

(No Model.)

3 Sheets—Sheet 1.

E. J. MULLER.
ADJUSTABLE BEARING.

No. 589,137.

Patented Aug. 31, 1897.

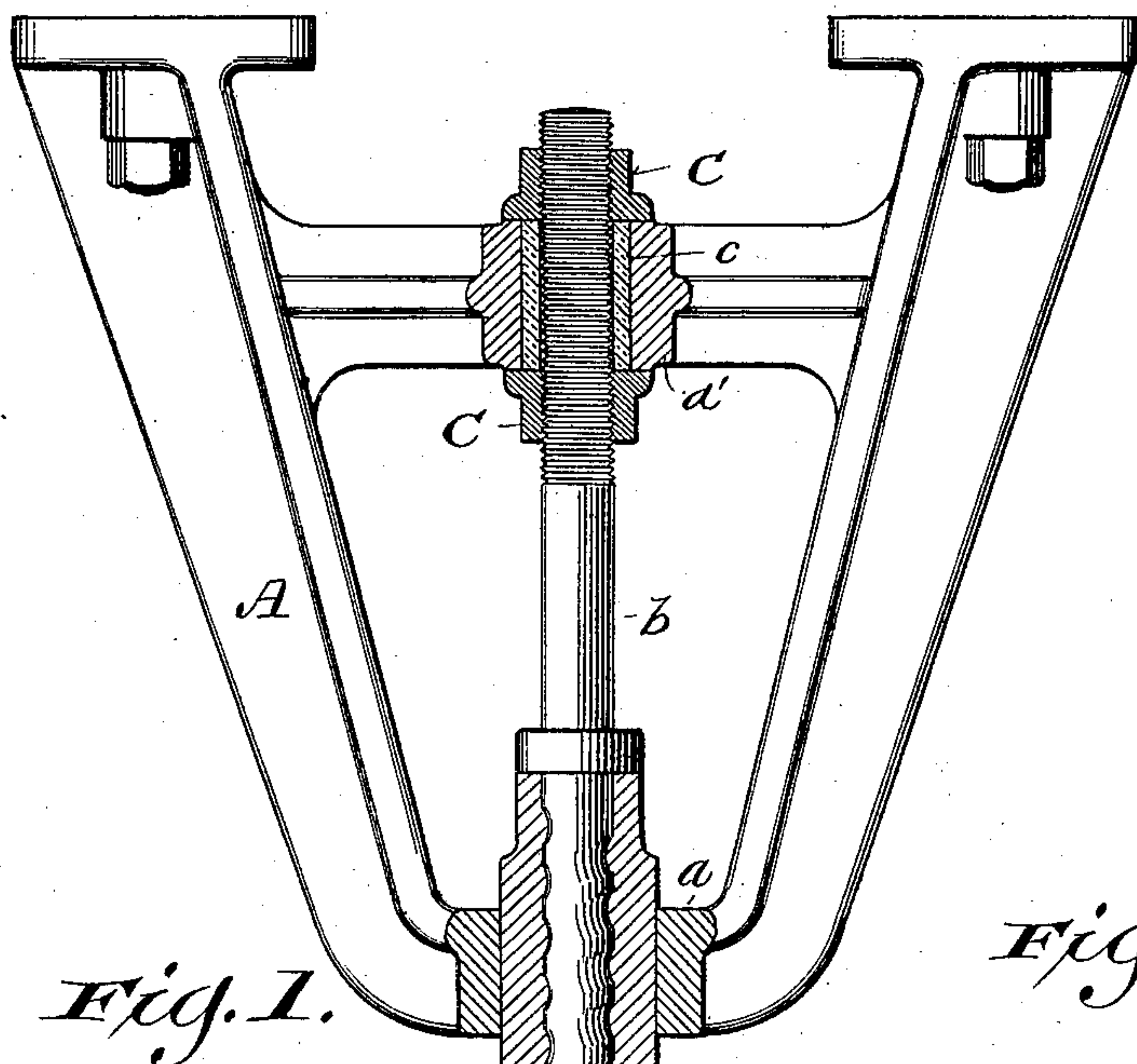


Fig. 1.

