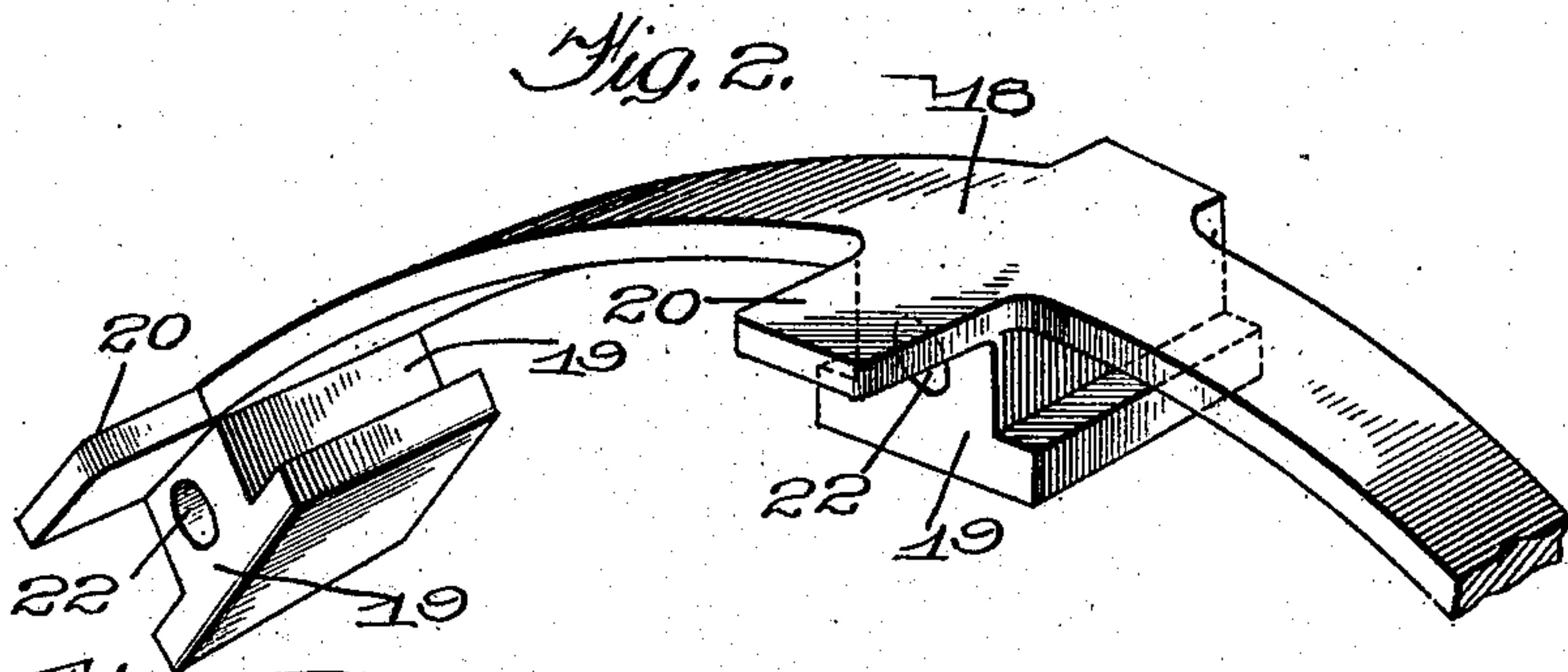
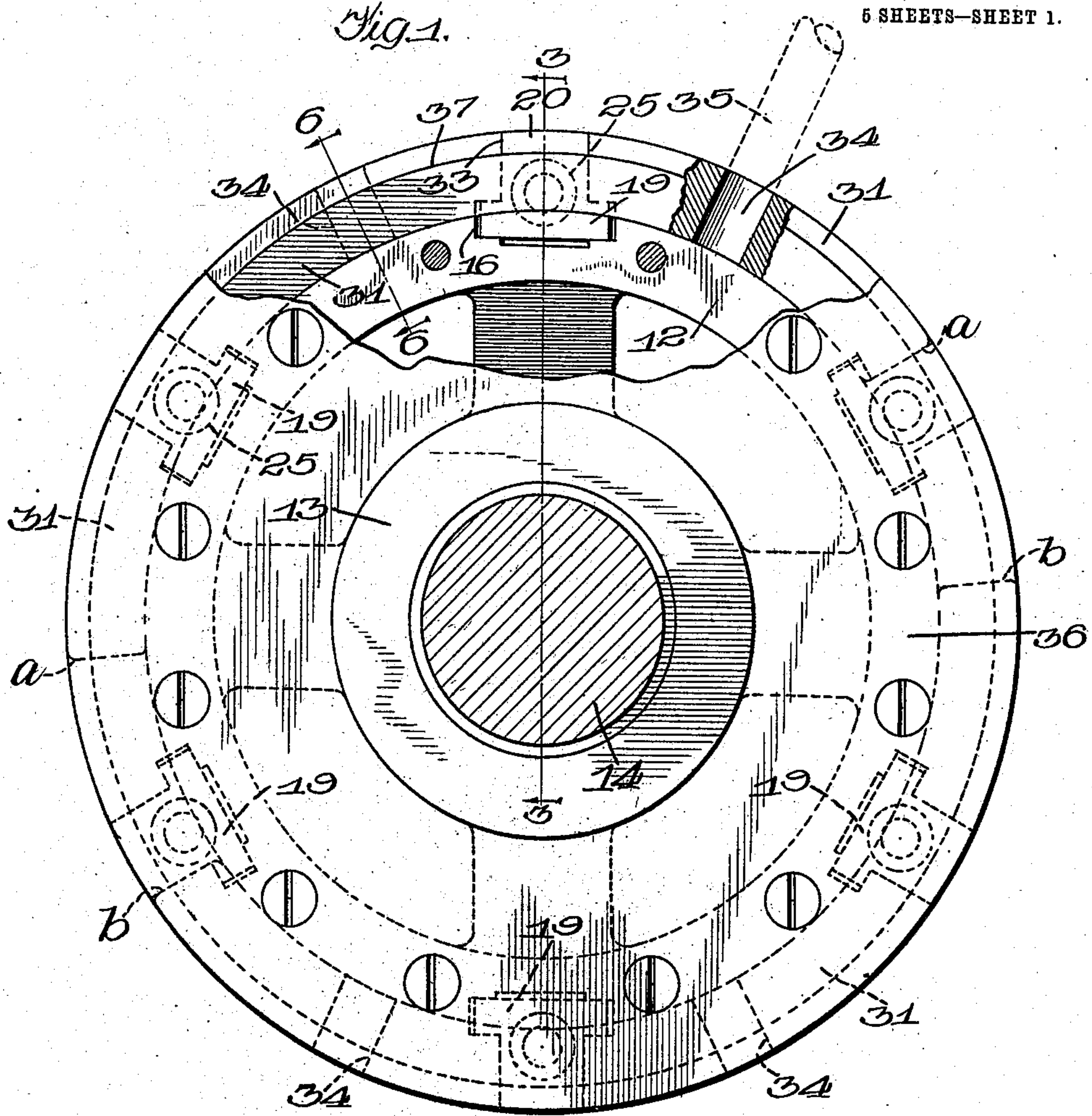


S. G. GOSS.
 PLATE CLAMPING MECHANISM FOR PRINTING PRESSES.
 APPLICATION FILED APR. 18, 1908.

905,174.

Patented Dec. 1, 1908.

