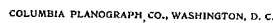


RATCHET TOOL.

Patented Jan. 16, 1912.

2 SHEETS—SHEET 1.



W. A. PLATH & H. L. RISEDORF.
 RATCHET TOOL.

1,015,067.

APPLICATION FILED MAR. 15, 1911.

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2 SHEETS—SHEET 2.

Fig. 8.

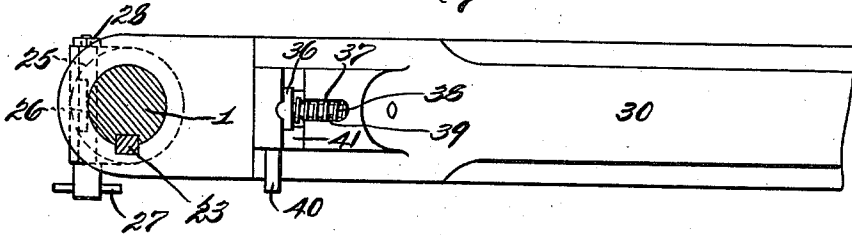


Fig. 9.

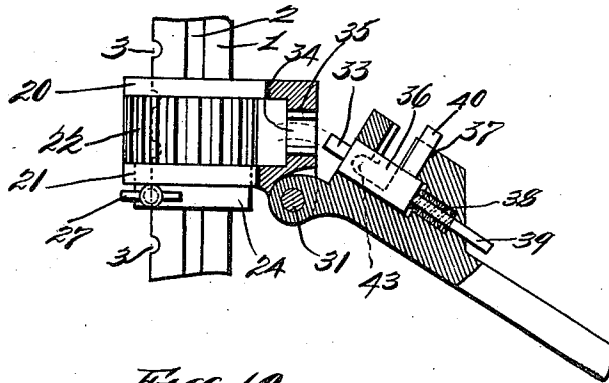


Fig. 10.

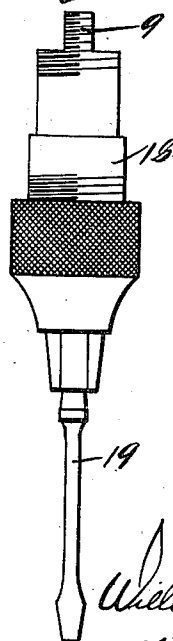
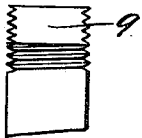


Fig. 11.



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UNITED STATES PATENT OFFICE.

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RATCHET-TOOL.

1,015,067.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, WILLIAM A. PLATH and HARRY L. RISEDORF, citizens of the United States, residing at New York city, in the county of Kings and State of New York, have invented certain new and useful Improvements in Ratchet-Tools, of which the following is a clear, full, and exact description.

The object of this invention is to provide an improved tool, such as a wrench or the like, so that it may be provided with a ratchet means for rotating the same.

The object of the invention is to so improve the construction of such a tool as to cheapen and simplify the same, increasing its efficiency and permitting its ready storage in a tool box or kit.

In carrying out our invention, in order to permit the wrench to take up as little space as possible, we break at a joint the ratchet lever to permit the same to occupy a position at right angles to the shank of the tool, or to lie parallel thereto. We also make use of the ratchet pawl for a double purpose; not only to aid in the rotation of the ratchet wheel and shank, but to cause a locking of the broken ratchet handle when in its operative position. Furthermore we provide means for locking or latching the ratchet wheel and lever in various positions longitudinally to the shank of the tool. Furthermore we provide a detachable coupling at the end of the shank to receive the tool, be it a wrench, chuck or other device.

The scope of our invention will be pointed out in the claims.

In the accompanying drawings: Figure 1 is a plan of our improved wrench with the ratchet handle partly broken away. Fig. 2 is a view at right angles to Fig. 1. Fig. 3 is a section taken on line 3—3 Fig. 1. Fig. 4 is a section taken on line 4—4, Fig. 1. Fig. 5 is a detail showing the locking joint and locking collar, the collar being in cross section. Fig. 6 is a cross section on line 6—6, Fig. 1, showing the latch for longitudinal adjustment of the ratchet lever. Fig. 7 is a perspective view of the latching bolt of Fig. 6. Fig. 8 is a section taken on line 8—8, Fig. 1. Fig. 9 is a plan view of part of the shank, the ratchet wheel and ratchet lever, the ratchet lever being shown in section on line 9—9 Fig. 3. Fig. 10 is an elevation of a chuck adapted to carry a screw driver or other tool and adapted for in-

sertion in the shank. Fig. 11 is a view of the upper part of the chuck of Fig. 10 at right angles thereto.