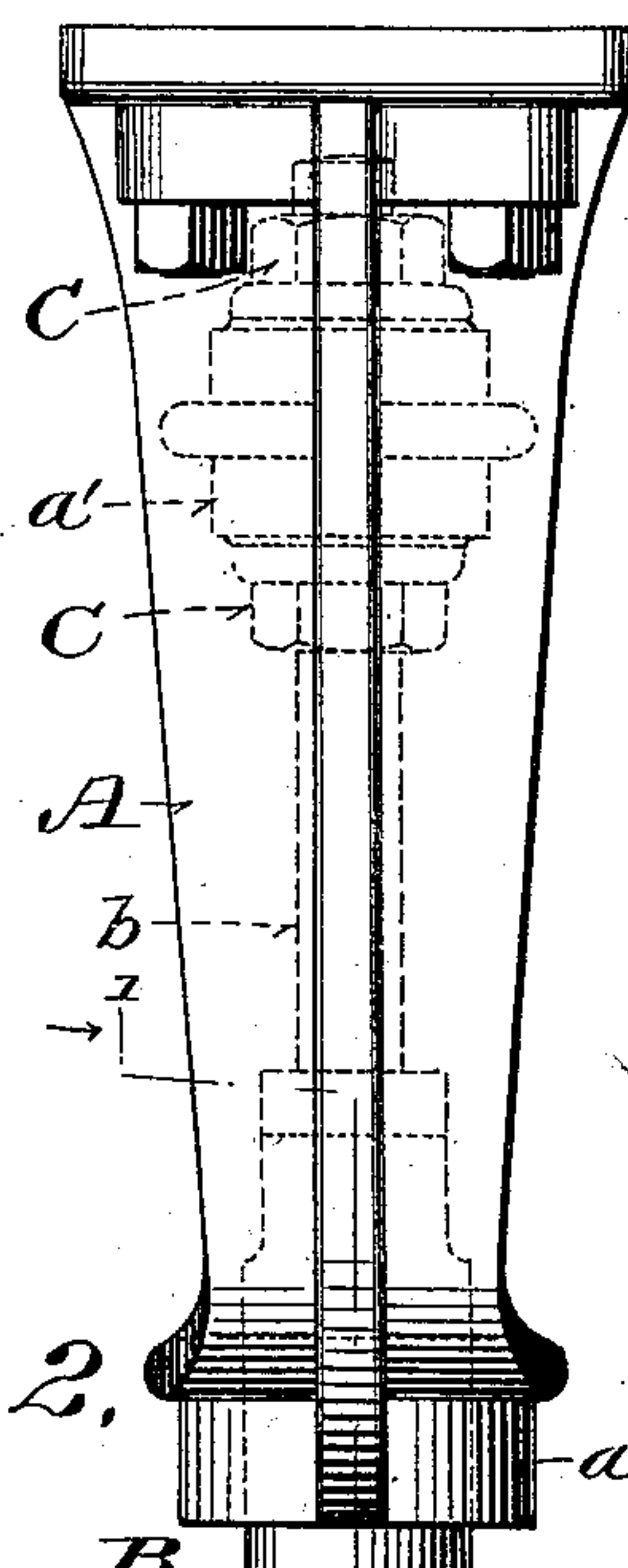


Fig. 2.

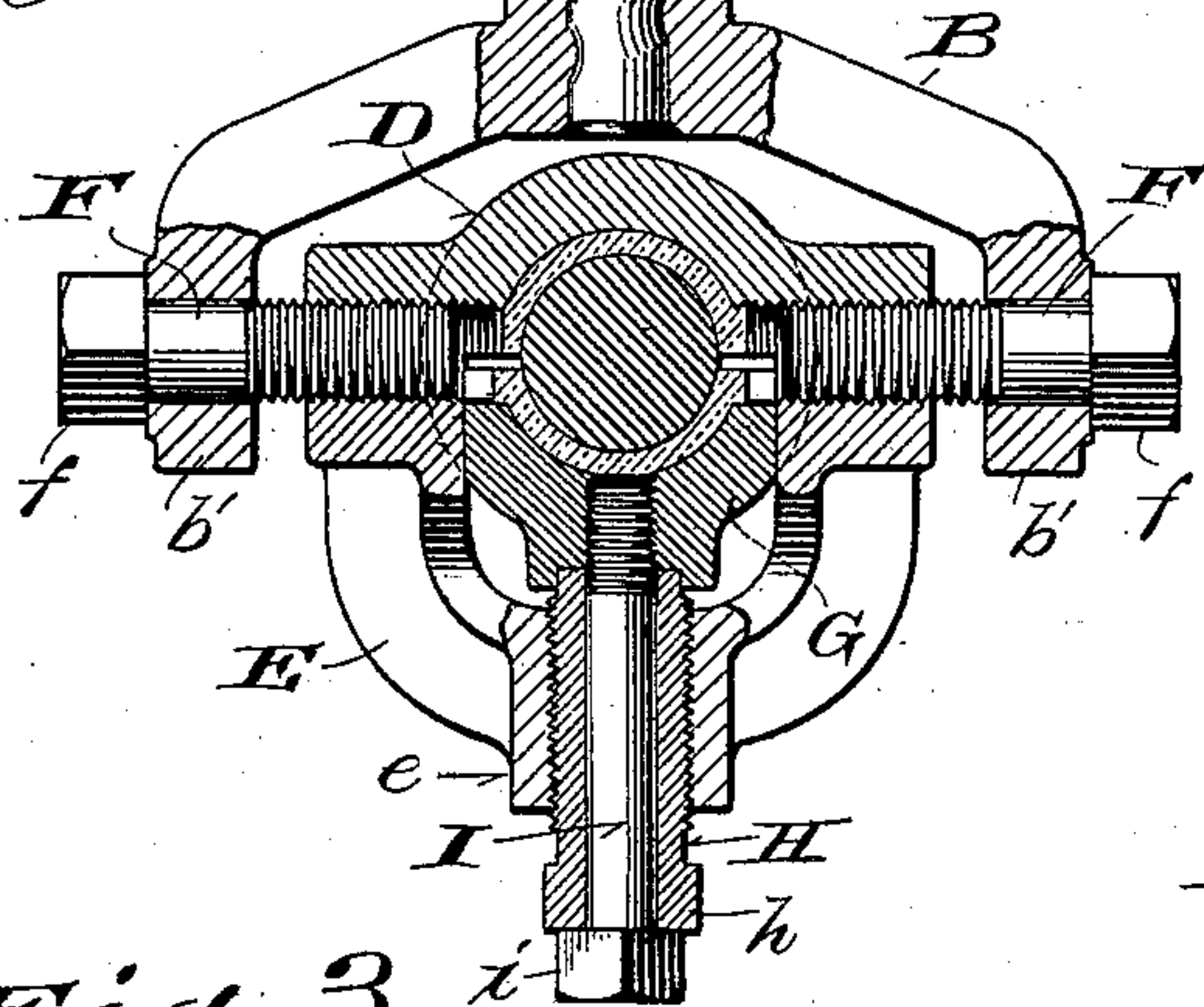


Fig. 3.

