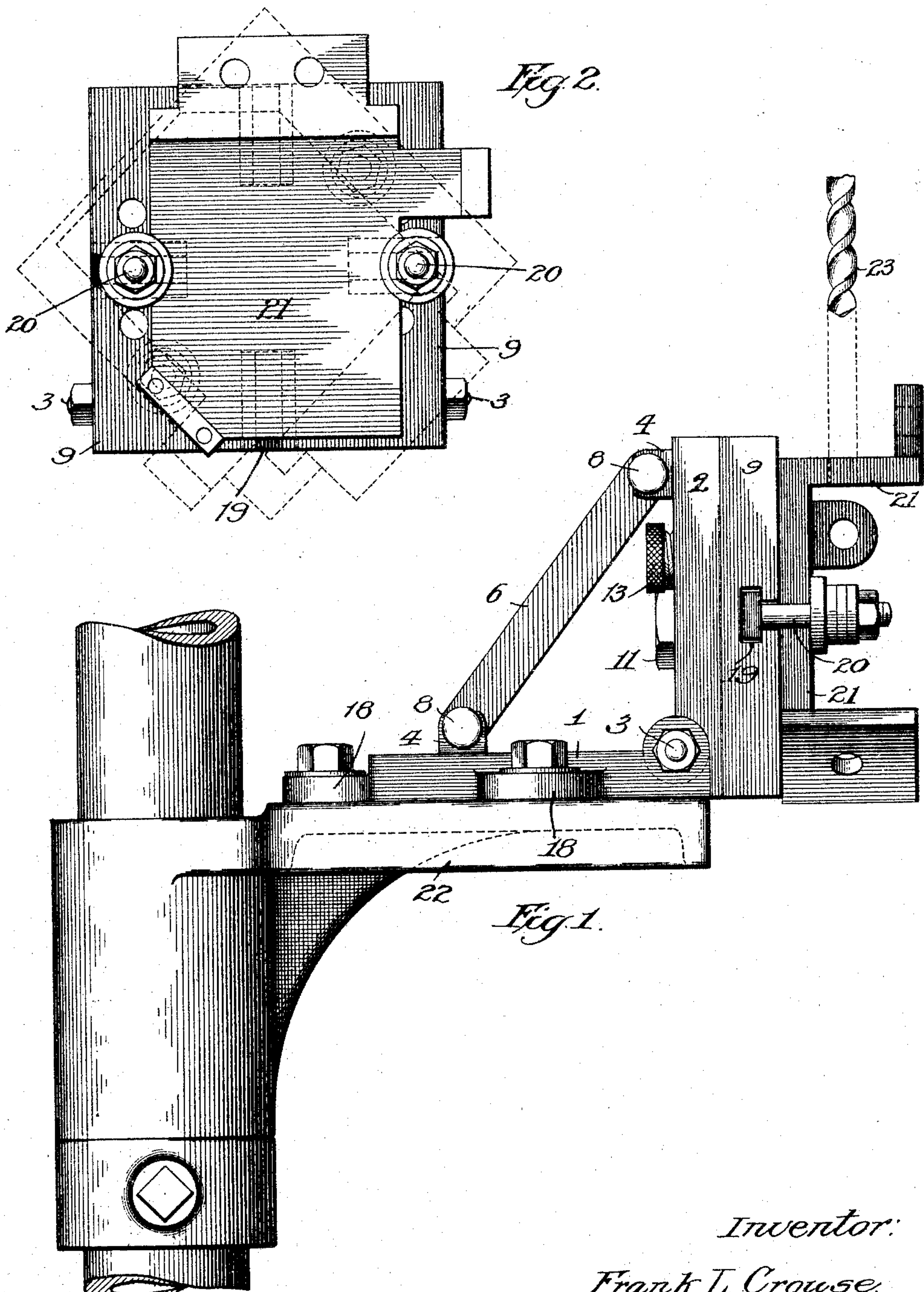


927,493.

F. L. CROUSE.
ADJUSTABLE ANGLE CHUCK.
APPLICATION FILED APR. 10, 1908.

Patented July 13, 1909.
2 SHEETS—SHEET 1.