5 SHEETS—SHEET 1.



Witnesses:
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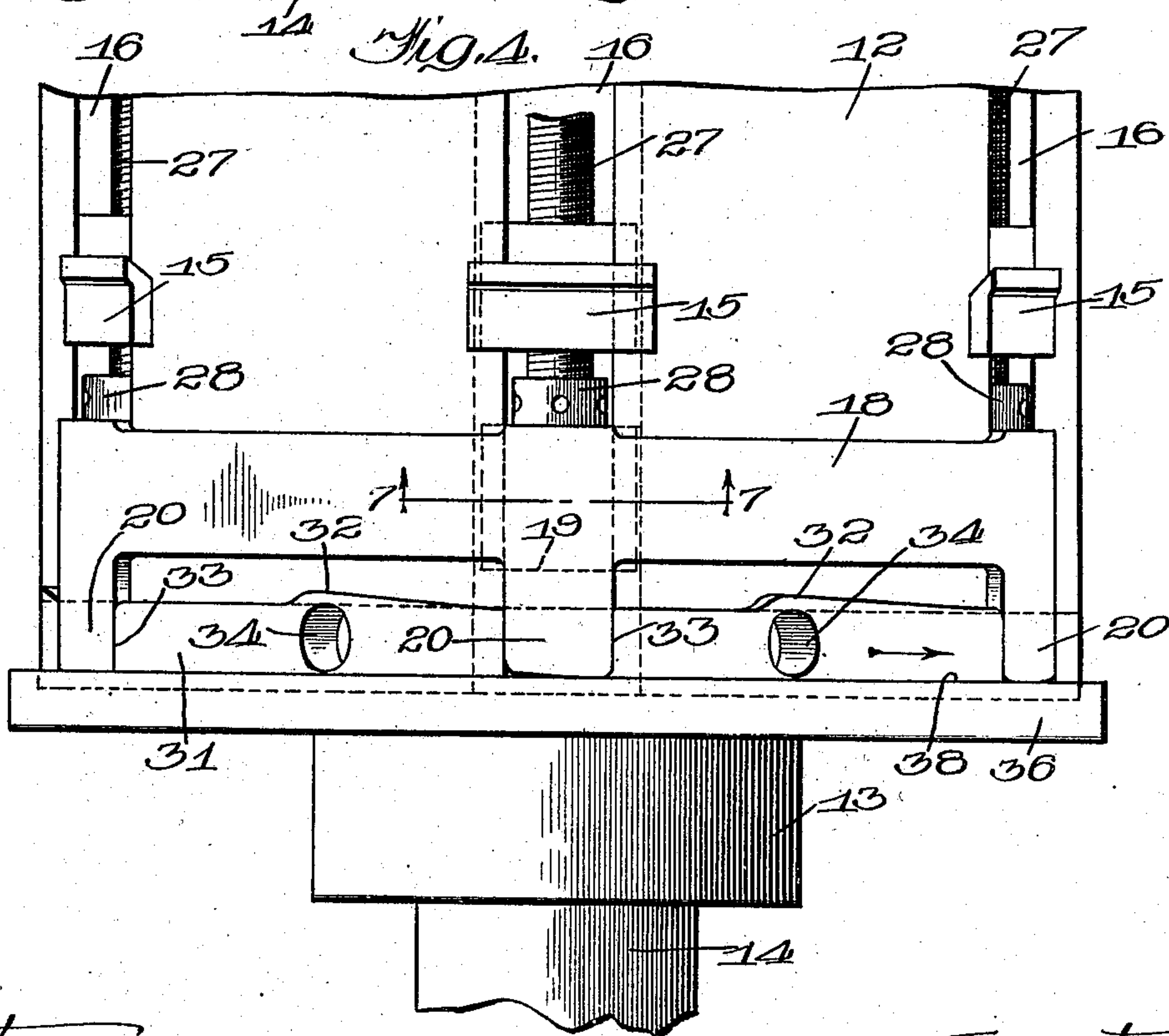
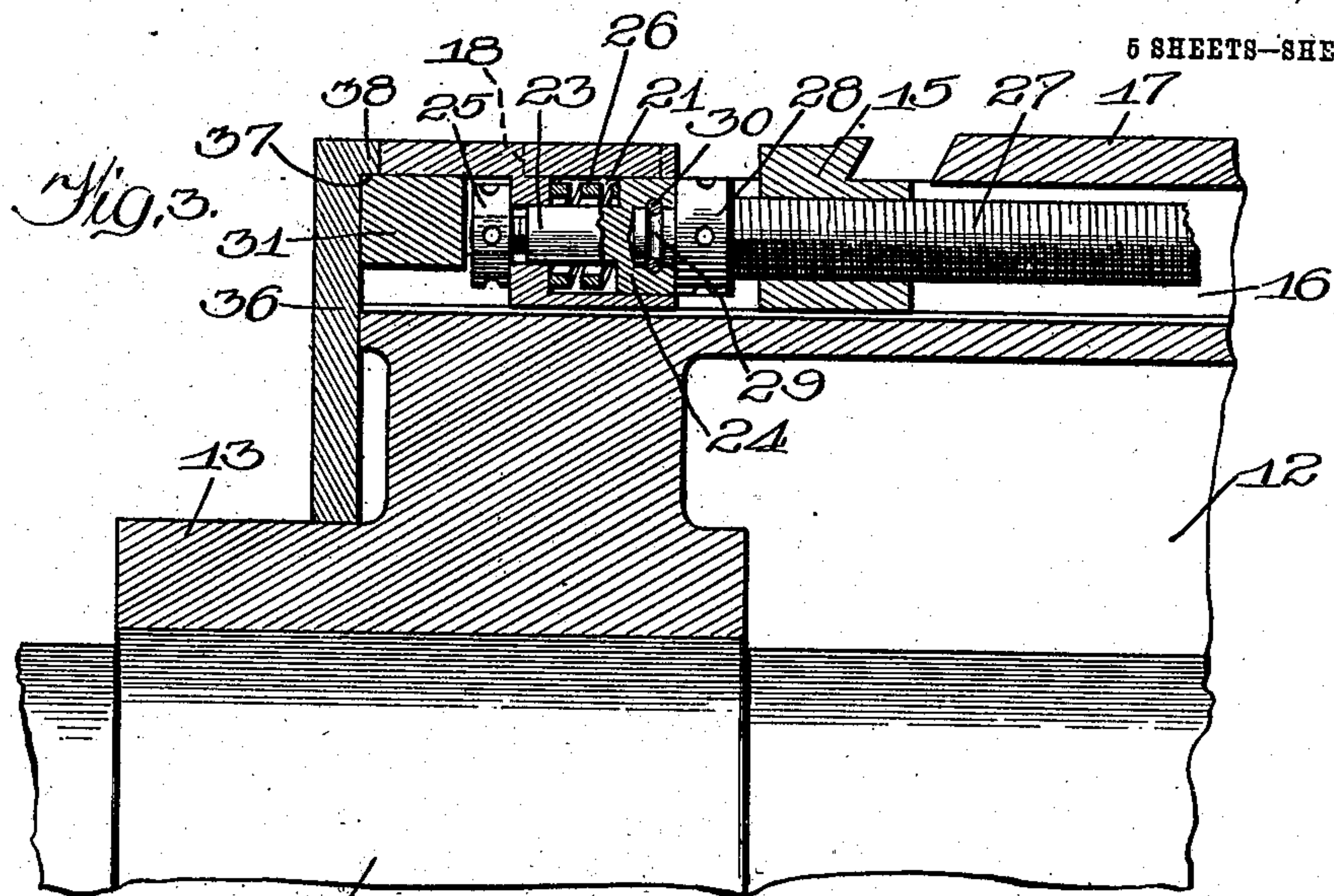
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5 SHEETS—SHEET 2.