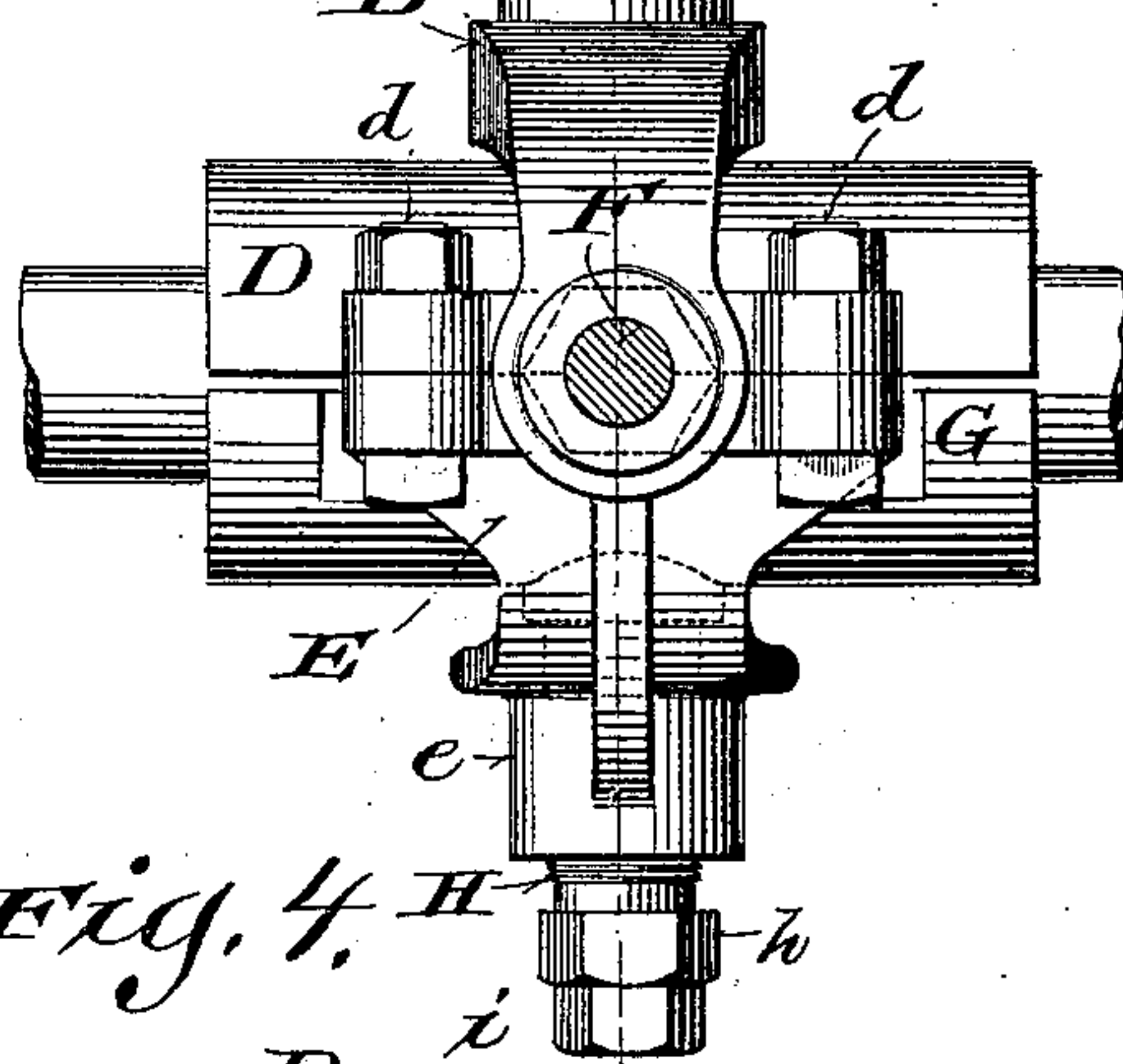
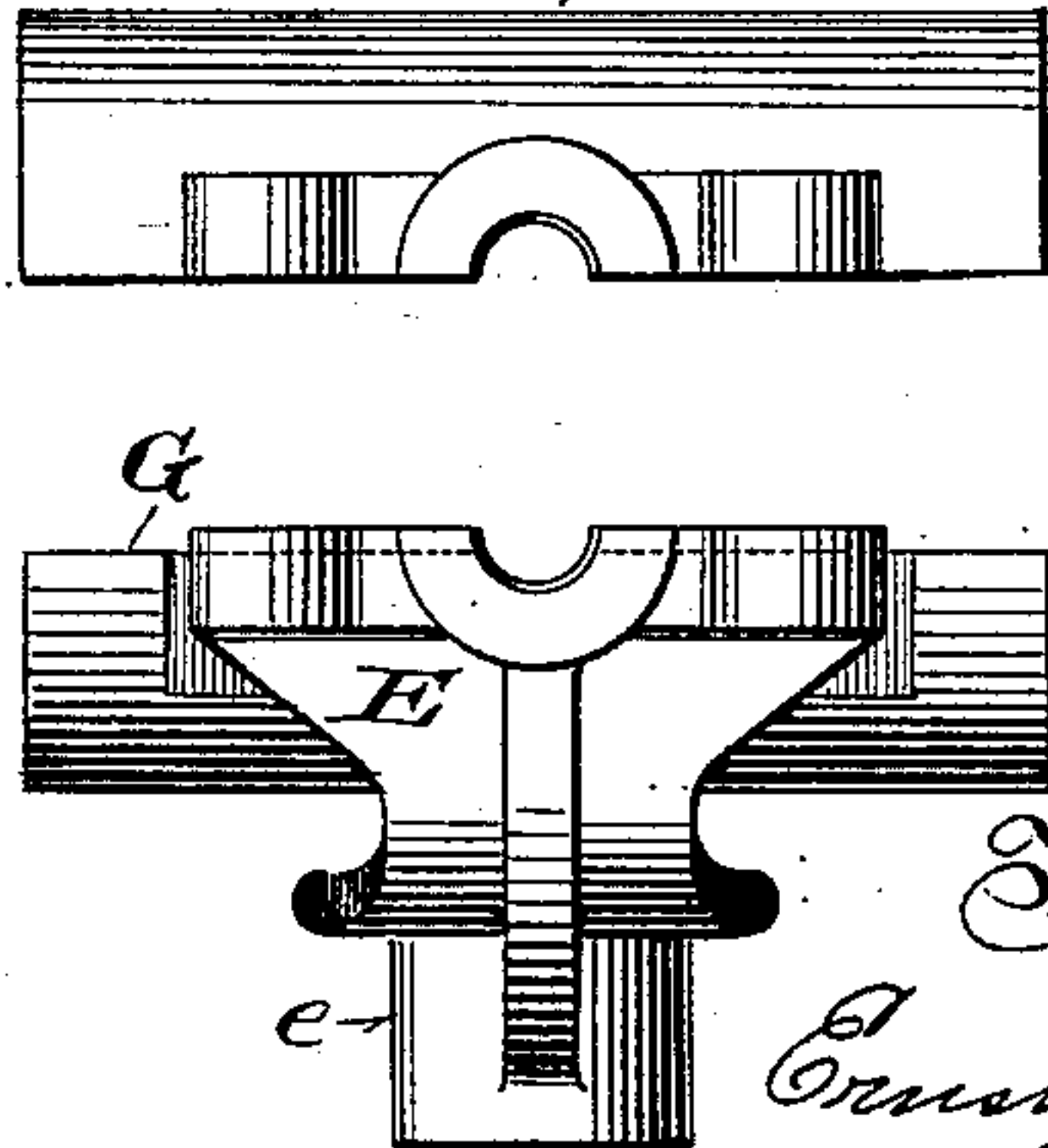