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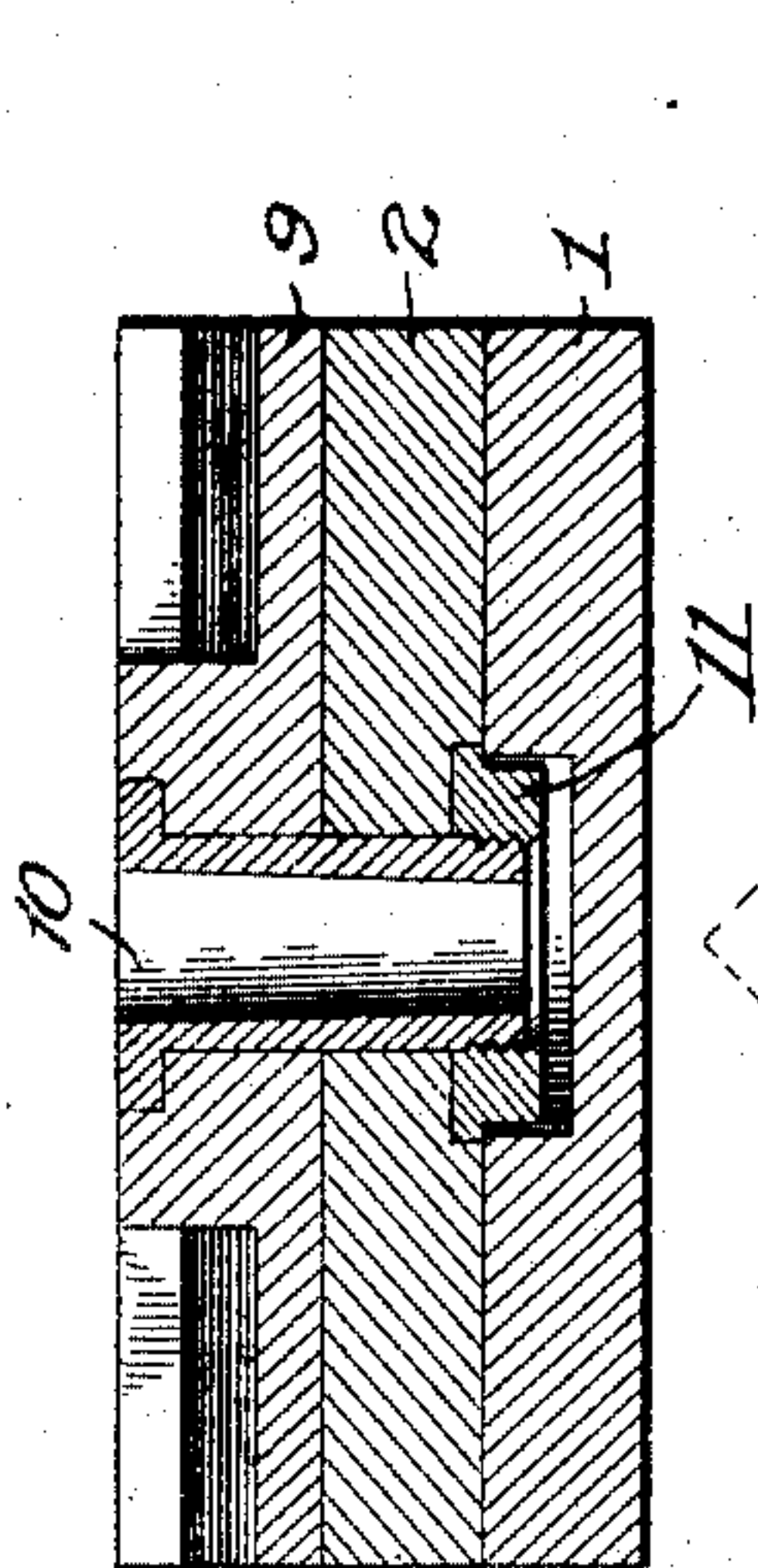


Fig. 7.

