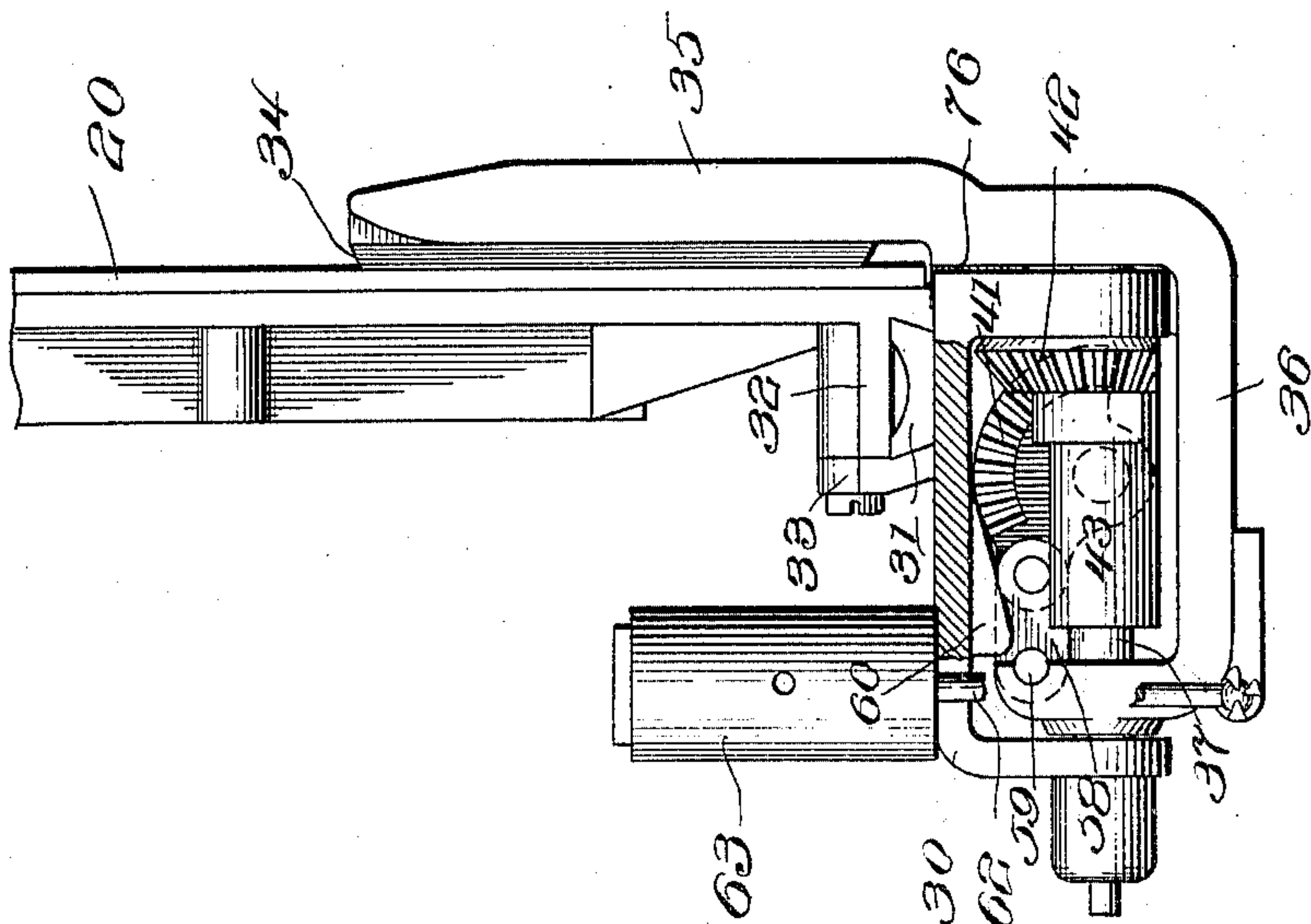
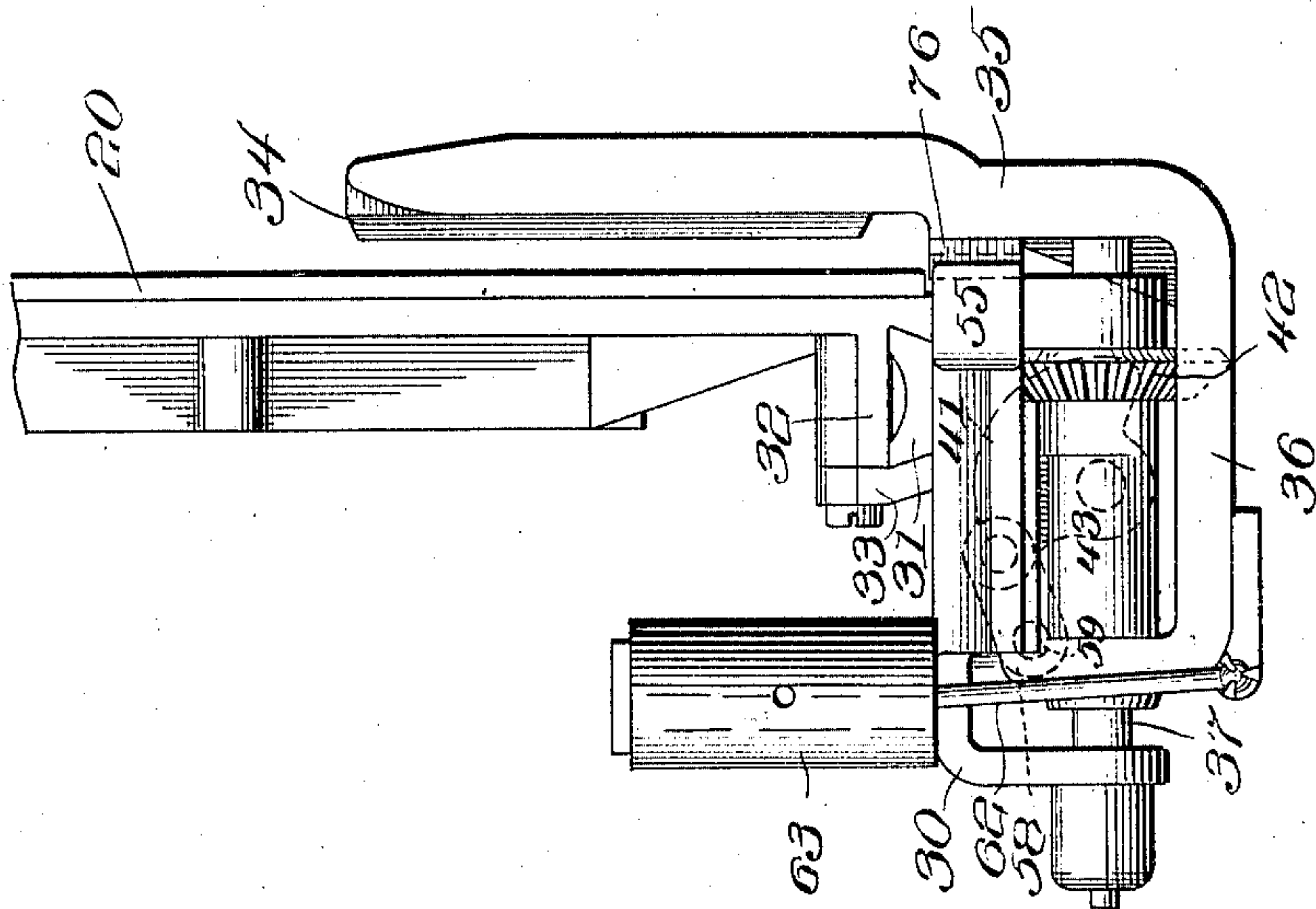