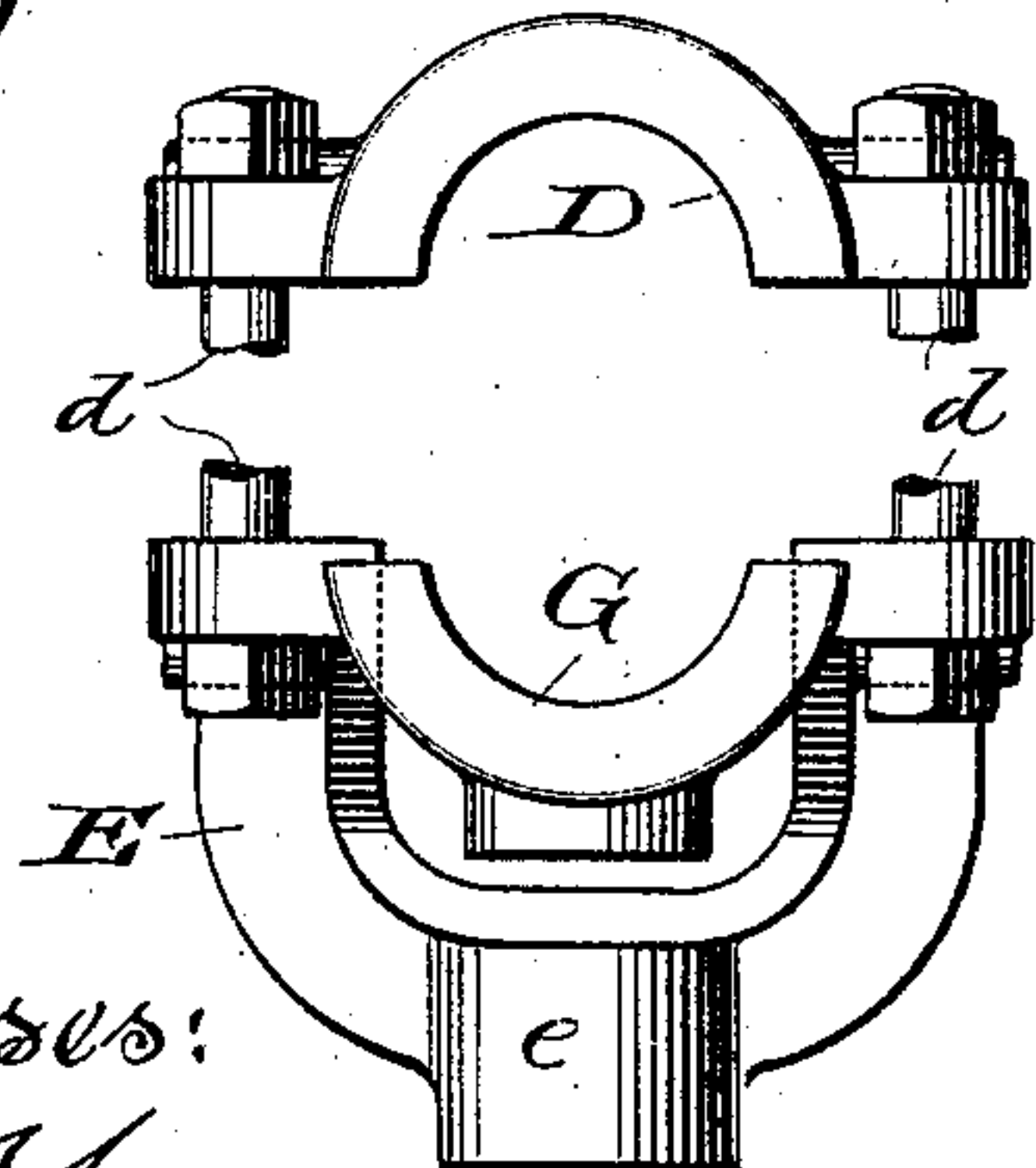


