J. F. BUHR.

WORK HOLDER.

APPLICATION FILED MAR. 12, 1914.

1,209,667.

Patented Dec. 26, 1916.

2 SHEETS—SHEET 1.

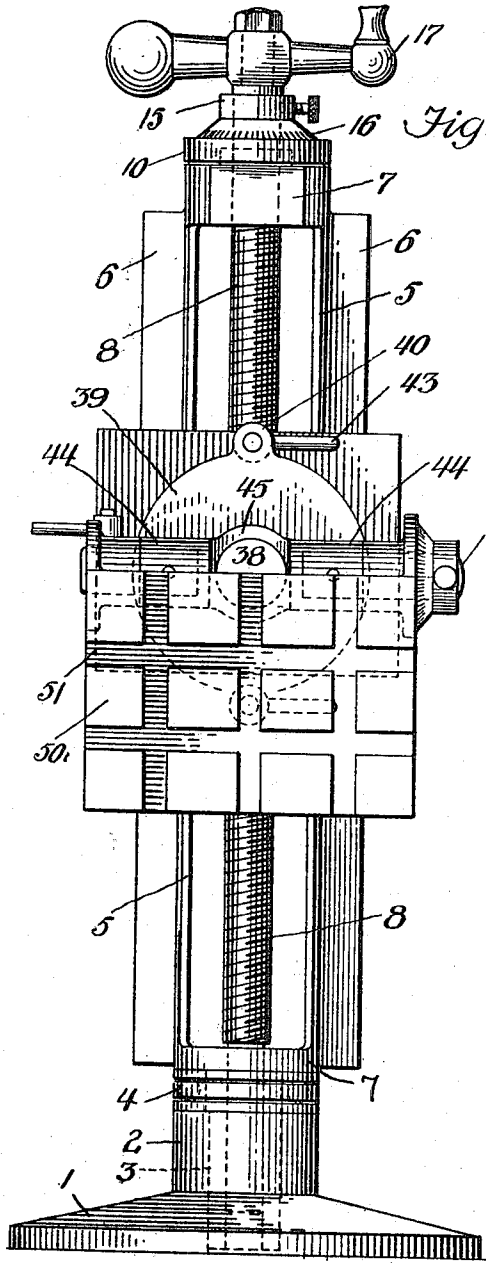


Fig. 1.

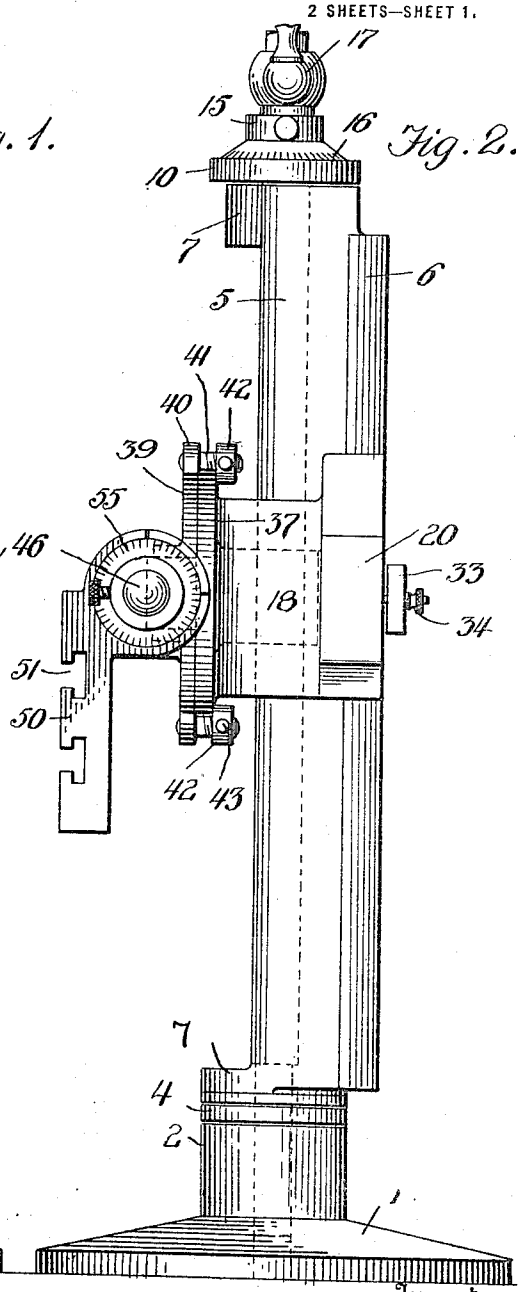


Fig. 2.