Fig. 10.



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5 SHEETS—SHEET 5.

Fig. 12.

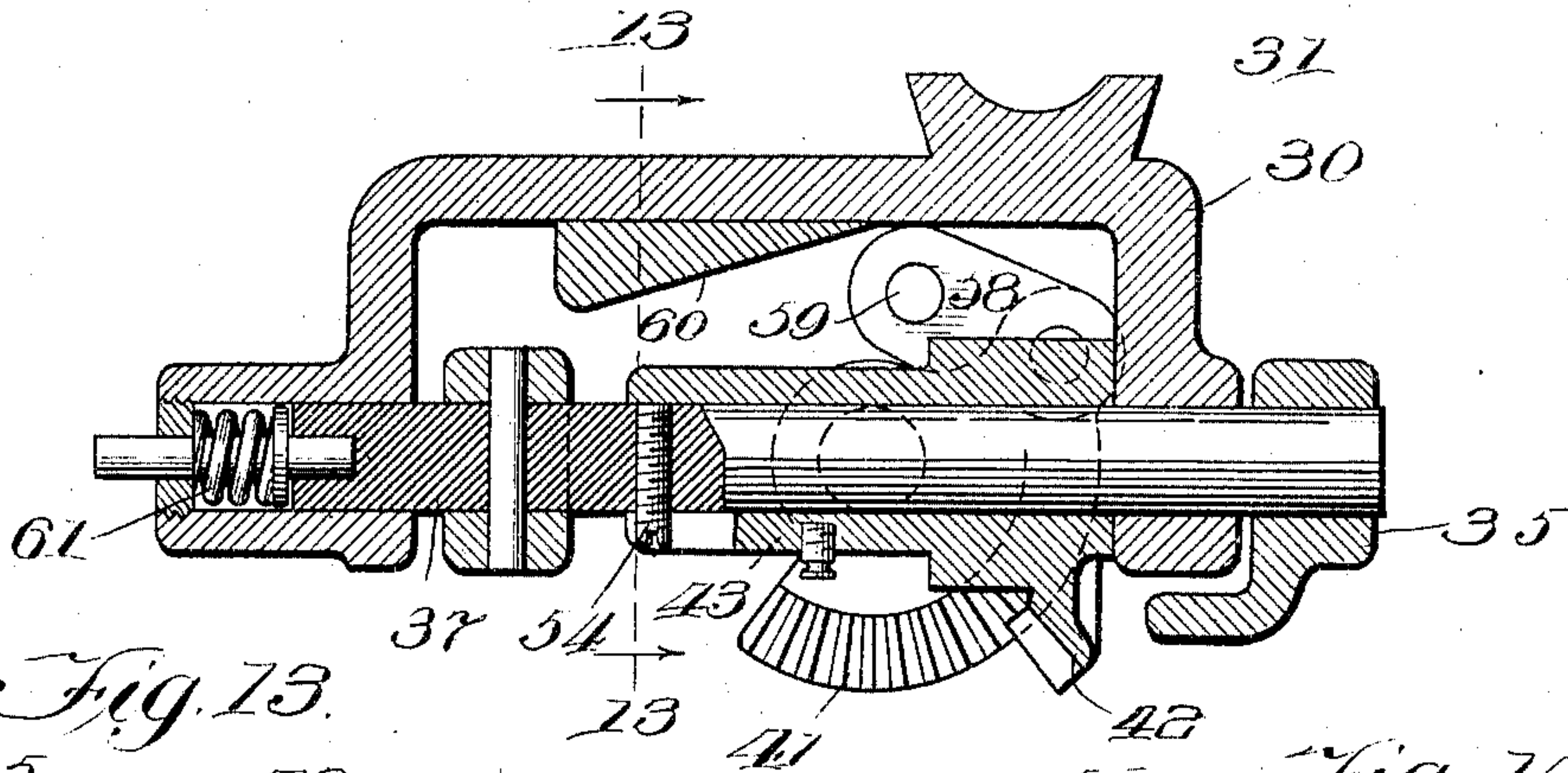


Fig. 13.

