

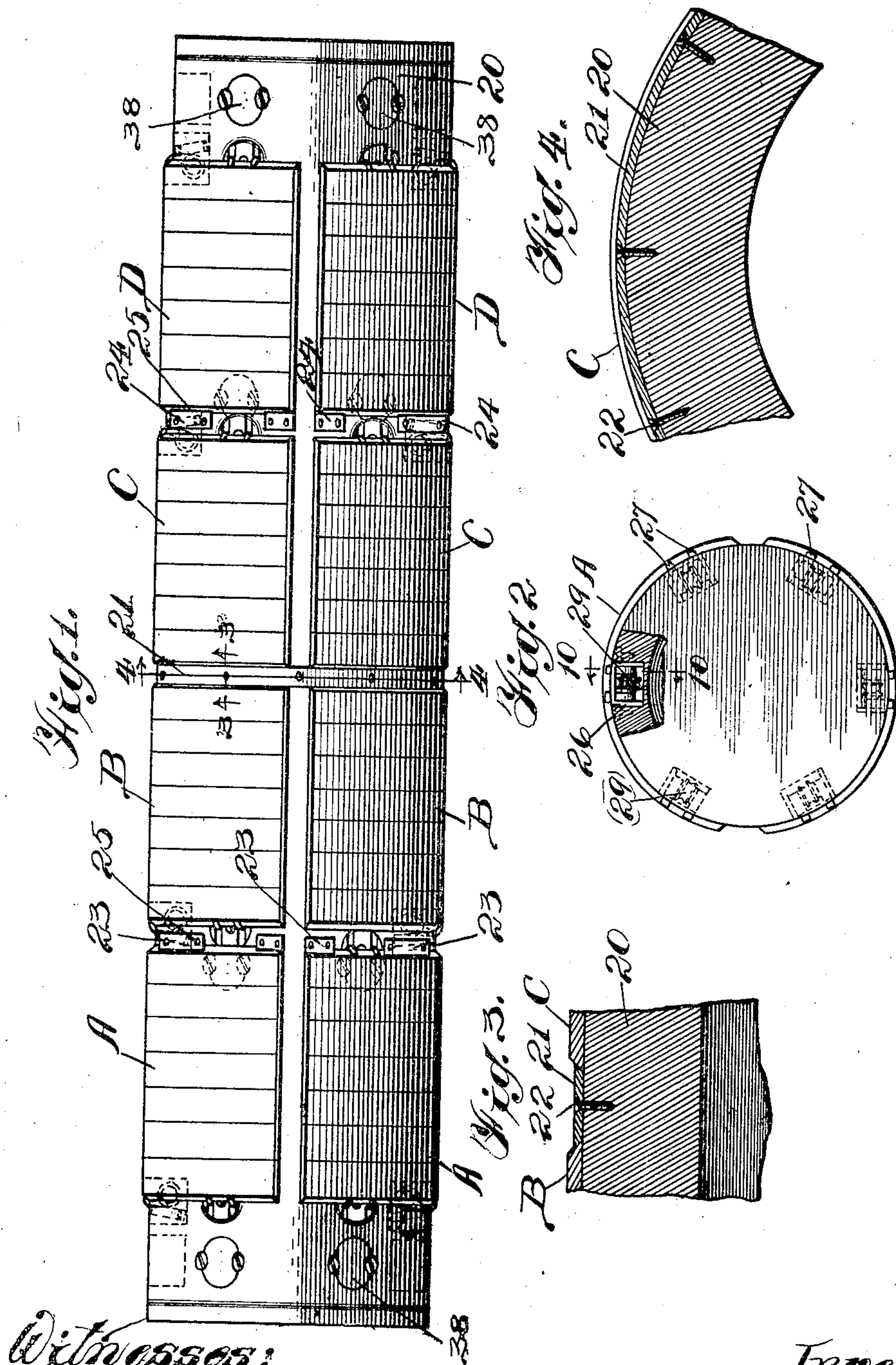
No. 868,263.

PATENTED OCT. 15, 1907.

S. G. GOSS.
FORM CYLINDER FOR PRINTING PRESSES.

APPLICATION FILED FEB. 23, 1904.

4 SHEETS—SHEET 1.



Witnesses:
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G. V. Donamus.

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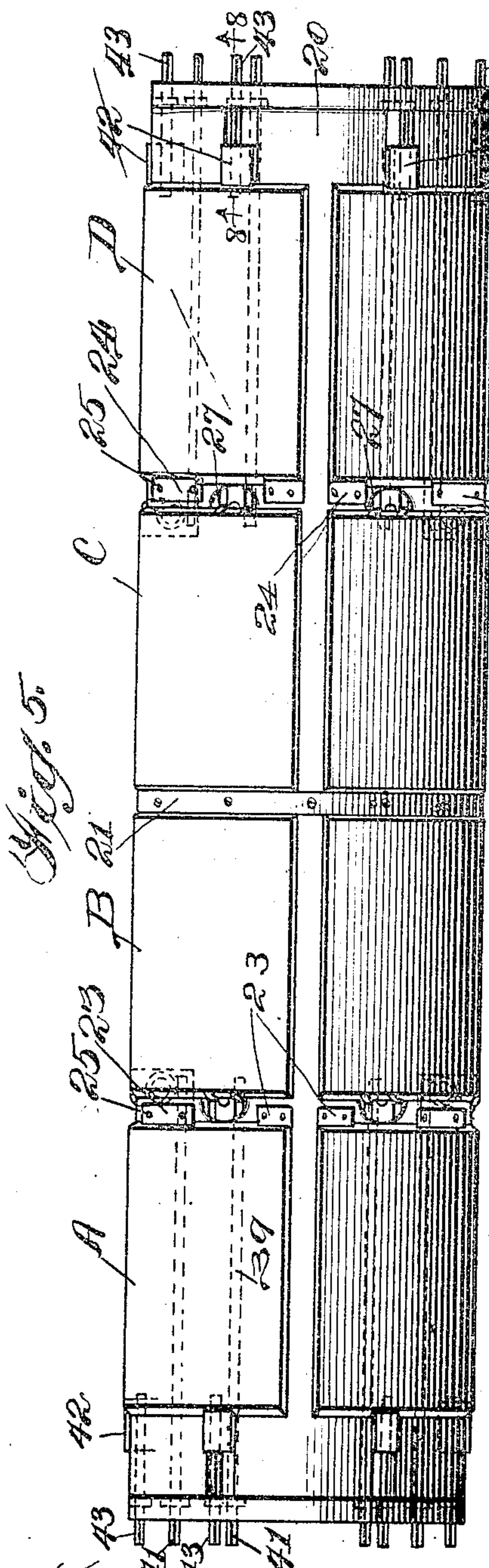


Fig. 5.

