

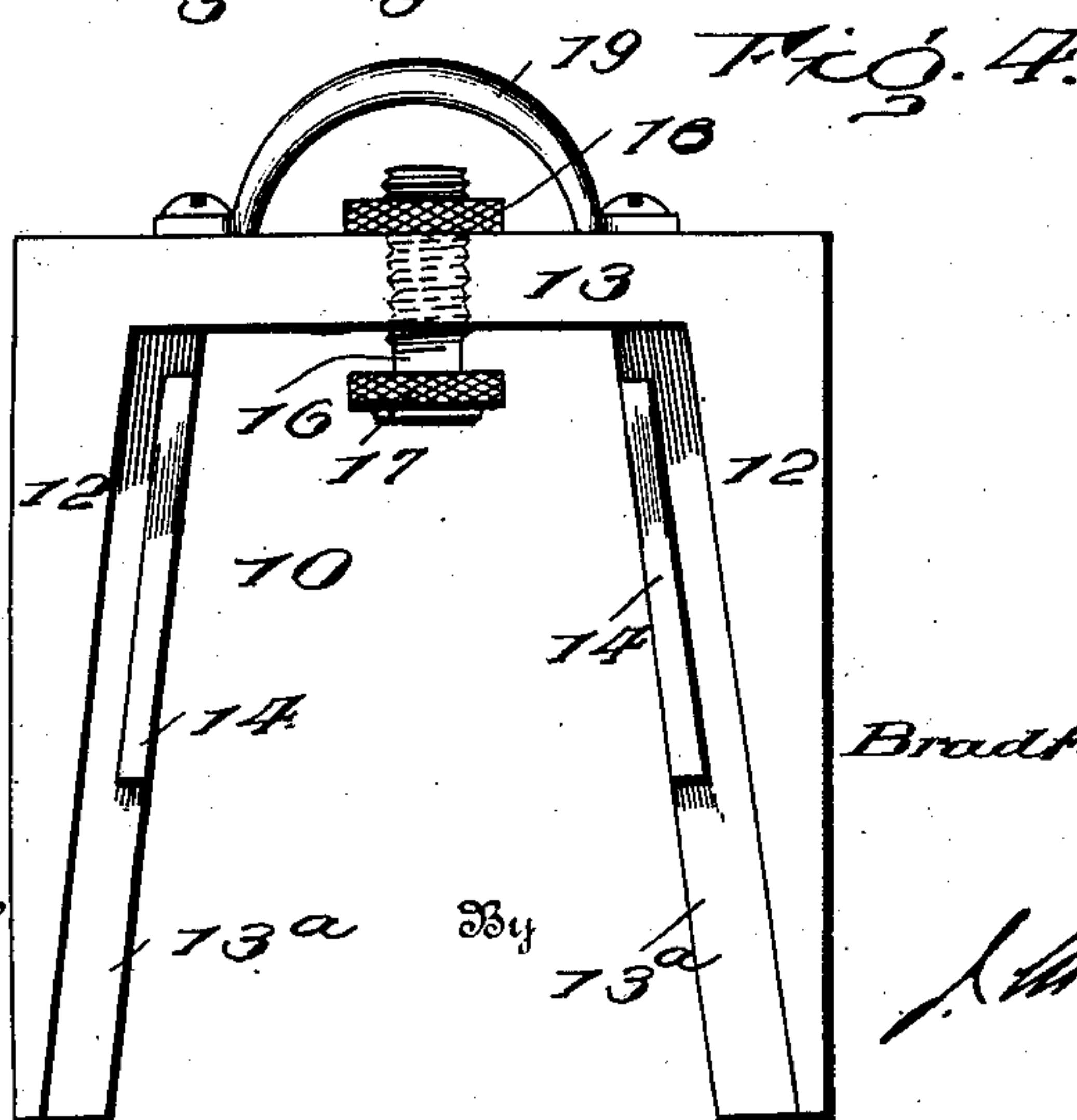
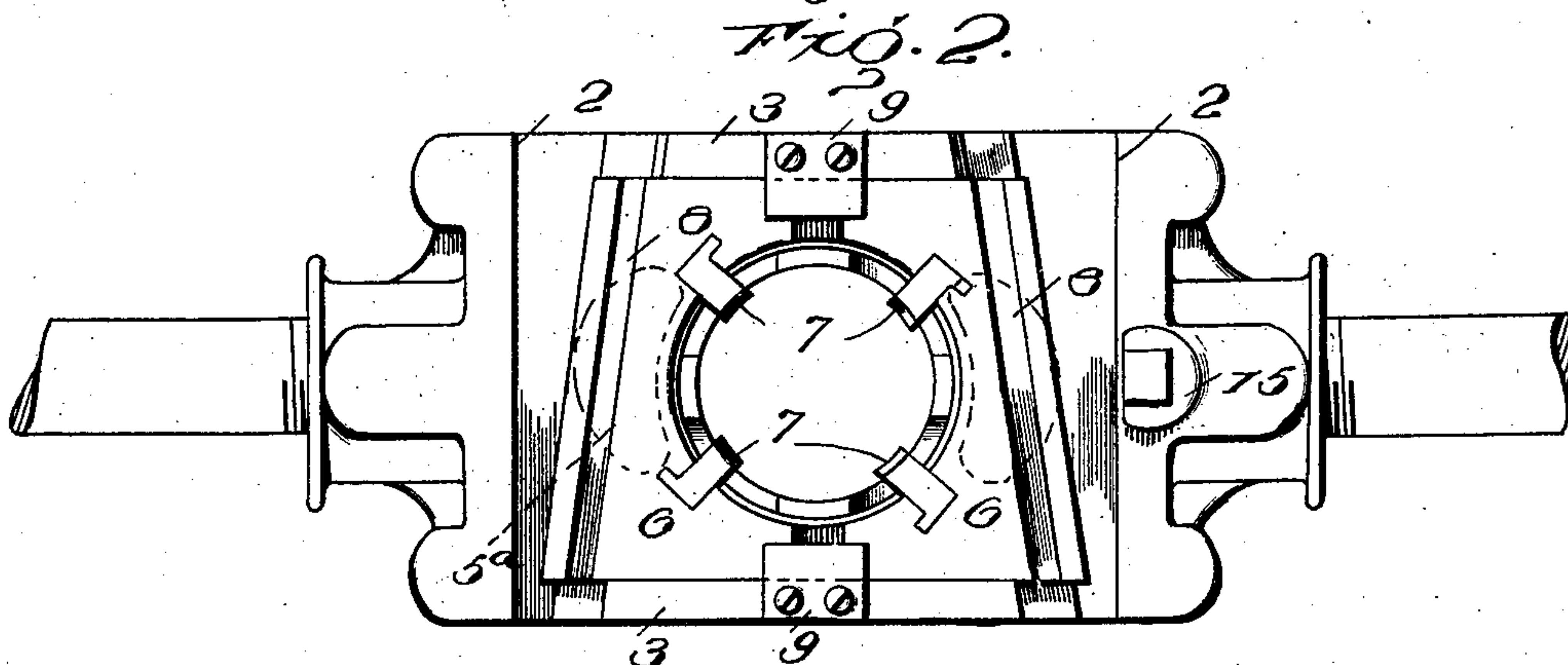