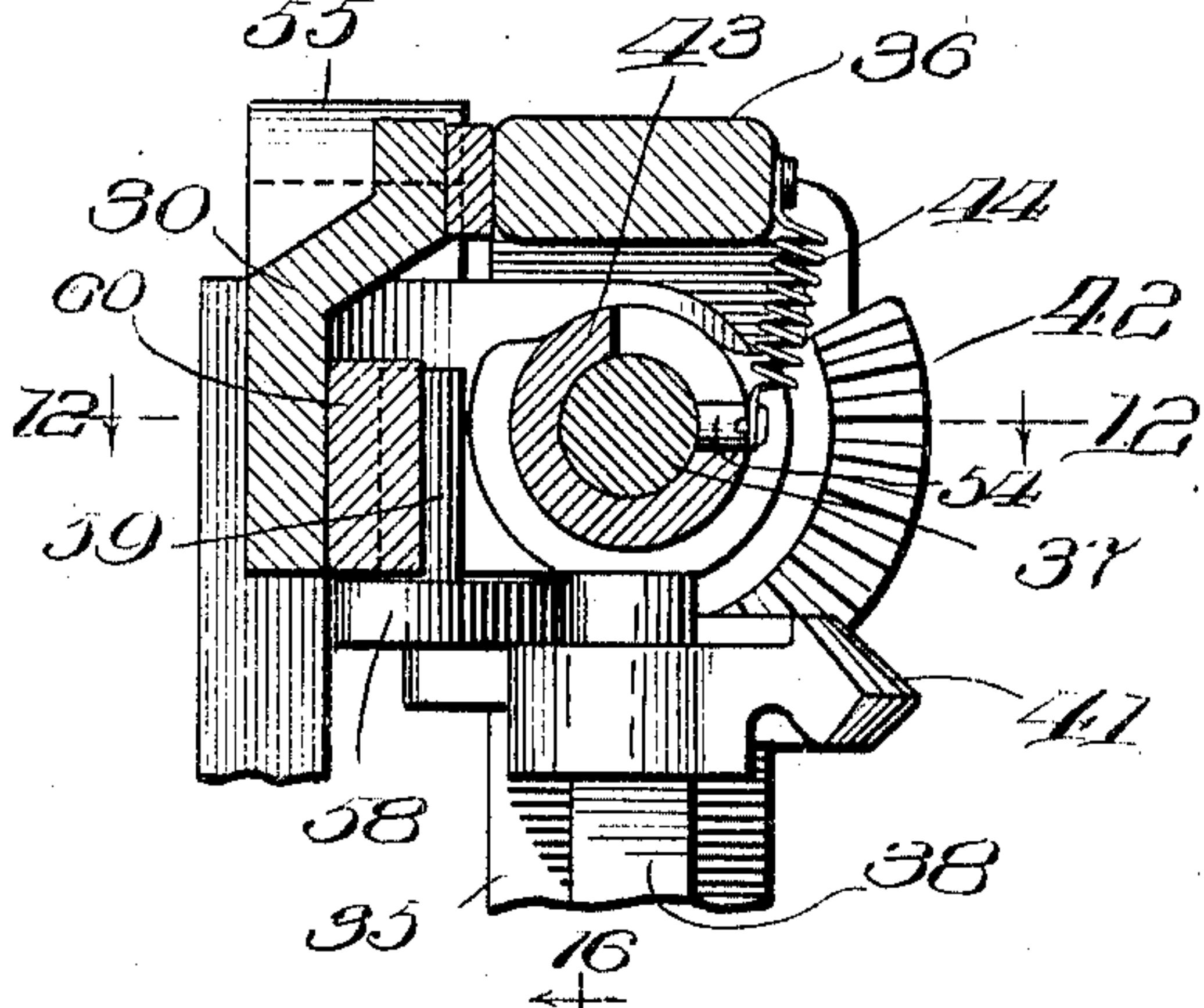


Fig. 14.