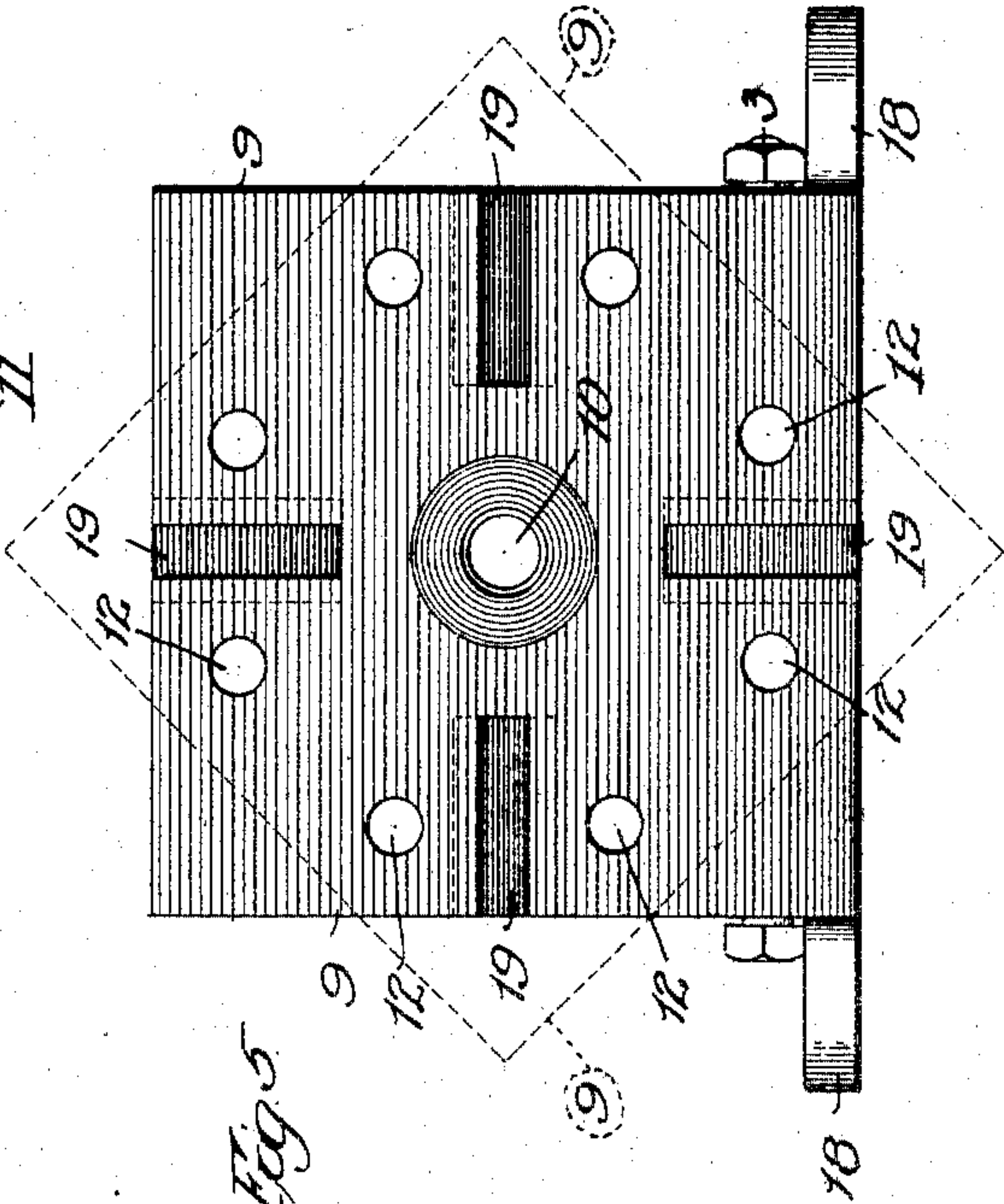


Fig. 5.

