

T. BRICK.
 WORK HOLDER FOR MACHINE TOOLS.
 APPLICATION FILED DEC, 26, 1907.

Patented Apr. 18, 1911.

989,893.

Fig. 2

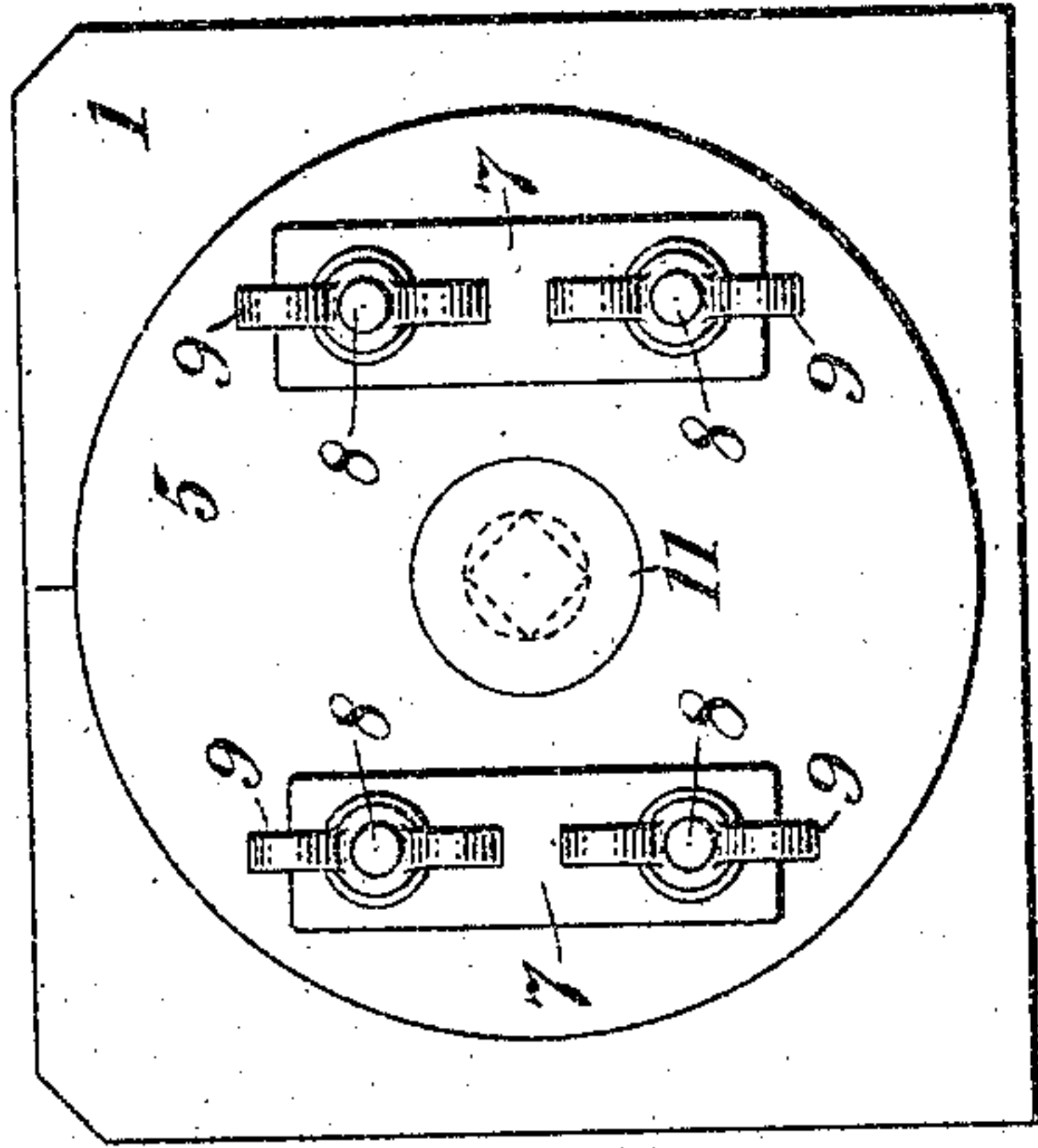


Fig. 4

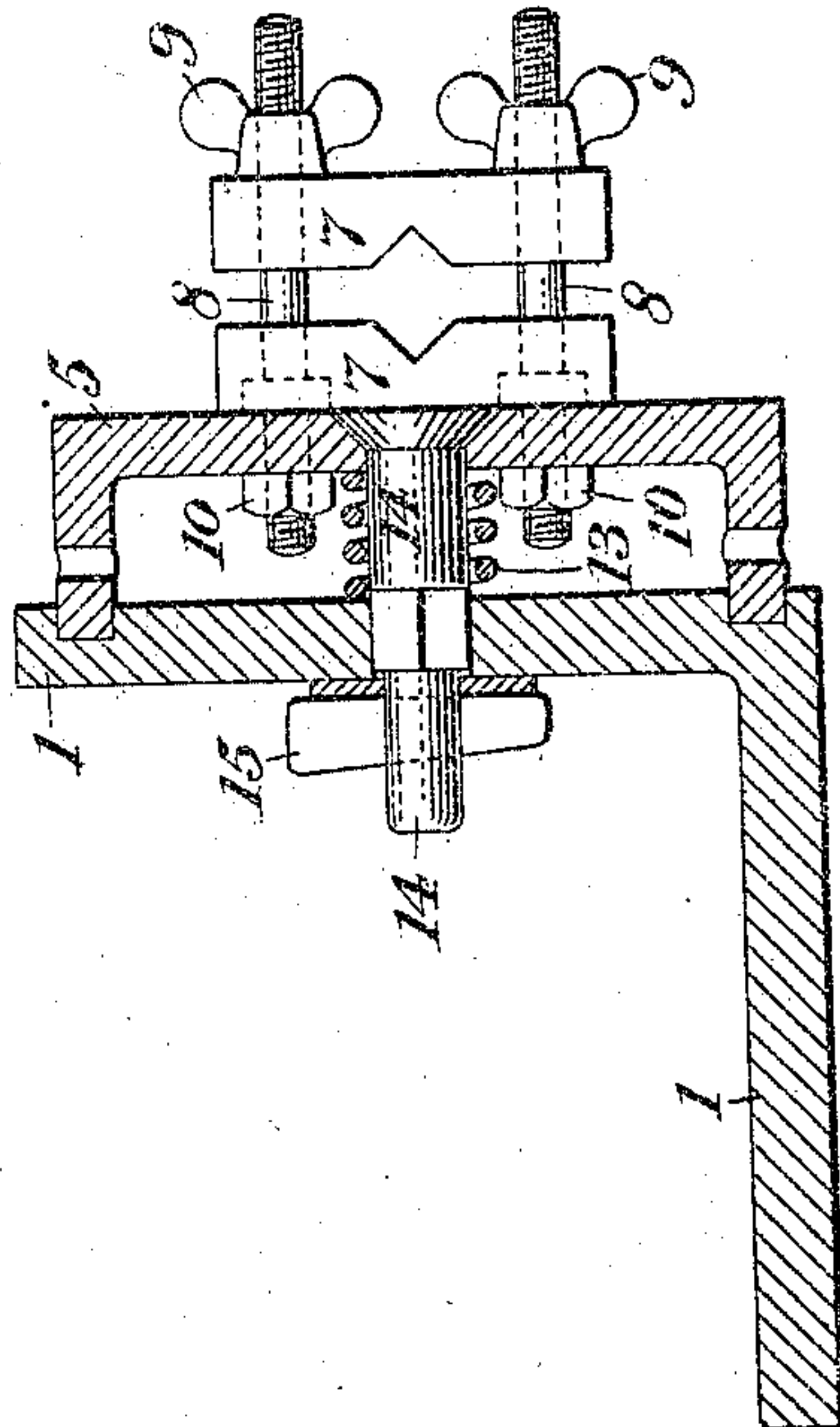