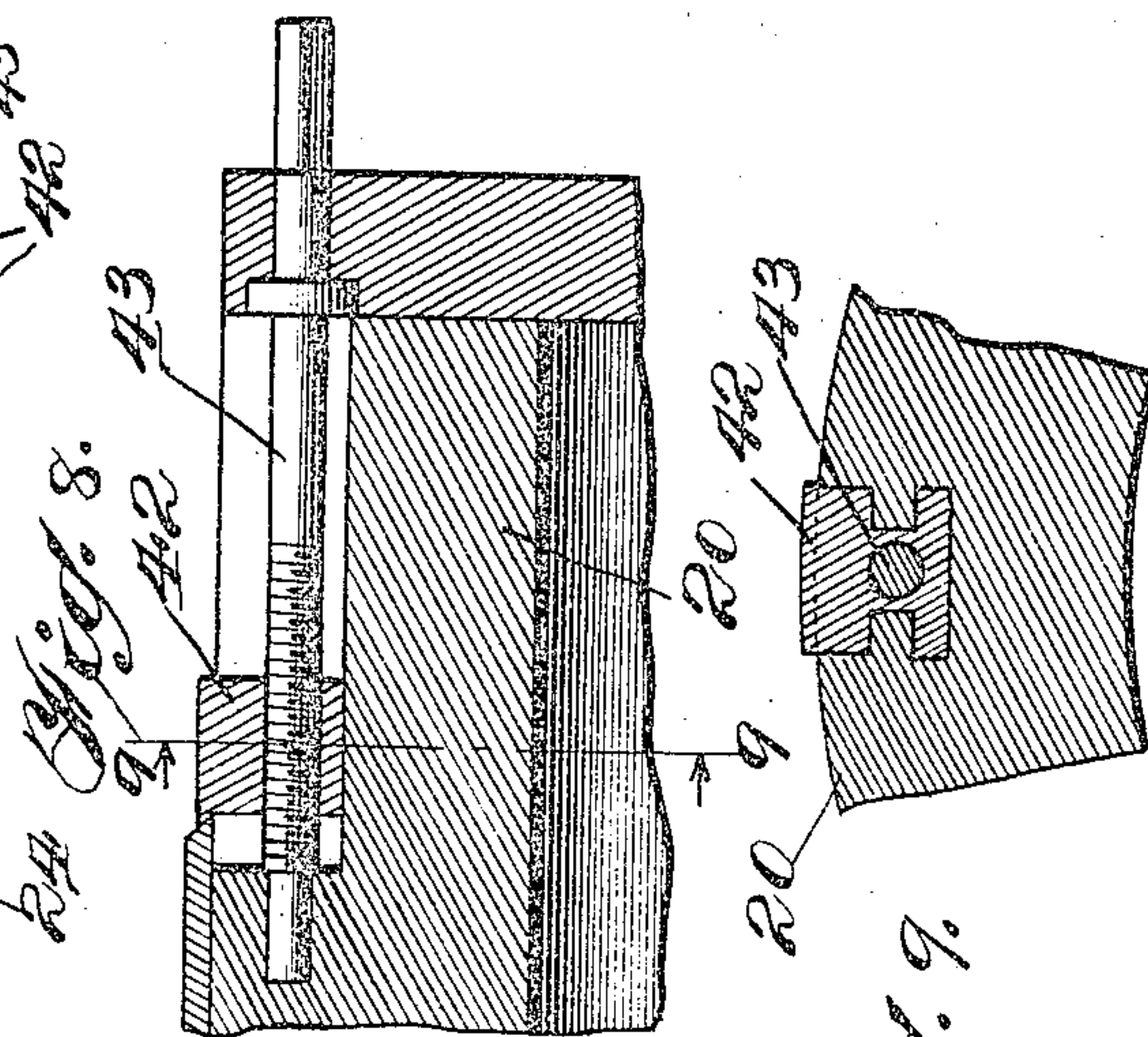


Fig. 8.

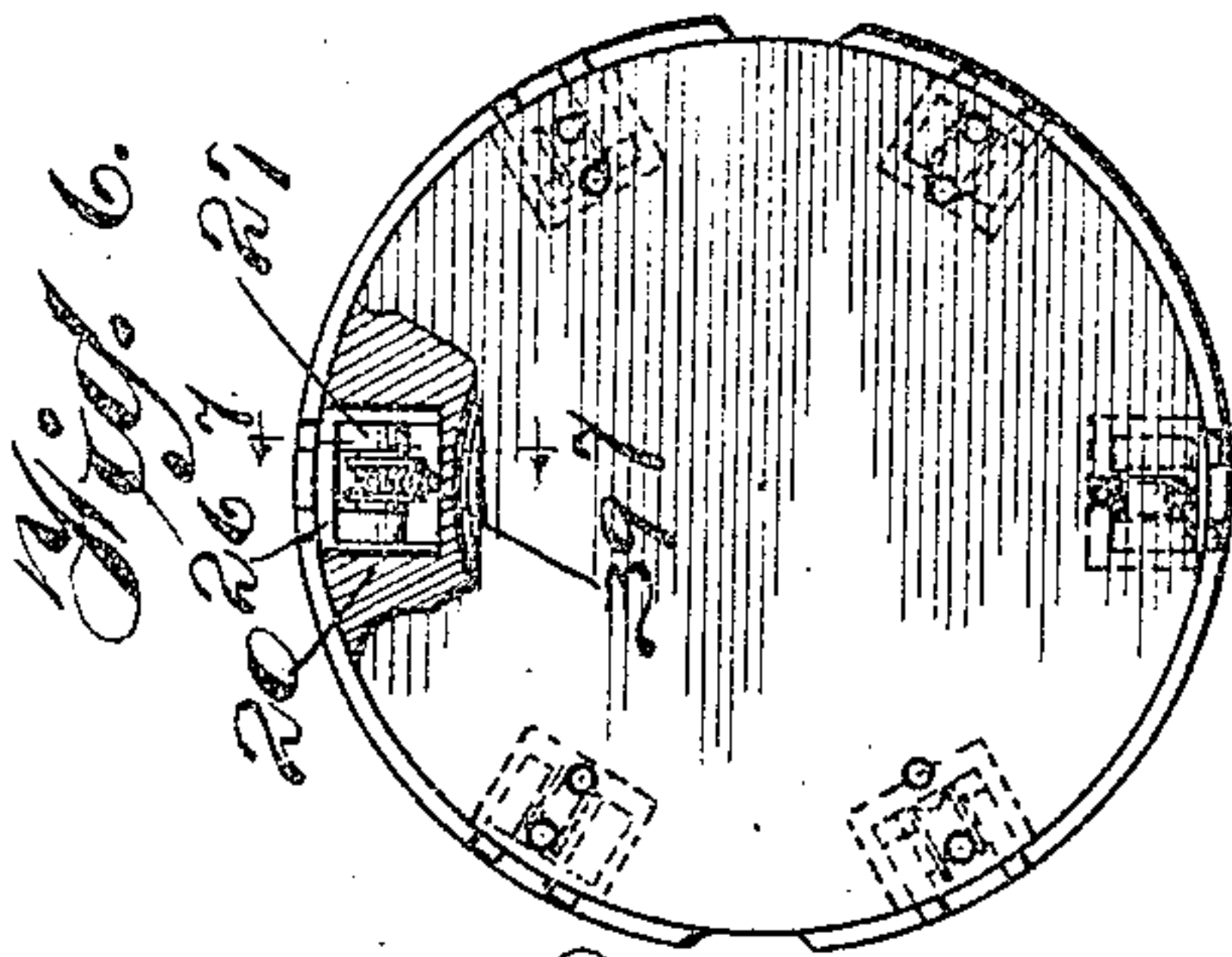
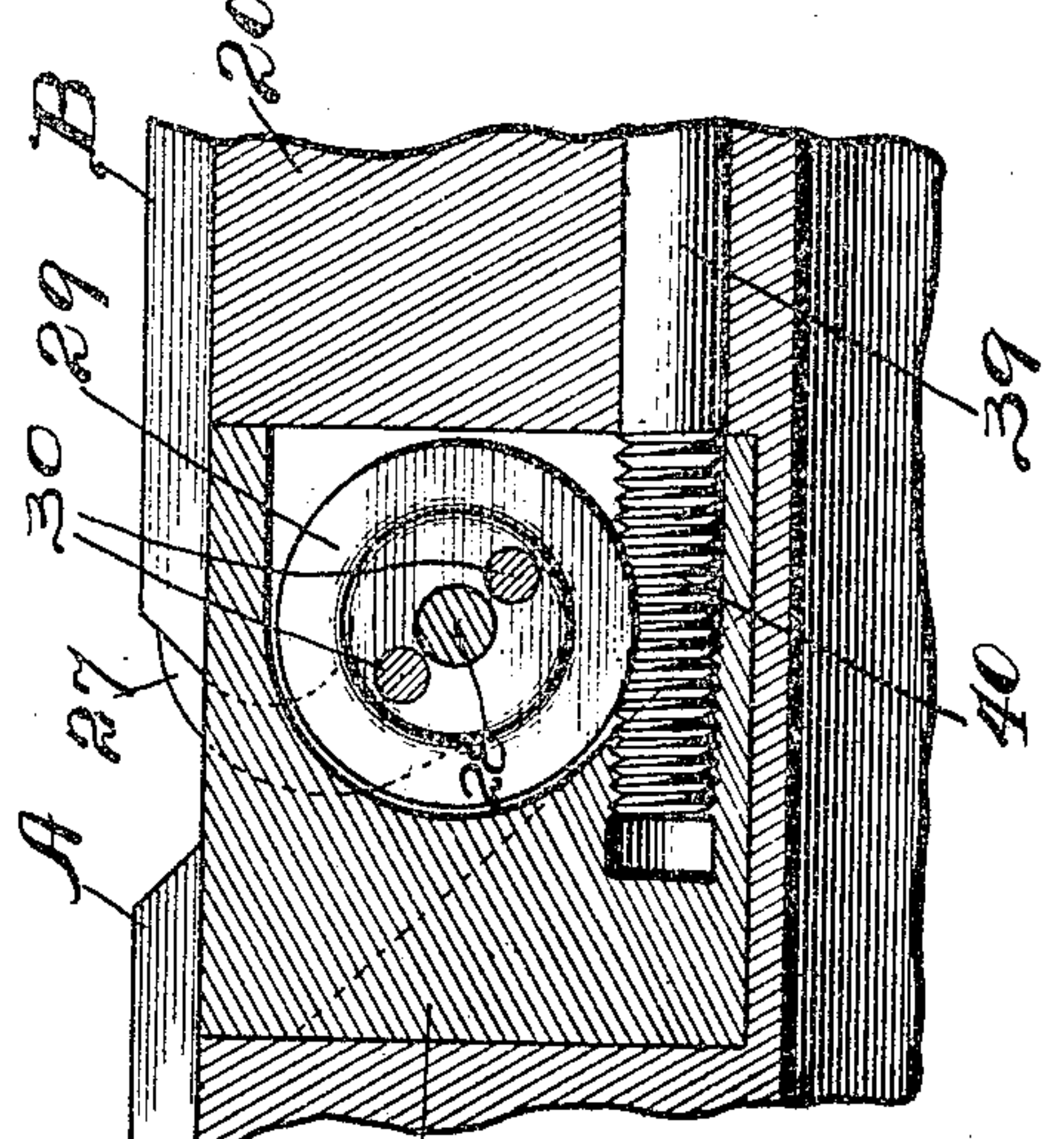


