S. KNEZEVICH.

RATCHET OPERATING TOOL.

APPLICATION FILED AUG. 16, 1921.

1,403,964.

Patented Jan. 17, 1922.

2 SHEETS—SHEET 1.

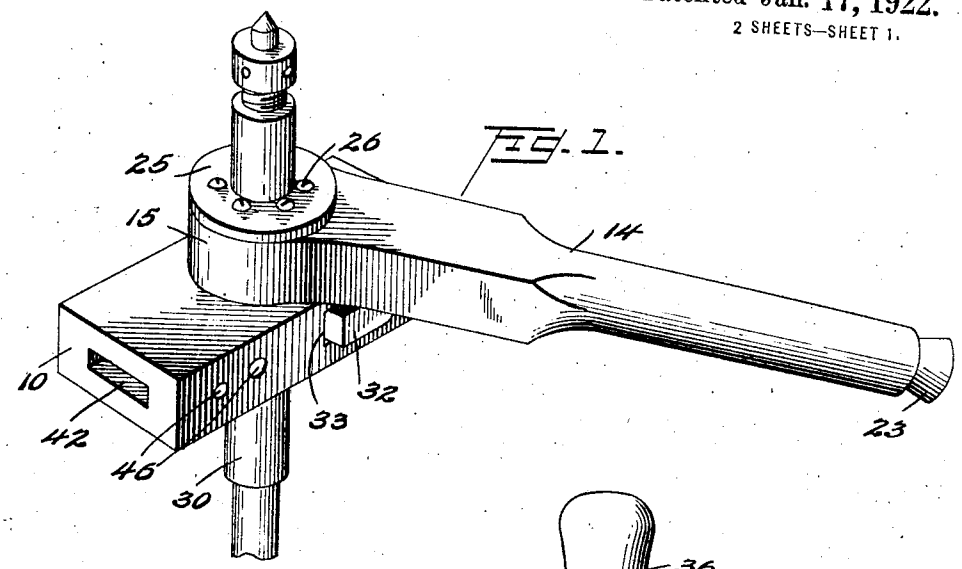


FIG. 1.

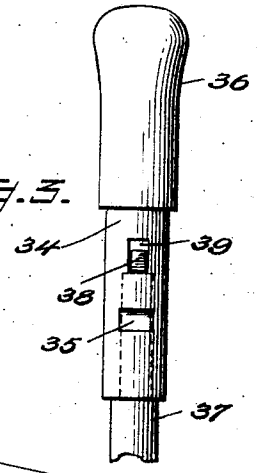


FIG. 3.

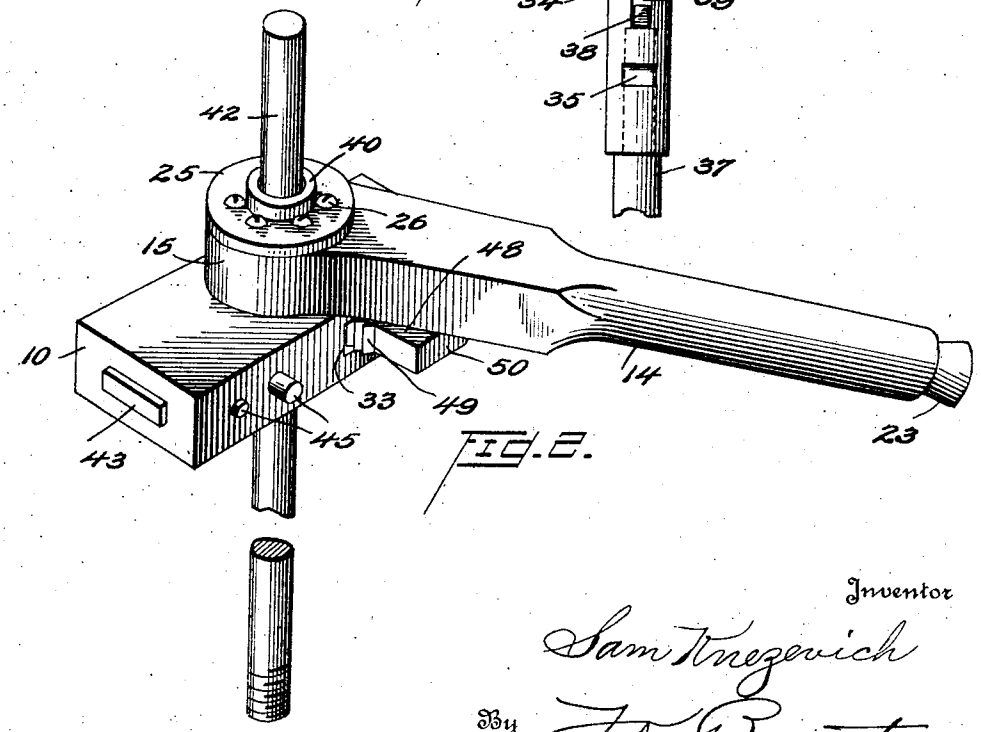


FIG. 2.