Fig. 1

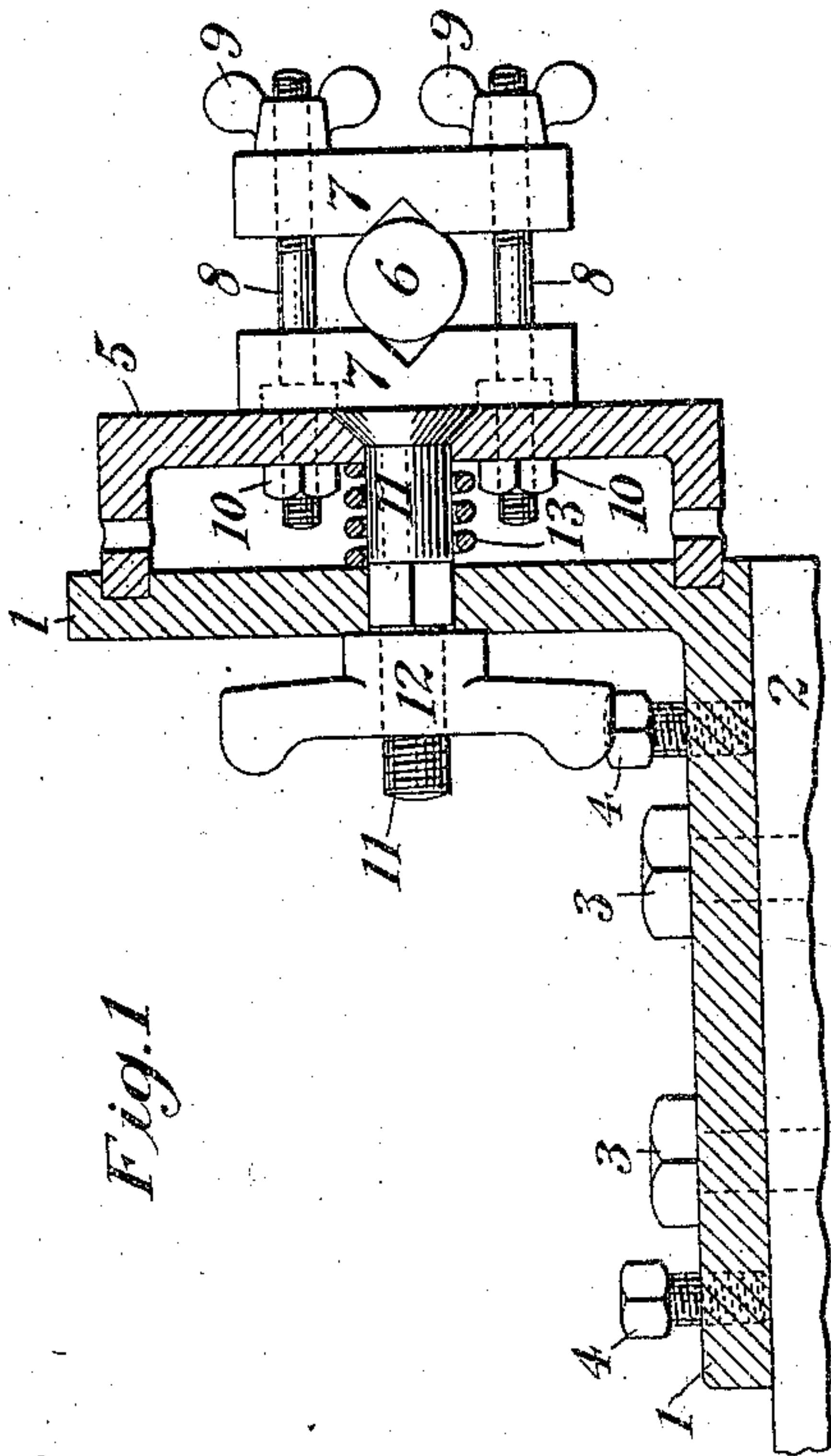
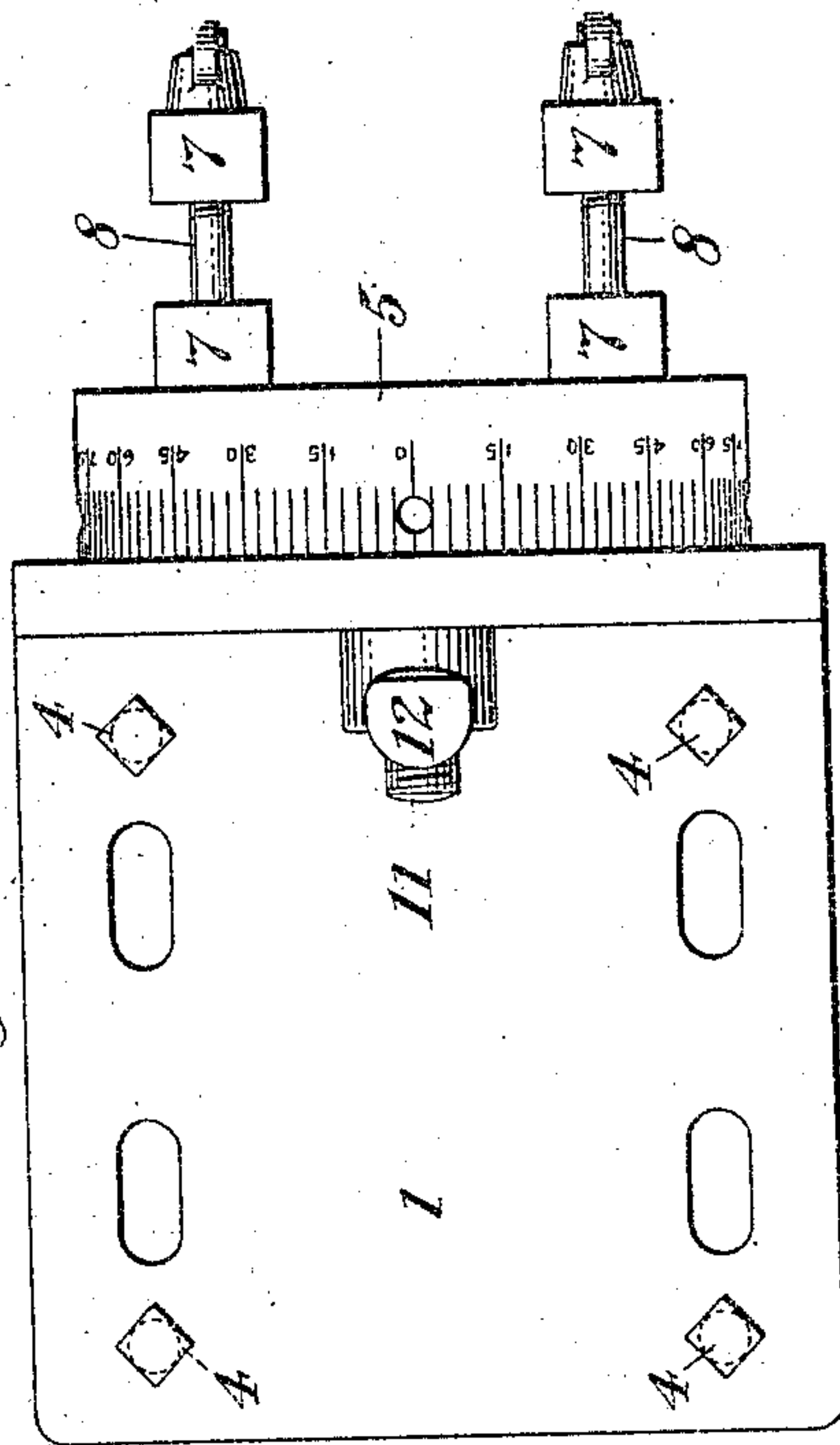