Fig. 6.

Fig. 7.



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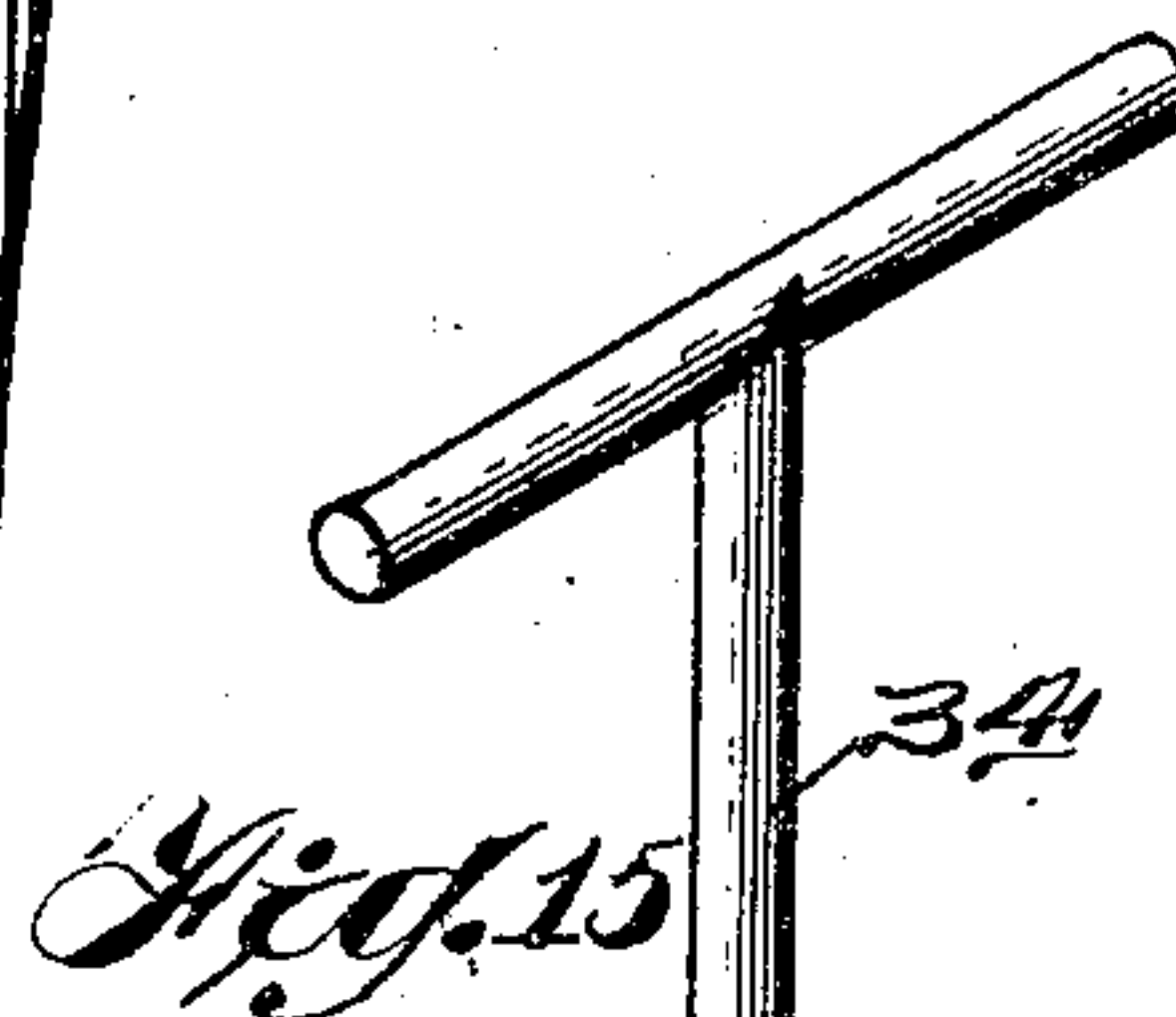
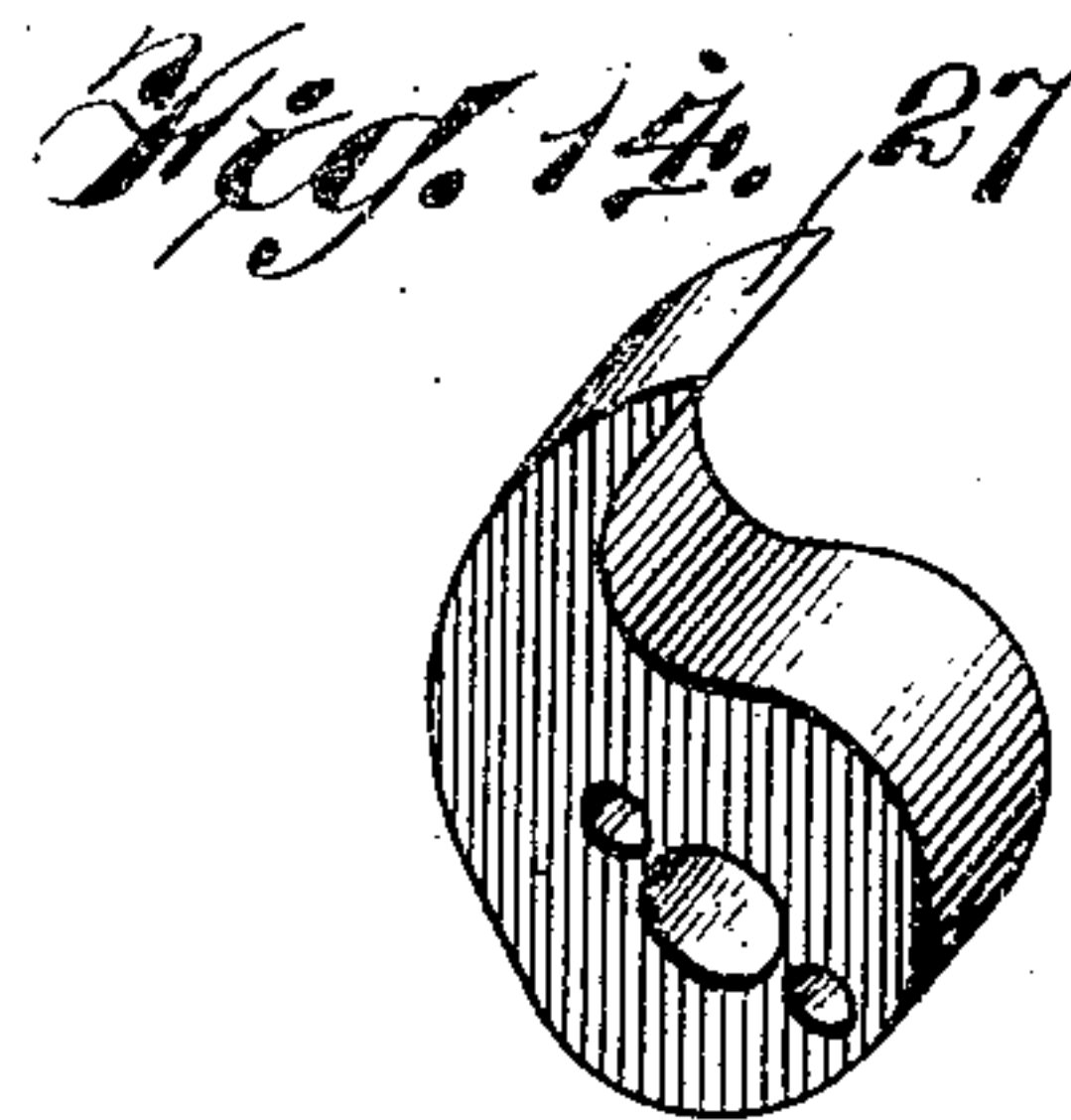
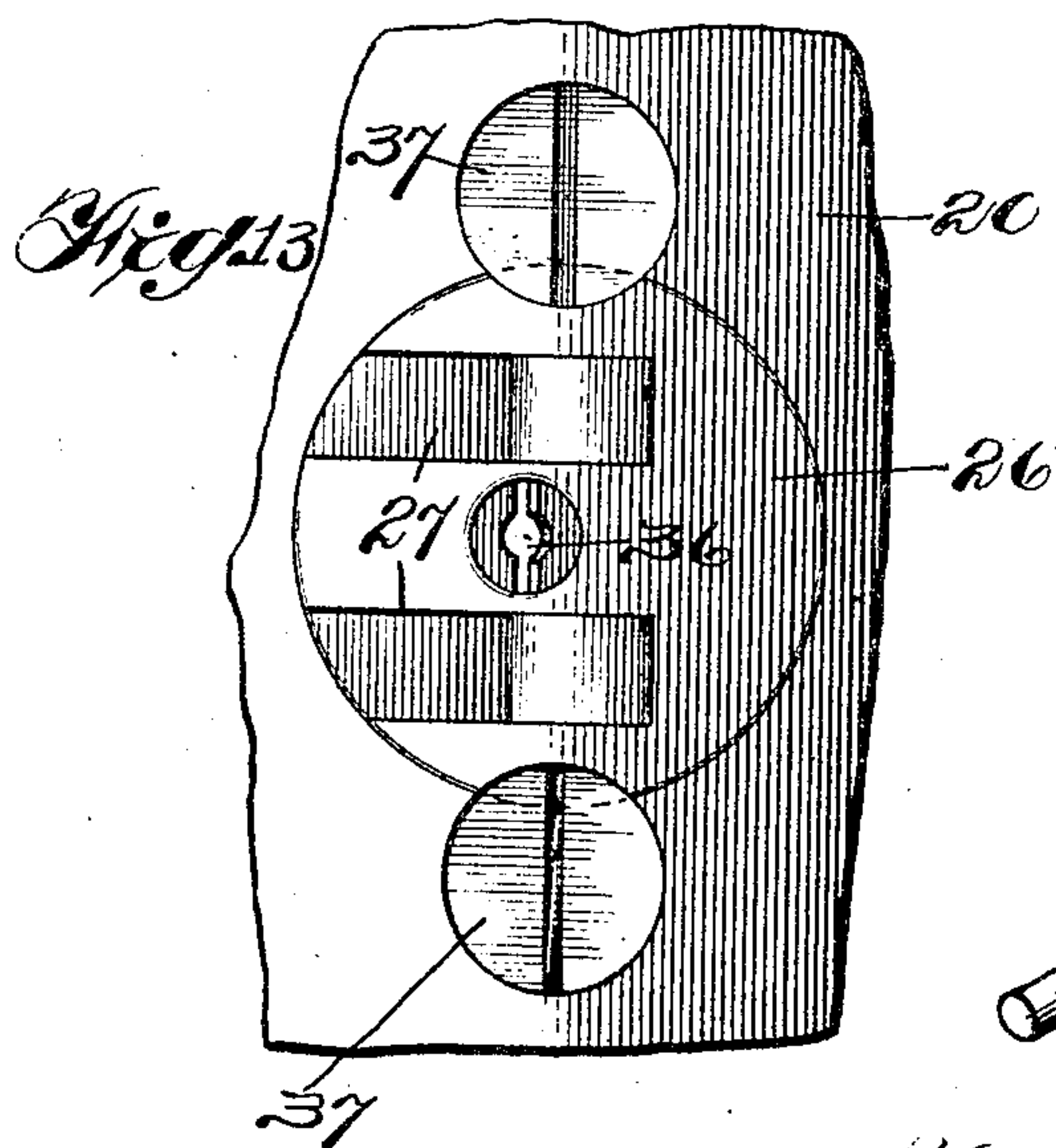