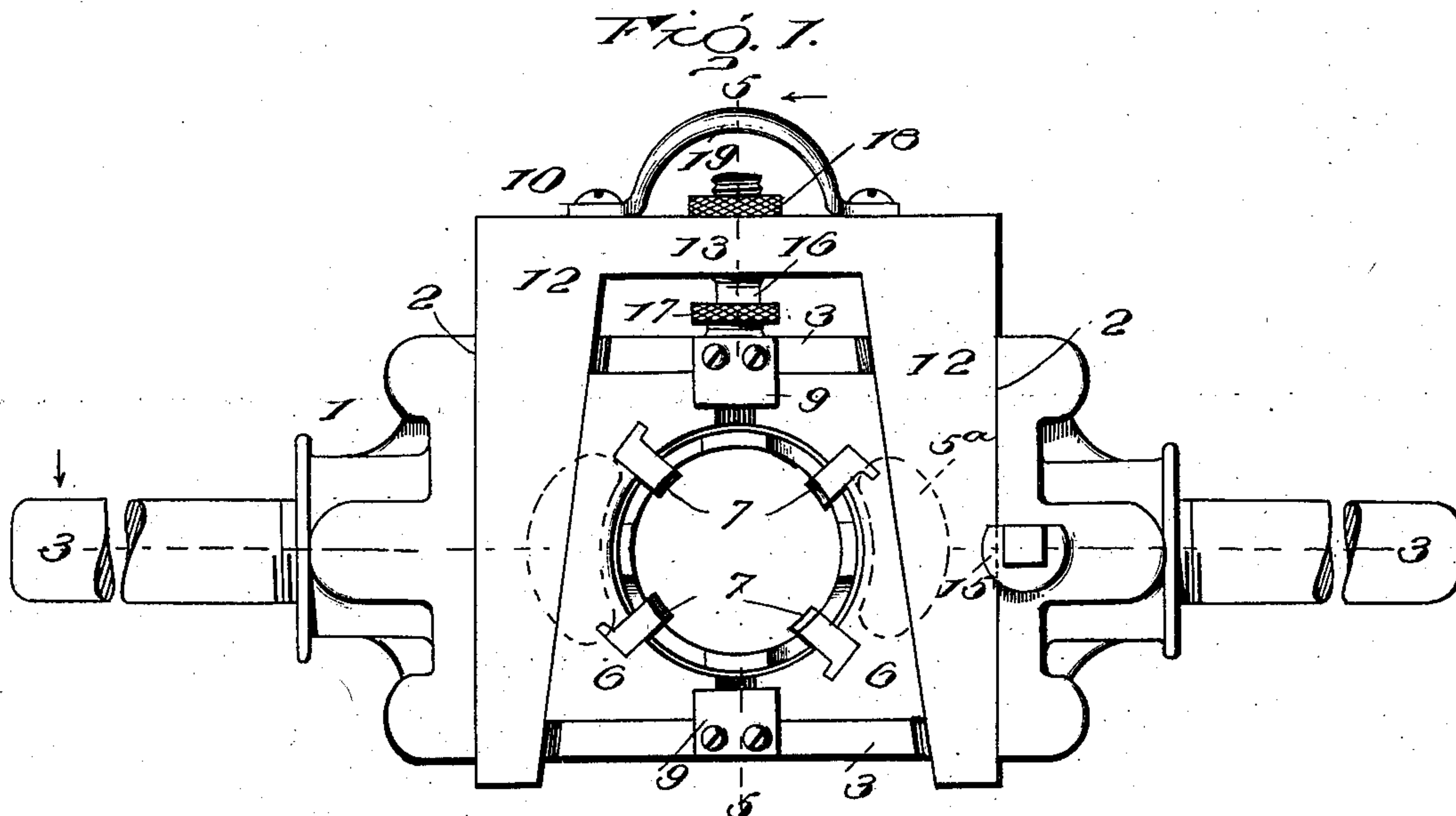
No. 744,465.

