S. A. BOOSINGER.

COMBINATION RATCHET WRENCH.

APPLICATION FILED JUNE 1, 1916.

1,194,471. Patented Aug. 15, 1916.

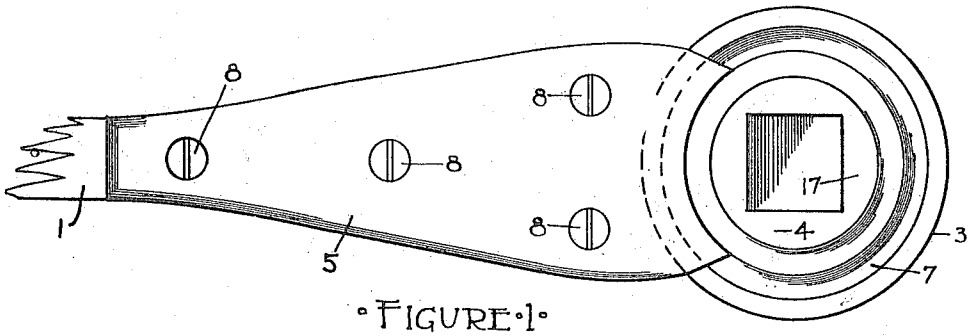


FIGURE 1.

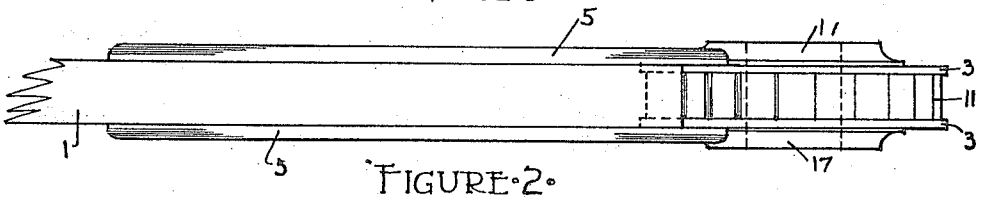


FIGURE 2.

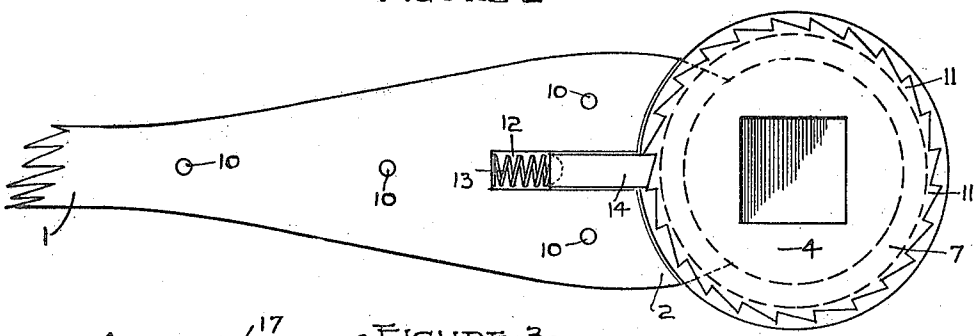


FIGURE 3.

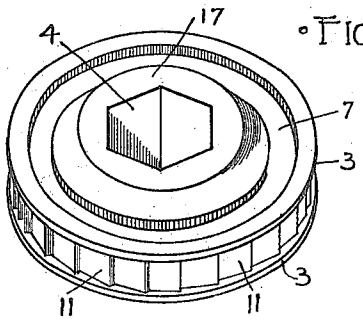


FIGURE 4.


FIG. 5.

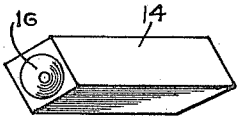


FIG. 6.

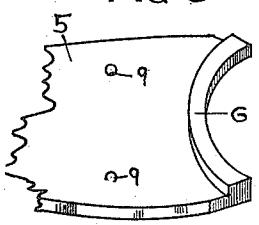


FIG. 7.

Inventor

S. A. Boosinger

Witnesses

J. B. Harpman

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# UNITED STATES PATENT OFFICE.

SAMUEL A. BOOSINGER, OF YOUNGSTOWN, OHIO.

## COMBINATION RATCHET-WRENCH.

1,194,471. Specification of Letters Patent. Patented Aug. 15, 1916.

Application filed June 1, 1916. Serial No. 101,042.

*To all whom it may concern:*

Be it known that I, SAMUEL A. BOOSINGER, a citizen of the United States, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Combination Ratchet-Wrenches, of which the following is a specification.

