

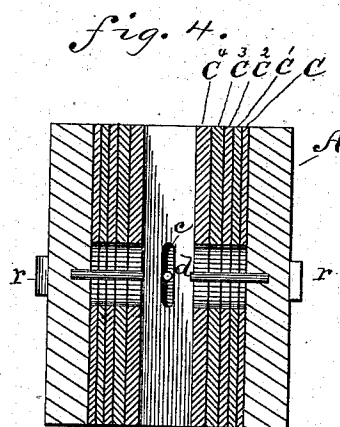
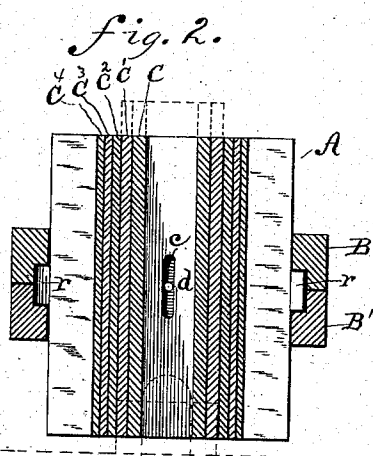
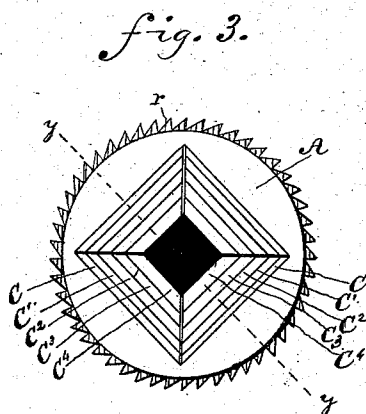
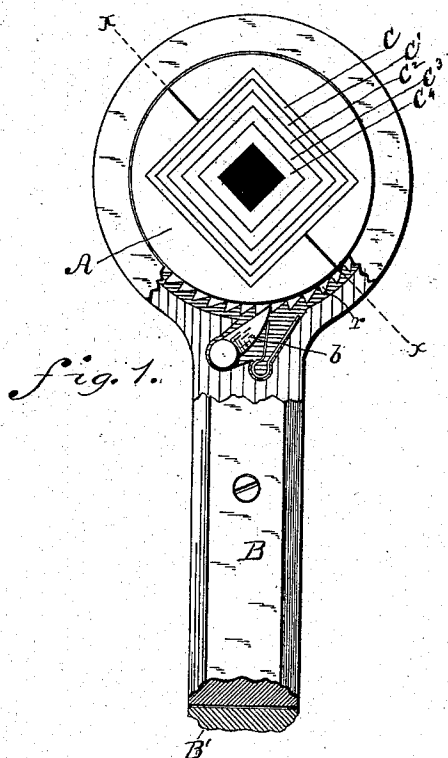
(No Model.)

C. WECHSLER.

RATCHET WRENCH.

No. 293,128.

Patented Feb. 5, 1884.



WITNESSES:
N. B. Brown
Edw. W. Byrn

INVENTOR:
Chas. Wechsler
 BY *Munn & Co*
 ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES WECHSLER, OF MINNEAPOLIS, MINNESOTA.

RATCHET-WRENCH.

SPECIFICATION forming part of Letters Patent No. 293,128, dated February 5, 1884.

Application filed December 13, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES WECHSLER, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Ratchet-Wrenches, of which the following is a specification.

Figure 1 is a side view of my improved wrench, partly in section. Fig. 2 is a section through the line *xx* of Fig. 1. Fig. 3 is a side view of a wrench-head, showing a modification of the invention. Fig. 4 is a cross-section through the line *yy* of Fig. 3.

My invention relates to that form of wrench in which a head is provided with sliding plates, which, by being forced back when applied to a nut, adapt the plates not forced back to fit closely to the nut to get a turning-hold thereon, thus adapting the wrench to various sizes of nuts.

The invention also relates to that form of wrench in which the head is surrounded by ratchet-teeth, and is combined with a swiveled handle bearing a pawl, which, by engaging with the ratchet-teeth of the head, gives to it an intermittent motion in the same direction, when the handle is oscillated.