PATENTED NOV. 17, 1903.

B. BORDEN.
ADJUSTABLE DIE STOCK.
APPLICATION FILED MAR. 10, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

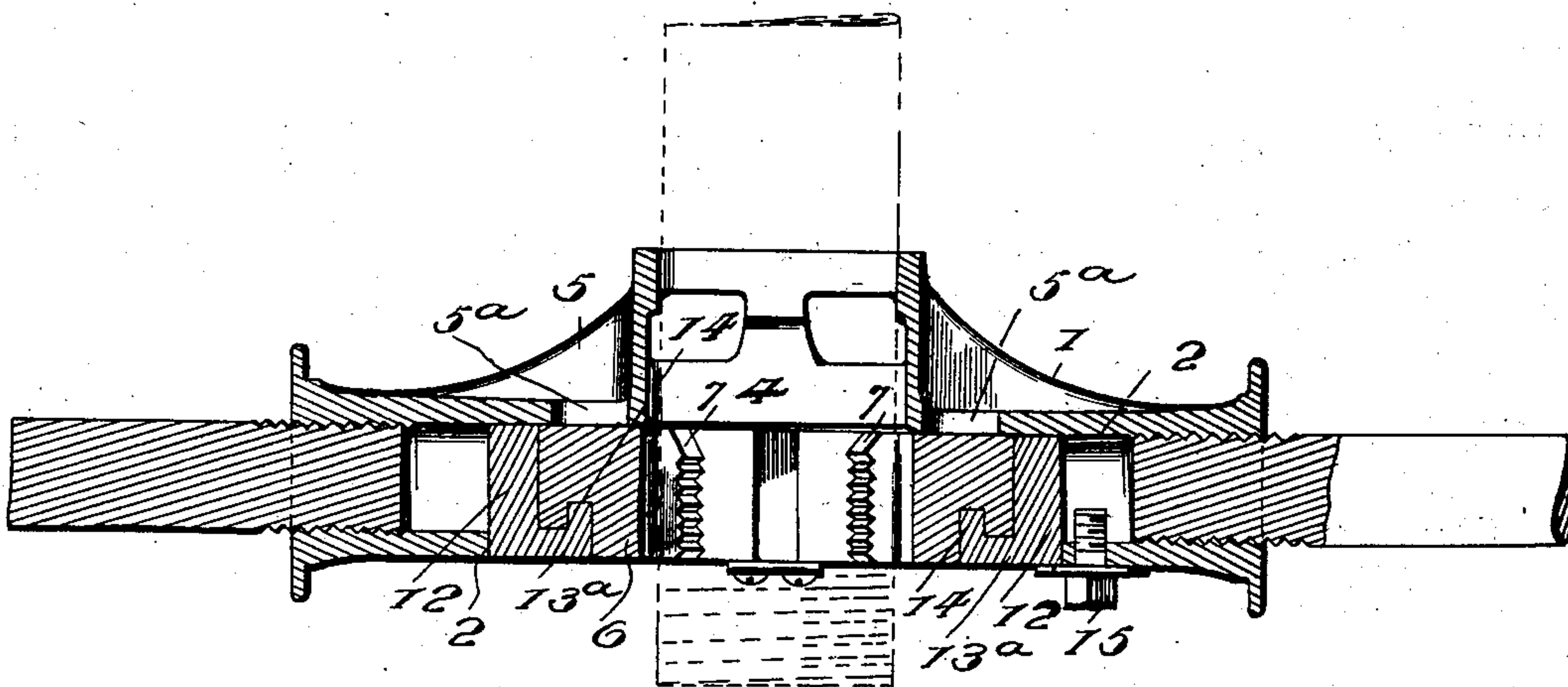


Fig. 5.

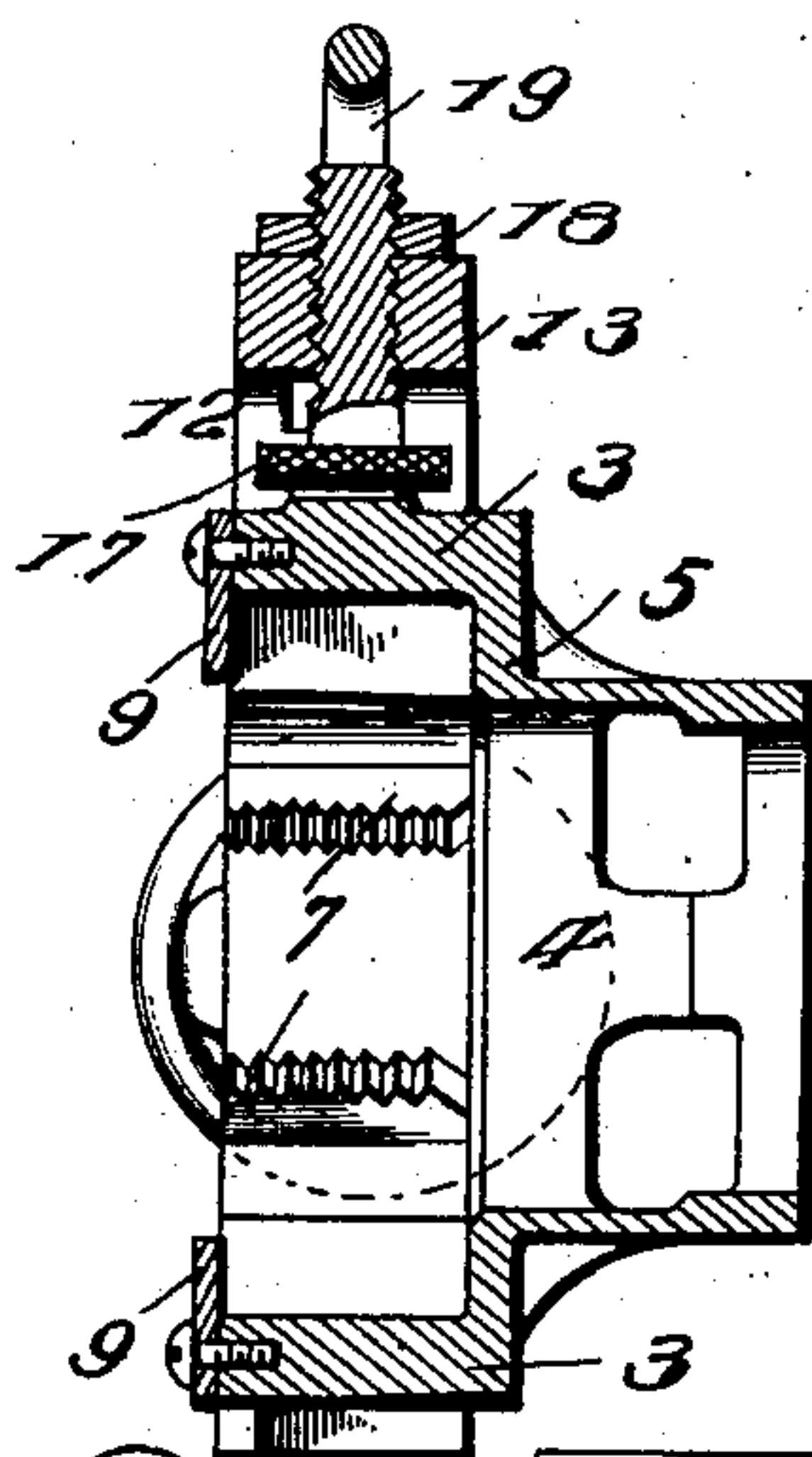


Fig. 6.