Witnesses

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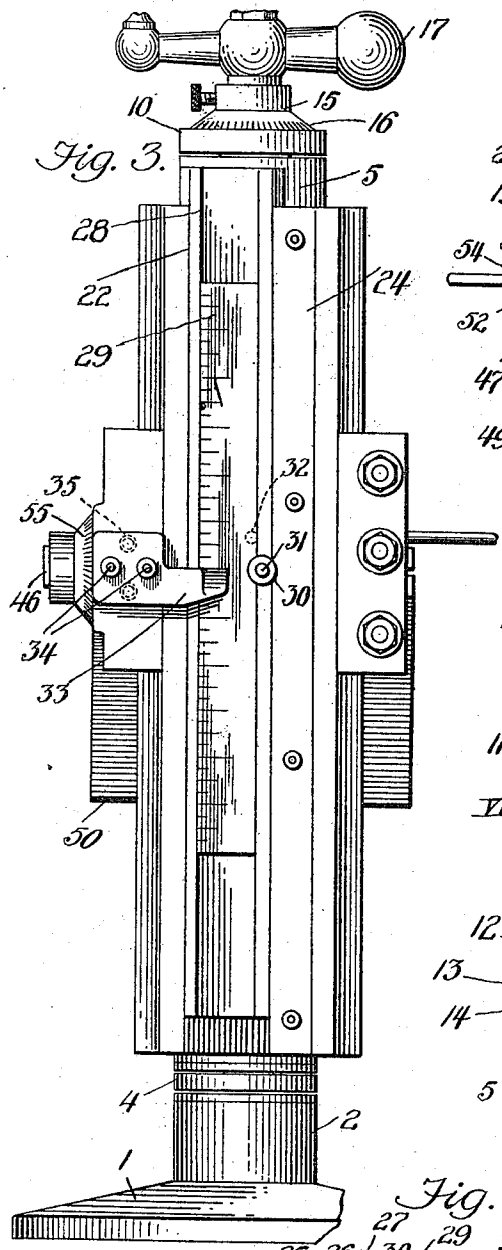


Fig. 3.

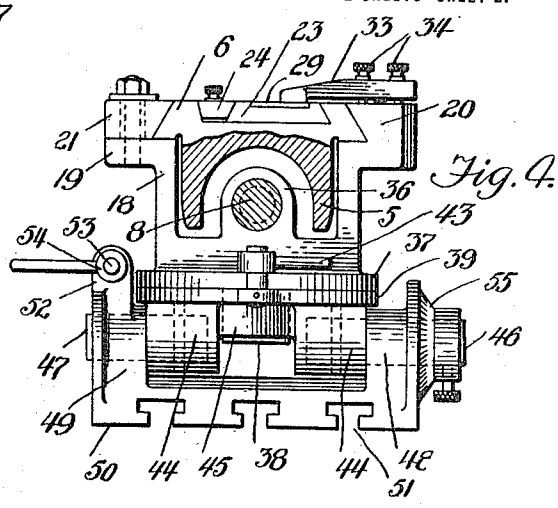


Fig. 4.

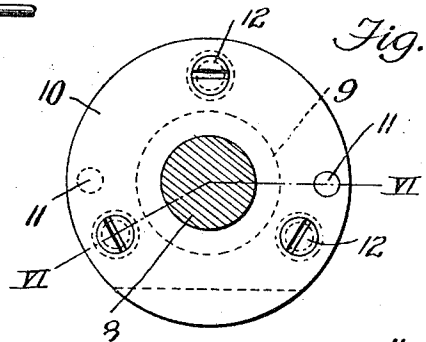


Fig. 5.

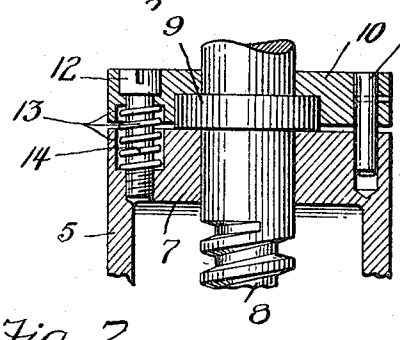


Fig. 6.