Fig. 4.



Witnesses:
Geo. W. Young,
Chas. L. Goss.

Inventor:
Ernest J. Muller,
By Wm. H. Flanders Smith Patton & Co.
Attorneys.

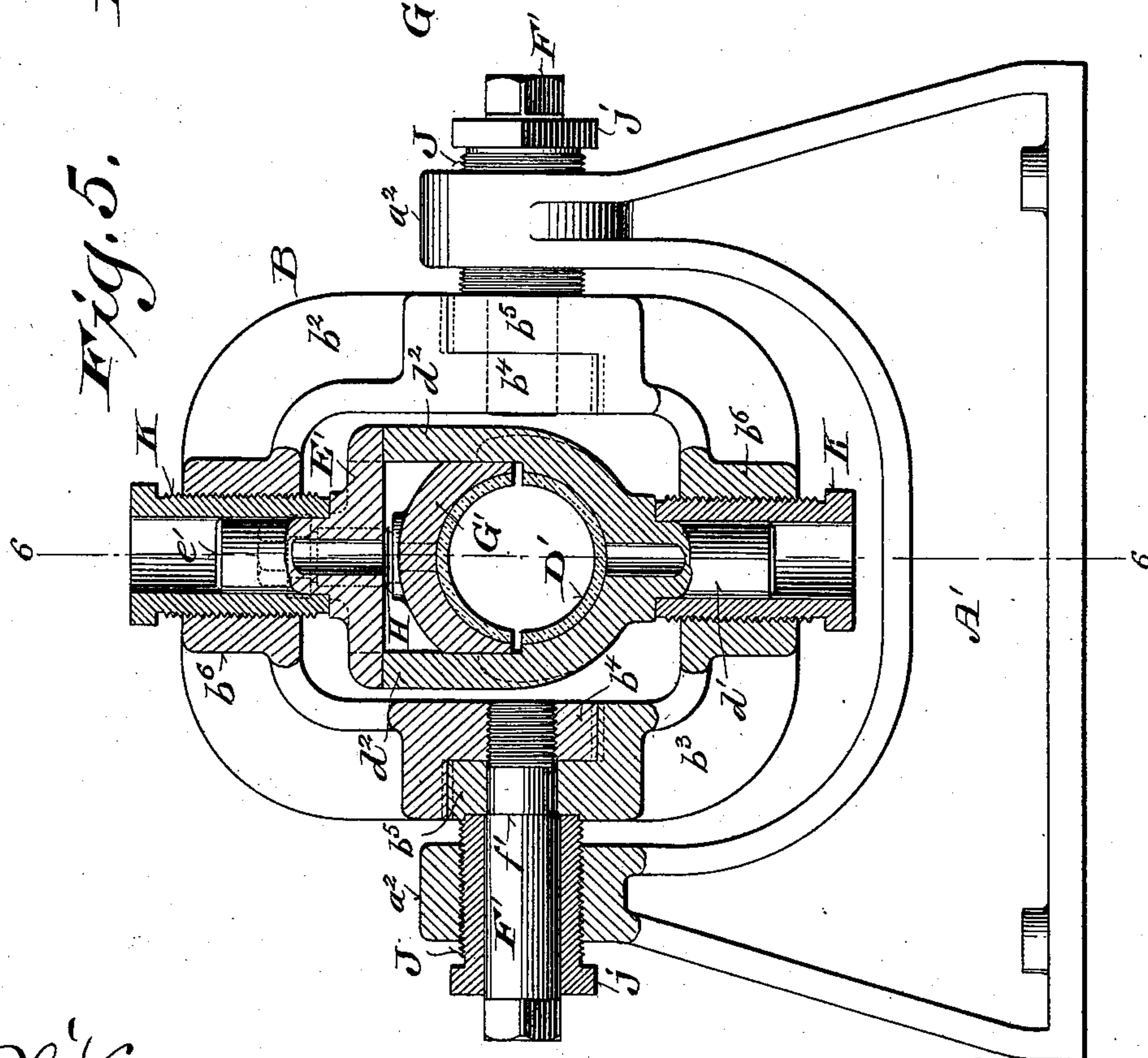
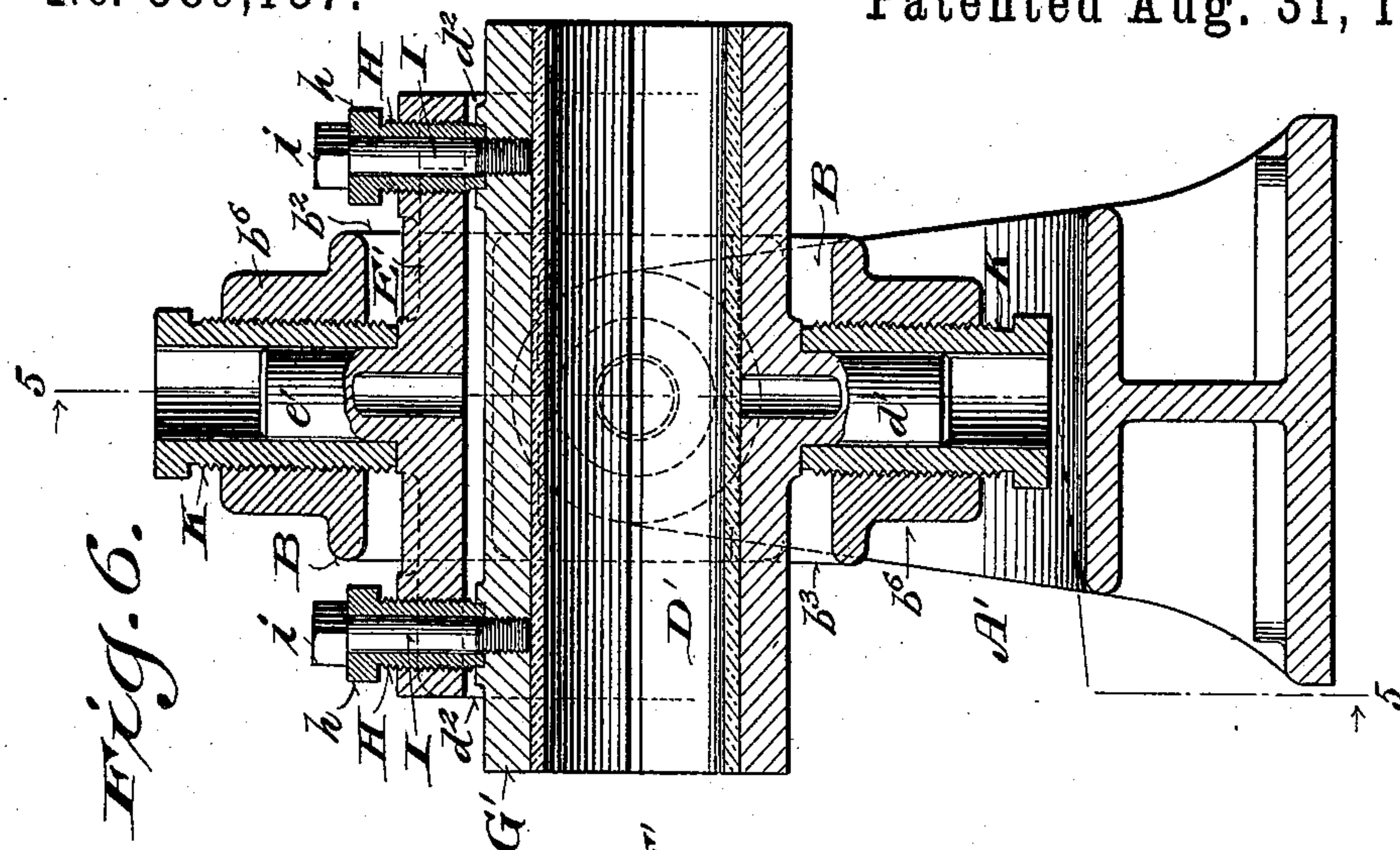
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Witnesses:
Geo. W. Young
Chas. L. Goss.

Inventor:
Ernest J. Muller,
By Wm. H. H. Smith, Attorney.