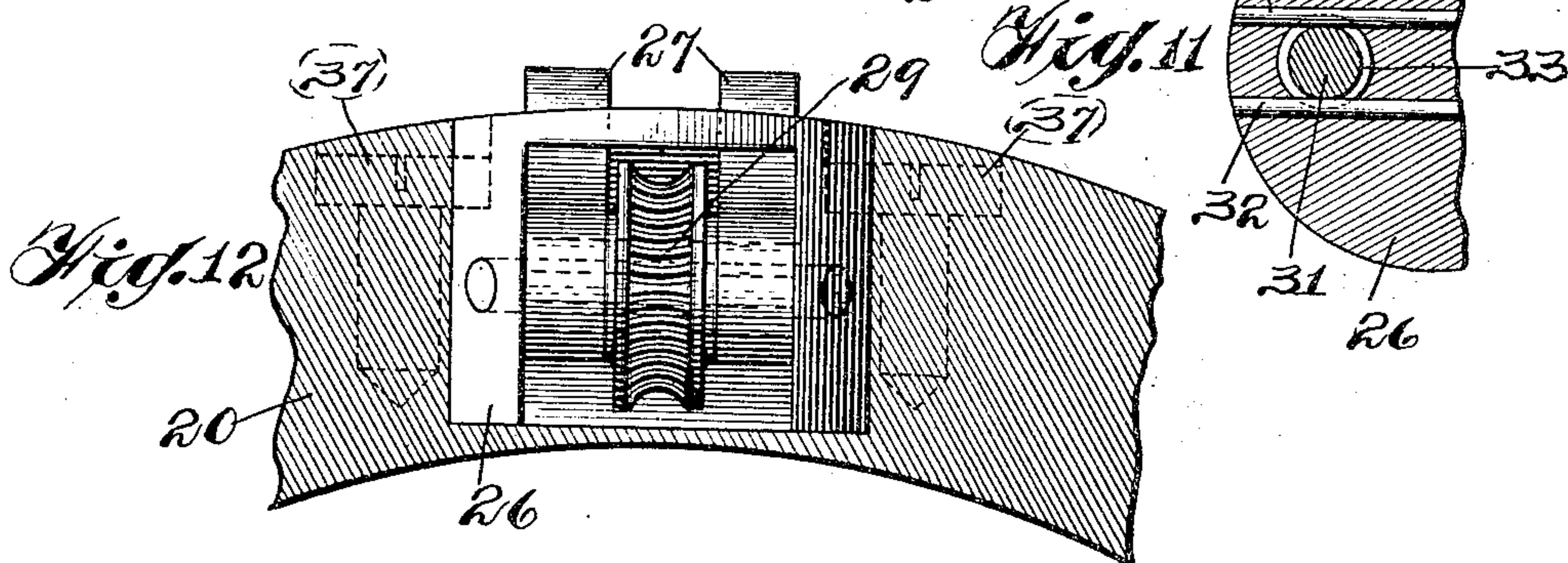
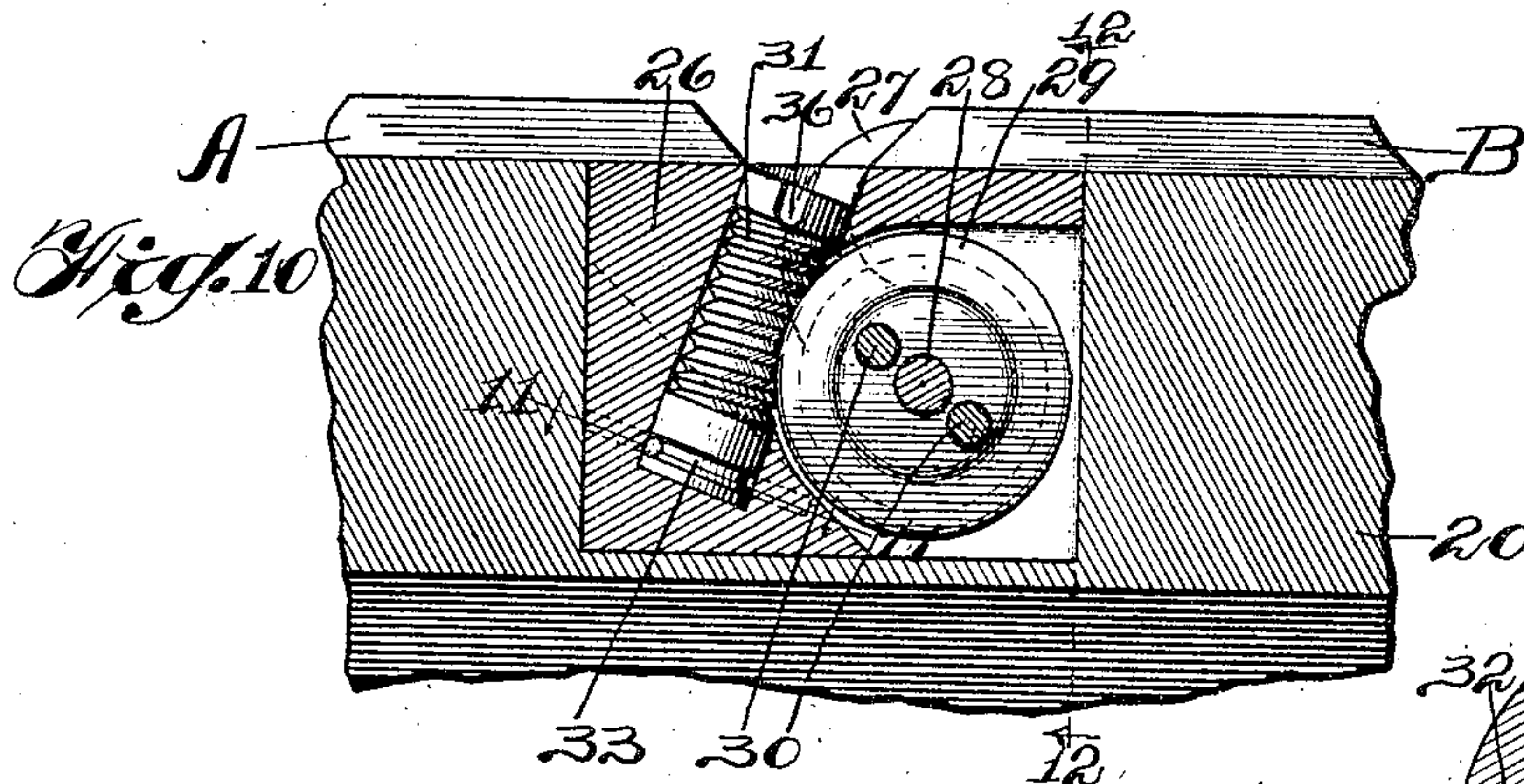
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4 SHEETS—SHEET 3.



