J. J. THULL.

ADJUSTABLE SET WRENCH.

APPLICATION FILED APR. 28, 1916.

1,204,208. Patented Nov. 7, 1916.

Fig. 1.

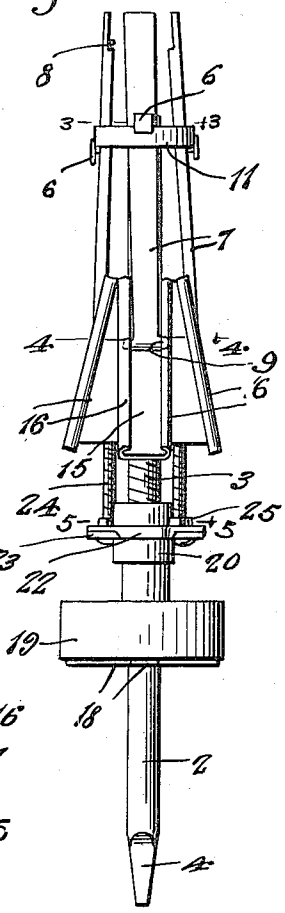


Fig. 2.

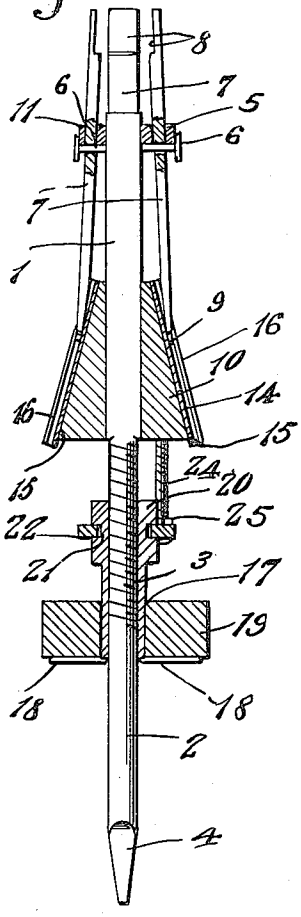


Fig. 3

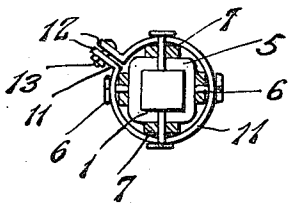
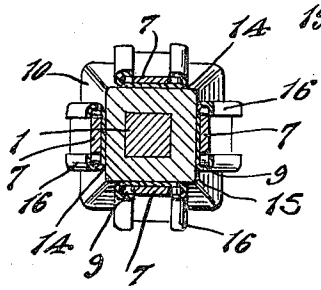


Fig. 4.



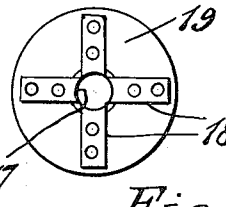
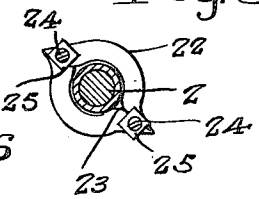


Fig. 6

Fig. 5



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ADJUSTABLE SET-WRENCH.

1,204,208. Specification of Letters Patent. Patented Nov. 7, 1916.

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To all whom it may concern:

Be it known that I, JOSEPH J. THULL, a citizen of the United States, residing at Boyd, in the county of Chippewa and State of Wisconsin, have invented certain new and useful Improvements in Adjustable Set-Wrenches; 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.

This invention relates to new and useful improvements in an adjustable set wrench and one of its objects is the provision of a device of this character, which shall be simple, durable and efficient, and which may be manufactured and sold at a comparatively low cost.

Another object of this invention is to provide a rod having jaws pivoted thereto which are slidably secured to a spreading and retracting means for moving the jaws to grip nuts of various sizes.

A further object of this invention is to provide a slidable block on the rod, having inclined jaw spreading faces, which have secured thereon guide members for slidably securing the jaws to the block, whereby upon movement of the block, the jaws will be spread and retracted.

A still further object of this invention is to provide a novel form of operating handle upon the rod and means for operatively connecting it to the block, whereby upon rotating the handle, the block will be slid upon the rod to spread and retract the jaws.

With these and other objects in view as will become more apparent as the description proceeds, the invention consists in certain novel features of construction, combination and arrangement of parts as will be hereinafter more fully described and claimed.

For a complete understanding of my invention, reference is to be had to the following description and accompanying drawing, in which:—

Figure 1 is a front elevation of an adjustable set wrench, constructed in accordance with my invention, Fig. 2 is a vertical sectional view of the same, illustrating the means of pivotally securing the gripping jaws to the rod and the means of operating the jaws, Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 1, Fig. 4 is a similar view taken on the line 4—4 of Fig. 1, illustrating the means of slidably securing the ends of the jaws to the sliding block, Fig. 5 is a transverse sectional view taken on the line 5—5 of Fig. 1, and Fig. 6 is a bottom plan view illustrating the operating means removed from the rod.

Referring in detail to the drawing, the numeral 1 indicates a squared shank having formed on one end thereof a cylindrical extension 2, which is provided with screw threads 3 thereon. The cylindrical extension 2 has its free end reduced and squared as illustrated at 4 to be received by a suitable brace for operating the device. Secured to the free end of the squared rod 1 is a square ring 5, having formed thereon pivot pins 6 which are arranged in pairs and said pairs being arranged in different planes. A plurality of gripping jaws 7 are provided with openings adjacent one of their ends to receive the pivot pins 6, which are headed after the pins have been passed through the gripping jaws 7 to prevent said gripping jaws from being accidentally displaced. The shorter ends of the gripping jaws are provided with cut away portions 8 forming gripping faces for receiving a nut. The opposite ends of the gripping jaws are provided with oppositely disposed lugs 9 for slidably securing the gripping jaws to a sliding block 10 which will be hereinafter more fully described.

