E. C. McGUFFEY.

RATCHET WRENCH.

APPLICATION FILED OCT. 6, 1917.

**1,258,582.**

Patented Mar. 5, 1918.

*Fig. 1.*

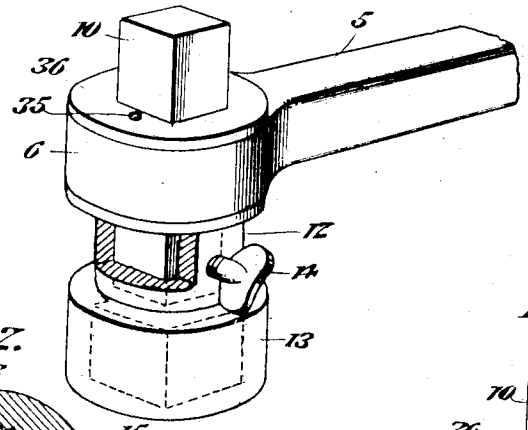



*Fig. 2.*

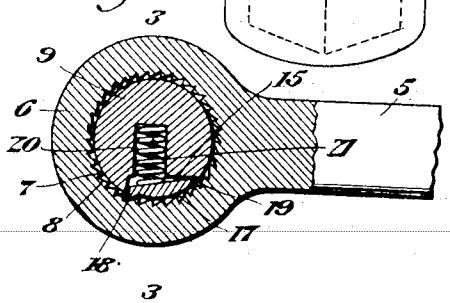



*Fig. 3.*

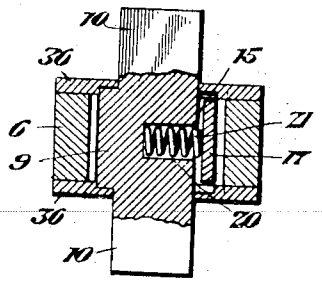



*Fig. 4.*

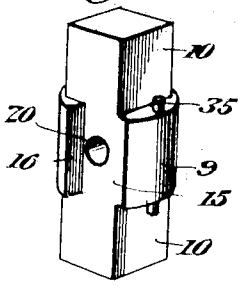



*Fig. 5.*

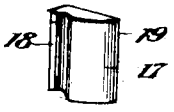
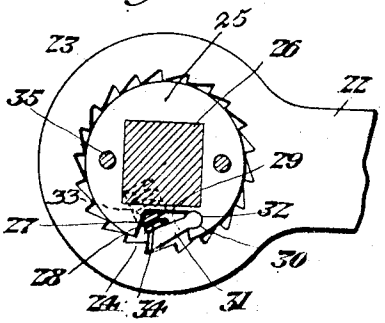



*Fig. 6.*




Witnesses

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# UNITED STATES PATENT OFFICE.

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## RATCHET-WRENCH.

1,258,582. Specification of Letters Patent. Patented Mar. 5, 1918.

Application filed October 6, 1917. Serial No. 195,129.

*To all whom it may concern:*

Be it known that I, EDWARD C. McGUFFEY, a citizen of the United States, residing at Hettinger, in the county of Adams and State of North Dakota, have invented new and useful Improvements in Ratchet-Wrenches, of which the following is a specification.

This invention relates to improvements in wrenches, and has for its primary object to produce a ratchet wrench of an extremely simple construction, which may be cheaply manufactured, easily operated, and positive in operation.

Other objects and advantages will appear as the nature of the invention is better understood, reference being had to the accompanying drawing, in which,

Figure 1 is a perspective view of a wrench constructed in accordance with the present invention.

Fig. 2 is a transverse sectional view through the head of the wrench.

Fig. 3 is a sectional view approximately on the line 3—3 of Fig. 2.

Fig. 4 is a perspective view of the barrel member.

Fig. 5 is a similar view of the dog.

Fig. 6 is a view approximately similar to Fig. 2 but illustrating a modification.

As disclosed by the drawings, my improvement is in the nature of a socket wrench, and the same is designed to be manufactured in different sizes best suited for different classes of work. The wrench may, of course, be constructed of any desired suitable material.

The handle 5 of the wrench has one of its ends provided with a round enlargement 6 forming a head for the said handle. The head 6 is centrally provided with a round opening, the wall of which being formed with substantially V-shaped depressions defining straight walls or shoulders 7 and angular walls 8 between the said shoulders.

The barrel of the wrench is indicated by the numeral 9 and comprises a cross sectionally round member of a size to be snugly received in the opening of the head 6. The barrel has its opposite ends provided with substantially square or rectangular extensions 10, the barrel proper being of a width approximately equaling the thickness of the head 6, and these rectangular extensions or lugs 10 are designed to receive the hollow shank portions 12 of detachable sockets 13. The shanks are retained on the lugs 10 in any desired or preferred manner, such for instance, as a binding element 14 passing transversely through the shank and entering the rectangular opening or bore thereof, and contacting with one of the side walls of the lugs 10. The element 14 is preferably in the nature of a thumb screw.