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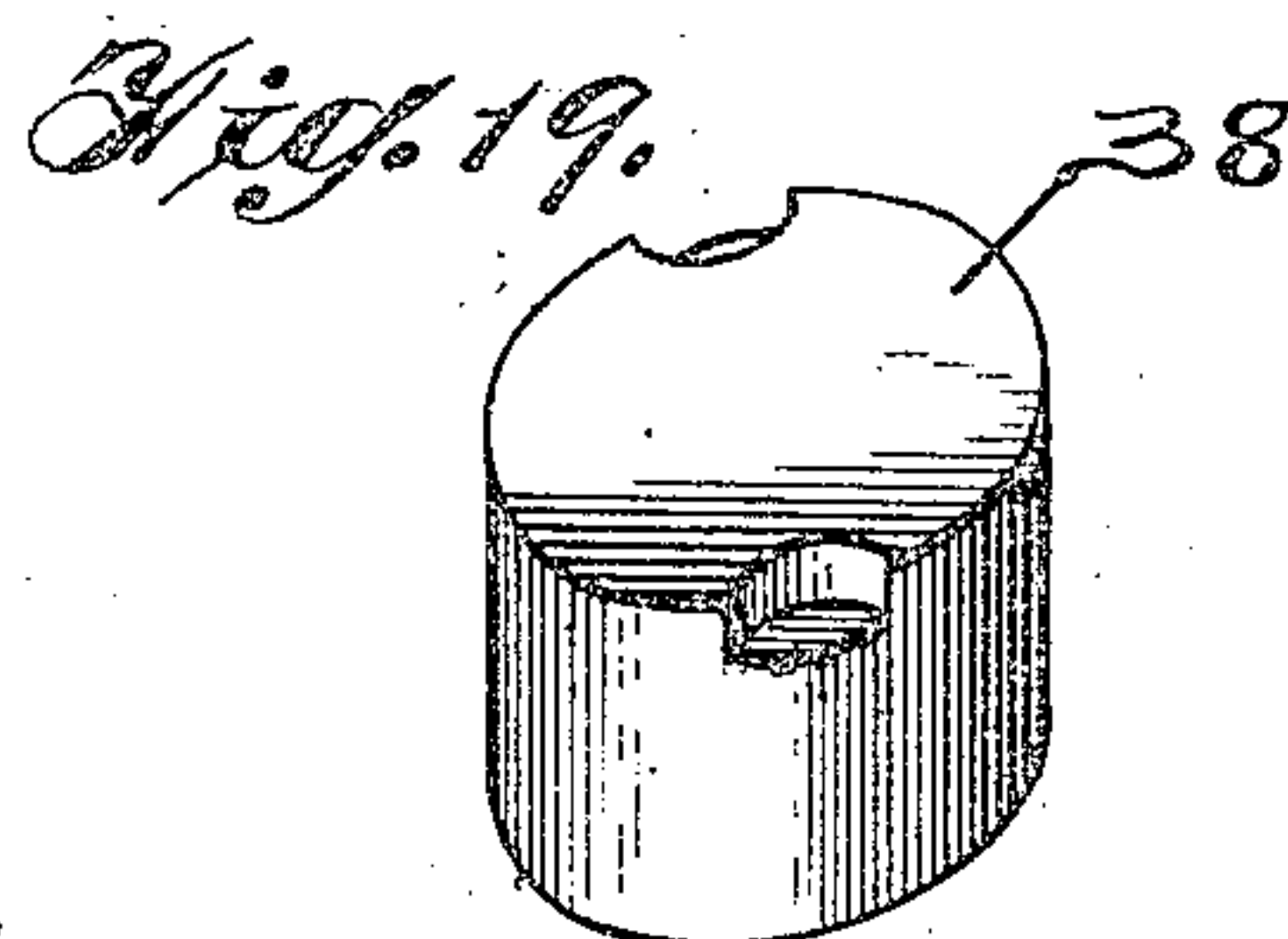
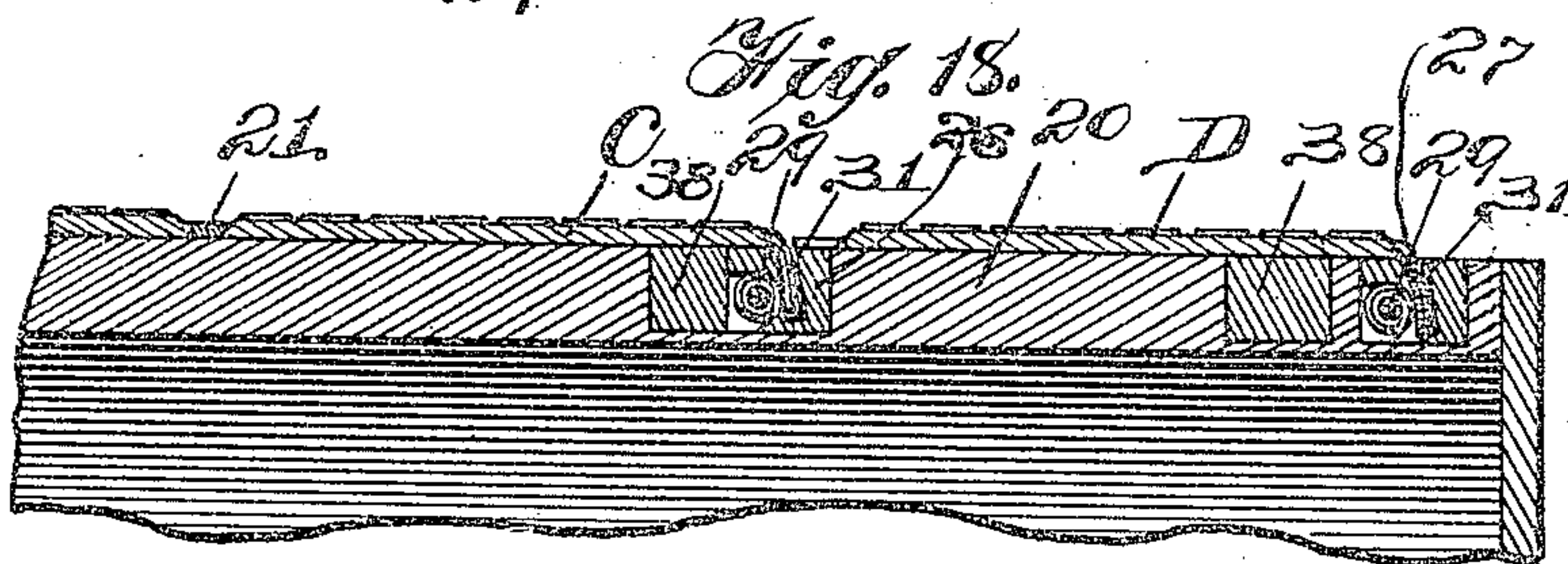