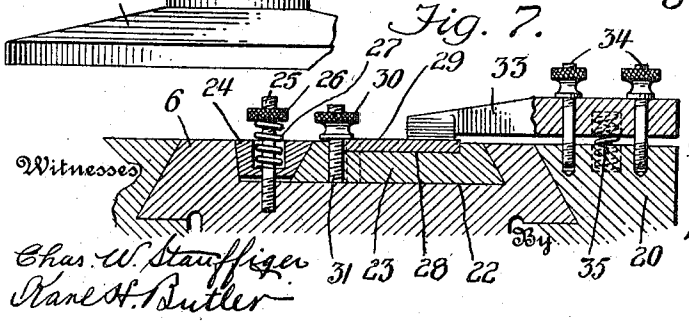


Fig. 7.

Witnesses

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UNITED STATES PATENT OFFICE.

JOSEPH F. BUHR, OF DETROIT, MICHIGAN, ASSIGNOR TO AMERICAN PATTERN WORKS, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

WORK-HOLDER.

1,209,667. Specification of Letters Patent. Patented Dec. 26, 1916.

Application filed March 12, 1914. Serial No. 824,333.

To all whom it may concern:

Be it known that I, JOSEPH F. BUHR, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Work-Holders, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a work holder, and the primary object of my invention is to provide a novel device for holding a piece of work, wherein provision is made for a plurality of adjustments that permit of a piece of work being correctly positioned and operations thereon expeditiously and economically performed.

A further object of this invention is to provide a work holder consisting of comparatively few parts that are durable, easy to assemble and adjust, and highly efficient for the purposes for which they are intended.

With the above and other objects in view the invention resides in the novel construction, combination and arrangement of parts to be hereinafter specifically described and then claimed.

Reference will now be had to the drawings, wherein—

Figure 1 is a front elevation of a work holder in accordance with this invention; Fig. 2 is a side elevation of the same; Fig. 3 is a rear elevation of the work holder; Fig. 4 is a plan of the work holder partly broken away and partly in section; Fig. 5 is a horizontal sectional view of the work holder; Fig. 6 is a vertical sectional view taken on the line VI—VI of Fig. 5, and Fig. 7 is an enlarged horizontal sectional view of the work holder illustrating a detachable scale used in connection with the same.

In the drawings, the reference numeral 1 denotes a base or foot provided with a concentric pedestal 2 having a concentric opening 3. Arranged upon the upper end of the pedestal 2 is an anti-frictional or end thrust bearing 4. Extending through the bearing 4 into the opening 3 of the pedestal 2 is the lower reduced end of a column 5 that is U-shaped in cross section and has the rear side thereof provided with a dove-tailed tongue 6 of greater width than said column, said tongue being approximately the same length as the column, for a purpose that will presently appear.

The upper and lower ends of the column 5 have heads 7 and journaled in the upper head 7 and extending longitudinally of the column is a feed screw 8, which has the lower end thereof reduced and journaled in the reduced end of the column, within the pedestal 2. The feed screw 8 has a collar 9 bearing upon the upper head 7 and inclosing said collar is a cap 10 provided with dowel pins 11 extending into the head 7. The cap 10 is retained in engagement with the head 7 by a plurality of set screws 12. The set screws 12 extend through sockets 13 formed in the confronting faces of the head 7 and the cap 10. Arranged in the sockets 13 and encircling the set screws 12 are coiled compression springs 14 adapted to compensate for any lost motion between the cap 10 and the upper end of the column.

Detachably mounted upon the feed screw 8 of the cap 10 is a collar 15 provided with graduations 16, and mounted upon the feed screw 8, above the collar 15, is a crank arm or hand wheel 17 employed for rotating the feed screw 8.

Movable longitudinally of the column 5 is a channel-shaped block 18 having lateral flanges 19 and 20 engaging the dovetailed tongue 6 of the column. The flange 19 has a detachable strip 21, which permits of the block 18 being placed in engagement with the tongue 6 to slide thereon.