Witnesses:
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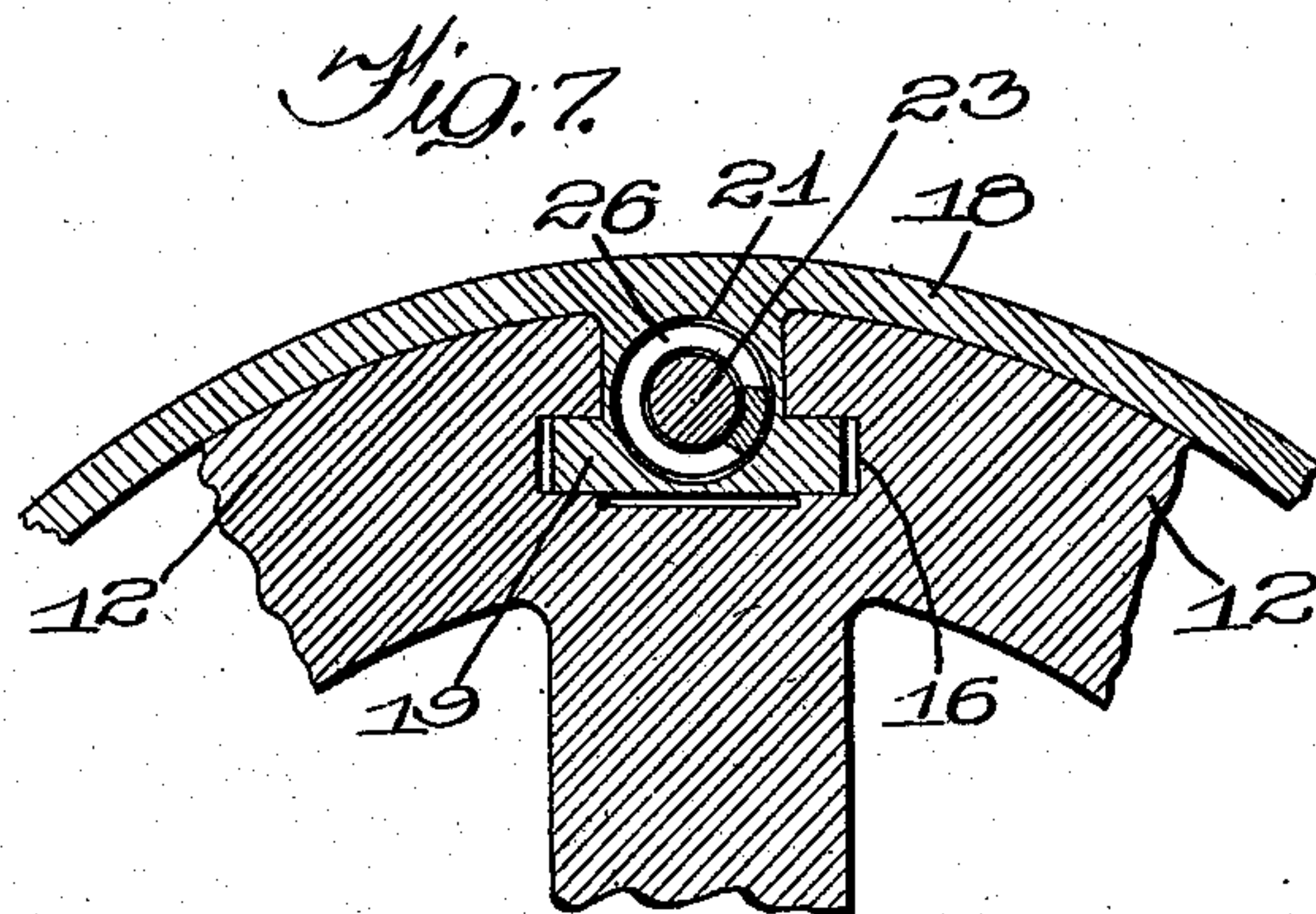
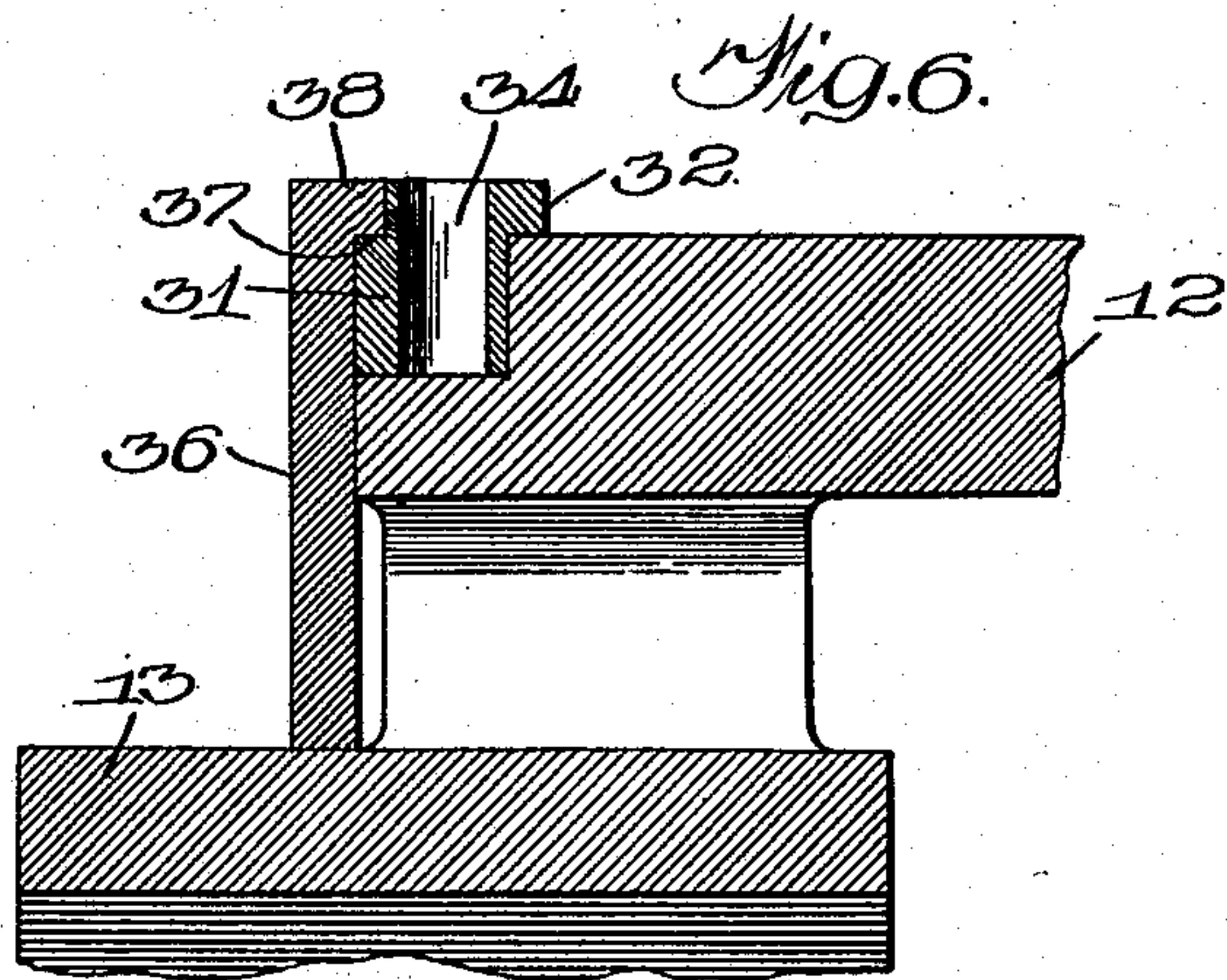