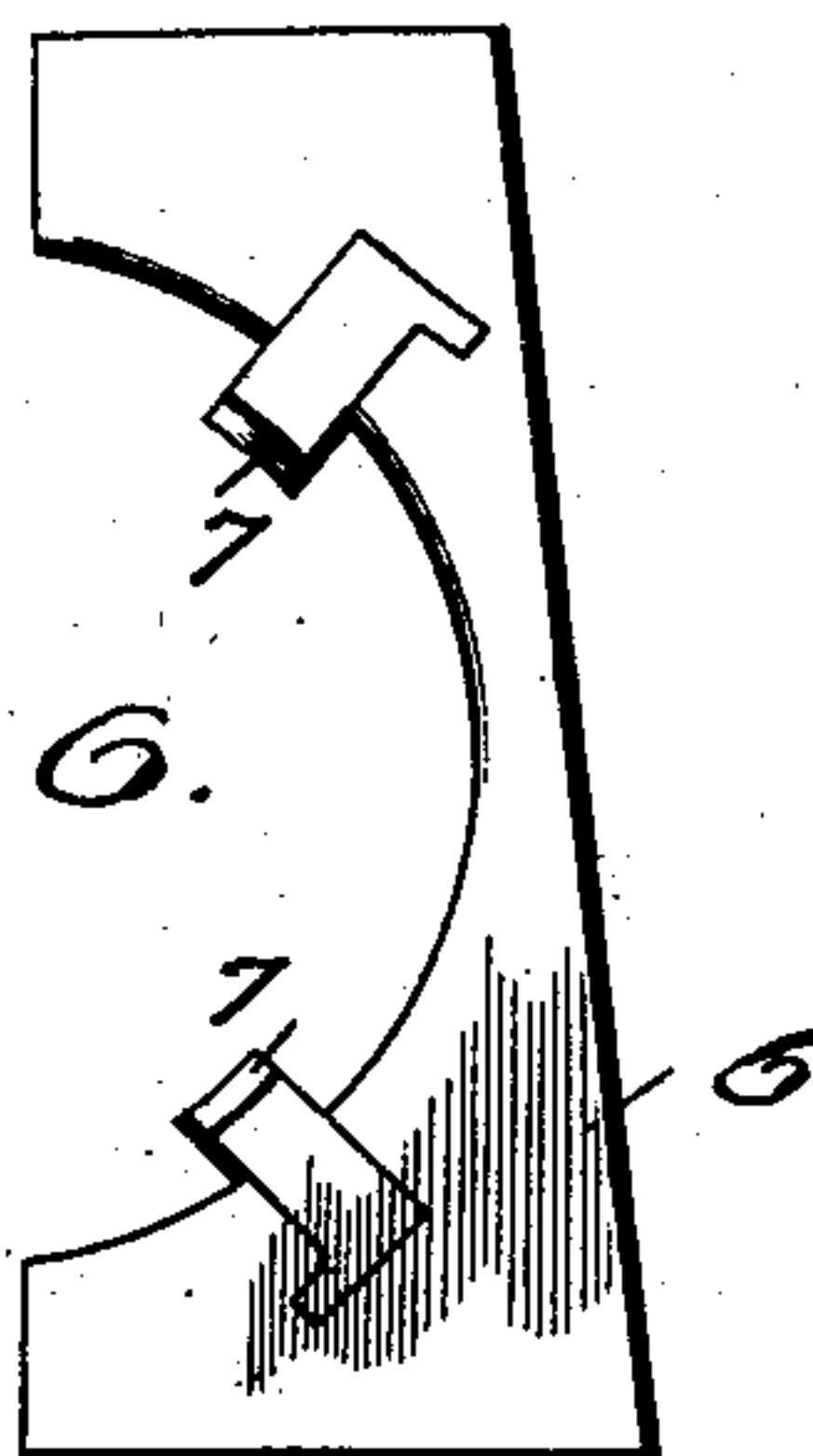