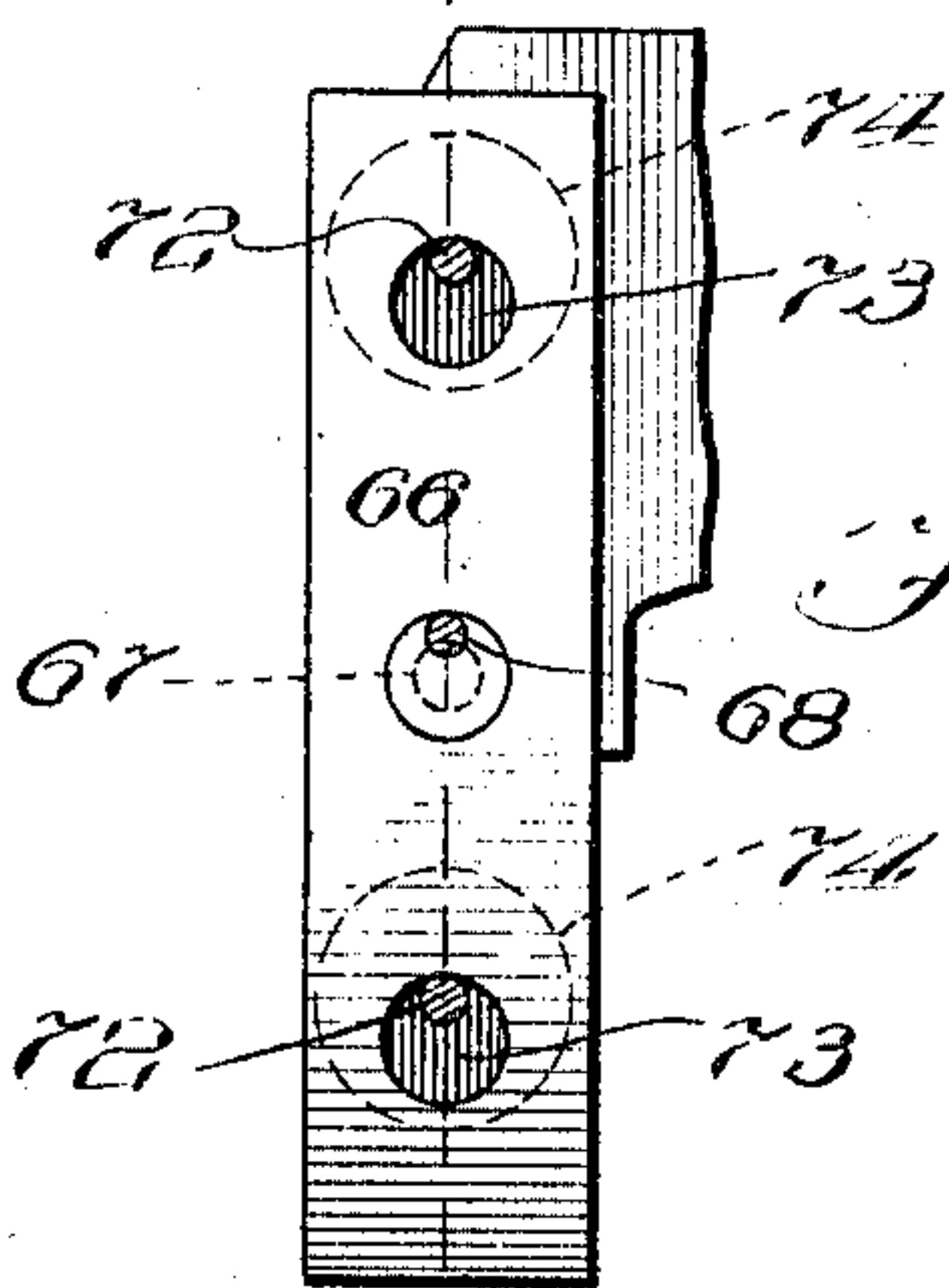
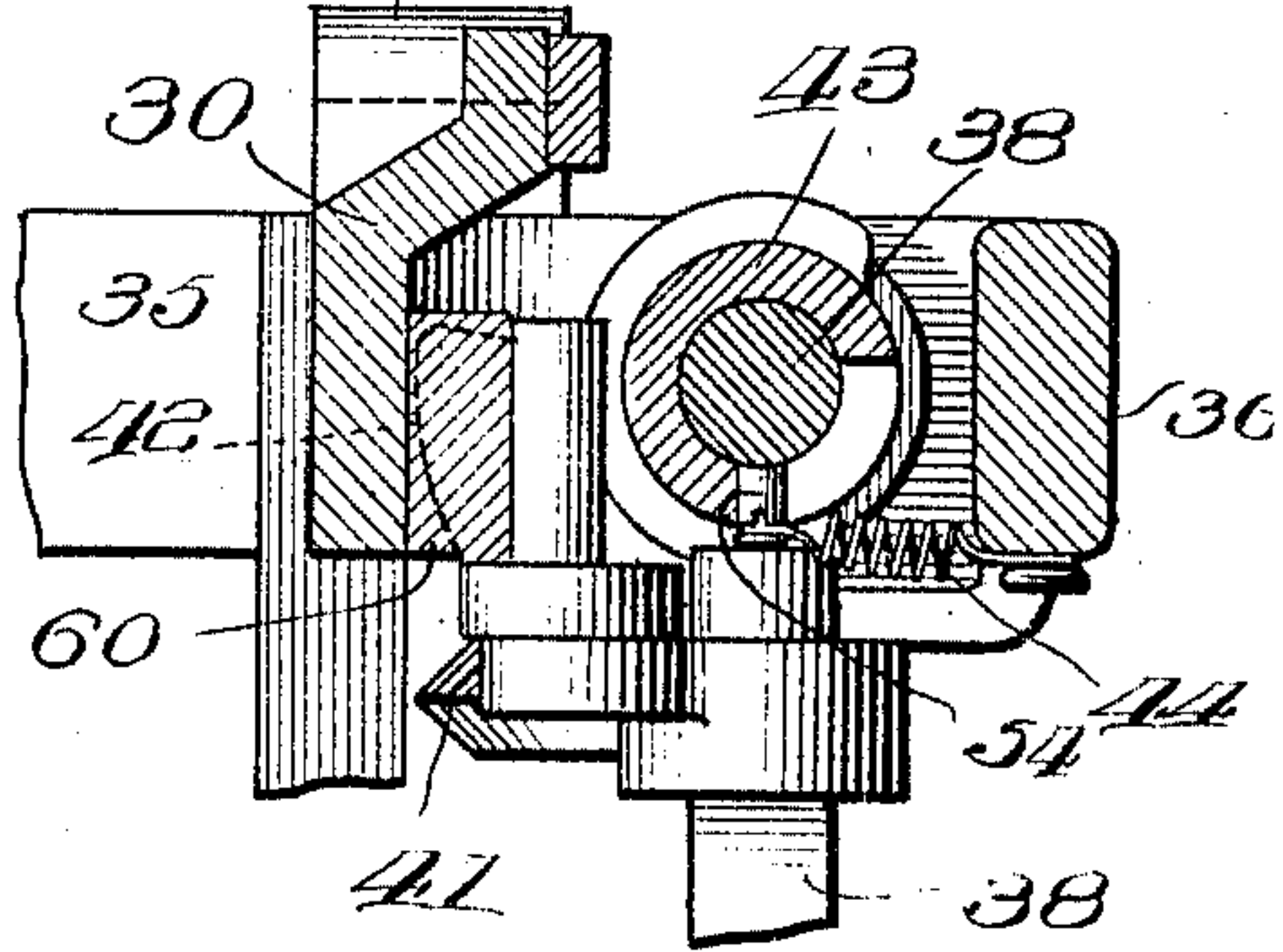


Fig. 15.