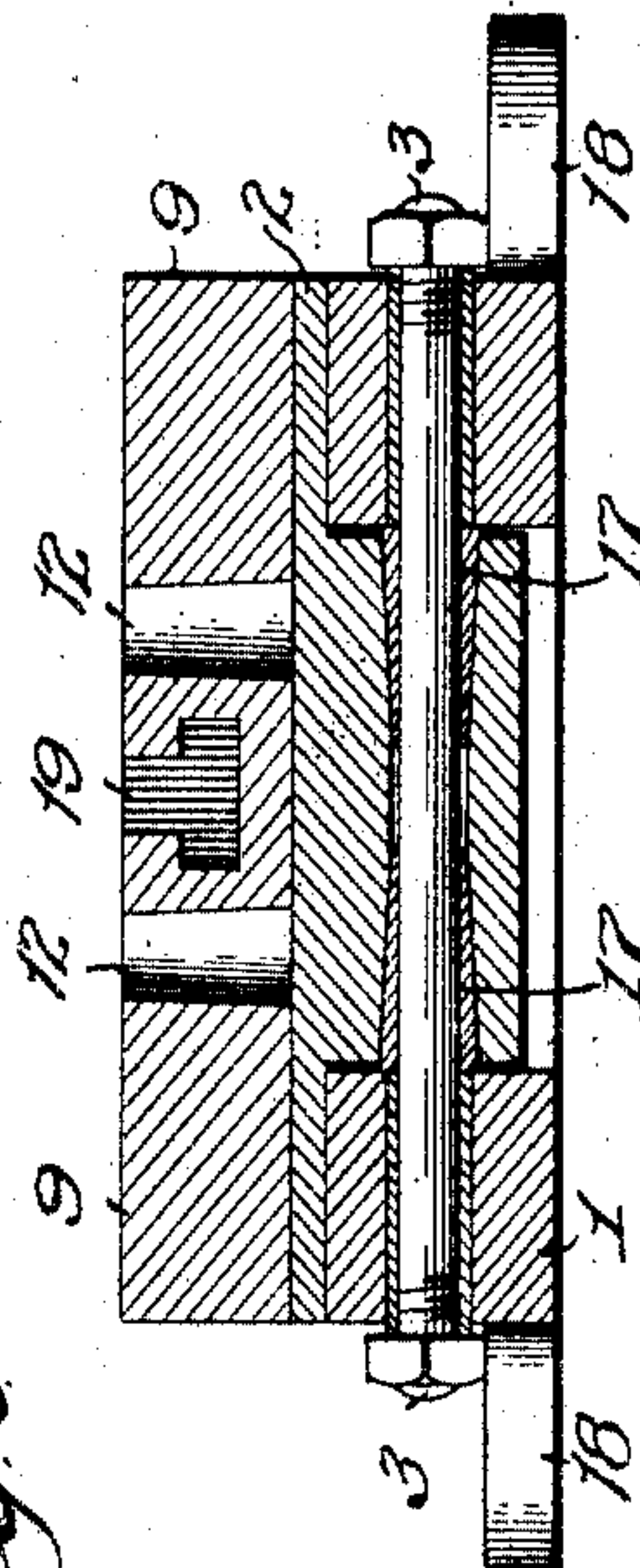


Fig. 6.