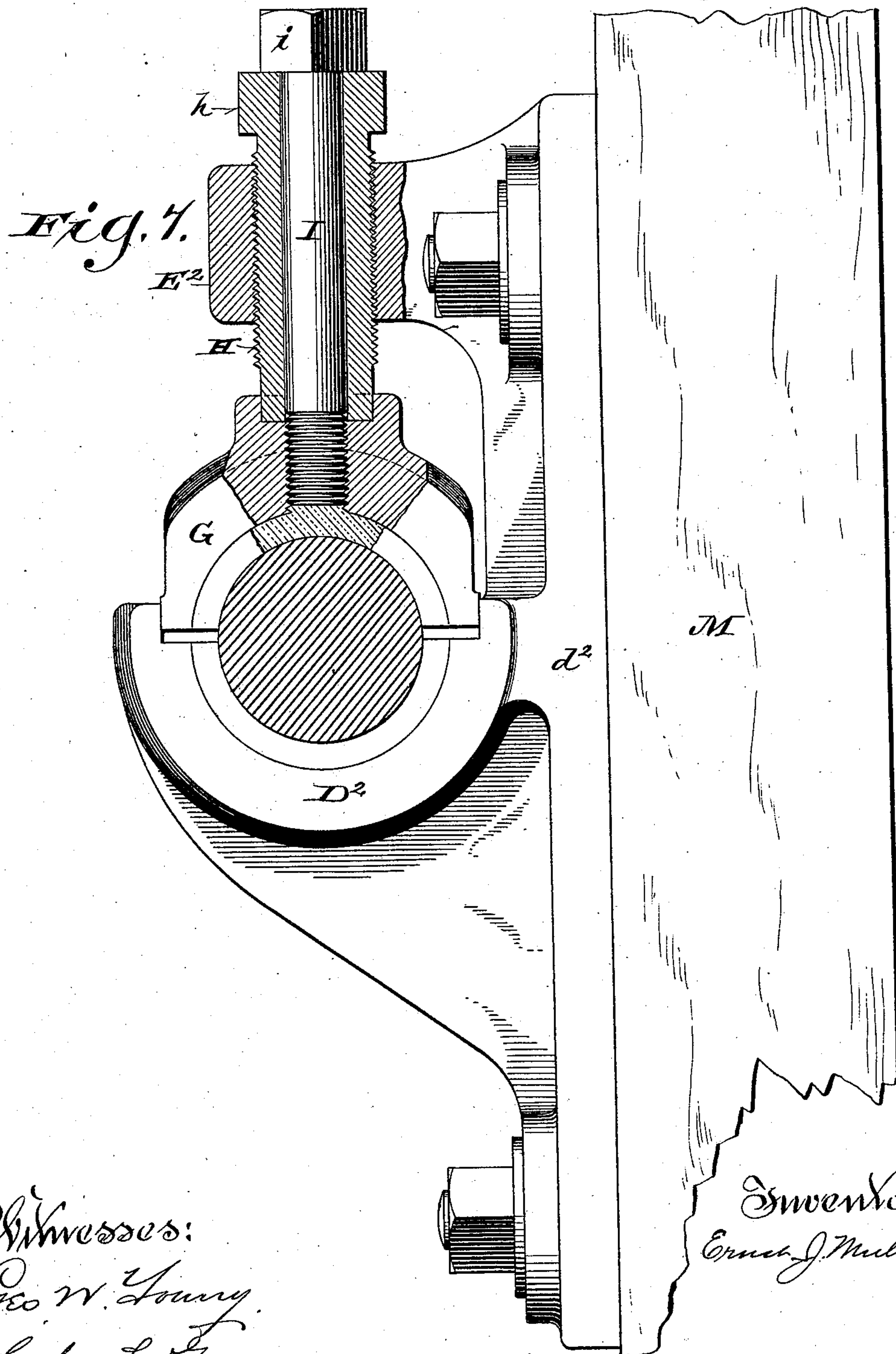
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3 Sheets—Sheet 3.

E. J. MULLER.
ADJUSTABLE BEARING.

No. 589,137.

Patented Aug. 31, 1897.



Witnesses:
Geo W. Young
Chas. L. Fox.

Inventor:
Ernest J. Muller,

By Wm. H. Hender Smith, Attorney,
Wm. H. Hender Smith, Attorney.

UNITED STATES PATENT OFFICE.

ERNST J. MULLER, OF BUTTE, MONTANA.

ADJUSTABLE BEARING.

SPECIFICATION forming part of Letters Patent No. 589,137, dated August 31, 1897.

Application filed March 29, 1897. Serial No. 629,741. (No model.)

To all whom it may concern:

Be it known that I, ERNST J. MULLER, of Butte city, in the county of Silver Bow and State of Montana, have invented certain new and useful Improvements in Adjustable Bearings; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The main objects of my invention are to prevent the binding of shafts or journals in their boxes and to facilitate the adjustment of the box-caps.

It consists of certain novel features in the construction and arrangement of component parts of the bearings, hereinafter particularly described, and pointed out in the claims.

In the accompanying drawings like letters designate the same parts in the several figures.

Figures 1 to 4, inclusive, illustrate my improvements in connection with a hanger-bearing for attachment to a ceiling or overhead support, Fig. 1 being a side elevation and partial vertical section crosswise of the journal-box on the line 1 1, Fig. 2; Fig. 2, a front elevation of the same; Fig. 3, an end view, and Fig. 4 a side view, of the journal-box. Figs. 5 and 6 illustrate my invention as applied to a floor-stand bearing, Fig. 5 being a side elevation and partial section crosswise of the journal-box on the line 5 5, Fig. 6, and Fig. 6 a section lengthwise of the box on the line 6 6, Fig. 5; and Fig. 7 illustrates a part of my improvements applied to a bracket-bearing, which is shown partially in end elevation and vertical section.

Referring to Figs. 1 to 4, inclusive, A designates a hanger or bracket designed for attachment in the usual way to a ceiling or overhead support. It is formed with two sleeves *a* and *a'* in the same vertical line with each other.