As shown in the drawings, our improved implement consists of a shank 1 provided with a longitudinal keyway 2, and a series of notches 3 on its outer surface. At one end of the shank 1 a handle 4 is mounted so as to be rotatable on the end of the shank. It may be secured in position by a special screw 5 engaging a groove 6 in the shank. There may be a number of these grooves 6 (we have shown two), any one of which may be engaged by the said screw 5 to elongate the wrench. At the other end of the shank 1 there is formed a screw thread 7 and diametrically across the end of the shank there is formed a slot 8. The slot 8 is adapted to accommodate an upstanding tongue 9 on the shank of the implement or tool. The shank of the implement or tool is threaded similarly to the lower end of the shank 1. A collar 10 threaded on to the shank may secure the two shanks together when their threads are in alinement, which is made possible by inserting the tongue of one into the groove or slot of the other. In Figs. 1 and 2, we have shown the tool as a wrench head 11 provided preferably with one stationary jaw 12 and one movable jaw 13, the movable jaw having a rack 14 formed on a right angle extension of the jaw 13, and guided in slots in the wrench head 11. A threaded adjusting barrel 15 is mounted in the recess 16 in the wrench head, wherein it is secured by a screw 17 shown in dotted lines in Fig. 1. The threads of the barrel 15 engage the threads of the rack 14 to move the movable jaw toward or away from the stationary jaw. As shown in Figs. 10 and 11, instead of the wrench head 11 we have shown an ordinary chuck 18 having the tongue 9 at its top and provided with the threads in similar manner to the wrench head of Fig. 1. A screw driver 19 is shown as engaged by the chuck, but any rotary tool may of course be inserted.

Sliding on the shank 1, is one end of a bifurcated lever, its two legs straddling a ratchet wheel 22. The teeth of the ratchet wheel 22 preferably have radial sides for reversal of operation. A key 23 located in the longitudinal keyway 2 of the shank engages the ratchet wheel, as well as an extending collar 24 secured to the ratchet

wheel. The collar 24 has an opening through the same for a rotatable rod 25, which rod is provided with a cut-out recess 26 in its mid portion, a cross piece 27 at one end and a retaining nut 28 at the other end, so that upon turning the cross piece 27 the recess 26 may face the shaft and allow the ratchet mechanism to be slid up and down, but upon turning the cross piece 27 so that the center of the metal engages the recesses 3, the ratchet mechanism will be locked in its position.

The ratchet lever 30 is provided with a hinge 31 securing it to its bifurcated member 32. The two legs of the bifurcated member straddle the ratchet wheel 22, and are free to turn with relation to the ratchet wheel and its attached collar 24. A pawl 33 having an elongated face of narrow width is provided to slide in guides in the bifurcated member, and also in the handle member. The guide in the bifurcated member consists of a rectangular aperture 34 provided with oppositely curved center portions 35, in which the shank 36 of the pawl may engage. The elongated slot 34—34 enables the withdrawal of the wide pawl from the bifurcated portion of the lever into the handle portion of the lever. To permit of such withdrawal, an open slot 37 is provided in the handle of such a depth that the pawl, when retracted into the position of Fig. 9, will rest with its guide pin 36 entirely free of the bifurcated handle, but at all other times the guide pin 36 will lock the bifurcated part and the handle part together at right angles with the shanks. A spring 38 on a reduced portion 39 of the pawl serves to always extend the pawl outwardly as in the position of Fig. 3. A hand pin 40 for the actuation of the pawl is provided. A semi-circular groove 41 is provided in the handle having notches 42 at each termination of the semi-circle to accommodate the pin 40. By springing the pin 40 in the position of Fig. 3, 180 degrees into the opposite notch 43, the pawl will be withdrawn from the ratchet tooth and caused to face the tooth in the opposite direction to render the same reversible.

It will be seen that the pawl, when retracted into the position of Fig. 9, will per-

mit of the folding of the hinged handle and allow the same to lie parallel with the shank of the tool, thus taking up little space, and making the device more ready for handling when not in use.

We claim as our invention:

1. In an implement of the class described, a shank, a ratchet wheel and ratchet lever mounted on said shank, said ratchet lever extending at right angles to the shank, a hinge between the ratchet lever and its connection with the ratchet wheel, whereby the lever may occupy a position at right or other angles to the shank and means for disengaging the ratchet tool from the wheel by the mere folding of the lever into position parallel with the shank.

2. In an implement of the class described, a shank, a ratchet wheel and ratchet lever mounted on said shank, said ratchet lever extending at right angles to the shank, a hinge between the ratchet lever and its connection with the ratchet wheel, a pawl for the ratchet carried by the ratchet lever, and guides for the pawl in both parts of the lever, whereby the pawl will lock the lever in position at right angles to the shank.

3. An implement of the class described, comprising a shank, a ratchet wheel thereon, a two-part hinged lever rotatable on the shank, a latch adapted to latch the two-part lever at right angles to the shank, and a pawl carried by the lever adapted to engage the ratchet wheel.

4. In an implement of the class described, a shank, a ratchet wheel keyed thereto, a two-part hinged lever rotatable on the shank, a pawl, a shank therefor, and a spring therefor, the spring and shank of said pawl adapted to occupy a position entirely within one part of said lever, the shank of said pawl adapted to bridge both portions of said lever to latch the same in place.

Signed at New York city, New York, this fourteenth day of March in the year one thousand nine hundred and eleven.

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Witnesses:

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