A split ring 11 having its ends 12 bent at right angles and apertured to receive a bolt 13 is positioned upon the gripping jaws 7 between the pairs of pivot pins 6 as clearly illustrated in Fig. 1 to prevent lateral displacement of the gripping jaws upon the pivot pins.

The sliding block 10 is provided with a squared central bore to slidably receive the square rod 1 and is provided with inclined jaw spreading faces 14, having metal strips 15 secured thereon. The metal strips are provided with their edges bent upwardly and inwardly to form guides 16 for receiving the lugs 9 upon the ends of the gripping jaws 7, providing means for spreading and retracting the gripping jaws as the block is moved from and toward the pivot point of the gripping jaws, so that said gripping jaws may grasp nuts of various sizes.

A sleeve 17 provided with an internally screw-threaded bore is threaded to the screw-threaded extension 2 of the rod 1 and has one of its ends bifurcated and bent at right angles to form attaching arms 18, which

are adapted to be bolted or otherwise secured to a handle 19 mounted upon the sleeve 17. The opposite end of the sleeve 17 is enlarged as illustrated at 20 and provided with an annular groove 21 to rotatably receive a collar 22. A pair of oppositely disposed gears 23 are formed on the collar 22 and provided with apertures to receive screw-threaded rods 24 which are secured in the enlarged end of the sliding block 10. The screw-threaded rods 24 are provided with nuts 25 for adjustment of the sliding block in relation to the sleeve 17. By rotating the sleeve 17 by the handle 19, in one direction, the sliding block will be caused to travel upon the rod 1 in the direction of the pivot pins 6 and retract the gripping ends of the gripping jaws and upon rotating the handle 19 of the sleeve 17 in the opposite direction, the sliding block will be moved away from the pivot pins and spread the gripping jaws so that a nut of larger size may be received by the gripping faces 8 of the gripping jaws.

In operation, a brace is positioned upon the reduced squared end 4 of the extension 2 and the gripping jaws 7 are adjusted to receive the desired size of nut by rotating the handle 19 of the sleeve 17 and then the brace is rotated in a desired direction to remove the nut from the device to which it is applied. This device may also be used for picking up and holding a nut prior to turning it upon a bolt by setting or retracting the gripping jaws 7 to the size desired for holding the nut permanently and the nut then may be screwed upon a bolt or other device without the necessity of placing the fingers of the operator upon said nut.

While I have shown and described the preferred embodiment of my invention, it will be understood that minor changes in construction, combination and arrangement of parts may be made without departing from the spirit and scope of the invention as claimed.

Having thus described my invention, what I claim is:—

1. An adjustable set wrench comprising a rod, a squared ring secured to one end of said rod, two pairs of pivot pins formed on the ring, and each pair of pivot pins arranged in different planes, gripping jaws provided with openings to receive the pivot pins, and a split ring surrounding the gripping jaws and interlaced with the pairs of pivot pins, a block slidably mounted on the rod and in engagement with the gripping jaws, and means for moving the block toward and from the pivot point of the gripping jaws to retract and spread the jaws.

2. An adjustable set wrench comprising a rod, a plurality of gripping jaws pivotally secured to one end of the rod, a block slidably mounted on said rod, said block provided with inclined jaw spreading faces, metallic strips secured to the inclined jaw spreading faces of the block and provided with edges bent upwardly and inwardly to form guides, lugs formed on the ends of the gripping jaws and disposed within the guides of the metallic strips to slidably secure the gripping jaws to the block, and means for moving the block toward and from the pivot point of the gripping jaws to retract and spread the jaws.

3. An adjustable set wrench comprising a rod, means for pivotally securing a plurality of gripping jaws to one end of said rod, a screwthreaded extension formed on the other end of the rod having its free end reduced and squared to receive a brace, a block slidable on said rod, means for slidably securing the ends of the gripping jaws to the block, a sleeve threaded to the screw-threaded extension of the rod, means for connecting said sleeve to the block, and a handle secured to the sleeve for rotating said sleeve to move the block from and toward the pivot point of the gripping jaws to retract and spread the jaws.

4. An adjustable set wrench comprising a rod, a plurality of gripping jaws pivotally secured to one end of the rod, a screw-threaded extension formed on the other end of the rod, a block slidably mounted on the rod, means for slidably securing the ends of the gripping jaws to the block, a sleeve threaded to the screw-threaded extension of the rod, a handle mounted on said sleeve, said sleeve having one of its ends bifurcated to form attaching arms secured to the handle, and means for securing the sleeve to the block.

5. An adjustable set wrench comprising a rod, a plurality of gripping jaws pivotally secured to one end of the rod, a screw-threaded extension formed on the other end of the rod, a block slidably mounted on said rod, means for slidably securing the ends of the gripping jaws to the block, a sleeve threaded to the screw-threaded extension of the rod, a handle secured to said sleeve, an enlarged portion formed on the sleeve and provided with an annular groove, a collar rotatably mounted in said groove, ears formed on said collar, and rods secured to the block and adjustably secured to the ears for connecting the sleeve to the block.

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

JOSEPH J. THULL.

Witnesses:
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FRANK X. KLEINER.

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