Jan. 31, 1933. J. MELLING 1,895,638

WRENCH

Filed Nov. 6, 1931

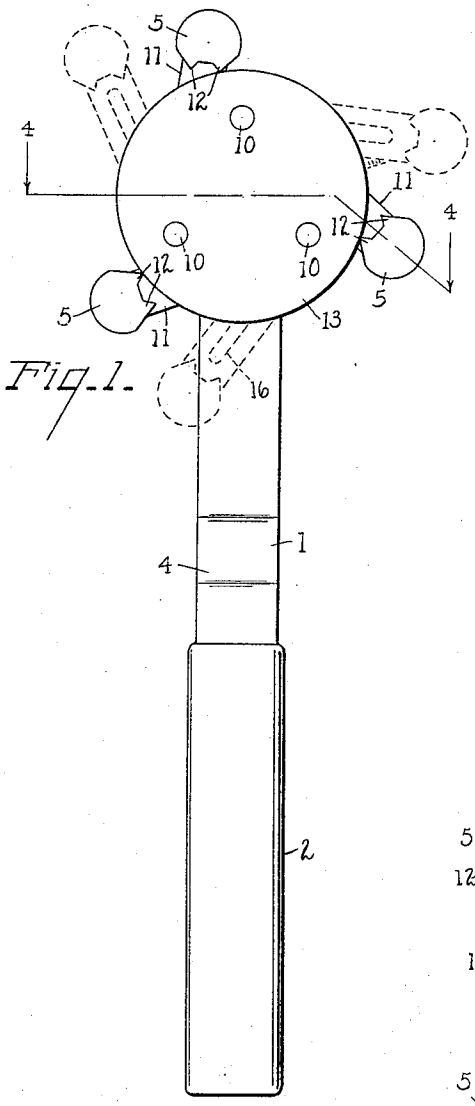


Fig. 1.

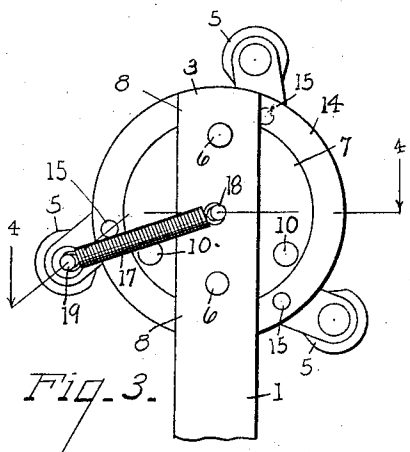


Fig. 3.

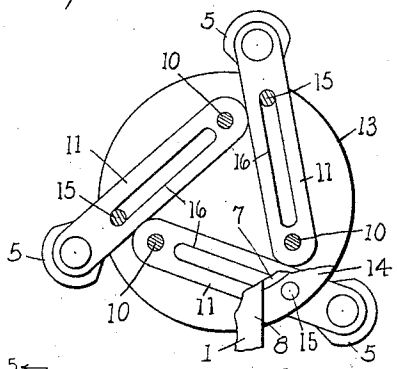


Fig. 5.

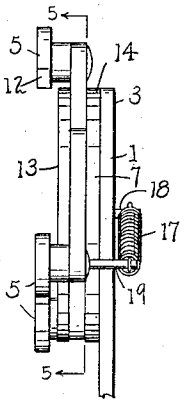


Fig. 2.

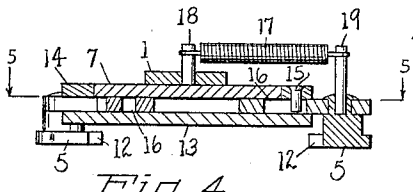


Fig. 4.

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UNITED STATES PATENT OFFICE

JOSEPH MELLING, OF JACKSON, MICHIGAN

WRENCH

Application filed November 6, 1931. Serial No. 573,397.

The present invention is a continuation in part of my copending application filed May 12, 1931, Serial No. 536,811.

While my improvements are well adapted for embodiment in large size wrenches, such for example as adapted for removing flange unions and the like, it is also well adapted for embodiment in small size wrenches, such for example as bottle cap wrenches, can wrenches and the like. In fact, it should be understood that my improvements are capable of embodiment and desirable for any size wrench.

In the accompanying drawing, I have illustrated my improvement as embodied in a light wrench adapted for removing and affixing the caps or covers of fruit jars, olive bottles, pickle bottles and the like.

The main objects of my invention are to provide an improved wrench which has a wide range of adjustment and which may be very quickly adjusted to the particular work, either for removing or placing the nut or cap.

A further object is to provide a wrench of this character which is self-gripping in that it grips tighter as the resistance increases or more force is applied to the wrench.

