July 23, 1929. H. C. KROGEL 1,721,860

WRENCH

Filed July 29, 1927

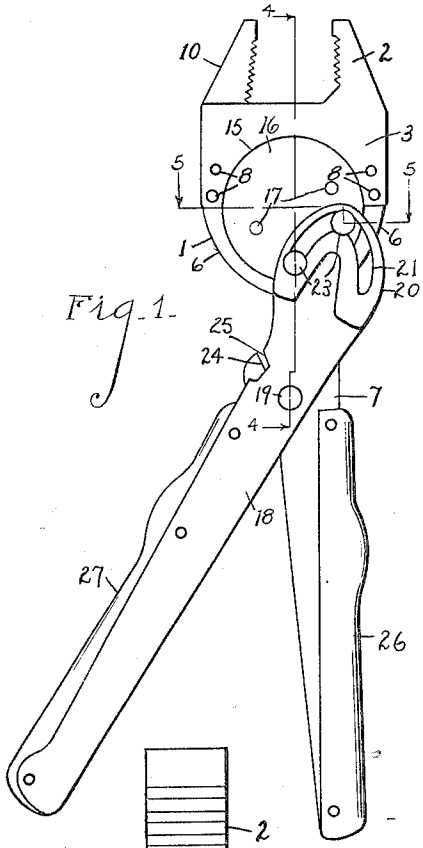


Fig. 1.

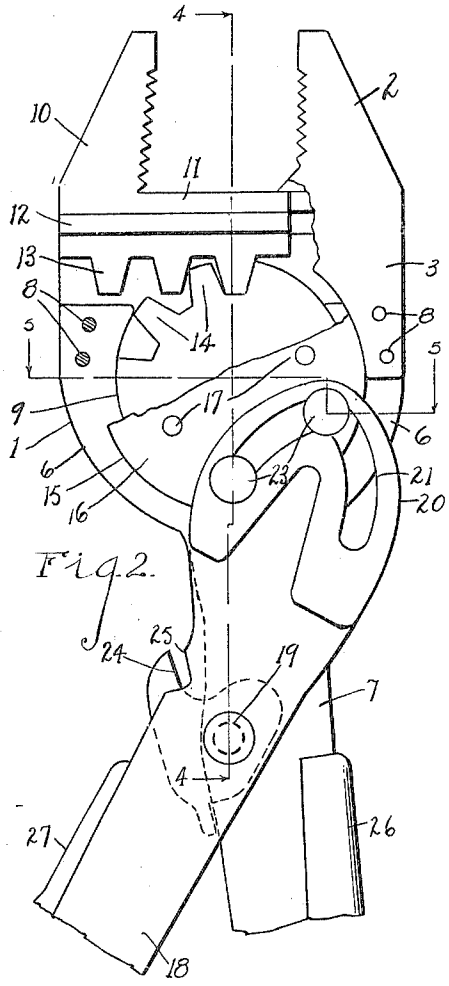


Fig. 2.

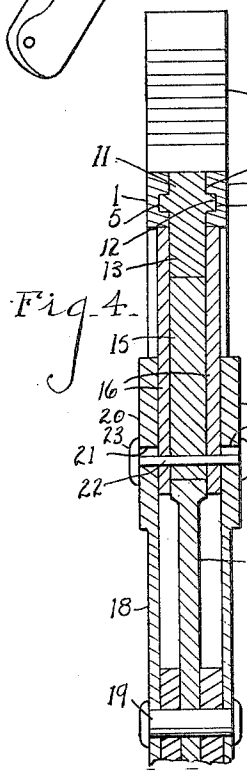


Fig. 4.

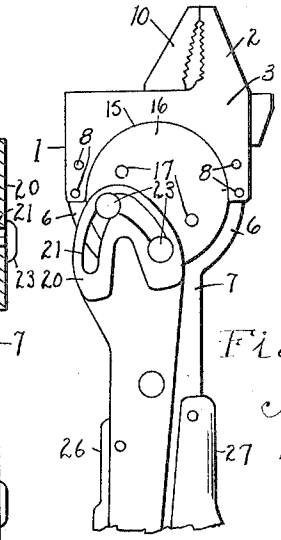


Fig. 3.

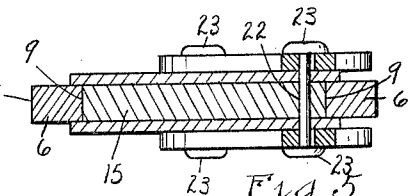


Fig. 5.

INVENTOR
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BY Chappell & Earl
ATTORNEYS

Patented July 23, 1929. 1,721,860

UNITED STATES PATENT OFFICE.

HENRY C. KROGEL, OF GENEVA TOWNSHIP, VAN BUREN COUNTY, MICHIGAN, ASSIGNOR OF ONE-HALF TO ALBERT NIFFENEGGER, OF SOUTH HAVEN, MICHIGAN.

WRENCH.

Application filed July 29, 1927. Serial No. 209,246.

The main objects of this invention are:

First, to provide an improved wrench which is very quickly opened and closed to engage or release the work.

Second, to provide an improved wrench which is engaged with or disengaged from the work by the manipulation of the handle, which is very powerful, and requires but little power to hold the movable jaw to the work.