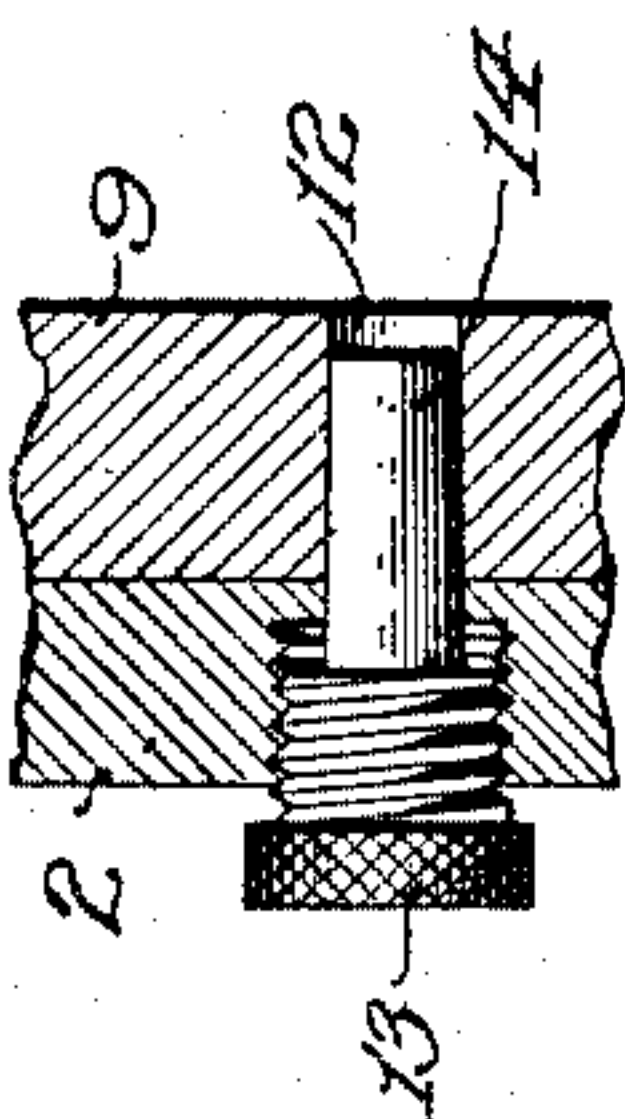


Fig. 8.

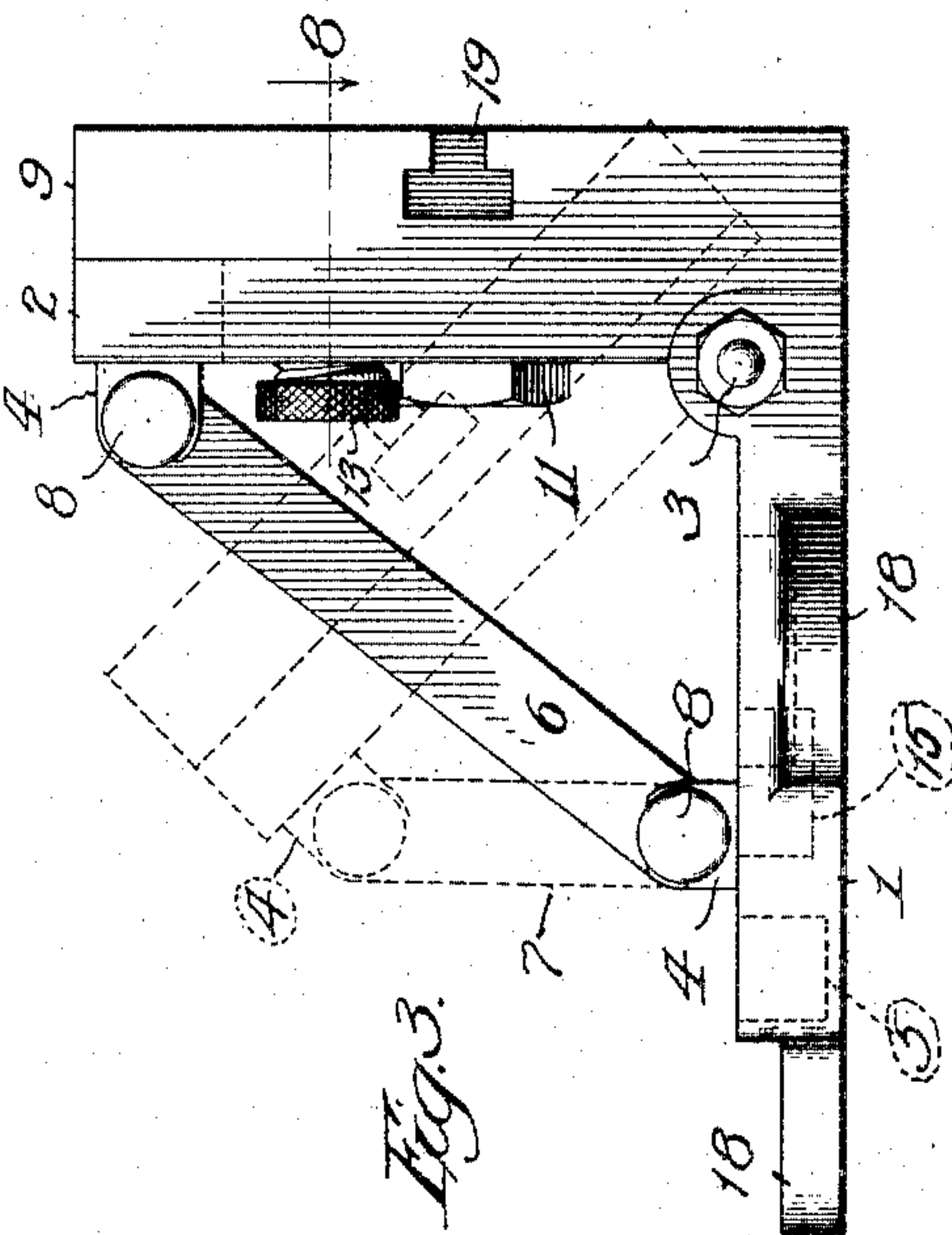


Fig. 3.