Inventor

Sam Knezevich

By T. D. Bryant.

Attorney

S. KNEZEVICH.

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2 SHEETS—SHEET 2.

FIG. 5.

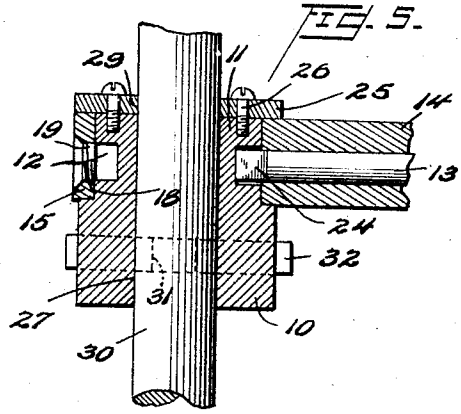


FIG. 6.

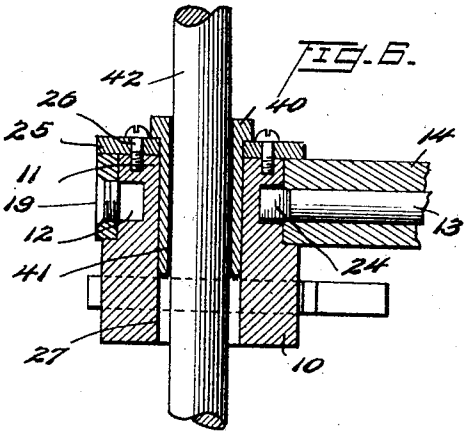


FIG. 4.

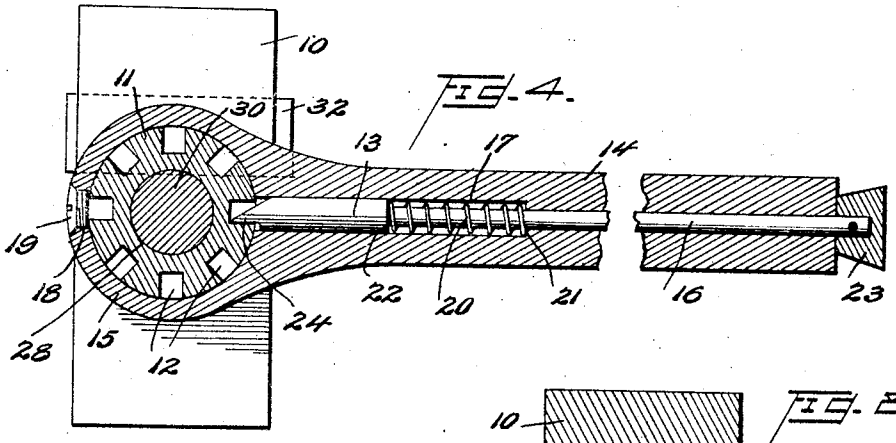


FIG. 7.

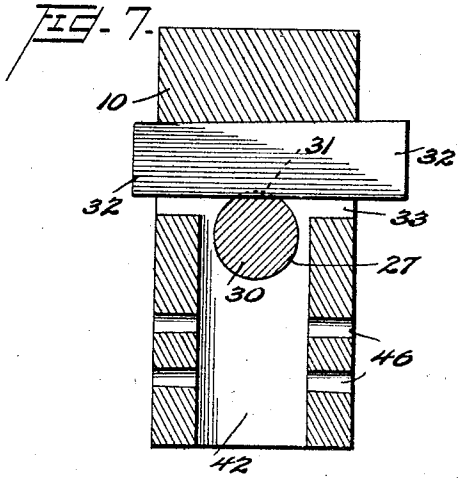
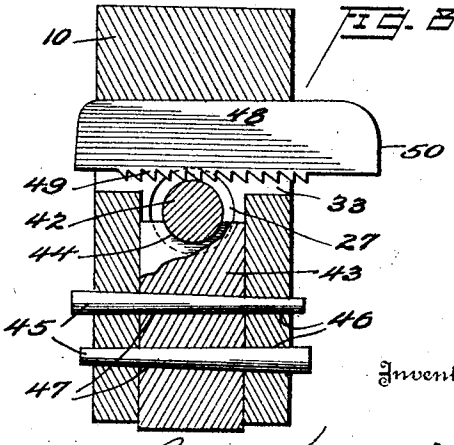


FIG. 8.