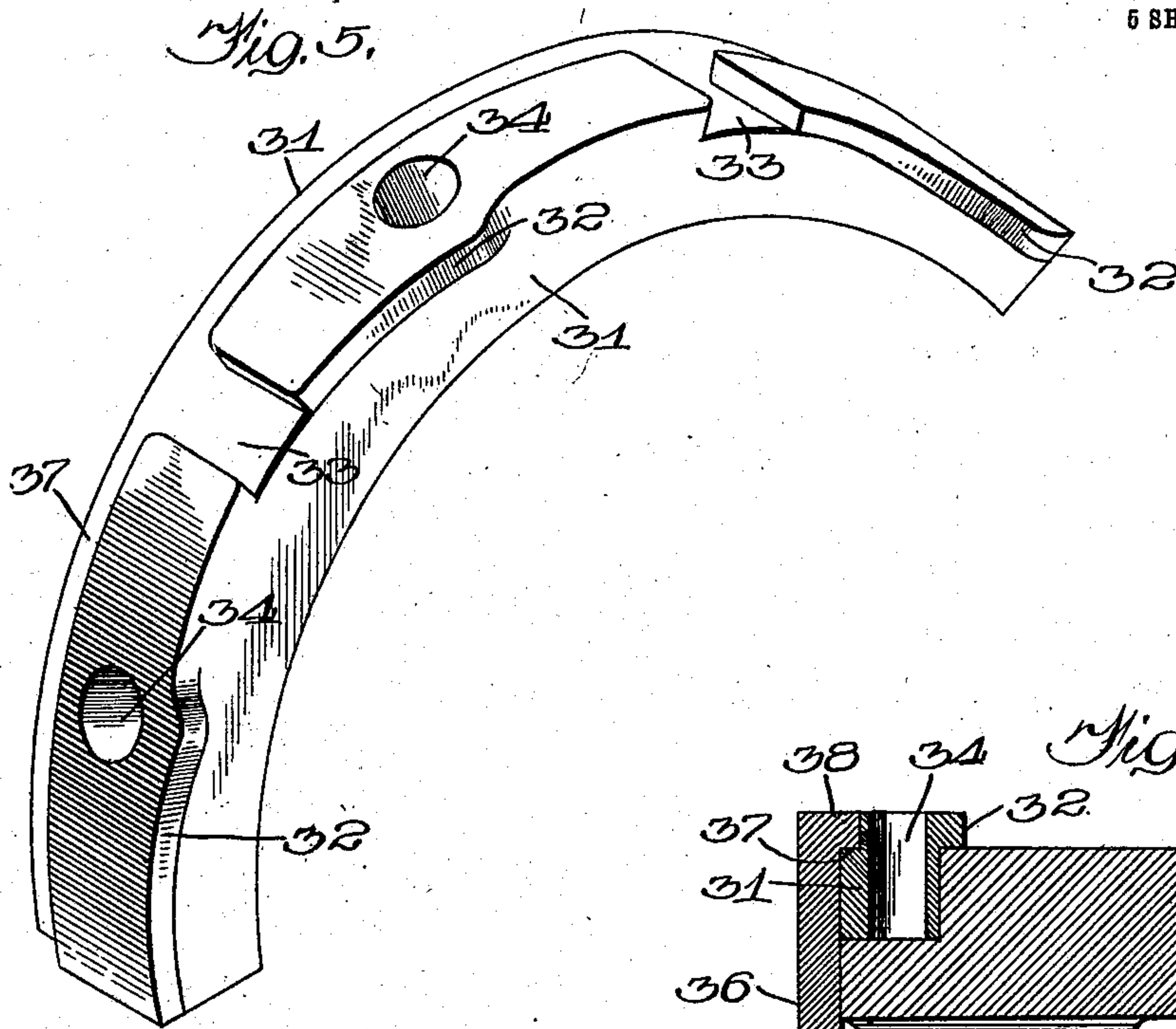
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5 SHEETS—SHEET 3.