Fig. 3



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UNITED STATES PATENT OFFICE.

THOMAS BRICK, OF NEW YORK, N. Y.

WORK-HOLDER FOR MACHINE-TOOLS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, THOMAS BRICK, a citizen of the United States, residing in the borough of Queens, city of New York, in the county of Queens and State of New York, have invented a certain new and useful Improvement in Work-Holders for Machine-Tools, of which the following is a specification, reference being had therein to the accompanying drawings, forming part thereof.

My invention relates to chucks or work-holders for machine tools, as for example, for drill presses, planers, shapers, milling machines, and lathes.

The principal objects of my invention are efficiency and convenience of operation and economy of time.

Other objects and advantages will appear from the following description.

The practice heretofore in drill presses has been to employ a work holder consisting of a simple clamp formed by a single lever of the third kind or third class which was secured by a bolt directly to the bed plate of the machine. This form of clamp or work holder, besides being defective in other respects, required that the work should be released so that it could be shifted or adjusted for each different operation upon it.

My invention includes means for shifting the work or article operated upon to different positions without removing it from the work-holder.

My invention also includes means for securely holding work or articles of various or different sizes.

My invention also includes various features of construction and combination of parts, as hereinafter described.

I will now describe the means embodying my invention which are illustrated in the accompanying drawings and will thereafter point out my invention in the claim.

Figure 1 is a median longitudinal vertical section. Fig. 2 is a front elevation. Fig. 3 is a plan view. Fig. 4 is a view similar to Fig. 1 of a slightly modified construction.

In the embodiment of my invention illustrated in Figs. 1, 2 and 3 an L-shaped frame or bracket 1 is secured to the bed-plate 2 of the machine tool by bolts 3. In usual practice the bracket 1 is located as shown adjacent to and with its forward edge flush with the edge of the bed-plate 2, to provide a sufficient clearance space for the work. The sup-

porting bracket 1 is susceptible of a limited angular adjustment in a vertical plane, and such adjustment may be effected by screws 4 which are threaded through the foot of the bracket 1 and are adapted to engage with the top of the bed-plate 2. To adjust the bracket 1 the retaining bolts 3 are loosened; then to tip the bracket forward the two rear screws 4 are turned down the desired or required amount, after which the bolts 3 are again tightened. To tip the bracket 1 backward the forward screws 4 are turned down while the bolts 3 are loose. The tipping of the supporting bracket 1 tips the work and enables it to be adjusted to proper position.