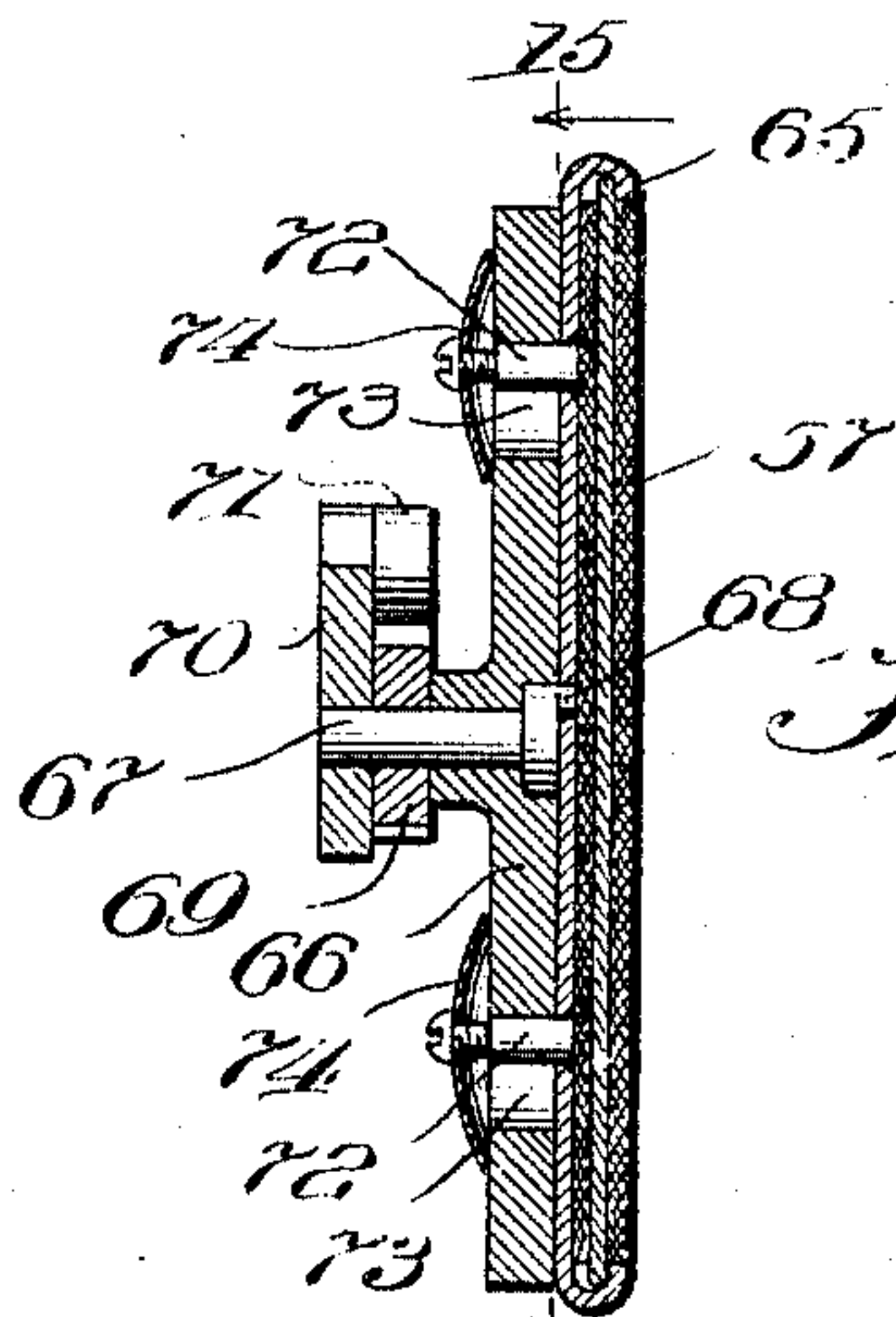


Fig. 16.

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UNITED STATES PATENT OFFICE.

JOSEPH S. DUNCAN, OF CHICAGO, ILLINOIS, ASSIGNOR TO ADDRESSOGRAPH COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 776,503, dated December 6, 1904.

Application filed May 18, 1904. Serial No. 208,571. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH S. DUNCAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Printing-Machines, of which the following is a specification.

The object of this invention is to provide means which can be readily attached to the platen of a printing machine for automatically printing a signature or other subject-matter; and it is designed, primarily, to enable a close imitation of type-written letters in printing circular-letters, as the signature can be autographic and printed at or about the time the letter is printed and in one general operation.

The invention has other objects in view, which will fully appear hereinafter in connection with the detailed description.

In the accompanying drawings I have illustrated one manner of embodying the invention in physical form, and referring thereto—

Figure 1 shows the invention applied to the platen of an ordinary printing-machine. Fig. 2 is an elevation of that side of the platen carrying the invention and shown in printing position in engagement with its bed, the shaft 20' being in section. Fig. 3 is a bottom plan view of that portion of the platen carrying the invention. Fig. 4 is a plan view of the invention as shown in Fig. 2, a portion of the platen being shown and the track adjacent to the bed of the printing-machine being in section. Figs. 5, 6, 7, and 8 are detailed sectional views showing different positions of the shifter. Fig. 9 is a plan view showing in full lines the two parts of the shifter separated and indicating by dotted lines the proper position of the parts when in operation. Figs. 10 and 11 are plan views substantially similar to Fig. 4, but showing the stamp in position to print and in printing position, respectively, Fig. 11 showing the stamp-frame partly in section. Fig. 12 is a sectional view on the line 12 12 of Fig. 13. Fig. 13 is a sectional view on the line 13 13 of Fig. 12. Fig. 14 is a sectional view on the line 13 13 of Fig. 12, showing a different po-

sition from Fig. 13. Fig. 15 is a sectional view of the inking-pad on the line 15 15 of Fig. 16. Fig. 16 is a sectional view on the line 16 16 of Fig. 15.

I do not limit or restrict the invention to embodiment with a printing-machine of any particular kind, for it will be apparent when the invention is fully understood that it can be applied to a great variety of printing-machines with such changes as to the proportion of parts and details of construction as may be necessary to make it conform to machines of different constructions, but without departing from the invention.

In Fig. 1 I have shown only so much of a printing-machine as appears necessary to understand how my invention is to be applied, and as the printing-machine selected for this purpose is one in common use it is only necessary to say in the way of description that the invention is adjustably attached to the platen 20, which carries a sheet into printing contact with a form on the bed 21. The platen is mounted on a shaft or studs 22 in the main frame 23 and may be actuated by any suitable means, such as the link 24, which is connected at one end to the shaft 20' and at its other end to the gear 25, mounted on the shaft 26 and meshing with a gear on the power-shaft 27, and a link 28 on each side of the machine connected at one end to the platen and at its other end to a crank 29 on said shaft 26.