Witnesses:
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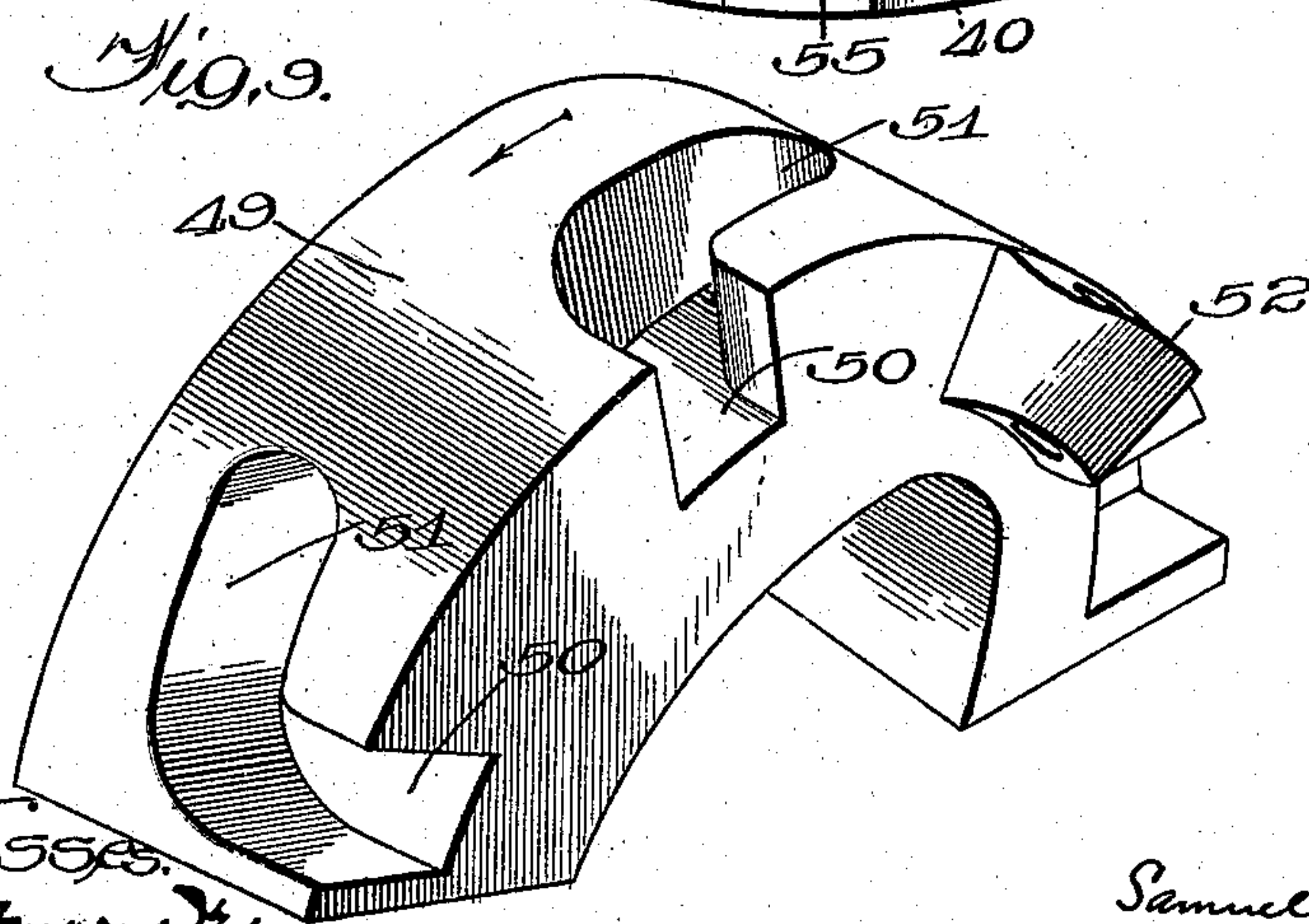
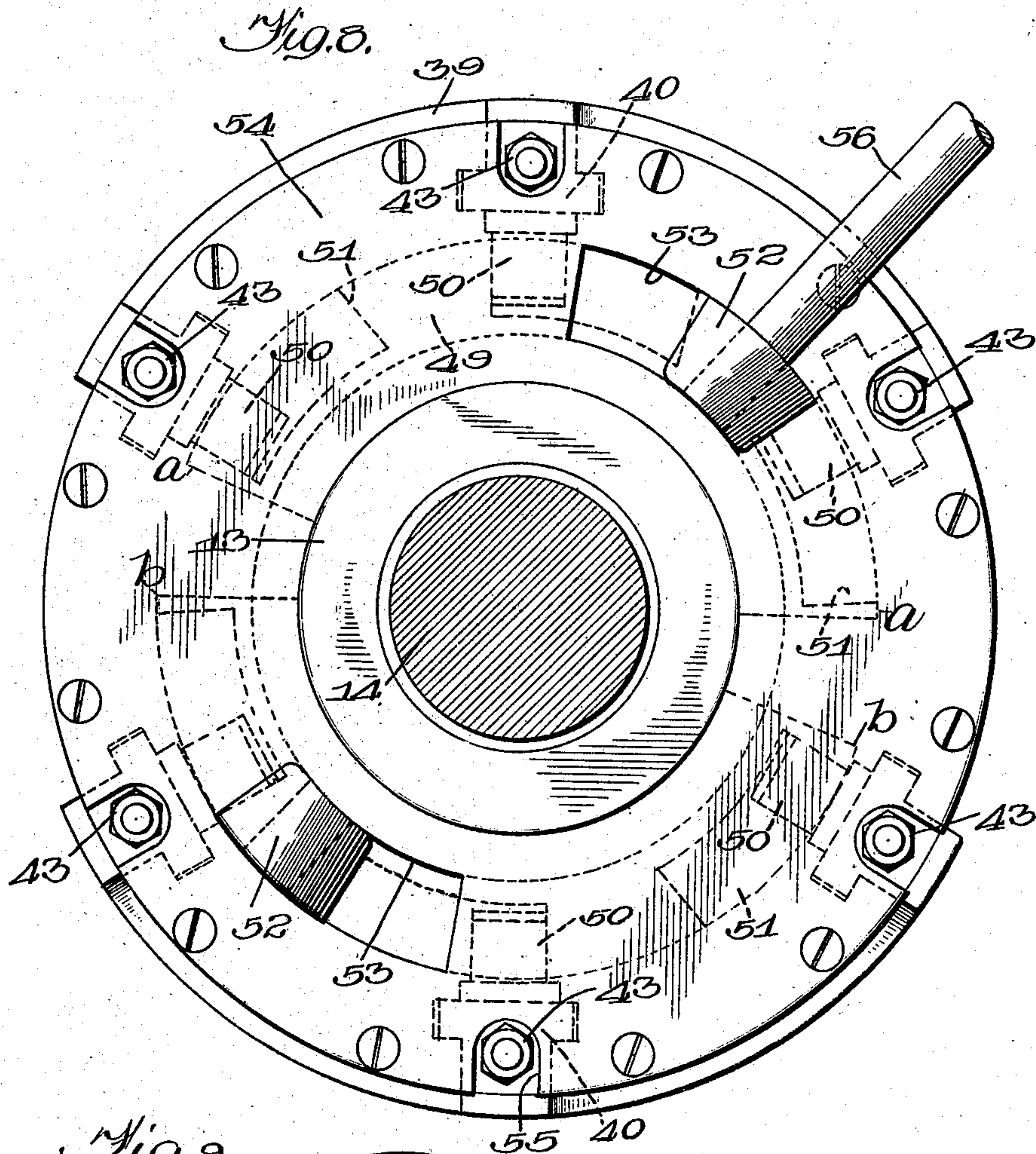
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S. G. GOSS.
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Patented Dec. 1, 1908.