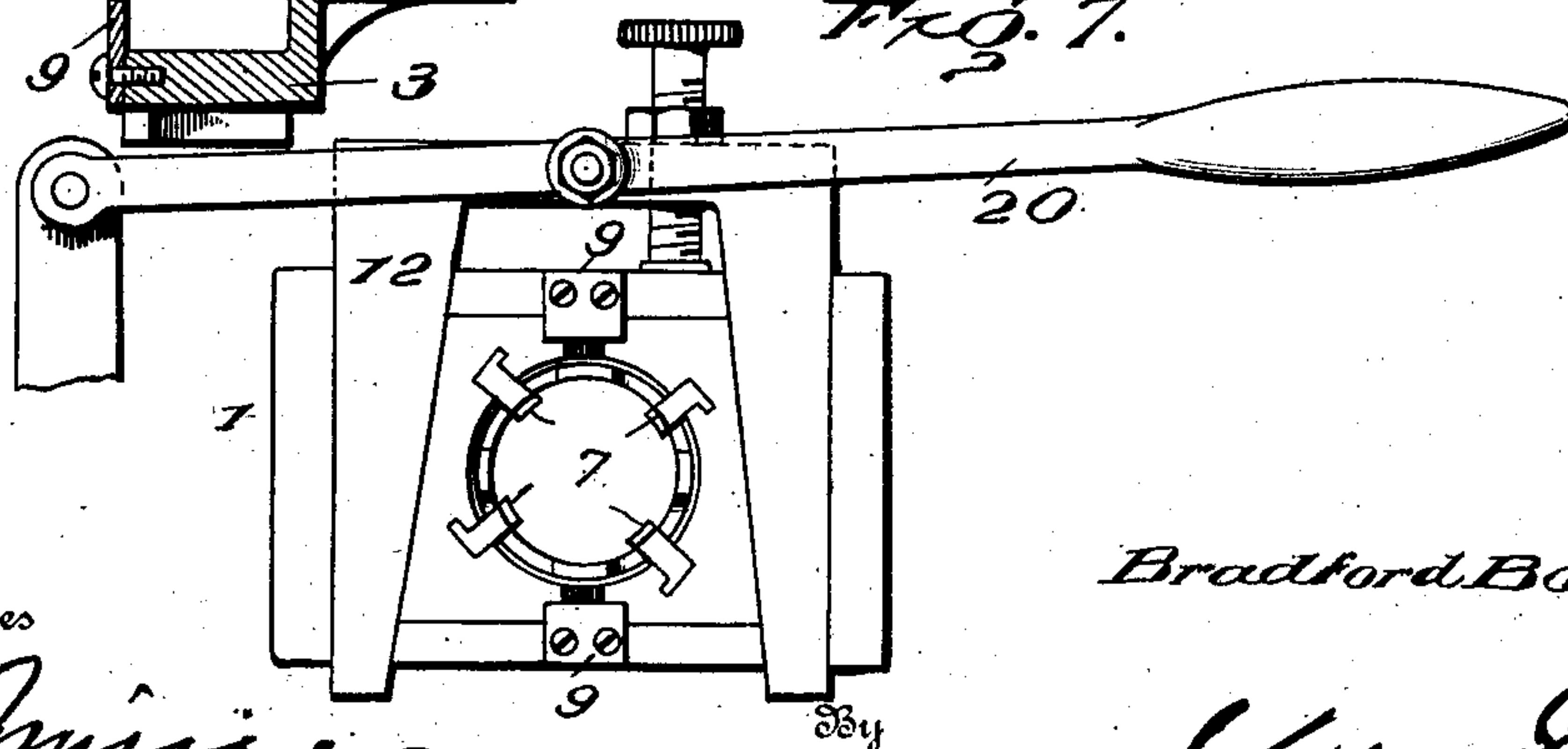