The signature-printing device is supported at one side edge of the platen, and it comprises a frame 30, which has a wedge-shaped base 31, Fig. 12, constructed to fit in a groove 32, Fig. 10, formed in the edge of the platen. A plate 33 forms one side of the groove and is secured in place by screws or bolts, which can be loosened to permit the frame to be moved along into proper position on the platen and then tightened to secure the frame rigidly in place. The signature-form, which I will refer to for convenience as the "stamp," 34, is carried by one end of an arm 35, and this arm is carried by a yoke 36, which is pivotally mounted on a shaft 37, journaled in the frame 30. A shaft 38 is supported in the bracket 39

on the frame 30 and in the bracket 40, which is adjustably secured on the platen, Figs. 2 and 3. This shaft carries a segment-gear 41 at one end which meshes with a similar gear 42 on a sleeve 43, mounted on the shaft 37 and connected with the yoke 36 by a spring 44. The stamp rests in its normal position at the side edge of the platen substantially parallel with the plane of the face of the platen, Fig. 1, and the means for moving the stamp in the arc of a circle over the platen and into printing position substantially at right angles to the side edge of the platen comprises a shifter which is illustrated in several positions in Figs. 5 to 9. This shifter is mounted on the shaft 36, which is rectangular in cross-section throughout the greater portion of its length and comprises the two parts 45 and 46. (Shown separated in full lines in Fig. 9.) The part 46 fits upon the shaft 30 and is provided between its ends with an annular shoulder 47, and the part 45 is arranged to fit upon one end of the part 46 and against the shoulder 47, so that it is free to move in one direction on the part 46 without moving said part. The parts of the shifter are provided with lugs 48 and 49, which are connected by a spring 50 and are arranged to engage each other. The part 45 has an arm 51, which is arranged to engage a tripper comprising an arm 52, carrying an antifriction-roller 53, Fig. 1.

The shifter is so constructed that when the tripper engages the arm 51 on one side, 51', the part 45 of the shifter will swing idly on the part 46; but when the tripper engages the other side, 51'', of the arm 51 the lugs 48 and 49 will be interlocked, and the part 48 of the shifter being rigid on the shaft 38 said shaft will be operated. The stamp may be made to operate on the forward movement of the platen or on its return movement; but I have found it convenient to make the stamp to operate while the platen is returning from printing position to its normal position at rest. When the platen starts on its movement to printing position, the stamp will be located at the side edge of the platen, as shown in Fig. 1, and the arm 51 will first engage the tripper, as shown in Fig. 5, and then slide over the tripper, as shown in Fig. 6, to the position shown in Fig. 7. During this movement the part 45 of the shifter swings idly, as described, on the part 46 without affecting said part or the shaft, and after the arm 51 passes the tripper the spring 50 will return the part 45 to its normal position on the part 46, with the lugs 48 and 49 in engagement. When the platen starts on its return movement, the arm 51 will engage the tripper, as shown in Fig. 7, and ride over it, as shown in Fig. 8, and the lugs on the parts of the shifter being engaged with each other the shifter will turn the shaft 38 and sleeve 43, and the spring 44, which is connected to said sleeve and the yoke of the stamp-arm, will be stretched and cause the

stamp to swing over the platen in the arc of a circle and in a plane substantially parallel with the plane of the face of the platen to printing position. A stop 54 on the shaft 37 limits the movement of the sleeve 43 on said shaft, Fig. 2, and a stop 55 on the frame, Fig. 10, limits the movement of the stamp-arm into and out of printing position. A spring 56 is fastened to the frame and to the shaft 38, and when the shaft is turned, as just described, to swing the stamp-arm into printing position this spring is wound on the shaft, and its tension will be sufficient to return the parts to normal position after the stamp has completed its printing operation. By reference to Fig. 1 it will be observed that the stamp in normal position is located just above and out of contact with an inking-pad 57, and it is swung around in this elevated position above the sheet on the platen to printing position, as shown in Fig. 10. To move the stamp against the sheet from the position shown in Fig. 10 to printing position, (shown in Fig. 11,) I provide the segment 41 with a link 58, Fig. 12, which carries a pin 59, arranged to slide against a cam 60 on the frame and engage the shoulder 30' at the end of the yoke and depress the yoke of the stamp-arm to move the stamp into printing contact with the sheet. A spring-buffer 61 is provided at the lower end of the shaft 37, and the rod 62 of a piston working in a dash-pot 63 is connected to the yoke, Fig. 11, to relieve the mechanism from shock due to the quick movements of the parts. The stop 54, which limits the movement of the sleeve 43, permits said sleeve to move farther than the stamp, so that the stamp will still be in the elevated position above the paper on the platen when it comes to rest at the end of its forward swinging movement, and the continued movement of the sleeve on the shaft 37 will cause the segment 41 and the pin carried by the link 58 to depress the yoke and move the stamp into printing contact with the sheet after it has come to rest from its swinging movement. The stamp thus completes its swinging movement before it is depressed into printing contact with the sheet, and it is moved to its elevated position after the printing operation before it swings back to normal position at rest by the expansion of spring 61 after the yoke is relieved from pressure by the pin 59. This is effected by the location of the stops 55 and 54, the latter permitting the sleeve to continue its movement on the shaft after the stamp has come to rest against the stop 55.

The inking-pad 57 is composed of suitable absorbent material held in a frame 65, Figs. 15 and 16, and is mounted on a plate 66, which is fastened to or made integral with the frame. It is desirable to shift the pad from time to time, so that the stamp will not engage the same place in the pad at each successive operation, and for this purpose a shaft 67, arranged in the

plate 66, carries a wrist-pin 68, which is engaged with the shell 65, and this shaft also carries a ratchet-wheel 69 and a plate 70, to which is attached a pawl 71 to operate the ratchet-wheel. The shell is provided with studs 72, which project through enlarged openings 73 in the plate 66 and carry washers 74. The shaft is operated to shift the shell and pad by means of the pin 75, Figs. 2 and 3, which is carried by the rock-shaft 38 and engages the plate 70 when said shaft is operated and causes the pawl to move the ratchet-wheel and the shaft, to which it is rigidly fastened. The studs 72, working in the openings 73, guide the shell in its movement and keep it in proper position for inking the stamp.