Means are provided for firmly holding the work or article to be operated on and for shifting or adjusting such article to any angle or for completely reversing it from top to bottom; or in other words, the work may be adjusted in a vertical plane, or on a substantially horizontal axis, to any portion of a complete circle or throughout three hundred and sixty degrees. This adjustment enables holes to be drilled or other operation to be performed in any direction, or at any angle upon the piece of work while the work is still securely clamped in the work holder. Such means comprise a cup-shaped face plate 5. The work 6 (Fig. 1) is held between clamp-bars or V-blocks 7 which are tightened or clamped against the work by clamp-bolts 8 provided with wing-nuts 9. The clamp-bolts 8 also serve to attach the clamps 7 to the face plate 5 and pass through the face plate and are secured by nuts 10.

The front face of the upright portion of the bracket 1 is provided as shown with an annular groove for receiving and frictionally engaging the edge or rim of the cup-shaped face plate 5. The face plate 5 is held in position by a countersunk retaining-bolt 11 which passes through the center of the face plate and through the bracket 1 and extends rearwardly from the upright portion of the bracket, where it is provided with a wing-nut or thumb-nut 12, and to prevent the bolt 11 from rotating with the nut 12 the bolt is shown as provided with a squared portion where it passes through the bracket. A coiled stiff thrust-spring 13 surrounds the bolt 11 within the cup formed by the face plate 5 and acts between the face plate and the bracket, and this thrust-spring serves several purposes or accomplishes a plurality of functions. The rim of the face plate 5

fits closely in the groove in the bracket 1 and when the nut 12 is tightened up the friction of the rim or edge of the face plate in the groove prevents any slipping from position or shifting out of place of the work.

When it is desired to shift or change the position of the work the nut 12 is unscrewed or loosened. When the nut 12 is sufficiently unscrewed the spring 13 will dislodge or disengage the rim of the face plate from the groove, permitting easy movement or adjustment of the face plate 5, and consequently of the work carried thereupon, to the desired angular position. The spring 13 also provides sufficient friction to retain the work in the adjusted position until the nut 12 can be tightened to firmly secure it thus. Owing to the fact that the face plate 5 and clamps 7 overhang or extend beyond the edge of the bed-plate 2 plenty of clearance space is provided to turn or angularly shift large pieces of work while the work is held by the clamps 7.

For convenience in adjusting and readjusting the work the face plate 5 is provided circumferentially as shown (Fig. 3) with a scale which is adapted to coact with an index on the upper part of the front face of the bracket 1 (Fig. 2). For conveniently rotating the face plate 5 to different positions of angular adjustment it is shown as provided circumferentially with a number of holes into which a tool may be inserted.

Instead of the bolt 11 and the nut 12 for drawing the face plate and the bracket together, other means may be provided. For example, a bolt 14 provided with a slot in which engages a drawing-key 15, as illustrated in Fig. 4, may be employed. In other respects the construction shown in Fig. 4 is substantially the same as that shown in the preceding figures and described above.

When my invention is employed on a drill press the horizontal (or lateral, and forward and back) positions or locations of the holes

drilled are determined in the usual manner—by horizontally shifting the drill head—but the angle of the drilled holes is determined and also different sides of the piece of work are brought into operative position, or in position to be acted on by the drills, by rotatively adjusting the face plate as above described and thereby adjusting the work. For planers, shapers and milling machines different portions or sides of an article may be brought into position to be acted on without removing or unclamping the work. My invention is used on a lathe in substantially the same manner as on a drill press and holds the work in stationary position to be operated on.

Among the kinds or classes of work which may be advantageously operated on by the use of my invention are T and X pipe-connectors or pipe-connections, of which all of the flanges may be drilled in a drill press with one setting of the piece of work in the work holder.

It is obvious that various modifications may be made in the constructions shown and above particularly described within the principle and scope of my invention, as defined in the following claim.

I claim:—

A work-holder for machine tools comprising an angle plate provided with work-holding means pivotally mounted at one of the sides of the angle plate, the angle plate being adapted to be secured at its other side to a work table, and a plurality of adjusting screws threaded into this other side of the angle plate in position to engage the work table upon which the angle plate is secured and to space the angle plate away therefrom in angular position.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS BRICK.

Witnesses:

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