The tongue 6 has the rear side thereof provided with a longitudinal groove 22 and arranged in said groove is a dovetailed scale holder 23, which is retained therein by a yieldable gib 24. The gib 24 is movable upon a plurality of screws 25 carried by the tongue 6, said screws having nuts 26 and coiled compression springs 27 for yieldably and adjustably holding the gib 24 within the groove 22 and against the scale holder 23. The gib 24 coöperates with a wall of the groove 22 in forming a dove-tailed groove to receive the dove-tailed holder, and said holder has a longitudinal groove 28 for a scale 29. The scale 29 is retained within the groove 28 by a nut 30 screwed upon a stud 31 carried by the holder 23. A set screw can be used in lieu of the stud 31 and mounted in an opening 32 provided therefor in the holder 23, when it is desired to use a scale of less width than the scale 29.

Engaging the scale 29 is a finger or indicator 33 loosely mounted upon threaded

studs or set screws 34, carried by the flange 20 of the block 18. Coiled compression springs 35 are interposed between the finger 33 and the flange 20, said springs holding the finger normally in engagement with the heads of studs or set screws 34, whereby said studs or set screws can be adjusted to hold the finger 33 in proper relation to the scale 29.

The block 18 has a rearwardly extending lug 36 in screw threaded engagement with the feed screw 8, as best shown in Fig. 4, and the front side of said block has a circular bearing plate 37 provided with a concentric stud 38. Rotatably supported by the stud 38 is a circular bearing plate 39 having the upper and lower edges thereof provided with lugs 40 for rearwardly extending screws 41. The screws 41 extend crosswise of the periphery of the bearing plate 37 and are provided with nuts 42 having handles 43, and by adjusting the nuts 42 the bearing plate 39 can be clamped against the bearing plate 37 to hold the same in an adjusted position.

The circular bearing plate 39 is provided with oppositely disposed bosses 44 connected by a circular web 45 that surrounds the stud 38. Mounted in the bosses 44 are trunnions 46 and 47 and adjustably mounted upon said trunnions are the barrels 48 and 49 of a work holding plate 50. The plate 50 is rectangular in elevation and has the ordinary and well known intersecting grooves 51 that accommodate clamping members (not shown) employed for retaining a piece of work in engagement with the plate 50. The barrel 49 of the work holding plate is split and provided with apertured lugs 52 and extending through said lugs is a bolt 53 having a nut 54, which permits of the barrel 49 being clamped upon the trunnion 47. The trunnion 46 has a detachable graduated collar 55 and it is through the medium of these last mentioned elements that the work holding plate 50 can be set at a desired inclination relatively to the bearing plate 39.

From the foregoing it will be observed that the block 18 can be vertically adjusted upon the column 5 and said column revolved upon the pedestal 2. With the bearing plate 39 swiveled upon the bearing plate 37, the work holding plate 50 can be swung to a desired position and then through the medium of the barrels 48 and 49 adjusted to a desired inclination relatively to the bearing plate 39. With these four adjustments it is possible to correctly position a piece of work whereby it can be easily operated upon without any danger of adjustable parts of the work holder becoming accidentally displaced.

While in the drawings there is illustrated a preferred embodiment of the invention, it is to be understood that the structural elements are susceptible to such changes, as in the size, shape and manner of assemblage, as fall within the scope of the appended claims.

What I claim is:

1. A work holder comprising a pedestal, a column supported thereby, a slidable block on said column, means in said column operable in the upper end thereof and adapted for moving said block longitudinally of said column, a scale in the rear face of said column and adjustable longitudinally thereof, an indicating finger on said block and engaging said scale, a revoluble vertically disposed bearing plate on the front of said block, bosses on said bearing plate, a trunnion work holding plate supported by said bosses and means carried by said work holding plate adapted to hold said plate in adjusted position relative to said bearing plate.

2. A work holder comprising a pedestal, a revoluble column supported thereby, a feed screw throughout the length of said column and operable from the upper end thereof, a slidable block on said column and having a nut engagement with said feed screw, a scale in the rear face of said column, and adjustable longitudinally thereof, an indicating finger on said block and engaging said scale, a revoluble vertically disposed bearing plate on the front of said block, means carried by said bearing plate engaging said block and adapted to lock said bearing plate relative to said block, bosses on said bearing plate, a trunnion work holding plate supported by said bosses, and means carried by said work holding plate adapted to hold said plate in adjusted position relative to said bearing plate.

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

JOSEPH F. BUHR.

Witnesses:
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G. E. MCGRANN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."