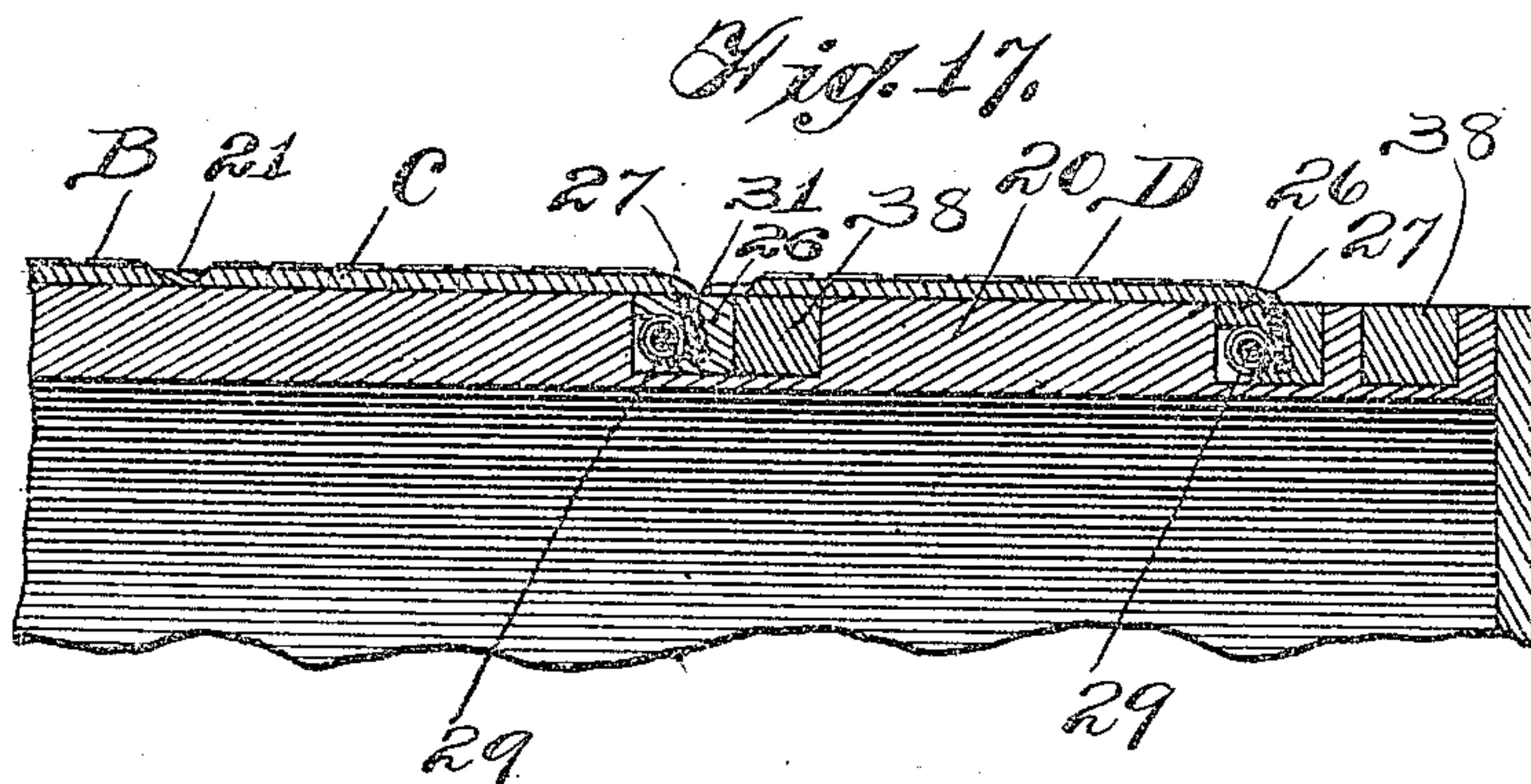
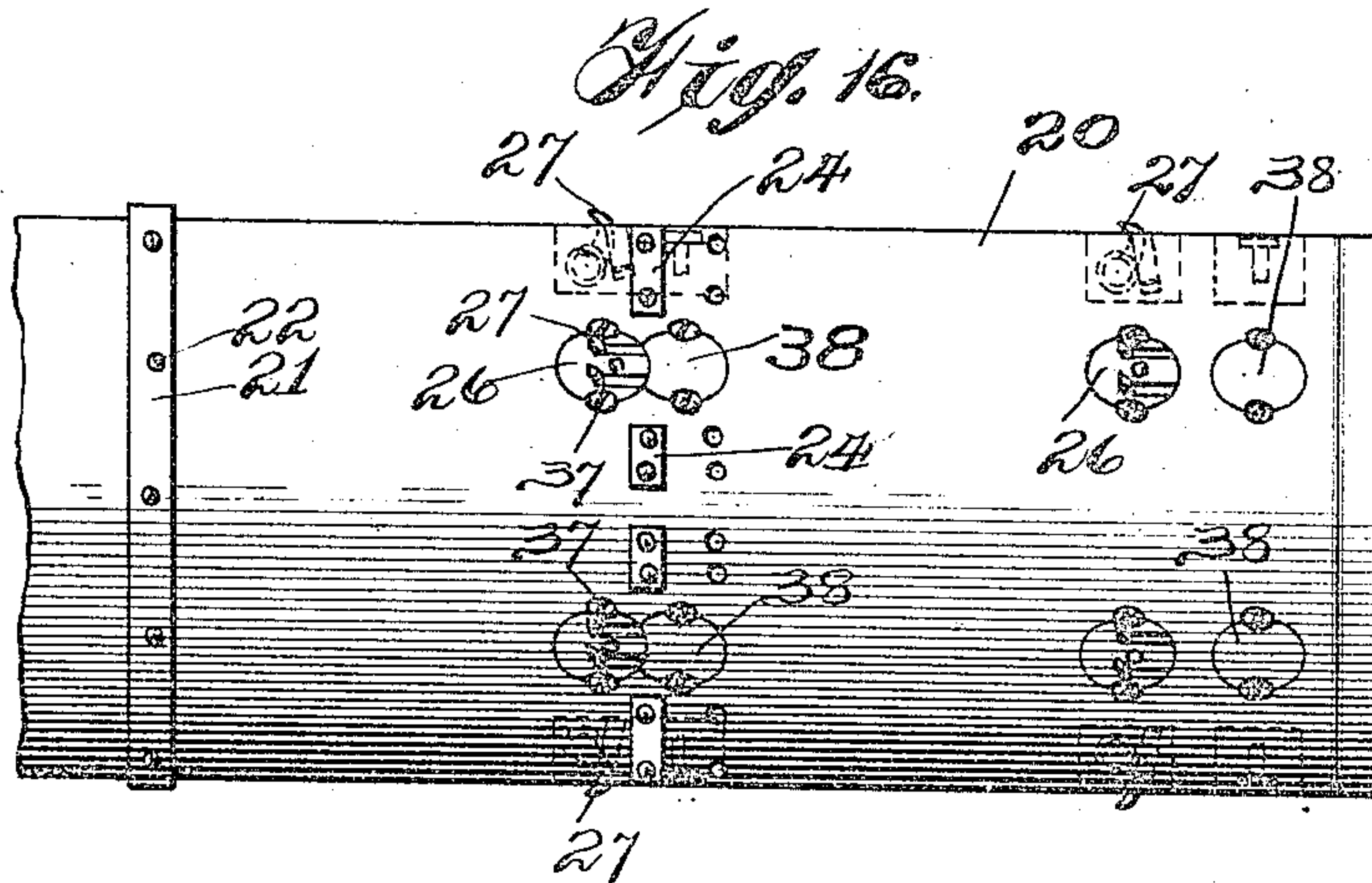
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FORM CYLINDER FOR PRINTING PRESSES.