5 SHEETS—SHEET 4.



Witnesses:
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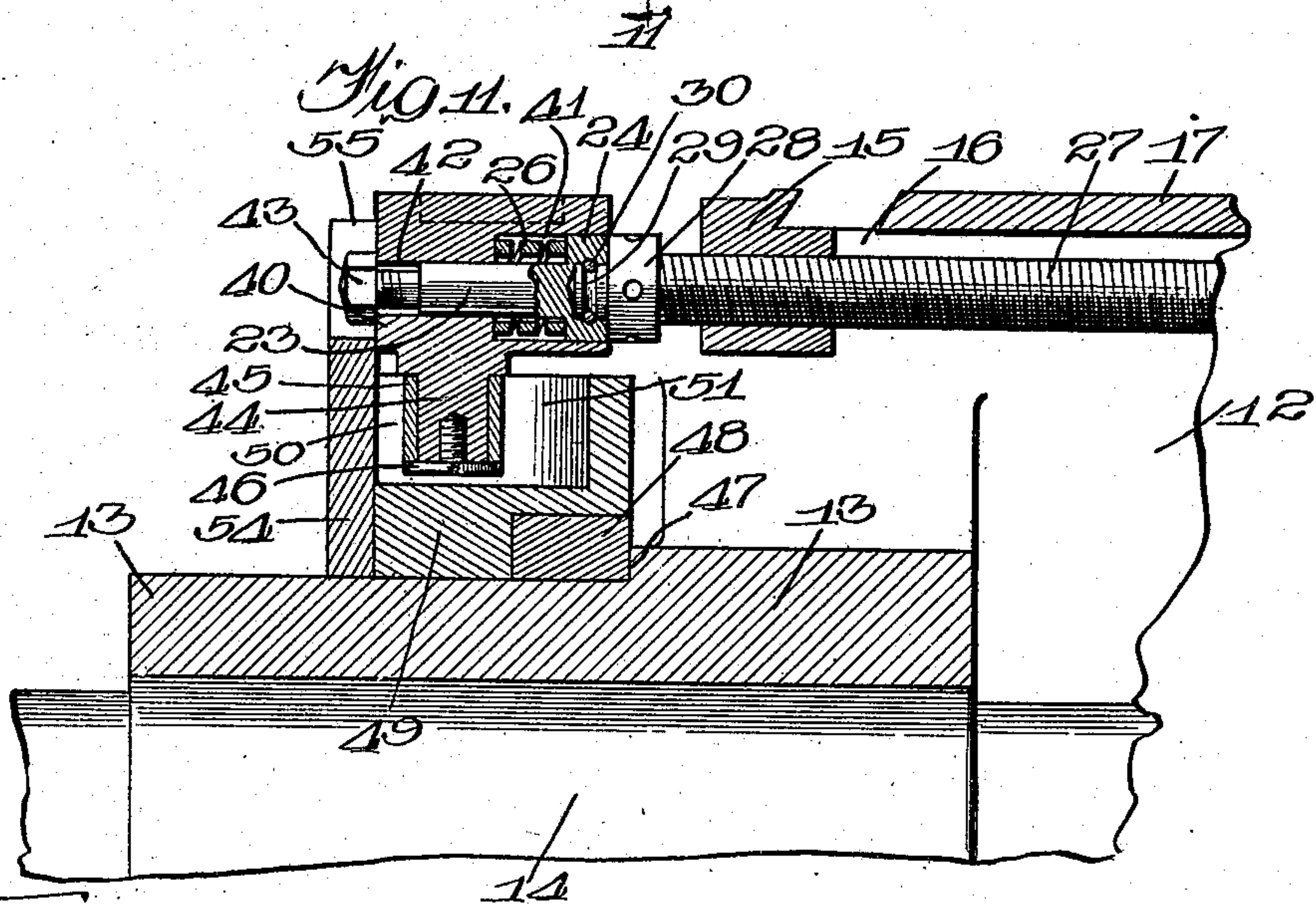
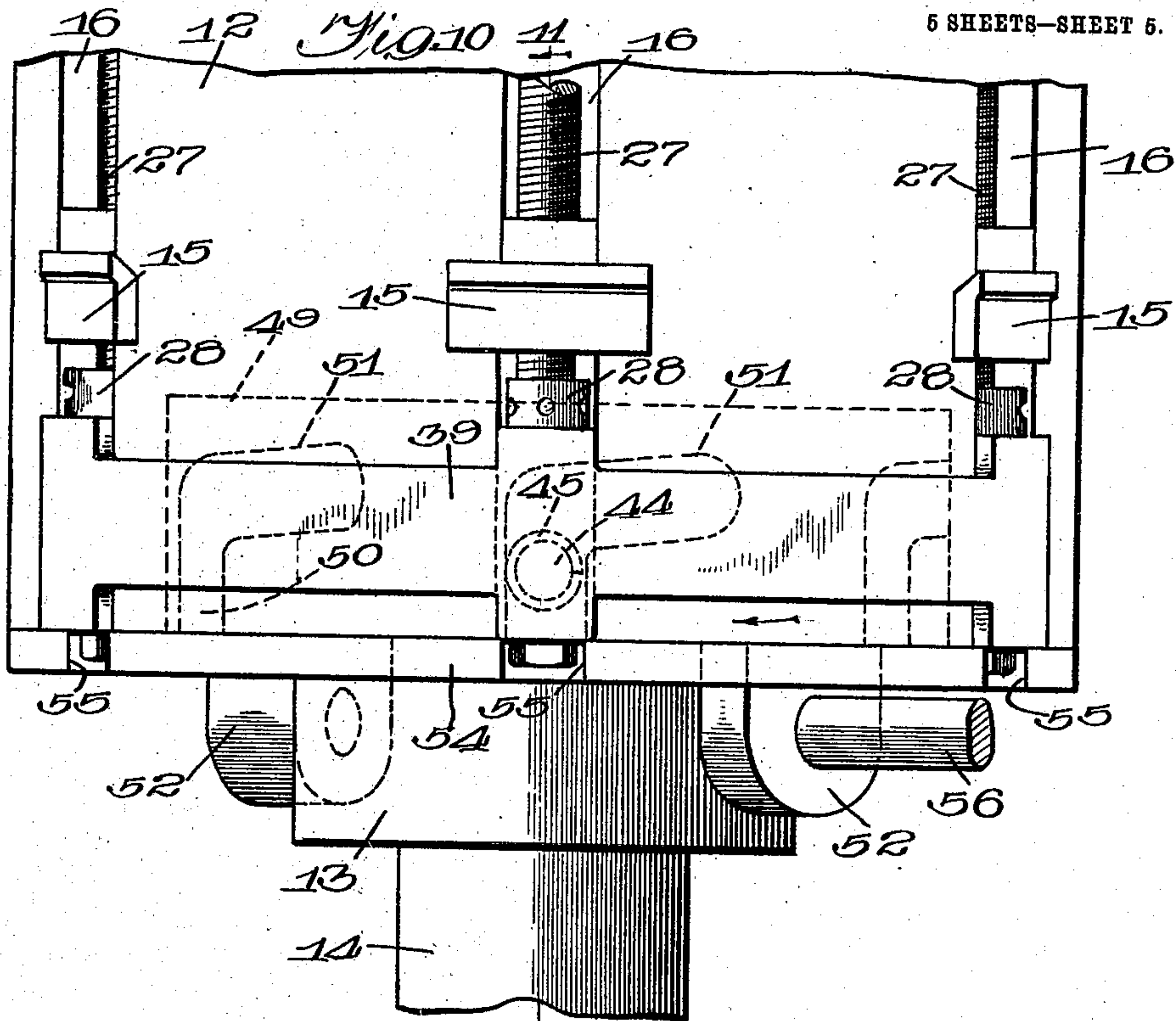
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S. G. GOSS.
 PLATE CLAMPING MECHANISM FOR PRINTING PRESSES.
 APPLICATION FILED APR. 18, 1908.

905,174.

Patented Dec. 1, 1908.

5 SHEETS—SHEET 5.



Witnesses:
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Inventor:
 Samuel G. Goss
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UNITED STATES PATENT OFFICE.

SAMUEL G. GOSS, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE GOSS PRINTING PRESS COMPANY,
OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

PLATE-CLAMPING MECHANISM FOR PRINTING-PRESSES.

No. 905,174.

Specification of Letters Patent.

Patented Dec. 1, 1908.

Application filed April 18, 1908. Serial No. 427,894.

To all whom it may concern:

Be it known that I, SAMUEL G. GOSS, 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 Plate-Clamping Mechanism for Printing-Presses, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to plate clamping mechanism for rotary printing presses, and its object is to provide clamping mechanism for holding plates upon the plate cylinder which can be operated quickly and easily, which is positive in its action, and cannot become loose after it is once tightened, and will yet have a grip upon the plates sufficiently yielding to insure the holding of the plate at several points; and also to provide a new and improved mechanism by which the clamps may be independently adjusted and by which, when adjusted, they may be simultaneously moved to clamp the plate in place.

More particularly, my invention relates to new and improved mechanism by means of which the clamps may be simultaneously moved close to the edge of a plate and then, by movement of a circumferentially-moving member on said cylinder provided with a cam surface, be locked against the edge of the plate so as to hold the plate firmly in position on the plate cylinder.

It is the further object of my invention to improve plate holding mechanism in sundry respects hereinafter pointed out.

I accomplish these objects by the means shown in the drawings and hereinafter specifically described.

That which I believe to be new will be pointed out in the claims.

In the accompanying drawings:—Figure 1 is an end view of a plate cylinder with a portion of the end plate broken away. Fig. 2 is a detail, being a view of one of the arms in which the plate clamping screws are mounted, broken away at one end. Fig. 3 is a section on line 3—3 of Fig. 1. Fig. 4 is a plan view of one end of the plate cylinder. Fig. 5 is a view of one of the cam members for simultaneously locking the plate clamps. Fig. 6 is a section on line 6—6 of Fig. 1. Fig. 7 is a section on line 7—7 of Fig. 4. Fig. 8 is an end view of a plate cylinder showing a modification of my invention.