B is a yoke formed or provided with a stem *b*, and at right angles thereto at the ends of its branching arms with two sleeves *b'b'*. The upper end of the stem *b* is screw-threaded and

provided with two nuts C C, which are adapted to abut against opposite ends of a sleeve *c*, placed around the threaded portion of stem *b* and fitted to turn in the sleeve *a'*. The sleeve *c* is made slightly longer than the sleeve *a'*, so that when the nuts C are screwed snugly against the ends of the former they will not bind upon the ends of the latter. The lower end of the stem *b*, next to or near the yoke or the part of the yoke in which said stem is secured, is fitted to turn in the sleeve *a*, the bore of which is made of sufficient size to allow the lower nut C to pass through it. The nuts C C afford means of adjusting the yoke B and the journal-box which it carries vertically. By removing the upper nut C the yoke with the journal-box can be removed from the hanger A without disturbing the lower nut C, and therefore the vertical adjustment of the bearing.

D designates the main part or body of the journal-box, which in the present instance is placed on the upper side of the shaft or journal.

E is a cap-supporting bail which is secured to opposite sides of the box D by bolts *d d*, as shown in Figs. 2 and 3.

F F are horizontal adjusting and pivot screws fitted next to their heads *f f* to turn in the sleeves *b'b'*. Their threaded portions are fitted to engage with threaded holes formed partially in the box D and partially in bail E on opposite sides of and at right angles to the axis of the box. By unscrewing one of these pivot-screws and screwing up the other till their heads bear against the outer ends of the sleeves *b* the box is adjusted horizontally.

G is the cap or adjustable part of the box D. It is formed at the center of its outer face with a screw-threaded hole at right angles to the threaded holes for the pivot-screws F, and around this hole with a countersunk recess.

H is a hollow externally-threaded screw formed at one end with a head *h* and fitted in a threaded sleeve *e*, formed with the bail E, midway between and at right angles to the holes for the pivot-screws F. It is fitted at the end opposite its head *h* in the countersunk recess around the threaded hole in cap G. It affords an abutment by which the cap

G is supported or held at the proper distance from the box D, independently of said box, and it may be called the "spacing-screw."

I is a bolt fitted in the hollow screw H and formed at its outer end with a head *i*, adapted to abut against the outer end of said screw H. It is threaded at its inner end to engage with the threaded hole in the cap G, and, serving to bind or hold said cap snugly against the abutting end of screw H, it may be called a "binding-screw."

The recess in cap G for the reception of the end of the hollow screw H may be dispensed with, although I prefer the construction shown, as by it the screw H assists to prevent end or side play of the cap, and thus relieves the screw or bolt I of lateral strain.

By means of my improved fastening the cap may be supported at a single central point, as shown, thus producing a uniform contact between the cap and journal, reducing friction and wear and avoiding the heating of the bearing. The fastening also greatly facilitates the adjustment of the cap to take up play and wear without forcing it against the journal and causing it to bind thereon. Heretofore with journal-boxes provided with caps or adjustable parts which are bolted directly thereto on opposite sides of the journal it has been customary to fit strips of some suitable material between the cap and box and to draw the cap by the fastening-bolts snugly against such strips. To take up play or wear in such bearings, it is necessary to take out the strips and dress them down or replace them with thinner ones, and ultimately to dispense with the strips altogether and to plane off the edges or lips of the cap. Unless these strips or the edges of the cap when the strips are discarded are very accurately fitted the cap is liable to be forced too tightly against the journal and to cause it to bind and heat. All these objections and difficulties are avoided by my improved construction. It will be observed that a shaft supported by my improved bearings can be taken down without removing it from the boxes or disturbing either the vertical or horizontal adjustments of the bearings.

Referring to Figs. 5 and 6, A' designates a floor-stand formed with two hubs or sleeves a^2 a^2 in the same horizontal line with each other. In these hubs or sleeves are fitted externally-threaded hollow screws J J, formed at one end with heads *j j*.

B is a yoke composed of two similar parts b^2 and b^3 , having overlapping portions b^4 and b^5 , bored in line with each other to receive the pivot pins or screws F', which are fitted to turn in the hollow screws J and are threaded in the holes formed in the parts b^4 of the yoke. These pivot screws or pins are squared at their outer ends to receive a wrench and are formed with shoulders *f'* to abut against the outer faces of the parts b^5 of the yoke and bind them firmly to the parts b^4 , in which said screws are threaded. Each part b^2 and b^3 of

the yoke is formed at right angles to the holes in their overlapping portions b^4 and b^5 with a hub or sleeve b^6 , and in these hubs or sleeves are fitted, in line with each other, externally-threaded hollow screws K K.

D' designates the box, which is formed on the under side with a central stem d' , fitted to turn in the hollow screw K in the under side of yoke B. The sides of the box are extended upward, as shown at d^2 , and between such extensions is loosely fitted a cap-supporting plate or yoke E'. This yoke is formed on the upper side with a cylindrical stem e' , which is fitted to turn in the hollow screw K in the upper part of yoke B.

G' is the cap or adjustable part of the box. It is secured to the plate or support E' on opposite sides of its pivot-stem e' by adjustable fastenings like or similar to that hereinbefore described, and each consisting of a hollow spacing-screw H and a binding-screw I.

The only material difference between the bearing shown in Figs. 5 and 6 and that shown in Figs. 1 and 2, so far as holding and adjusting the cap is concerned, is that two instead of one of the adjustable fastenings are employed. These two fastenings are, however, arranged centrally between the sides of the cap and secure most of the advantages of the single fastening described in connection with Fig. 1, the pressure produced by either fastening upon the journal being equally distributed between the opposite sides of the cap.

In the form of bearing last described the screws or pins F' constitute the horizontal pivot connections and the stems d' and e' the vertical pivot connections. A horizontal adjustment of the bearing is effected by means of the hollow screws J J, while a vertical adjustment is effected by the screws K K.

By removing the pivot pins or screws F' from the parts b^4 the shaft, with the box and the upper part b^2 of the yoke, may be lifted out of the stand A' without disturbing the adjustments of the bearing. As shaftings supported by this class of bearings is often subjected to a lateral or horizontal belt-pull which, with the form of horizontal pivot connections shown in Fig. 5, would be received and sustained by the hub or sleeve a^2 on one side of the bearing only, the pivot pins or screws F' may be provided at their outer ends with enlarged heads to abut against the outer ends of the hollow screws J and thus distribute the belt-pull between both sides of the floor-stand.