A still further object is to provide a wrench of this class which is simple in construction, economical to manufacture, and efficient in operation.

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

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

Fig. 1 is a bottom plan view of a wrench embodying the features of my invention.

Fig. 2 is a fragmentary view in side elevation.

Fig. 3 is a fragmentary top plan view.

Fig. 4 is a transverse section taken on line 4—4 of Figs. 1 and 3.

Fig. 5 is a horizontal section taken on line 5—5 of Figs. 2 and 4, a portion of the structure being broken away for purposes of illustration.

Referring to the drawing, numeral 1 in general indicates the wrench handle having a grip 2, a head end 3, and an offset 4 therebetween to bring the plane of the grip 2 in the working plane of the jaws 5. A disk-like head member 7 is secured to the head end of the handle by rivets 6, the member 7 being positioned so that portions, as 8, of the handle project beyond the periphery of the head member.

The head member 7 is provided with pins 10 positioned near its periphery, one of the rivets 6 being extended to provide a pin. The pins 10 primarily constitute pivots for the jaw arms 11 which extend outwardly beyond the periphery of the head.

The jaws 5 are rigidly secured to the free ends of the arms and are provided with inwardly facing teeth 12 positioned on opposite sides of the longitudinal center of the arms. A second disk-like head member 13 is carried by the pins 10.

To provide simultaneous movement of the arms 11, a ring 14 is rotatably mounted at the periphery of the smaller head member 7. This ring is supported between the projecting portions 8 of the handle and the jaw arms 11. The ring 14 carries pins 15 which slidably engage the slot 16 in the arms 11. The result is that when one of the arms 11 is swung on its pivot, the movement is imparted to the other arm through the connecting ring.

For yieldingly holding the jaws in one or the other of their two initial positions, I provide a tension spring 17 which is secured to the stud 18 projecting centrally of the head and the stud 19 on one of the arms. The result is that the spring acts to hold the jaws in yielding engagement with the work, both when they are adjusted for applying and removing the cap or nut, as the case may be.

In the embodiment illustrated each of the jaw arms is capable of rotating about its pivot in an arc approximately 240 degrees. The teeth of the jaws are so positioned that they are effective regardless of the position of the arms. This gives the wrench a very wide range.

In the accompanying drawing I have illustrated my improvements in wrenches adapted

for lighter work. I desire to repeat that my improvements are of advantage in wrenches designed for heavy work and I have them in successful operation on very heavy work where each wrench weighs in the neighborhood of thirty pounds. This is mentioned to show the wide range and adaptability of my improvements. I have not, however, deemed it necessary to illustrate the various adaptations or embodiments, as it is believed that this disclosure will enable those skilled in the art to embody or adapt 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. In a wrench, the combination with a handle, of a disk secured to the handle so that portions of the handle extend beyond diametrically opposite edges thereof, a plurality of pivot pins secured to said disk near the periphery thereof opposite said handle, an arm pivoted to each of said pins and having a longitudinal slot therein, inwardly facing jaws carried by the free ends of said arms, a second disk carried by said pivot pins on the outside of said arms, a tension spring connected to one of said arms and to a fixed part, a ring rotatably embracing said first named disk and disposed between said arms and the extended portions of said handle, and guide pins carried by said ring and coacting with said arm slots.

2. A wrench, comprising concentric spaced disks of different diameter, pins connecting said disks at intervals around the periphery of the smaller disk, an arm pivoted to each of said pins between said disks and having a free end extending beyond the periphery of the larger disk, an inwardly facing jaw carried by the free end of each arm, a ring rotatably embracing the periphery of the smaller disk and having a guide pin for each of said arms, each of said arms having a slot slidably engaging one guide pin, and a handle secured to said smaller disk having projecting ends, said ring being free to rotate between said handle and said arms.

3. In a wrench, the combination of a pair of spaced concentrically disposed disks one of which is smaller than the other, pivot pins extending between and carried by said disks disposed adjacent the periphery of the smaller disk, longitudinally slotted jaw arms pivotally mounted on each of said pins between said disks, an annular spacing member rotatably supported at the periphery of the smaller disk, studs on said spacing member engaging said longitudinal slots of said arms, inwardly facing jaws mounted on the outer ends of said arms and provided with spaced teeth disposed on opposite sides of the longitudinal centers of the arm, a handle secured to one of said disks, and a spring secured to one of said arms and acting to collapse said arms.

4. In a wrench, the combination of a pair of spaced concentrically disposed disks one of which is smaller than the other, pivot pins extending between and carried by said disks disposed adjacent the periphery of the smaller disk, longitudinally slotted jaw arms pivotally mounted on each of said pins between said disks, an annular spacing member rotatably supported at the periphery of the smaller disk, studs on said spacing member engaging said longitudinal slots of said arms, jaws mounted on the outer ends of said arms, and a handle secured to one of said disks.