APPLICATION FILED FEB. 23, 1904.

4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

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

FORM-CYLINDER FOR PRINTING-PRESSES.

No. 868,263.

Specification of Letters Patent.

Patented Oct. 15, 1907.

Application filed February 23, 1904. Serial No. 194,974.

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 Form-Cylinders for Printing-Presses, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to rotary printing-presses, and has especially to do with form-cylinders for double-width presses.

Heretofore considerable difficulty has been experienced in finding a satisfactory construction for securing the forms of such cylinders in place, and while the devices at present in use efficiently hold the forms on the cylinders they are unsatisfactory and objectionable, for the reason that they are so constructed as to make it necessary to provide a wide space between the adjacent edges of the forms,—making the margins of the paper wider than is desirable.

One of the objects of my invention is to avoid this objection, and this I accomplish by providing rocking or swinging clamping-devices instead of clamps movable toward and from the edges of the forms in the plane of the forms, as do the clamps generally in use at the present time. By thus arranging the clamps to rock, so that they swing upward from below into engagement with the edge of the form, very little space is necessary between the forms,—whereas, with the old style of clamp, sufficient space must be provided to permit the clamp to move at least as far from the edge of the form as the length of the projecting lip of the clamp. With my improved clamp, therefore, the forms may be placed so close together as to be almost in contact with each other, as it is only necessary to provide space between them wide enough for the clamp to pass as it moves upward into engagement with the edge of the form.

A further object is to provide an improved construction by which the clamps may be adjusted lengthwise of the cylinder, to accommodate forms of different widths. Sometimes it is desired to change the paper from a seven to an eight column sheet, or vice versa, and in my improved cylinder I have provided means by which the clamping-devices may readily be adjusted to that end.

While my improvements are especially adapted for double width cylinders, they may also be applied to other cylinders.

I accomplish these objects as illustrated in the drawings and as hereinafter described.

That which I regard as new will be set forth in the claims.

In the accompanying drawings,—Figure 1 is a view of my improved cylinder; Fig. 2 is an end view thereof,—some parts being in section; Fig. 3 is a partial longitudinal section on line 3—3 of Fig. 1; Fig. 4 is a partial

cross-section on line 4—4 of Fig. 1; Fig. 5 is a view of a cylinder showing a modified arrangement of the operating-devices for actuating the clamping or retaining devices; Fig. 6 is an end view of the construction shown in Fig. 5,—some parts being in section; Fig. 7 is an enlarged sectional view, on line 7—7 of Fig. 6; Fig. 8 is a longitudinal sectional view, on line 8—8 of Fig. 5; Fig. 9 is a cross-section on line 9—9 of Fig. 8; Fig. 10 is an enlarged sectional view, on line 10—10 of Fig. 2; Fig. 11 is a sectional view, on line 11—11 of Fig. 10; Fig. 12 is a sectional view, on line 12—12 of Fig. 10; Fig. 13 is a plan view of the parts shown in Fig. 12; Fig. 14 is a perspective view of one of the clamps; Fig. 15 is a perspective view of the key for operating the clamping-devices; Fig. 16 is a partial view of a cylinder,—the form being removed; Figs. 17 and 18 are sectional views illustrating the arrangement of the clamping-devices to accommodate, respectively, forms seven and eight columns wide; and Fig. 19 is a perspective view of one of the dummy blocks.

Referring to the drawings,—20 indicates the cylinder.

A, B, C, D indicate the forms, mounted in different zones of said cylinder.

21 indicates a retaining-band, which extends around the cylinder 20 centrally thereof, as shown in Fig. 1,—being secured in place by screws 22 or other suitable means. As best shown in Fig. 3, the edges of the band 21 are beveled,—the band being widest on its outer surface, so that the edges of said band are adapted to overlap the beveled inner edges of the forms B—C, as shown in Fig. 3, and thereby hold them firmly in contact with the cylinder. The beveled inner edges of the forms A—D are similarly held by blocks 23, 24, respectively, best shown in Figs. 1 and 5. Said blocks are considerably narrower than the space between forms, and are secured upon the cylinder in the proper position by screws 25. The outer edge of each of said blocks,—i. e., the edge nearest the adjacent end of the cylinder,—is beveled in the same manner as the band 21, to receive the beveled inner edges of the forms A—D. Any desired number of said blocks may be provided,—preferably four for each form—set a suitable distance apart. By removing the screws 25 the blocks 23 may be adjusted upon the cylinder to provide for using wider or narrower forms, as desired.

The outer edges of the forms B—C are clamped upon the cylinder by suitable clamping-devices, which are best shown in Figs. 1, 2 and 10 to 14. As best shown in Figs. 10 and 13, each of said clamping-devices is composed of a block 26, carrying suitable gripping-fingers 27 and mechanism by which said fingers may be rocked into or out of operative position. In the construction shown in Figs. 10 to 14, the blocks 26 are cylindrical in form and are adapted to fit in correspondingly-shaped

sockets provided in the surface of the cylinder at the proper points,—the sockets being of such depth that when the blocks 26 are in place, their outer surfaces lie flush with the surface of the cylinder, as shown in Fig.