My invention consists in providing the wrench-head with a system of concentrically-arranged angular sleeves or slides, of constantly-decreasing size to the center, which sleeves or slides extend all the way through the head to form a right-hand wrench on one side, and a left-hand one on the other, the said sleeves or slides being provided with rectilinear slots, that are guided upon pins projecting outwardly from the head, to permit said sleeves or slides to telescope freely into each other, and then combining said head, as thus constructed, with a ratchet-handle, as hereinafter more fully described.

In the drawings, A represents the wrench-head, which is of a cylindrical shape, and is provided at its middle with a ring of ratchet-teeth, *r*. B B' is the handle, which is made in two longitudinal halves, which are formed at one end with rings that embrace the cylindrical head on opposite sides of the ring of ratchet-teeth. These two halves of the handle are fastened together by screws, and between them, in a chamber near the wrench-head, is secured

a spring and pawl, *b*, that engages with the ring of ratchet-teeth to connect the handle rigidly to the head when turned in one direction, and to allow it independent movement when turned in the other direction.

As so far described, the wrench presents no substantial novelty. In constructing the wrench-head, however, it is made in the shape of a cylinder, of considerable length, and has a square or other angular-shaped opening entirely through the same. In this opening there are arranged a series of concentrically-arranged square sleeves, C C' C² C³ C⁴, as in Figs. 1 and 2, or plates, C C' C², &c., as shown in Figs. 3 and 4, which extend the full length of the head, and form angular bushings. In either case the sleeves or plates have longitudinal slots *c* in them, through which there project pins *d*, that extend inwardly from the wrench-head. These pins and slots allow the sleeves or plates to slide or telescope freely into each other, but prevent them from falling out; and when the plates are used, as in Fig. 3, their edges are beveled, so that they will not fall inwardly away from the pins. The inner sliding sleeve or plates are made much heavier and stronger than the outer ones, in order to withstand the greater leverage that the small nuts exert toward straining the said sleeve or plates, which smaller nuts may be received wholly within the smaller sleeve or plates C⁴, or be caught between the outside of the sleeve or plate C⁴ and one of the other plates, or the inside of the head.

Now, in making use of the wrench the head is applied to the nut, and all of the plates or sleeves that are smaller than the nut are forced inwardly by the same, as shown in dotted lines, Fig. 2, while the sleeves or plates that are larger than the nut fit around the angular edges of the nut, and secure a purchase upon the same for turning it when the handle is oscillated. With respect to the two forms shown by me, I prefer the separate sliding plates, for the reason that it gives a greater number of adjustments for different sizes of nuts, and the latter need not be exactly central with respect to the head.

Among the advantages of my invention I may mention the fact that it makes available the ratchet principle in either right or left

hand nuts, and permits the wrench to be applied to nuts without respect to the length of the protruding threaded end of the bolt.

5 In constructing the head, it may be made either in one solid piece, as in Fig. 3; or it may be made in two longitudinal sections, as in Fig. 1; and the opening through the same may be of any other angular shape than square.

10 Having thus described my invention, what I claim as new is—

1. The wrench-head made in cylindrical form, with a ring of ratchet-teeth around it, and an angular hole through it, with guide-pins projecting inwardly, in combination with
15 a series of slotted angular bushings arranged concentrically in said hole or opening, and extending the full length of the head, and a handle swiveled about the middle of the wrench-head, and provided with a pawl to
20 engage the ratchet-teeth, substantially as and for the purpose described.

2. The wrench-head made in cylindrical form, with a ring of ratchet-teeth around it, and an angular hole through it, with guide-pins projecting inwardly, in combination with
25 a series of flat plates with beveled edges arranged concentrically about the central opening, and of the same length as the head, and slotted longitudinally, to move freely in the head on the pins, a handle swiveled about the
30 middle of the wrench-head, and a pawl contained in the latter, and adapted to engage the ratchet-teeth, substantially as and for the purpose described.

3. A wrench-head having a series of telescoping or sliding angular bushings, of increased thickness toward the center of the head, as and for the purpose described.

CHARLES WECHSLER.

Witnesses:

JOSEF ZUCKERMAN,
J. F. COLLOM.