Inventor

Sam Knezevich

By F. K. Bryant.

Attorney

UNITED STATES PATENT OFFICE.

SAM KNEZEVICH, OF CLEVELAND, OHIO.

RATCHET OPERATING TOOL.

1,403,964. Specification of Letters Patent. Patented Jan. 17, 1922.

Application filed August 16, 1921. Serial No. 492,774.

To all whom it may concern:

Be it known that I, SAM KNEZEVICH, a citizen of Jugo-Slavia, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Ratchet Operating Tools, of which the following is a specification.

The primary object of the invention is the provision of a ratchet operating device for multiple tools, whereby the tools are firmly held and readily operated in an expeditious manner.

A further object of the invention is the provision of a ratchet operated tool holder capable of receiving different tools in locked position whereby the tools are operated in either direction of rotation.

My invention also contemplates the employment of a ratchet operated tool holder having a removable handle member for receiving a tool permitting a guiding of the tool during the ratchet rotation thereof by means of the device.

With these general objects in view the invention consists of the novel combination and arrangement of parts hereinafter more fully described, shown in the accompanying drawings and set forth in the claims.

In the drawings forming a part of this application and in which like reference characters designate corresponding parts throughout the several views,

Figure 1 is a perspective view of my invention with a drill keyed to the tool holder in position for operation,

Figure 2 is a similar view of my invention locked upon a bar for rotating the bar in either direction,

Figure 3 is a side elevation of a tool holding handle adapted to be readily keyed into the holder of my device in place of the drill illustrated in Fig. 1,

Figure 4 is a horizontal longitudinal sectional view taken through the device assembled as in Fig. 1,

Figure 5 is a vertical sectional view through the head portion of Fig. 4,

Figure 6 is a view similar to Fig. 5 taken through the arrangement of the device shown in Fig. 2,

Figure 7 is a horizontal sectional view through the holding block when the device is employed as shown in Fig. 1, and

Figure 8 is a similar view with the invention employed as shown in Fig. 2.

Referring more in detail to the drawings, my invention broadly consists of a rectangular block 10 having a hub 11 provided with peripheral sockets 12 adapted for the ratchet reception of a pawl 13, assembled in the handle 14 of a surrounding head or strap 15 journaled for rotation upon the hub 11. The pawl 13 is cylindrical in form and with its reduced stem 16 is adapted for positioning slidably within the bore 17 of the handle 14 through an aperture 18 in the diametrically opposite side of the head 15 normally closed by the screw 19.

A helical spring 20 encircles the reduced stem 16 of the pawl 13 bearing at one end upon a shoulder 21 in the bore 17 and at the other end upon a shoulder 22 at the outer end of the pawl 13 at its point of reduction into the stem 16. A knob 23 is secured to the free end of the pawl stem 16 outwardly of the free end of the handle 14 and it will be apparent that while the spring 20 normally holds the beveled end 24 of the pawl 13 into one of the sockets 12, the knob 23 may be grasped for manually retracting the pawl 13 and compressing the spring 20 and by rotary movement reversing the position of the pawl 13 with respect to the sockets 12.

A circular cap 25 is secured upon the outer free end of the hub 11 by screws 26 overlying the strap 15 whereby the device is retained assembled and the hub 11 and block 12 are easily rotated manually in either direction by means of the ratchet mechanism heretofore described, the device being actuated by grasping the handle 14.

The block 10 has a tool receiving opening 27 alined with an opening 28 of corresponding dimensions in the hub 11, while a similar opening 29 is provided in a cap 25 for positioning a tool such as a drill 30 through said cap hub and block as best illustrated in Figs. 1, 4, 5 and 7 of the drawings. The drill 30 or similar tool to be operated by the device is preferably provided with a side slot 31 adapted for receiving a locking key 32 positioned through a transverse slot 33 in the block 10 within the periphery of the block opening 27. The drill 30 is in this manner firmly held in the block 10 and hub 11 for turning therewith during the operation of the ratchet mechanism. The key 32 projecting from either side of the block 10 is readily driven out and removed upon the completion of the work. Such a member as

a tool socket 34 may be substituted for the drill 30 having a keyway 35 in the side thereof as illustrated in Fig. 3 of the drawing, a handle 36 upon the upper end of said tool socket serving as a means to be grasped by the workmen during the operation of the device. A tool 37 is readily positioned in the tool socket 34 with the upper end or tang 38 of the tool entering a slot 39 for convenience is loosening or driving the tool 37 out of the socket 34 when the occasion requires. It will be evident that the socket 34 with its tool 37 is readily locked in the device and removed therefrom after the manner of the drill 30 heretofore described.