10. As illustrated in Fig. 12, the outer face of each of the blocks 26 is convex, to conform to the outer surface of the cylinder.

28 indicates a shaft, mounted in the block 26,—upon which shaft are loosely mounted the gripping-fingers 27, two of which are preferably provided in each block, as shown in Fig. 13. 29 indicates a worm-wheel, which is also loosely mounted upon the shaft 28 between the fingers 27, as shown in Fig. 13. Said worm-wheel is connected to said fingers by bolts 30, as shown in Fig. 10, so that said fingers rock with said worm-wheel. The arrangement is such that by rocking said worm-wheel the fingers 27 may be caused to project beyond the outer surface of the block 26, into position to engage the edge of the form, as shown in Fig. 10, and clamp it firmly upon the cylinder. The worm-wheel 29 is rocked by means of a worm 31, also mounted in the block 26 in an inclined position, so that its upper end, which lies adjacent to the outer surface of the block 26, is exposed in the space between the edges of adjacent forms, as shown in Fig. 10. The inner end of the worm 31 is rotatably secured in the block 26 by means of pins 32 fitted in the block and lying in an annular groove 33 near the lower end of said worm, as shown in Fig. 11. By this construction, by rotating the worm 31, the worm-wheel 29 may be rotated,—rotating the clamping-fingers 27 to move them into or out of operative position. The socket for the block 26 is so placed with reference to the edge of the form to be clamped by its gripping-fingers 27 that the shaft 28 lies under the edge of the form to be clamped, so that the lateral movement of the fingers 27 toward and from the edge of the form is very slight,—their movement being almost entirely downward or upward; consequently very little space is necessary between adjacent forms.

40 The worm 31 is rotated by means of a key 34 having a cross-pin 35 near its lower end which is adapted to fit in a transverse slot 36 in the upper end of the worm, as shown in Figs. 10 and 13. By inserting the key 34 in the slot 36 the worm 31 may be readily rotated to adjust the position of the clamping-fingers 27.

The block 26 is held in place by screws 37, which screw into the surface of the cylinder,—their heads projecting beyond the periphery of the block 26, as shown in Fig. 13. Suitable countersunk recesses are provided in the block 26 and in the cylinder to receive the heads, as also shown in dotted lines in Fig. 12.

In order to accommodate forms of different widths I provide two series of sockets for the outer edges of each of the forms B—C,—one of said series of sockets being nearer the adjacent end of the cylinder by the width of a column. For example, assuming that the forms B are arranged to print sheets seven columns wide, one of the series of sockets will be so placed that the clamps mounted therein will engage the edges of a seven-column form; while the adjacent series of sockets will be so placed that its clamps will engage the edge of a form eight columns wide. This arrangement may, of course, be varied, to accommodate different variations in the width of the forms. The sockets not in use for clamping-purposes are temporarily

filled by blanks or dummy-blocks 38, as shown in Figs. 16 to 19,—said blanks being secured in place in the same manner as the blocks 26. The same arrangement is provided for the outer edges of the forms A—D.

Where it is desired to operate the clamping-devices from the end of the cylinder, instead of providing worms 31 arranged to be operated from the surface of the cylinder, I employ worm-shafts 39 which extend lengthwise of the cylinder, as shown in Fig. 7 and in dotted lines in Fig. 5,—the inner ends of said shafts being provided with worms 40, their outer ends extending out beyond the adjacent end of the cylinder, as shown in Fig. 5, where they are provided with squared portions 41 for convenience in rotating them. The operation of the clamps is, however, the same as that already described.

While the clamps above described may also be used for securing the outer edges of the forms A—D upon the cylinder, as illustrated in Fig. 1, their use at such points is not essential, as there is nothing to prevent the free outward movement of the clamping-devices which lie next to the ends of the cylinder. At such points I may, therefore, employ clamping-blocks 42 arranged longitudinally of the cylinder upon screw-shafts 43, as illustrated in Figs. 5, 8 and 9.

In addition to the advantages hereinbefore set forth, my improved clamp also provides for using continuous double-width plates, or plates double the size of a page, since by removing the blocks 23 or 24, and turning the clamping-fingers down below the surface of the cylinder, such double-width forms may be secured thereupon,—the band 21 serving to secure the inner margin of such double-width form upon the cylinder, and the clamps near the end of the cylinder securing the outer end thereof in place. Double-width plates are used for advertising matter, or any other purpose where it is desired to carry the printed matter beyond the margin of a single page.

I wish it to be understood, that my invention is not restricted to the details of the construction described, except in so far as they are particularly claimed, but includes, generically, the subject-matter of the broad claims. Furthermore, although I have illustrated and described my invention as applied to a rotary cylinder, it may also be applied to securing in position the forms of flat-bed presses; and it is to be understood that although in the claims I have employed the term "cylinder" as indicating the form-support, said term is used in a generic sense and should be interpreted as including not only rotary cylinders, but also any other form-support,—such as the bed of a flat-bed press.

That which I claim as my invention and desire to secure by Letters Patent is,—

1. The combination of a form cylinder, a support carried thereby near the periphery thereof, rocking clamping means carried by said support and so mounted that the same may be actuated to be projected beyond the surface of the cylinder to engage the edge of a form and to be retracted below the surface thereof, and means for moving said clamping means into and out of operative position.

2. The combination of a form-cylinder, a supporting block fitted in said cylinder, clamping means pivotally mounted in said block and so mounted that the same may be actuated to be swung down below the surface of the cylinder and up above said surface to engage the edge of a form, and means for moving said clamping means into and out of operative position.

3. The combination of a cylinder, a stationary block fitted in a recess in the periphery of said cylinder, clamping means carried by said block and so mounted that the same may be actuated to be projected beyond the surface of the cylinder to engage the edge of a form and to be retracted below the surface of the cylinder, and means for moving said clamping means into and out of operative position.

4. The combination of a form cylinder, a stationary block fitted therein, a worm-wheel mounted in said block, one or more rocking clamping fingers connected with said worm-wheel so as to rotate coaxially therewith, and a worm for rotating said worm-wheel.

5. The combination of a form-cylinder, a pair of forms thereon adjacent to each other, a block fitted in said cylinder and under one or both of the adjacent edges of said forms, clamping means carried by said block and so mounted that the same may be actuated to be projected beyond the surface of the cylinder to engage the edge of one of said forms and to be retracted below the surface of the cylinder, and means for moving said clamping means into and out of operative position.

6. The combination of a form cylinder, a form carried thereby, clamping means pivotally mounted in said cylinder under one of the edges of said form and so mounted that the same may be actuated to be projected beyond the surface of the cylinder to engage said edge of the form and to be retracted below the surface of the cylinder, and means for moving said clamping means into and out of operative position.

7. A clamp for form cylinders, comprising a suitable support adapted to be fitted to the cylinder so that the surface of said support is flush with the surface of the cylinder, clamping means carried by said support and so

mounted that the same may be actuated to move out beyond the surface of the cylinder and inward below the surface thereof, and means carried by said support for moving said clamping means into and out of operative position. 35

8. A clamp for form cylinders, comprising a suitable support, clamping means mounted in said support and so mounted that the same may be actuated to be projected beyond the surface thereof and to be retracted below the surface thereof, and means for moving said clamping means into and out of operative position. 40

9. A clamp for form cylinders, comprising a suitable support, clamping means pivotally mounted in said support and so mounted that the same may be actuated to be projected beyond the surface thereof and to be retracted below the surface thereof, and means for moving said clamping means into and out of operative position. 45

10. A clamp for form cylinders, comprising a suitable support, clamping means pivotally mounted in said support and so mounted that the same may be actuated to project beyond the surface thereof and to be retracted below the surface thereof, and a worm and worm-wheel carried by said support for actuating said clamp. 50

11. A clamp for form cylinders, comprising a suitable support, a worm wheel carried thereby, clamping means pivotally mounted coaxially with said worm wheel and rotating therewith, said clamping means being so mounted that the same may be actuated to be projected beyond the surface of said support and to be retracted below the surface thereof, and a worm for rotating said worm wheel. 55

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