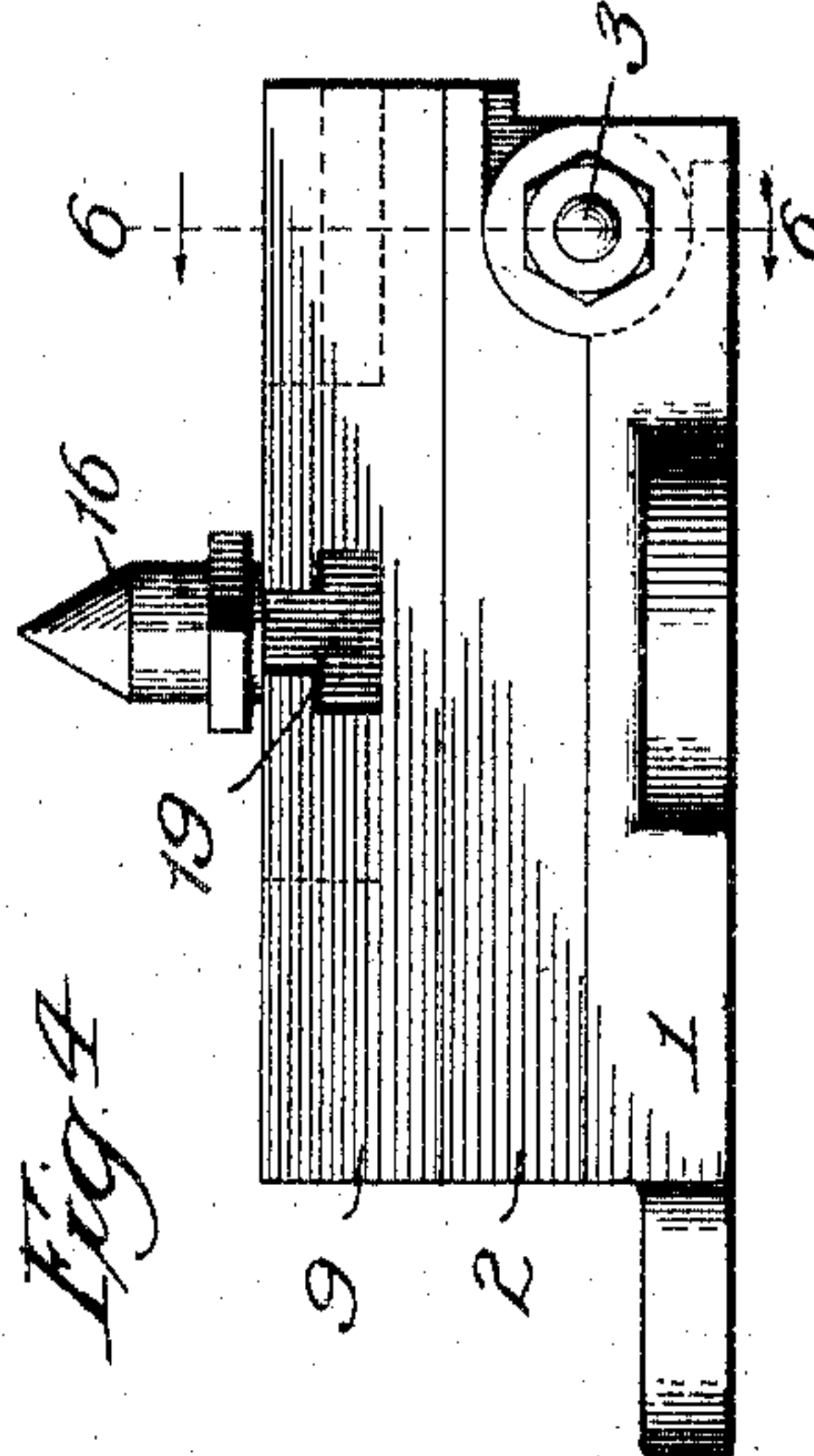


Fig. 4.