Objects pertaining to details and economies of my invention will definitely appear from the description to follow. The invention is pointed out in the claims.

A structure which is a preferred embodiment of my invention is clearly illustrated in the accompanying drawing, in which:

Fig. 1 is a side view of my improved wrench.

Fig. 2 is a detail side elevation, parts being broken away to show structural details.

Fig. 3 is a detail side elevation corresponding to that of Fig. 1 with the jaws completely closed.

Fig. 4 is a detail section on line 4—4 of Figs. 1 and 2.

Fig. 5 is a transverse section on line 5—5 of Figs. 1 and 2.

Referring to the drawing, my improved wrench in the embodiment illustrated comprises a head designated generally by the numeral 1 and having a fixed jaw 2 mounted thereon. The fixed jaw has a base portion 3 forming a part of the head and having a jaw slideway 4 therein having opposed grooves 5.

The base portion 3 is secured to the arms 6 on the fixed handle 7 by means of the rivets 8. The arms also constitute a part of the head. These arms 6 are formed to provide a bearing 9.

The movable jaw 10 is carried by the slide 11 disposed in the slideway 4 and provided with longitudinal ribs 12 coacting with the grooves 5 of the slideway. The movable jaw has a rack 13 coacting with the teeth 14 on the disk 15 rotatably mounted in the bearing 9. This disk is held in its bearing by disk-like side members 16 overlapping the arms 6 constituting a part of the head.

The disk and its side plates 16 are secured together by the rivets 17.

A movable handle 18 is pivoted at 19 on the fixed handle 7 and forked to embrace the lower portion of the head, the arms 20 of the movable handle having a U-shaped cam slot 21 therein. Pins 22 having heads 23 at the ends thereof project from the toothed member to engage these cam slots so that when the handle 18 is swung on its pivot the toothed member 16 is rocked or oscillated in its bearing, thereby opening and closing the movable jaw 10. This provides for rapid manipulation and also a very powerful gripping of the work.

I also provide a wire cutter consisting of a knife member 24 mounted on the handle 7 with its cutting edge facing inwardly. The cutter is slotted to embrace the edge of the handle 7 and is retained by means of the pivot 19. A cutting edge 25 is formed on the handle 18 so that when the handle is swung on its pivot, this cutting edge is carried toward the cutting edge 14. The handles 7 and 18 are provided with grips 26 and 27, respectively.

I have illustrated and described my improvements in an embodiment which I regard as very practical. I have not attempted to illustrate or describe other adaptations possible as I believe this disclosure will enable the embodiment or adaptation of my improvements as may be desired.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A wrench comprising a head provided with a fixed handle and having a cylindrical bearing and a transversely disposed jaw slideway having opposed longitudinal grooves, a fixed jaw on said head disposed at one end of said slideway, a coacting movable jaw slidable in said way and provided with ribs engaging said grooves and with a rack on its inner edge, a toothed disk rotatably mounted in said bearing to coact with said rack, a forked handle pivoted on said fixed handle to overlie said disk and provided with a U-shaped cam slot, and a pair of pins arranged through said disk to engage said cam slot and provided with heads at each end.

2. A wrench comprising a head provided with a fixed handle and having a cylindrical bearing and a transversely disposed jaw slideway having opposed longitudinal grooves, a fixed jaw on said head disposed at one end of said slideway, a coacting movable jaw slidable in said way and provided with ribs engaging said grooves and with a rack on its inner edge, a toothed disk rotatably mounted in said bearing to coact with said rack, a han-

dle pivoted on said fixed handle to overlie said disk and provided with a cam slot, and a pin on said disk engaging said cam slot.

3. A wrench comprising a head provided with a fixed jaw and having a movable jaw slideway, a movable jaw slidable in said way and provided with a rack, a toothed member rotatably mounted in said head to coact with said rack, a fixed handle on said head, a coacting handle pivotally mounted on said fixed handle to overlap said toothed member and provided with a U-shaped cam slot, and a pair of headed studs on said toothed member engaging said cam slot.

4. A wrench comprising a head provided with a fixed jaw and having a movable jaw slideway, a movable jaw slidable in said way and provided with a rack, a toothed member rotatably mounted in said head to coact with said rack, a fixed handle on said head, a coacting handle pivotally mounted on said fixed handle to overlap said toothed member and provided with a cam slot, and a stud on said toothed member engaging said cam slot.

5. A wrench comprising a head provided with a fixed jaw having a movable jaw slideway, a movable jaw slidable in said way and provided with a rack, a toothed member rotatably mounted in said head to coact with said rack, a relatively fixed handle on said head, a coacting pivoted handle provided with a U-shaped cam slot, and a pair of pins on said rotatably mounted member engaging said slot whereby the movable jaw is opened and closed by the movement of said pivoted handle.

6. A wrench comprising a head provided with a fixed jaw having a movable jaw slideway, a movable jaw slidable in said way and provided with a rack, a toothed member rotatably mounted in said head to coact with said rack, a relatively fixed handle on said head, a coacting pivoted handle provided with a cam slot, and a pin on said rotatably mounted member engaging said slot whereby the movable jaw is opened and closed by the movement of said pivoted handle.

In witness whereof I have hereunto set my hand.

HENRY C. KROGEL.