My device is also serviceable for operating upon cylindrical tools, bars and pipes varying in diameter from that of the receiving openings 27, 28, 29 and this is accomplished as illustrated in Figs. 2, 6 and 8 of the drawings. Bushings such as 40 are provided for seating within the openings 29, 28 and 27 resting upon the cap 25 and having suitable diameters of bore 41 for accommodating a bar 42 or other cylindrical member desired to be operated upon by the device. The bushing 40 terminates above the plane of the transverse slot 33 and a longitudinal slot 42 is provided in the block 10 perpendicular to the slot 33, adapted for receiving a filler plate 43 having an arcuate notch 44 in its inner end substantially conforming to the diameter of the bore 41 and the rod 42 to be held in the device. Tapered pins 45 are transversely positioned through perforations 46 in the block 10 for traversing the slot 42 and passing through transverse openings 47 in the plate 43 for locking the plate in its position in the block as illustrated in Fig. 8. The device is then placed upon the rod 42 which extends through the bushing 40 in contact with the notch 44 and a toothed cotter 48 is then inserted through the slot 33 with the teeth 49 of the cotter engaging the adjacent side of the rod 42 thereby locking the rod in the device for turning the rod by means of the handle 14. The cotter 48 is tapered with the teeth 49 projecting in the direction of the larger end 50 of said cotter whereby the rotation of the block 10 in the direction indicated by the arrow in Fig. 8 of the drawings more firmly locks the bar 42 against the tapered and toothed cotter 48, and the bar is turned with the device. To disengage the bar 42 from the device, the pawl 13 is reversed and the block 10 rotated in a reverse direction which forces the cotter 48 out of the slot 33 in the direction of the larger end 50 of the cotter as will be seen from Fig. 8 of the drawings.

The complete operation of the invention will be fully understood from this detail description thereof, the drill such as 30 or tool socket 34 being readily turned by the ratchet movement in either direction desired while the attachments consisting of the sleeve 40, plate 43, pins 45 and cotter 48 permit the use of the tool for turning rods such as 42 of smaller diameters.

While the form of the invention herein set forth and described is believed preferable it will be understood that changes may be made therein without departing from the spirit and scope of the invention.

What is claimed as new is:—

1. A device of the class described comprising a rectangular block, a hub on the block with peripheral sockets, a reversible ratchet handle journaled upon the hub overlying the said sockets, the said hub and block having a tool receiving opening therethrough, the block having a transverse slot intersecting the tool receiving opening, a tapered member removably positioned through said slot adapted for locking engagement with a member when positioned through the opening, the block having a longitudinal slot of greater width than the opening perpendicular to the transverse slot and being formed upon the opposite side of the tool receiving opening from the slot for the tapered member, a filler plate slidably fitted within the longitudinal slot having an arcuate notch in its inner end adapted to conform to the periphery of the tool employed, and locking means for said plate.

2. A device of the class described comprising a rectangular block, a hub on the block with peripheral sockets, a reversible ratchet handle journaled upon the hub overlying the said sockets, the said hub and block having a tool receiving opening therethrough, the block having a transverse slot intersecting the tool receiving opening, a tapered member removably positioned through said slot adapted for locking engagement with a member when positioned through the opening, the block having a longitudinal slot of greater width than the opening perpendicular to the transverse slot and being formed upon the opposite side of the tool receiving opening from the slot for the tapered member, a filler plate slidably fitted within the longitudinal slot having an arcuate notch in its inner end adapted to conform to the periphery of the tool employed, locking means for said plate, and a removable bushing within the opening of the hub conforming in internal diameter to that of the said arcuate notch.

3. An operating tool comprising a rectangular block having intersecting longitudinal and transverse slots and also having a tool receiving opening perpendicularly intersecting both of said slots, ratchet operating means for the block, and detachable means positioned within the said longitudinal and transverse slots, the former being anchored to project within the tool receiving opening and the latter wedging the tool

against the former adapted for engaging a tool when positioned for use through said opening of the block.

4. An operating tool comprising a rectangular block having intersecting longitudinal and transverse slots and also having a tool receiving opening perpendicularly intersecting both of said slots, ratchet operating means for the block, detachable means adapted for engaging a tool when positioned for use through said opening of the block, a filler plate removably positioned in the longitudinal slot having an arcuate inner end of lesser dimensions than said opening adapted for engaging a tool when positioned for operation through the block, means for rigidly securing the filler plate within the longitudinal slot, and a bushing within the opening spaced from said plate when the device is assembled having its inner dimension the same as the radius of said notch.

In testimony whereof I affix my signature.

SAM KNEZEVICH.