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UNITED STATES PATENT OFFICE.

FRANK L. CROUSE, OF BELOIT, WISCONSIN, ASSIGNOR OF ONE-HALF TO ELI WESSELL.

ADJUSTABLE ANGLE-CHUCK.

No. 927,493.

Specification of Letters Patent.

Patented July 13, 1909.

Application filed April 10, 1908. Serial No. 426,193.

To all whom it may concern:

Be it known that I, FRANK L. CROUSE, citizen of the United States, residing at Beloit, in the county of Rock and State of Wisconsin, have invented a certain new and useful Improvement in Adjustable Angle-Chucks, of which the following is a full, clear, concise, and exact description.

My invention relates to angle-chucks. Such chucks have, heretofore, been commonly made in the form of an L-shaped casting, or a short length of angle-iron, one of the outer faces of which is secured to the face plate of a lathe or to the table of a drilling- or planing-machine. To the other outer face is fastened the piece of work which is to be drilled or shaped, said latter face being provided with slots for receiving the work-securing bolts. In the use of such well-known type of angle-chuck, it has been necessary to remove the work from one of its clamped positions and to reclamp it in a differently adjusted position each time a new face or surface of the work is operated upon.

The object of my invention is to provide an angle-chuck which is adjustable in such manner that the several free faces of the work can be operated upon without removing the work from its first clamped position. A further object of my invention is to provide a chuck which will accurately center the work.

A still further object of my invention is to provide a chuck which is capable of positive and accurate adjustment to hold the work in different relations to the operating tool.

With these objects in view, my invention contemplates in its preferred specific embodiment an angle-chuck, the two leaves of which are hinged together so as to fold one upon the other, and which is provided with means for adjustably holding said leaves at different angular relations to each other; the face of one leaf is further provided with a face-plate pivotally or rotatably mounted upon said leaf. The axis or pivot of said face-plate is preferably in the form of a hollow bolt or pin adapted to receive a removable centering pin.

I have thus specifically stated the preferred embodiment of my invention and have reserved for the claims the statement of the scope thereof.

My invention may be more readily described by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved angle-chuck, showing the same mounted on the table of a drilling-machine, and having the work, shown as an irregular casting, clamped upon the rotatable face-plate of the angle-chuck; Fig. 2 is a front elevation, also showing in dotted lines one of the positions to which the rotatable face-plate and the work carried thereby may be adjusted; Fig. 3 is a side elevation of the angle-chuck, showing in full and in dotted lines, respectively, two of the angular positions to which the parts may be adjusted; Fig. 4 is a side elevation of the angle-chuck in its folded position and with the work-centering pin in place; Fig. 5 is a front elevation, showing also by dotted lines one of the positions to which the face-plate may be adjusted; Fig. 6 is a section on the line 6—6 of Fig. 4; Fig. 7 is a vertical section through the center of the folded angle-chuck; and Fig. 8 is a section on the line 8—8 of Fig. 3.

Like parts are designated by similar characters of reference throughout the views.

The leaves 1 and 2 of the angle-chuck are hinged together by a pin 3. Said leaves may be formed of metallic castings, having on the inner faces ears or lugs 4, adapted, when the leaves are folded, to lie in recesses 5 formed in the leaves. Removable links or braces 6, 7, of different lengths are provided for holding the leaves at the desired angular adjustment, said braces being secured at each end to the lugs 4 by means of pins 8. In Fig. 3 is shown in full lines a brace 6 of such length as to hold said leaves at exactly right angles to each other, and in dotted lines a brace 7 is shown which is of such length as to hold said leaves at an angle of 45°. Said braces being thus made of standard lengths to produce the desired angular relation of the leaves, it is possible to secure the required adjustment with absolute accuracy. To secure a different adjustment one of said braces may be removed and another, capable of giving the required adjustment, quickly and readily substituted.