Fig. 9 is a detail, showing a modified form of the cam member for simultaneously moving the plate clamps. Fig. 10 is a top or plan view of one end of the cylinder, showing a modified form of my invention. Fig. 11 is a modification, being a section on line 11—11 of Fig. 10.

Referring to the drawings:—12 indicates a plate cylinder provided with a hub 13 mounted on the usual shaft 14.

15 indicates plate clamps of the usual form and construction which are mounted in slots 16 of the usual form so as to permit the sliding of the plate clamps 15 therein. The plate clamp is adapted in the usual manner to engage the edge of a plate 17 located on the periphery of the plate cylinder 12.

18 indicates curved arms which are provided with depending heads 19 which are adapted to enter and slide within the slots 16 on the cylinder 12.

In the form of cylinder in which I have illustrated my invention, the plate cylinder is of a diameter adapted to hold a single row of plates on each semi-circumference, and the cylinder is provided on each semi-circumference with three slots 16 and each arm 18 is provided with three heads, one to engage each of said slots. The number of slots, plate clamps and heads on the arms 18 may of course be varied.

The curved arm 18 is provided upon its outer edge with lugs 20 which are adapted to engage with the cam member hereinafter described, and their outer edges are slightly beveled, as is best shown in Fig. 4, to correspond with the slope of the cam surfaces hereinafter described. Each of the heads 19 is provided, as is best shown in Fig. 3, with a chamber 21 opening into the head from the inner side thereof and communicating with the outside by means of a smaller opening 22 (see Fig. 2).

23 indicates a pin which is provided with a head 24 (see Fig. 3) adapted to slide within the chamber 21. The outer end of the pin 23 rests within the opening 22 on the outer surface of the heads 19, and is provided on its outer end with a turning head 25.

26 indicates a spiral spring which is seated around the pin 23 bearing upon the inner surface of the head 24 and the bottom of the chamber 21.

27 indicates a screw which is adapted to

pass through the usual screw-threaded opening in the plate clamps 15, and which is provided with a turning head 28 by means of which by a suitable pin the screw may be
 5 turned to move the plate clamp which it engages longitudinally of the plate cylinder. The outer ends of the screws 27 are revolvably seated in the heads 24, and are held in place therein by means of peripheral grooves
 10 29 and pins 30.

It will be obvious from the above description that by turning the screws 27, the plates 15 may be individually and separately moved longitudinally of the cylinder to adjust them to plates of different widths upon
 15 the cylinder. It will also be obvious that by sliding either of the curved arms 18 inwardly by hand in the grooves in which they are seated, the several plate clamps carried on the screws seated in said arm will be simultaneously moved inward to the edge
 20 of the plate to be engaged. The turning head 25 is screw-threaded upon the outer end of the pin 23, in order that by the turning of the head 25 the tension of the spring 26 may be properly regulated.

31 indicates curved members which, in the form in which I have shown my invention, are two in number corresponding with the
 30 number of curved arms 18, and one upon each semi-circumference of the cylinder. The curved members 31 are mounted upon the end of the plate cylinder in a suitable peripheral rabbet, shown in Fig. 6, at the
 35 end of the plate cylinder, so that the members 31 may slide around the cylinder a limited distance peripherally thereof.

As is shown in Fig. 1, the members 31 are of somewhat lesser length than the semi-circumference of the cylinder to permit this
 40 limited peripheral movement. Referring to Fig. 1, one of the members 31 extends around the cylinder from *a* to *a*, and the other from *b* to *b*, so as to leave a space extending from *a* to *b* upon each side of the
 45 cylinder between the ends of the members 31, which space corresponds substantially to the length of the cam surface hereinafter described.

The curved members 31 are provided upon their inner edges with a plurality of cam
 50 surfaces 32 which are adapted to engage with the lugs 20, as hereinafter described and correspond in number therewith. Upon the upper surface of the curved members 31
 55 are a plurality of recesses 33 which are adapted to receive the lugs 20 when the parts are in the position shown in the drawings. The lugs 20, recesses 33 and cams 32
 60 are of the same depth or thickness. The curved members 31 are provided with openings 34 adapted to receive a rod or suitable tool, shown in dotted lines at 35 in Fig. 1, by which the cam members 31 may be moved
 65 circumferentially of the cylinder.

36 indicates end plates of the usual form which are secured upon the ends of the cylinder. The outer surface of the curved members 31 is rabbeted out at its outer edge
 70 peripherally so as to form a depression 37 and the end plates 36 are provided with a peripheral shoulder 38 which is adapted to extend over said depression 37 to hold the members 31 in position on the cylinder.

The operation of the above-described
 75 parts is as follows:—The plate clamps being generally and individually adjusted to the proper position in the slots 16, depending upon the width of the plates to be used, the plates are placed in position upon one semi-
 80 circumference of the cylinder in the usual manner. The curved arm 18 which registers with the plates in position is then moved inward by hand until the lugs 20 are freed from the depressions 33 in the cam-member
 85 31. The plate clamps are so adjusted by the screws individually with reference to the plates that this movement which frees the lugs from the recesses in the cam-member will bring the engaging edges of the clamps
 90 close to the edge of the plate. By means of a suitable instrument, the cam-member 31 is thereupon moved in the direction shown by the arrow in Fig. 3. This causes the cam
 95 surfaces 32 to come in contact with the outer ends of the lugs 20 and thereby moves the arm 18 inward, carrying the plate clamps simultaneously inward and locking them firmly against the edge of the plate, the
 100 springs 26 permitting a sufficient yielding to insure the firm locking of all of the plate clamps to the edge of the plate. When it is desired to remove the plates, the operations above described are reversed. When the
 105 plates are thus locked upon one semi-circumference, the plate cylinder is turned over to bring the other semi-circumference up and the plates locked upon that half of the cylinder in the same manner by the other locking members. As the clamps 15 are moved
 110 inward when the arms 18 are moved inward by hand until the clamps come in contact with the edge of the plate, the subsequent movement inward of the arms 18 by the turning of the cam-member to lock the plate
 115 will be of course a very slight one, and when the clamps are locked against the plate the pressure upon the plate which causes the locking will be caused by the tension of the springs 26. Slight irregularities, therefore,
 120 in the edge of the plate will be accounted for, and each of the clamps will firmly engage the edge of the plate.

Referring to Figs. 8 to 11, 12 indicates the plate cylinder provided with a hub 13
 125 and mounted on the shaft 14. 15 indicates plate clamps of the usual form and construction slidably mounted in the usual slots 16 in the surface of the plate cylinder. 17 (see Fig. 11) indicates a plate on the surface of
 130