The barrel and its rectangular extensions or lugs are formed from a single piece of suitable material, of desired strength, as for instance, harveyized steel, and likewise, the head 6 of the handle may be constructed of similar material. The barrel, upon one of the sides thereof, is provided with a depression, defining a straight wall 15 and an angular wall or shoulder 16 and forming a pocket for a dog 17. The dog has its engaging tooth 18 disposed upon its outer faces and at its wider end, and this end of the dog is arranged adjacent to the shoulder 16 of the pocket. The outer periphery of the dog may be round to correspond to the peripheral contour of the barrel 9, so that the end of the dog, opposite that provided with the tooth 8 terminates in a substantially shortened point 19. It is, of course, obvious that the tooth 18 need not project from the body of the dog, but may be formed on one of the ends of the said dog by widening the same. The straight face 15 of the pocket is provided with a depression 20 within which is received a helical spring 21, and this spring exerting a tension between the inner wall of the depression 20 and the inner face of the dog moves the same outwardly of the pocket to bring the teeth thereof to engage between the teeth or with the shoulder 7 provided on the wall of the opening in the head 6. The dog is, of course, of a slightly less diameter than the depth of the pocket, and as a consequence, the same, when the handle is turned in one direction, will be forced into contacting engagement with the shoulder 16 of the pocket, and by virtue of the engagement between the dog and the teeth in the head of the wrench will be forced into the pocket, thus permitting the handle to ratchet around the barrel. A movement in an opposite direction of the handle will result in one of the shoulders 7 contacting with the tooth 18 of the dog 17, sliding the said dog a slight but determined distance outward of the pocket to bring the pointed end thereof into contact with one of the angular walls 8 between the shoulders 7 pro-

viding the teeth in the head 6, and by this arrangement, it will be seen that the dog 17 has two separate engaging surfaces with respect to the teeth provided between the shoulders in the angular walls of the head 6. In addition to this, the outer surface of the dog may be brought, through the medium of the spring 21 and the engagement between the tooth 18 and the pointed end 19 of the said dog with the teeth in the opening of the head, to contact with the teeth of the head between that engaged by the opposite ends of the dog.

In Fig. 6 of the drawing, there is illustrated a slight modification, the handle 22 being provided with a round widened head 23 that has a round opening, the wall of which being provided with teeth 24 defining straight walls or shoulders and angular walls between the said shoulders. Within the opening of the handle is arranged a barrel 25 having its opposite ends provided with integrally formed substantially rectangular or square lugs 26, similar to the elements 10 on the barrel 9. The barrel 25 is of a width equal to the thickness of the head 23 or slightly less than such thickness and the said barrel is provided, upon one of its sides, with a pocket 27. This pocket defines a straight wall 28 which I shall term the outer end wall of the pocket, a straight inner wall 29 and a concaved or rounded inner end wall 30. Within the pocket 27 is designed to be received the dog 31. The dog, in this instance, is widened at its engaging end and has its opposite end rounded as at 32, and this rounded end is designed to be received in the concaved end of the pocket 27. By this arrangement, no pivotal connection is required between the dog and the barrel, and the overlapping wall provided in the concaved end of the pocket serves as a means for limiting the outward movement of the dog and also serves to absorb the force of strain to which the dog is subjected. The inner straight wall of the pocket is provided with an angular socket 33 within which is arranged a spring 34, the said spring exerting a tension between the inner wall of the pocket and the inner face of the dog, forcing the dog outwardly of the pocket to bring the engaging end or tooth thereof to engage with the teeth in the opening of the head.

In both forms of the construction illustrated by the drawings, the barrels are provided with longitudinally extending pins 35, the said pins being designed to pass through suitable openings in cap plates 36. These plates 36 are in the nature of disks, having centrally arranged, substantially square or rectangular openings, receiving the lugs or projections on the ends of the barrels. The pins 35 are preferably of malleable material, so that the ends thereof may be flattened over the plates 36 for effectively retaining the plates on the barrel. It is, of course, to be understood that the plates wholly cover the openings in the heads of the handle members and consequently holding and concealing the barrel and the dogs associated with the barrels.

From the foregoing description when taken in connection with the accompanying drawing, the simplicity and advantages of the construction will, it is thought, be apparent without further detailed description, it being, of course, understood that the wrench may be employed on articles in different directions by merely reversing or turning the wrench over to engage such articles.

Having thus described the invention, what I claim is:

In combination with a handle having an annular internally toothed head, a barrel in said head having lugs on the ends thereof, plates secured to the ends of the barrel for retaining the barrel in the head, said barrel having one of its sides provided with a depression defining a straight inner wall and an angular shoulder and said depression providing a pocket, the inner wall of the pocket having a depression, a spring in said depression, a dog in the pocket, having an outer surface corresponding to the peripheral contour of the barrel and provided upon its widened end with a tooth, and said dog designed to be engaged by the spring whereby to project the same from the pocket to engage with the teeth of the head.

In testimony whereof I affix my signature.

EDWARD C. McGUFFEY.

**Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."**