A face-plate 9 is pivoted centrally upon the outer face of the leaf 2. The pivot or axis of said face-plate is preferably in the form of a hollow pin 10. The head of said pin fits in the countersunk opening of the face plate, said pin being held in place by a nut 11 which, when the parts are folded, lies in a recess in the plate 1 (see Fig. 7). The face-plate 9 is thus mounted upon the leaf 2

in such manner as to be capable of rotatable adjustment about its pivot 10, in a plane parallel to the plane of the leaf 2. Said face-plate is provided with a plurality of concentrically-arranged holes 12. A pin 13 removably threaded through the leaf 2 is provided with an unthreaded inner end 14 which extends into any desired one of the holes 12, thus securing the plate 9 in its adjusted position. The holes 12 are slightly tapered toward the outer surface of the plate 9 (see Fig. 6) and the ends 14 of the pin are correspondingly tapered, thus insuring a tight fit at all times, even should the parts become worn, and a consequent accurate adjustment. A recess 15 is provided in the leaf 1, which recess receives the head of the pin 13 when the angle-chuck is folded.

A removable centering pin 16 fits into the hollow pin 10. Thus when it is necessary to center the work, as for example to center a spindle being operated upon, the pin 16 is inserted in position and the work centered thereon in the usual manner.

It will be particularly noted that an important feature of my invention is the ease with which an absolutely accurate adjustment may be secured. In order to prevent the hinged connection between the leaves 1 and 2 becoming loose, I preferably provide the usual well-known tapered bushings to take up the wear. Said bushings are shown in Fig. 6 and are there designated by the reference characters 17, 17.

The usual means for securing the foot or base of the angle-chuck to the table upon which it rests may be provided. I have shown in the drawing said foot or leaf 1 provided with ears 18 for receiving the clamping bolts. The outer face of the face-plate 9 is provided with the usual T-grooves 19 for receiving the heads of the bolts 20 which clamp the work 21 to the angle-chuck.

In order to illustrate the application of my invention to practice, I have in Fig. 1 shown the angle-chuck secured to the table 22 of a drilling-machine, the work 21 being held in position to be operated upon by the drill 23. The angle-chuck is here shown with its leaves adjusted by the brace 6 at right angles. By adjusting the face-plate 9 upon its axis or pivot 10, in the manner heretofore described, a series of holes may be drilled in the periphery of the casting 21, and if desired such holes may be drilled at an angle by adjusting the face-plate to the position indicated in dotted lines in Fig. 2 and Fig. 5. By removing the brace 6 and substituting braces of dif-

ferent lengths, the leaves 1 and 2 are brought into other angular relations, thus presenting the work at still different angular relations to the drill 23. If it is desired to drill vertical holes in the outer face of the work, the angle-chuck may be folded in the manner indicated in Fig. 4. It will be observed that all these different positions of the work may be obtained without removing the same from its initial clamped position upon the face-plate. The centering-pin 16 is employed only when the work is to be accurately centered. In fact, it is desirable that the pivot 10 be hollow for a still further purpose than to receive the centering-pin 16. In some cases it is desired to drill a hole completely through the center of the work, and in this event it is of course desirable that the pin 10 be hollow to receive the drill 23.

Having thus described my invention, I claim as new and desire to secure by Letters Patent the following:

1. An adjustable angle-chuck comprising two leaves hinged together and arranged to fold one upon the other, a removable brace extending between said leaves to hold the same in a definite fixed angular relation to each other, and means for securing the work to the outer face of one of said leaves.

2. In an adjustable angle-chuck, the combination with two leaves hinged together and arranged to fold one upon the other, of lugs formed upon the inner faces of said leaves, the inner face of each leaf being provided with a recess for receiving the lugs upon the opposite leaf when the parts are folded, and a removable brace secured at each end to said lugs, for holding said leaves at a definite angular relation to each other determined by the length of said brace.

3. In a chuck, a supporting leaf, a face plate overlying the same, a pin connecting the face plate to said leaf, said face plate being rotatable upon said pin as an axis, said face plate being provided with a plurality of tapering holes arranged concentrically of said pin, and a removable pin projecting through the leaf, the projecting end of said pin being tapered to correspond with said holes and arranged to enter the same, and thereby to accurately adjust the position of said face plate.

In witness whereof, I hereunto subscribe my name this 4th day of April A. D., 1908.

FRANK L. CROUSE.

Witnesses:

T. D. WOOLSEY,
GEO. L. WILKINSON.