Fig. 7.



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UNITED STATES PATENT OFFICE.

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ADJUSTABLE DIE-STOCK.

SPECIFICATION forming part of Letters Patent No. 744,465, dated November 17, 1903.

Application filed March 10, 1903. Serial No. 147,055. (No model.)

To all whom it may concern:

Be it known that I, BRADFORD BORDEN, of Warren, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Adjustable Die-Stocks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The primary object of this invention is to provide a die-stock the dies of which may be readily and quickly adjusted to suit all variations found in pipe-threads, it being possible to so adjust them as to cut the threads any desired depth greater or less than ordinarily required, thus insuring proper union with threaded pipe-fittings.

Further objects are to dispense with the use of screws for adjusting the dies and holding them in position; to avoid all danger of inequality in the work, and so position the dies in the stock that the line of thrust will insure their retention and prevent accidental sliding; to permit of their being easily moved apart for the withdrawal of a pipe and allow of their return to proper position for cutting alike thread without requiring readjustment; to so construct the housing that the chips or cuttings will not interfere with the dies, being allowed to freely pass outwardly during the cutting operation, and, finally, to provide an adjustable die-stock which will be as positive and accurate in operation as if the dies themselves were made solid instead of sectional.

The invention will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is an elevation of a hand die-stock equipped with my improvements. Fig. 2 is a similar view with the adjusting-frame removed. Fig. 3 is a longitudinal sectional view on line 3 3, Fig. 1. Fig. 4 is an inner face view of the adjusting member. Fig. 5 is a transverse sectional view on line 5 5, Fig. 1. Fig. 6 is a view of one of the sectional dies detached. Fig. 7 shows the application of means for using my die in connection with a power-machine.

Referring to the drawings, 1 designates the body or housing of the open-front stock, which is formed with end or side walls 2 and top and bottom walls 3, a circular opening 4 being located in the center of the rear wall 5 of the housing. In this latter wall 5 are openings 5^a for the passage of chips, the latter being thereby prevented from clogging the machine or interfering with the dies.

6 6 designate the sectional dies, equipped with chasers 7, which being inserted in position may be readily removed and replaced when worn out, although they are as fixedly held as if solid. The outer side-wall faces of these dies are inclined at an angle of about seven degrees, and their front faces have grooves 8 formed therein paralleling the side tapers. These dies are located within the housing and are movable longitudinally thereof between the walls 3. Short plates 9, secured to the front edges of walls 3, extend over the meeting ends of the dies.

10 designates a free-sliding adjusting-frame fitted between the inclined side faces of the dies and the straight walls of the housing. It is shown as being composed of two corresponding side members 12 and a connecting portion 13, uniting such side members at what for clearness in description may be termed the "upper end" of the frame, such connecting-piece spanning the top wall 3. These side members are inclined or wedged-shaped to conform to the spaces between the side faces of the dies and the walls 2 of the housing—that is, they are straight on their outer surfaces and inclined on their inner faces at an angle conforming to the inclination of the dies, with the result that in all positions of adjustment the latter have a firm and direct bearing in the line of thrust. The dies are cut away on their front faces to accommodate overlapping portions 13^a of the side members 12. From these overlapping portions extend lugs 14, which move in the guideways formed by the grooves 8 to effect the opening or outward movements of the dies. When the adjusting-frame is in position its outer face is flush with the front faces of the dies and housing and is so held by the flange of a thumb-screw 15. As the frame is caused to slide upwardly or outwardly, the dies travel

outwardly—that is, away from each other—and as the frame is lowered or moved inwardly they travel toward each other. The dies have a firm bearing against the tapered faces of the sides of the adjusting-frame, and the latter have likewise a firm bearing against the straight faces of the end walls of the housing. The thrust being in the direction of the line of longitudinal section 3 3, the dies, no matter to what position they may be adjusted, bind firmly against the wedges, and thus are as securely retained in place as if they were solid, the pressure being through the body of each side member direct against the end walls of the housing.

Extending through the connecting-piece of the adjusting-frame is a set-screw 16, having a milled head 17 and a binding-nut 18. This screw, by contacting with the top wall 3, limits the inward movement of the adjusting-frame and permits the latter to be so set that the dies will accommodate pipes of different sizes and conform to threads of various depths of cut. Once the screw is adjusted to the proper position no readjustment is required in further cutting of the same gage, notwithstanding the fact that the frame may be moved outwardly after a pipe is threaded to release the hold of the dies on the pipe, the return movement of the frame repositioning the dies at the same point to insure the cutting of another thread of corresponding proportions. I have shown the die-frame as having a loop 19, by which it may be readily moved inwardly or outwardly and which also forms a guard for the set-screw.

In most of the figures of the drawings the die-stock is shown as formed with sockets for the reception of rods to be manipulated by hand. It is obvious, however, that my improvement is applicable to pipe-threading machines operated through intermediate gearing, as well as to power-machines—that is, those wherein the pipe is rotated by machine power. In this arrangement, as shown in Fig. 7, the adjusting-frame is manipulated by a lever 20.

It will be observed that the dies travel in unison as the frame is adjusted, and the extent of inward movement is controlled by the stop-screw. The lugs 14 serve merely to open the dies, no strain being thereon in the threading operation, since all pressure against the dies is taken up uniformly and at every point by the inclined members, which fit flush with the side walls of the housing throughout the line of contact of the dies. No screws are required to adjust or hold the dies, the screw 16 serving merely as a gage-stop for the adjusting members, and while the thumb-screw 15 serves to prevent the latter from falling outwardly, yet it is obvious that any other suitable means may be employed for that purpose. As a matter of fact the fit is usually so perfect that there is little or no strain on this holding-screw.