The stamp is normally held out of contact with the inking-pad, as shown in Fig. 1, and when the platen carries the sheet to the main printing position the lug 76, rigid with the stamp-arm, engages a fixed part of the machine, such as the track 77, Fig. 4, and the stamp is thus moved into engagement with the pad and becomes thereby inked for the following printing operation. The spring-buffer 61, Fig. 12, returns the stamp-arm to its normal position, as shown in Fig. 1.

The operation of the signature-printing device will be readily understood from the foregoing description of the construction. As heretofore explained, the signature-printing device may be made to operate on the forward or the return movement of the platen; but as it is customary to run the printing-machine continuously and as the sheet is generally placed on the platen while it is beginning its forward movement I have found it desirable to have the signature-printing device operate on the return movement of the platen after the body of the letter has been printed. The movement of this stamp is very quick, and its final movement into contact with the sheet is at direct right angles to the face of the sheet, which is very desirable in all printing operations. The stamp is normally elevated sufficiently above the pad to prevent contact therewith except during the main printing operation, and it is sufficiently elevated above the plane of the face of the platen to permit it to swing across the platen in the arc of a circle in a plane substantially parallel to the face of the platen without contacting with the sheet. The entire movement of this device to and from printing position takes places during the return movement of the platen from printing position, except that the stamp is moved into contact with the inking-pad when the platen reaches its main printing position. The frame which carries the several parts of the signature-printing device can be adjusted in the groove on the platen to print the signature at any desired position between the upper and lower edges of the sheet, and of course the stamp can be lengthened or shortened to print the signature at any desired position between

the side edges of the sheet. I have referred to the invention as designed to print the signature at the bottom of an imitation type-written letter and in a different-colored ink from that employed in printing the text; but it will be understood that the device may be employed for printing any subject-matter and is not at all limited to this particular use which I have chosen to describe.

From the foregoing description and the drawings it will be understood that the invention can be applied to a variety of printing-machines and that it is not at all limited to use with any particular printing-machine or to a platen which is oscillated in the manner hereinbefore described, and it will also be understood that the invention is not restricted to the particular means herein shown and described for mounting it on the platen or for adjusting it thereon, and changes in the form, proportion, and construction of the several parts may be made without departing from the spirit or limiting the scope of the invention.

The operation of the invention as I have employed it is very quick and does not in any way interfere with the usual operation of feeding sheets to and removing them from the printing-machine. During the feeding movement the stamp is located at one side of the platen and substantially parallel with its side edge, so that it will not in any way obstruct the sheet as it is placed in position on the platen, and the stamp moves into and out of printing position so quickly that it does not prevent the removal of the sheet in the same manner heretofore practiced.

I have not deemed it necessary to show or describe the stamp in detail, for it can be made of rubber or other type, mounted in a holder, and adjustably or otherwise fastened to the arm by any suitable means.

The entire device is so constructed and arranged to operate that it will be carried by the platen without requiring any change in the operation of the printing-machine, and it can therefore be applied very easily to all kinds of platen printing-machines and perhaps to others with suitable attaching means.

Without limiting myself to the exact construction and arrangement of parts herein shown and described, what I claim, and desire to secure by Letters Patent, is—

1. In a printing-machine, the combination with a movable platen for carrying the sheet to be printed into printing position, of a stamp carried by the platen, and means for moving said stamp over the sheet in a plane substantially parallel to the face of the platen to print on the sheet while carried by the platen.

2. In a printing-machine, the combination with a movable platen for carrying the sheet to be printed into printing position, of a stamp carried by the platen, and means for moving said stamp in the arc of a circle over the

sheet in a plane substantially parallel with the face of the platen to print on the sheet while carried by the platen.

3. In a printing-machine, the combination
5 with a movable platen for carrying the sheet to be printed into printing position, of a stamp carried by the platen, and means for moving said stamp over the sheet in a plane substantially parallel to the face of the platen and
10 then moving said stamp in a direction at right angles to the face of the platen into printing contact with the sheet while carried by the platen.

4. In a printing-machine, the combination
15 with a movable platen for carrying the sheet to be printed into printing position, of a stamp carried by the platen, and means for swinging said stamp in the arc of a circle and in a plane substantially parallel to the face of the
20 platen across the sheet and then moving said stamp into printing contact with the sheet.

5. In a printing-machine, the combination
25 with a movable platen for carrying the sheet to be printed into printing position, of a stamp carried by the platen at the side of the sheet and substantially parallel lengthwise to the side of the platen, and means for moving
30 said stamp in a plane substantially parallel to the face of the platen to print on the sheet while carried by the platen.

6. In a printing-machine, the combination
35 with a movable platen for carrying the sheet to be printed into printing position, of a stamp, an arm carrying said stamp and pivoted on the platen to swing in a plane substantially
40 parallel to the face of the platen, and means for moving said arm to cause the stamp to print on the sheet while carried by the platen.

7. In a printing-machine, the combination
40 with a movable platen for carrying the sheet to be printed into printing position, of a stamp carried by the platen at the side of the sheet and substantially parallel to the side edge of
45 the platen, and means for swinging said stamp over the sheet in the arc of a circle and in a plane substantially parallel to the face of the
50 platen to print on the sheet while carried by the platen.

8. In a printing-machine, the combination
50 with a movable platen for carrying the sheet to be printed into printing position, of a stamp carried by the platen at the side of the sheet and substantially parallel to the side edge of
55 the platen, and means for moving said stamp over the sheet in a plane substantially parallel to the face of the platen to print on the sheet while carried by the platen.

9. In a printing-machine, the combination
60 with a movable platen for carrying the sheet to be printed into printing position, of a stamp carried by the platen at the side of the sheet and substantially parallel to the side edge of
65 the platen, and means for swinging said stamp in the arc of a circle and in a plane substantially parallel to the face of the platen across

the sheet and then moving said stamp at right angles to its swinging movement, into printing contact with the sheet.

10. In a printing-machine, the combination
70 with a movable platen for carrying the sheet to be printed into printing position, of a stamp, an arm pivoted at the side of the platen and carrying said stamp, means for swinging said
75 arm over the sheet in the arc of a circle and in a plane substantially parallel to the face of the platen, and means for depressing the arm to carry the stamp into printing contact with the sheet while carried by the platen.