Referring to Fig. 7, which illustrates my improved cap-fastening applied to a bracket-bearing, D² designates the box, which is formed on one side with a plate d^2 for attachment in the usual way to an upright support M. This plate is formed with an arm or projection E², which overhangs the box D² and has a threaded hole perpendicular to the axis of the box. In this hole is fitted the hollow spacing-screw H of the cap-fastening, which is in other respects like or similar to that

shown in the other figures and hereinbefore described.

In the constructions shown in Figs. 1 to 4, inclusive, and in Figs. 5 and 6 it will be observed that the horizontal pivot-screws serve to hold two parts of the bearing in the proper relation to each other, in Fig. 1 the box D and cap-supporting bail E, and in Fig. 5 the two parts b^2 and b^3 of the yoke B.

I claim—

1. The combination with a journal-box having an adjustable cap or part, of an adjustable fastening comprising a spacing-screw constituting an adjustable abutment adapted to hold the cap or adjustable part of the box the desired distance from the opposing part of the box, and a binding-screw securing said spacing-screw to its seat, said fastening serving to adjust the cap toward and from the box and to hold the same a determinate distance from the box independently of the journal, substantially as and for the purposes set forth.

2. The combination with a journal-box having an adjustable cap or part, of an adjustable fastening consisting of a hollow spacing-screw constituting an abutment for holding said cap or adjustable part the desired distance from the opposing part of the box and a binding-screw passing through the hollow spacing-screw and securing it to its seat, said fastening being constructed and arranged to adjust said cap toward and from the axis of the box and to hold the same when adjusted a determinate distance from the box independently of the journal, substantially as and for the purposes set forth.

3. The combination with a journal-box having an adjustable cap or part, of an adjustable fastening consisting of a hollow spacing-screw threaded in a relatively stationary support or adjunctive part of the bearing opposite said cap, and a binding-screw passing through the spacing-screw and threaded into the cap or adjustable part of the box, said fastening serving to adjust the cap toward and from the box and to hold the same at a determinate distance from the box independently of the journal, substantially as and for the purposes set forth.

4. The combination with a journal-box having a cap or adjustable part, of an adjustable fastening consisting of a hollow screw threaded in a yoke or relatively stationary part opposite said cap and at right angles to the box, and engaging at one end with a recess or seat in said cap to prevent lateral or endwise displacement thereof, and to relieve the binding-screw of lateral strain, and a binding-screw passing through said hollow screw into the cap in which it is threaded and provided with a head adapted to bear against the outer end of the hollow screw, said fastening serving to adjust the cap toward and from the box and to hold the same when adjusted, a determinate distance from the box independently of the journal, substantially as and for the purposes set forth.

5. The combination with a journal-box having an adjustable cap which is formed in its outer face with a central screw-threaded hole and a concentric countersunk seat or recess, of an adjustable fastening constructed and arranged to adjust the cap toward and from the box and to hold the same when adjusted, a determinate distance therefrom independently of the journal, and consisting of a relatively fixed yoke or part having a screw-threaded hole in line with the central hole in said cap and at right angles to the axis of the box, a hollow externally-threaded screw fitting the threaded hole in said yoke, formed at its outer end with a wrench-head and fitting at its inner end into the seat or recess in said cap, and a binding-screw passing through said hollow screw into the threaded hole in said cap with which it engages and formed with a head which is adapted to abut against the outer end of said hollow screw, substantially as and for the purposes set forth.

6. In a journal-bearing the combination of a suitable support, having two pivot-bearings in line with each other and transverse to the axis of the journal-bearing, two separable parts having bores formed partially in each part and in line with each other, and pivot-screws adapted to turn in the bearings of said support and secured by their threaded portions in the bores of said separable parts which are held thereby in the proper relation to each other, substantially as and for the purposes set forth.

7. In a journal-bearing the combination of a fixed or stationary bearing-support, a journal-box, a yoke pivotally connected with said box and with said support in lines transverse to each other and to the axis of the box, pivot-screws adapted to turn freely in one part of the bearing and secured by their threaded portions in two separably-connected parts which are held thereby in the proper relation to each other, substantially as and for the purposes set forth.

8. In a journal-bearing the combination of a suitable fixed or stationary support, a box having a detachable cap or adjustable part, a yoke pivotally connected with said support and box in lines transverse to each other and to the axis of the box, a cap-supporting yoke or part rigidly connected with the box opposite its cap, and an adjustable cap-fastening consisting of a hollow screw threaded in said cap-supporting yoke or part and abutting at one end against said cap, and a binding-screw passing through said hollow screw and threaded in said cap, substantially as and for the purposes set forth.

9. In a journal-bearing the combination of a suitable fixed or stationary support, a journal-box having a detachable cap or adjustable part, a yoke pivotally connected with said support and box in lines transverse to each other and to the axis of the box, a cap-support detachably connected with said box and formed opposite said cap and transversely

to the axis of the box with a threaded sleeve, a hollow screw fitted in said sleeve and adapted to bear at one end against said cap, a binding-screw passing through said hollow screw and threaded in said cap, and pivot-screws adapted to turn in bearings in the box-supporting yoke and threaded partly in said box and partly in said cap-support which are held thereby in the proper relation to each other, substantially as and for the purposes set forth.

10. In a journal-bearing the combination of a suitable fixed support, a yoke having a threaded stem pivoted in said support and adjustably held therein by a sleeve surrounding the threaded part and nuts abutting against the ends of said sleeve at opposite ends of the bearing in which said sleeve is fitted, a journal-box having formed therein on opposite sides and in line with each other semicylindrical parts of threaded holes for

pivot-screws, a bail or cap-support bolted to said box and formed with the corresponding parts of the threaded holes for the pivot-screws, headed pivot and adjusting screws having bearings next to their heads in said yoke and engaging at their inner threaded ends with the holes in said box and bail, a cap loosely fitting between the sides of said bail, and an adjustable fastening consisting of a hollow screw threaded in said bail and abutting at the end against said cap, and of a headed binding-screw passing through said hollow screw and threaded into said cap, substantially as and for the purposes set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

ERNST J. MULLER.

Witnesses:

WM. H. COLE,

B. C. W. EVANS.