the cylinder. The plate clamps are provided with the usual openings screw-threaded to receive screws 27 provided with turning heads 28. The outer end of each screw 27 is revolubly seated in a head 24 upon the pin 23 and is held in its place by means of the circumferential groove 29 and pin 30 in the same manner as above described. The pin 30 is mounted in curved clamp-moving arms hereinafter described. 39 indicates curved arms which are provided with heads 40 which project downwardly from its under surface and are adapted to slide in the grooves 16 so that the arms 39 may be moved inwards and outwards longitudinally of the cylinder. Each of the heads 40 is provided with a chamber 41 extending inward from its inner surface, as is best shown in Fig. 11, and adapted to receive the heads 24 on the pins 23, the pins 23 extending outward in a smaller opening 42 which extends through the heads 40 to the outer surface thereof. 26 indicates spiral springs which bear upon the inner surfaces of the heads 24, and the bottom of the chamber 41. The outer end of the pin 23 projects beyond the head 40 and is screw-threaded to receive the nut 43 by means of which the tension upon the spring 26 may be regulated. 44 indicates studs which project downwardly from the heads 40 and are adapted to engage the cam grooves hereinafter described. The studs 44 are preferably provided with revoluble sleeves 45 which are held thereon by means of caps 46 screwed into the ends of the studs which form roller bearings for the studs in the cam grooves hereinafter described. The hub 13 extends somewhat further into the interior of the cylinder than is shown in the other form of my invention above described and is provided with a circumferential shoulder 47 against which is seated a circumferential bearing ring 48. 49 indicates cam members which are curved in a circle to correspond with the hub so as to rest thereon against the bearing ring 48, as is best shown in Fig. 11, and to slide longitudinally of themselves and circumferentially of the plate cylinder and of the hub. These cam members correspond in number with the curved arms 39. In the form in which I have shown this invention, the plate cylinder is of a circumference equal to two sheet lengths,—that is to say, adapted to carry a series of plates abreast upon each semi-circumference. The movable arms are therefore two in number, one adapted to engage the plate upon each semi-circumference, and the cam members are also two in number, each adapted to move its own clamp-moving arm. It will be understood, of course, that if the cylinder were of a circumference that would carry a different number of plates around it the number of clamp-moving arms and cam members would be correspondingly

changed. Upon its outer surface each of the cam members 49 is provided with a recess consisting of an inwardly-extending portion 50 and a cam portion 51, and the said recess opens from the outer edge of the cam member. The recesses composed of the inwardly-extending portions 50 and cam portions 51 are adapted to receive and engage the studs 44 on the heads 40 of the curved arms 39. 52 indicates ears which are mounted one upon each of the cam members 49 and extending outward through suitable openings 53 in the cover-plate 54 which is screwed or otherwise secured upon the outer end of the cylinder over the hub 13. The outer edge of the cover-plate 54 is provided with notches 55 exposing the nuts 43 upon the outer ends of the pins 23 so that they may be accessible for turning. The ears 52 are provided each with a suitable opening in which to insert a pin or suitable tool 56 by means of which the cam members may be moved circumferentially of the cylinder.

The operation of the above-described modification is as follows:—The clamps are separately adjusted by the turning of the screws 27 to correspond with the width of plate which it is desired to use. This being done, the plates are placed upon one semi-circumference of the cylinder and the curved arm 39 upon that semi-circumference is moved inward until the stud 44 passes out of the straight inwardly-projecting portion of the recess 50 and registers with the cam portion 51. The plate clamps 15 are so adjusted that this inward movement of the curved arm 39 will bring the engaging edges of the plate clamps against the edge of the plate. By means of a suitable tool, as 56, the cam member 49 is moved in the direction shown by arrows in Figs. 9 and 10. This causes the cam grooves 51 to engage the studs 44 and thereby to force the curved arm 39 a short distance inward. This movement inward causes the plate clamps 15 to firmly lock the plates in position, the springs 26 permitting this movement and yielding, as is above described, so that slight irregularities in the edge of the plate are accounted for and each clamp is locked against the edge of the plate sufficiently firmly to hold the plates tightly in position.

As both in the form first described and in the modifications just described the force with which the clamps are locked against the edge of the plate will depend upon the tension of the springs, this tension should be strong enough to effect the proper firm locking of the plates while at the same time permitting slight yielding for slight irregularities.

It will be obvious from the above description that the plate-locking mechanism in either of the forms which I have described may be very quickly operated when the

clamps are once adjusted to the desired width of plate. The first movement which moves the clamps simultaneously into contact with the plate edge being performed by pushing the clamp-carrying and engaging arm inward by hand is accomplished in a moment of time, and, as the subsequent movement which locks the clamps upon the plates is a very slight movement, it may be accomplished with great rapidity and the operation of the entire device as above set forth is performed in a very short time.

What I claim as my invention and desire to secure by Letters Patent is:—

1. The combination with a plate cylinder adapted to carry stereotyped plates, plate clamps slidingly mounted thereon, a curved arm seated on said plate cylinder and movable longitudinally thereof, and adjusting screws carried by said arm and connected with said plate clamps, of a cam member movable peripherally of said cylinder and adapted by its said movement to move said arm inward to lock said plate clamps to said plate.

2. The combination with a plate cylinder adapted to carry stereotyped plates, plate clamps mounted thereon and movable longitudinally thereof, a curved arm seated on said plate cylinder and movable longitudinally thereof, and spring-seated engaging screws carried by said arm and adapted to engage said plate clamps, of a curved member seated in said cylinder and movable circumferentially thereof, and cams on said curved member adapted by the movement of said member circumferentially of the cylinder to bear upon said curved arm and move the same inwards to lock said plate clamps simultaneously against the plate edge.

3. The combination with a plate cylinder adapted to carry stereotyped plates, plate clamps slidingly mounted thereon, a curved arm seated on said plate cylinder and movable longitudinally thereof, and adjusting screws carried by said arm and connected with said plate clamps whereby by the independent movement of said arm said plate clamps may be simultaneously brought to bear upon the edge of the plate, of a cam member movable peripherally of said cylinder and adapted to engage said arm when said clamps by the independent movement thereof have been brought into contact with the edge of the plate and by its said peripheral movement to move said arm inward to lock said plate clamps to said plate.

4. The combination with a plate cylinder adapted to carry stereotyped plates, plate clamps mounted thereon and movable longitudinally thereof, a curved arm seated on said plate cylinder and movable longitudinally thereof, and spring-seated engaging screws carried by said arm and adapted to

engage said plate clamps, whereby by the independent movement of said arm said plate clamps may be simultaneously brought to bear upon the edge of the plate, of a curved member seated in said cylinder and movable circumferentially thereof, and cams on said curved member adapted to engage said arm when said clamps by the independent movement thereof have been brought into contact with the edge of the plate and by the movement of said member circumferentially of the cylinder to bear upon said curved arm and move the same inwards to lock said plate clamps simultaneously against the plate edge.

5. The combination with a plate cylinder adapted to hold stereotyped plates, plate clamps mounted on said plate cylinder and movable longitudinally thereof, a curved arm seated on said cylinder and movable longitudinally thereof, and adjusting screws spring-seated in said arm and engaging said plate clamps, said arm being adapted to be independently moved longitudinally of said cylinder to bring said plate clamps into contact with the plate edge, of engaging members on said arm, a curved member seated in said plate cylinder and movable circumferentially thereof, and cams on said curved member adapted when said plate clamps have been brought into contact with the edge of the plate to engage the said engaging members on said arm and by the circumferential movement of the curved member move said arm slightly inward and lock said plate clamps against the plate edge.

6. The combination with a plate cylinder adapted to hold stereotyped plates, plate clamps mounted on said plate cylinder and movable longitudinally thereof, a curved arm seated on said cylinder and movable longitudinally thereof, and adjusting screws spring-seated in said arm and engaging said plate clamps, said arm being adapted to be moved independently longitudinally of said cylinder to bring said plate clamps into contact with the plate edge, of lugs projecting from the edge of said curved arm, a curved member seated in said plate cylinder and movable circumferentially thereof and provided with recesses to receive the lugs on said curved arm, and cam surfaces on said curved member adapted, when said arm has been moved inward to bring the plate clamps into engagement with the plate edge, to register with the ends of said lugs and by the circumferential movement of the said curved member to move said arm slightly inward and lock said plate clamps to said plate edge.

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