By reason of the adjusting-frame having a

free-sliding movement within the housing it may be readily and quickly slid inwardly or outwardly, thus greatly facilitating the gripping or releasing of a pipe and avoiding all danger of inaccuracy in cutting several pipes of like gage, since the inward movement of the adjusting-frame is limited by the adjustable stop-screw.

I claim as my invention—

1. A die-stock comprising a housing having end walls, sectional dies within the housing between such walls, the outer sides of both dies being inclined toward each other, a free-sliding adjusting device filling the spaces between the inclined sides of the two dies and the end walls of the housing throughout the lengths of the dies, and adjustable means for limiting the movement of the device in one direction, as set forth.

2. A die-stock comprising a housing having end walls, sectional dies within the housing between such walls, the outer sides of both dies being inclined toward each other, and a free-sliding adjusting device filling the spaces between the inclined sides of the two dies and the end walls of the housing throughout the lengths of the dies, said device having a positive connection with both dies for moving them apart when the device is moved outwardly, and an adjustable stop for limiting the inward thrust of the adjusting device, as set forth.

3. A die-stock comprising a housing having end walls, sectional dies within the housing between such walls, the outer sides of both dies being inclined toward each other and having guideways paralleling such inclined sides, a free-sliding adjusting device filling the spaces between the inclined sides of the two dies and the end walls of the housing throughout the lengths of the dies, said device having lugs fitting in said guideways, and adjustable means for limiting the movement of the device in one direction, as set forth.

4. A die-stock comprising a housing having end walls, sectional dies within the housing between such end walls, the outer sides of both dies being inclined toward each other, a free-sliding adjusting device overlapping portions of such dies and filling the spaces between the inclined sides of the latter and the end walls of the housing throughout the lengths of the dies, a single screw working in the housing and engaging the face of said device to prevent it and the dies from falling outwardly, and an adjustable stop for limiting the movement of the device in one direction, as set forth.

5. A die-stock comprising a housing having parallel end walls, sectional dies movable within the housing inclined on their outer side faces and having guideways paralleling such inclined faces, adjusting members filling the spaces between the dies and the end walls, such members being inclined on one side and straight on the other and having lugs

fitting in said guideways, and an adjustable stop for limiting the inward movement of such members, as set forth.

5 6. A die-stock comprising a housing having straight end walls, and opposite intermediate walls, sectional dies movable between such walls, each die having a guideway and inclined on its outer side face, an adjusting-frame having two wedge-like members filling
10 the spaces between the dies and the end walls of the housing, a connecting portion between said members, and lugs fitting in said guideways, and an adjustable stop mounted on said connecting portion, and designed to en-
15 gage one of said intermediate walls, as set forth.

7. A die-stock comprising a housing having straight end walls, and opposite intermediate walls, sectional dies movable between
20 such walls, each die being cut away adjacent one side wall and having a guideway in such cut-away portion, said side walls being inclined, an adjusting-frame having side members inclined on their inner side faces and
25 straight on their outer side faces, said side members having overlapping portions fitting in the cut-aways of the dies and carrying lugs extended into said guideways, and a screw on the housing for engaging said frame
30 and holding it as against falling outwardly, as set forth.

8. A die-stock comprising an open-front housing having straight end walls, and opposite intermediate walls, sectional dies movable between said walls, each die being in-
35 clined on its side face and formed with a

groove on its front face, an adjusting-frame having two side members whose inner and outer sides are respectively inclined and straight, such side members filling the spaces
40 between the dies and end walls and each having an overlapping portion extended over the front face of the adjacent die, lugs carried by such side members fitting said grooves, and means mounted in the housing for hold-
45 ing said frame against said dies, as set forth.

9. A die-stock comprising an open-front housing having straight end walls, and opposite intermediate walls, sectional dies movable between said walls, each die being in-
50 clined on its side face and formed with a groove, a free-sliding adjusting-frame having two side members whose inner and outer sides are respectively inclined and straight, such side members filling the spaces between
55 the dies and end walls and each having an overlapping portion extended over the front face of the adjacent die, lugs carried by such side members fitting said grooves, a single screw working in the housing and designed
60 to engage one side member of the adjusting-frame for holding it in such housing, and means for limiting the movement of the frame in one direction, as set forth.

In testimony whereof I have signed this
65 specification in the presence of two subscribing witnesses.

BRADFORD BORDEN.

Witnesses:

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W. A. NERACHER.