The present invention has for its object to provide a ratchet wrench of simple construction, designed and adapted for the screwing on and unscrewing of nuts and burs.

A further object of the invention is to provide a combination wrench whereby a rotary cylindrical body portion having a square central opening extending through it, designed to receive a nut or bur, this rotary cylindrical body being interchangeable with a body formed the same with the exception of having a hexagonal center opening to engage nuts and burs of that particular type.

The further object of this invention consists in the construction, arrangement, and combination of the various parts whereby the objects contemplated are attained as hereinafter more fully set forth, pointed out in the claims and illustrated in the accompanying drawings in which—

Figure 1 is a plan or top view of the wrench. Fig. 2 is a side view of the wrench. Fig. 3 is a detail view of the same. Fig. 4 is a detail view showing the interchangeable rotary cylindrical body of wrench. Fig. 5 is a detail view. Fig. 6 is a detail view. Fig. 7 is an underplan view of supporting plate.

Similar reference characters are employed to designate corresponding parts throughout the views.

Referring to the drawings, 1 designates the handle of the wrench. It will be seen that the handle 1 is formed with a concaved surface at the end 2 of the handle which provides a support for the outer circular rims 3 formed on the cylindrical body portion 4. See Figs. 3 and 4.

It will be seen by referring to Figs. 4 and 7 that when the supporting plates 5 are placed in position on the sides of the handle 1, the inturned curved flange 6 will fit into the circular groove 7 and engage the walls of the same. In operating the wrench it will be seen that the inturned curved flange 6 will slide in the groove 7 of the cylindrical body portion 4 when the handle 1 is oscillated. These supporting plates 5 are firmly held in position by bolts 8 which pass through holes 9 of the supporting plate and the holes 10 of the handle 1. See Figs. 3 and 7.

By referring to Figs. 3 and 7 it will clearly be seen that the cylindrical body portion 4 of the wrench is provided upon its circumference within the rims 3 with teeth.

It will be seen by referring to Fig. 3 that the handle portion 2 is provided with a slot 12 centrally located in this portion of the handle. Within this slot is a spring 13 which engages with a pawl 14, this pawl in turn engaging with teeth 11.

By referring to Figs. 5 and 6 it will be seen that the spring 13 has been formed at one end with a cone-shaped portion 15, which engages in a cup shaped indentation 16 in the end of the pawl 14, thereby reducing the friction of the surfaces of the pawl by keeping the pawl centrally located in the channel formed by the walls of the slot 12 and the plates 5.

It will be seen by referring to Fig. 2 that there is an extended face 17 of the cylindrical body portion 4. By means of this extended face portion 17 the handle 1 may be operated when turning a bur off or on, allowing space for the operator to move the handle. In order to substitute one cylindrical body portion provided with a square or a hexagonal center opening it is merely necessary to loosen the supporting plates 5 by removing the bolts 8 and make the desired change.

It will be seen by referring to Fig. 3 that the wrench is to be inverted when it is desired to change the direction of the cylindrical body portion 4 in removing or putting on burs. Thus the movement is reversed by the operator simply turning the wrench so that the opposite side is placed upon the nut, whereupon the nut may be turned in the opposite direction by oscillating movement imparted to the end of the handle 1.

What I claim is:

1. In a tool of the class described comprising a handle, a concave surface at base of same, a ratchet wheel and supporting plates, engaging rims on the circumference of the ratchet wheel, a slot, a spiral spring provided at one end with a cone-shaped portion, a pawl with a cup shaped indentation engaging the spring and ratchet teeth located

within extended rims of the ratchet wheel, said ratchet wheel provided with grooves near the edge in the faces of said wheel, an inturned circular flange formed in the supporting plates to engage in said grooves of the ratchet wheel provided with an opening shaped to engage a bur or nut.

2. In a tool of the class described, a cylindrical body portion, provided at its center with an opening to engage a nut or bur, a handle, a concave portion of the base of the handle engaging outer rims on said cylinder, and teeth formed within said outer rims, supporting plates provided with an inturned curved flange to engage and slide in a groove near the edge of the surface of said cylindrical portion, a pawl to engage the teeth of cylindrical portion of wrench, a spiral spring provided with a cone shaped head to engage into a cup shaped indentation of the end of pawl, substantially as described for the purpose set forth.

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

SAMUEL A. BQOSINGER.

Witnesses:

A. E. McCoy,

Wm. C. Fisher.