5. In a wrench, the combination of a pair of spaced disks, pivot pins extending between and carried by said disks, jaw arms pivotally mounted on said pins between said disks, a rotatably mounted jaw spacing member, studs on said spacing member engaging said arms, inwardly facing jaws mounted on the outer ends of said arms and provided with spaced teeth disposed on opposite sides of the longitudinal centers of the arm, a handle secured to one of said disks, and a spring secured to one of said arms and acting to collapse said arms.

6. A wrench comprising a pair of spaced head members, pivot pins extending between said head members, longitudinally slotted jaw arms pivotally mounted on said pins between said head members to project beyond the same, inwardly facing jaws mounted on the outer ends of said arms, a rotatable spacing member provided with pins engaging the slots of said arms, and a jaw retracting spring connected to one of said arms.

7. A wrench comprising a pair of spaced head members, pivot pins extending between said head members, jaw arms pivotally mounted on said pins between said head members to project beyond the same, inwardly facing jaws mounted on the outer ends of said arms, a rotatable spacing member slidably engaging said arms, and a jaw retracting spring connected to one of said arms.

8. A wrench comprising a pair of spaced head members, pivot pins extending between said head members, longitudinally slotted jaw arms pivotally mounted on said pins between said head members to project externally and substantially beyond the same, inwardly facing jaws mounted on the outer ends of said arms, and a rotatable spacing member provided with pins engaging the slots of said arms.

9. In a wrench, the combination of a pair of spaced head members, spaced pivot pins carried by and extending between said head members disposed adjacent the peripheries thereof, jaw arms pivotally mounted on each of said pins between each of said head members, inwardly facing jaws fixed to the free ends of said arms, said jaws having spaced

teeth disposed on opposite sides of the longitudinal centers of said arms, a spacing member for controlling the movement of said arms and a handle secured to one of said head members.

10. A wrench comprising a pair of spaced disk-like head members, one smaller than the other, pivot pins extending between said head members, jaw arms pivotally mounted on said pins between said head members to project beyond the peripheries thereof, jaws mounted on the outer end of said arms, an annular rotatable spacing member slidably engaging said arms, and a jaw retracting spring connected to one of said arms.

11. A wrench comprising a pair of spaced disk-like head members, one smaller than the other, pivot pins extending between said head members, jaw arms pivotally mounted on said pins between said head members to project substantially beyond the peripheries thereof, jaws mounted on the outer ends of said arms, and an annular rotatable spacing member slidably engaging said arms.

12. In a wrench, the combination of a head member carrying uniformly spaced pivot pins, jaw arms pivotally mounted on said pins and provided with jaws having inwardly facing spaced teeth disposed on opposite sides of the longitudinal centers of the arms, a rotatable spacing member slidably engaging said arms, and a jaw retracting spring connected to said head and to one of said arms.

13. In a wrench, the combination of a head member carrying uniformly spaced pivot pins, jaw arms pivotally mounted on said pins and provided with jaws, a rotatable spacing member slidably engaging said arms, and a jaw retracting spring connected to said head and to one of said arms.

14. In a wrench, the combination of a head member carrying uniformly spaced pivot pins, jaw arms pivotally mounted on said pins and provided with jaws having inwardly facing spaced teeth disposed on opposite sides of the longitudinal centers of the arms, and a rotatable spacing member slidably engaging said arms.

15. In combination with structure of the class described, a pair of parallel discs of unequal diameter concentrically positioned in spaced relation by transverse pins equally spaced apart, slotted arms pivoted at one extremity to each of said pins, a guide ring around the outer circumference of the smaller disc and including transversely projecting pins slidably engaging the slots in said arms, a lever extending diametrically across the outer face of the smaller disc and secured thereto, said lever projecting beyond said smaller disc in each side thereof to retain said guide ring floatingly positioned, and gripping elements supported at the free extremity of each arm and extending beyond the plane of the discs.

16. In combination with structure of the class described, a pair of parallel discs of unequal diameter concentrically positioned in spaced relation by transverse pins equally spaced apart, slotted arms pivoted at one extremity to each of said pins, a guide ring rotatably supported around the outer circumference of the smaller disc and including transversely projecting pins slidably engaging the slots in said arms, said transversely extending pins being spaced in the same manner as said first mentioned pins, gripping elements supported at the free extremity of each arm and extending beyond the plane of the discs, and a lever arm secured over the outer face of the smaller disc and extending therebeyond to position said guide ring.

In witness whereof I have hereunto set my hand.

JOSEPH MELLING.