11. In a printing-machine, the combination
80 with a movable platen for carrying the sheet to be printed into printing position, of a stamp, an arm pivotally mounted on the platen at one side thereof and carrying the stamp substantially parallel with the side of the platen, a
85 shifter connected to said stamp, a tripper on the machine to operate said shifter and cause the arm to swing over the sheet in the arc of a circle and in a plane substantially parallel to the face of the platen, and means for moving
90 the stamp into printing contact with the sheet while carried by the platen.

12. In a printing-machine, the combination
95 with a movable platen for carrying the sheet to be printed into printing position, of a stamp, an arm pivoted on the platen and carrying said stamp at the side of the platen, and means for
100 moving said arm to cause the stamp to print on the sheet while carried by the platen, said means comprising a rock-shaft arranged lengthwise of the platen at one side thereof, a
105 shifter carried by said shaft, and a tripper on the machine for operating said shifter.

13. In a printing-machine, the combination
105 with a movable platen for carrying the sheet to be printed into printing position, of a stamp, an arm pivoted on the platen and carrying said stamp, and means for swinging said arm in the
110 arc of a circle and in a plane substantially parallel to the face of the platen, said means comprising a yielding connection with the arm.

14. In a printing-machine, the combination
115 with a movable platen for carrying the sheet to be printed into printing position, of a stamp, an arm pivoted on the platen and carrying said stamp, and means for swinging said arm in the arc of a circle and in a plane substantially parallel to the face of the platen, said
120 means comprising a rock-shaft, a shifter on said shaft, a tripper for operating the shifter, a sleeve operated by the shaft, and a yielding connection between the arm and sleeve.

15. In a printing-machine, the combination
125 with a movable platen for carrying the sheet to be printed into printing position, of a stamp, and means for moving said stamp to print on the sheet while carried by the platen, said
130 means comprising a tripper and a shifter operated by the tripper, and said shifter comprising two parts constructed to work independently on the movement of the platen in

one direction and interlock and work together on the movement of the platen in the other direction.

16. In a printing-machine, the combination
5 with a movable platen for carrying the sheet to be printed into printing position, of a stamp, and means for moving said stamp to print on the sheet while carried by the platen, said means comprising a tripper and a shifter operated by the tripper, and said shifter comprising two parts, one of said parts having
10 an arm to engage the tripper, the other part being mounted to move on said first part, and lugs on said parts to engage and move both
15 parts together on the movement of the platen in one direction.

17. In a printing-machine, the combination with a movable platen for carrying the sheet to be printed into printing position, of a stamp,
20 an arm on the platen for carrying said stamp, means for moving the arm over the sheet in the arc of a circle to carry the stamp into printing position, and means carried by said moving means to engage the arm at the limit
25 of the swinging movement of the stamp to move the stamp into printing contact with the sheet.

18. In a printing-machine, the combination with a movable platen for carrying the sheet to be printed into printing position, of a stamp,
30 an arm carrying said stamp, means for moving the arm over the sheet to carry the stamp into printing position, and a pin carried by said moving means and adapted to engage
35 and depress the arm at the limit of said movement to carry the stamp into printing contact with the sheet.

19. In a printing-machine, the combination with a movable platen for carrying the sheet to be printed into printing position, of a stamp,
40 an arm carrying the stamp and pivotally mounted on the platen at one side thereof, a rock-shaft for operating said arm, means for operating said shaft, and a device connected
45 to said shaft to depress the arm after it has carried the stamp into printing position to move the stamp into printing contact with the sheet.

20. In a printing-machine, the combination
50 with a movable platen for carrying the sheet to be printed into printing position, of a stamp, an arm carrying the stamp and pivotally mounted on the platen at one side thereof, a sleeve, a gear on said sleeve, a rock-shaft, a
55 gear on said rock-shaft meshing with the gear on the sleeve, a connection between the arm and sleeve, a shifter on said rock-shaft, and a tripper on the machine to operate said shifter.

21. In a printing-machine, the combination
60 with a movable platen for carrying the sheet to be printed into printing position, of a stamp,

an arm carrying the stamp and pivotally mounted on the platen at one side thereof, a sleeve, a gear on said sleeve, a rock-shaft, a gear on said rock-shaft, a yielding connection
65 between the sleeve and said arm, a spring connected to said rock-shaft and to a fixed point on the machine to return the parts to normal position after they have operated, a shifter on the rock-shaft, and a tripper on the
70 machine to operate said shifter.

22. In a printing-machine, the combination with a movable platen for carrying the sheet to be printed into printing position, of a stamp, an arm carrying the stamp and pivotally
75 mounted on the platen at one side thereof, a sleeve, a gear on the sleeve, a rock-shaft, a gear on the rock-shaft meshing with the gear on the sleeve, means for operating the rock-shaft, and a device connected to the rock-
80 shaft to be operated thereby and arranged to depress the arm to carry the stamp into printing contact with the sheet.

23. In a printing-machine, the combination with a movable platen for carrying the sheet to be printed into printing position, of a stamp,
85 an arm carrying the stamp and pivotally mounted on the platen at one side thereof, a rock-shaft, a sleeve, gears on the rock-shaft and sleeve meshing with each other, means
90 for operating the rock-shaft, a link carried by the gear on the rock-shaft, a cam-guide on the arm, and a pin on said link guided by said arm and adapted to depress the arm to carry the stamp into printing contact with the sheet.
95

24. In a printing-machine, the combination with a movable platen for carrying the sheet to be printed into printing position, of a stamp, means for moving the stamp to print upon the sheet while carried by the platen, said
100 means comprising a rock-shaft, an inking-pad, means for shifting the parts of said pad relative to the stamp and comprising a ratchet-wheel, a pawl, and an arm carried by the rock-shaft and adapted to operate said pawl.
105

25. In a printing-machine, the combination with a movable platen for carrying the sheet to be printed into printing position, of a stamp, an arm carrying the stamp at one end and provided at its other end with a yoke extending
110 at right angles thereto, means connected to said yoke at the edge of the platen for pivotally mounting the arm on the platen, and means for moving said stamp over the sheet in a plane substantially parallel to the face
115 of the platen to print on the sheet while carried by the platen.

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