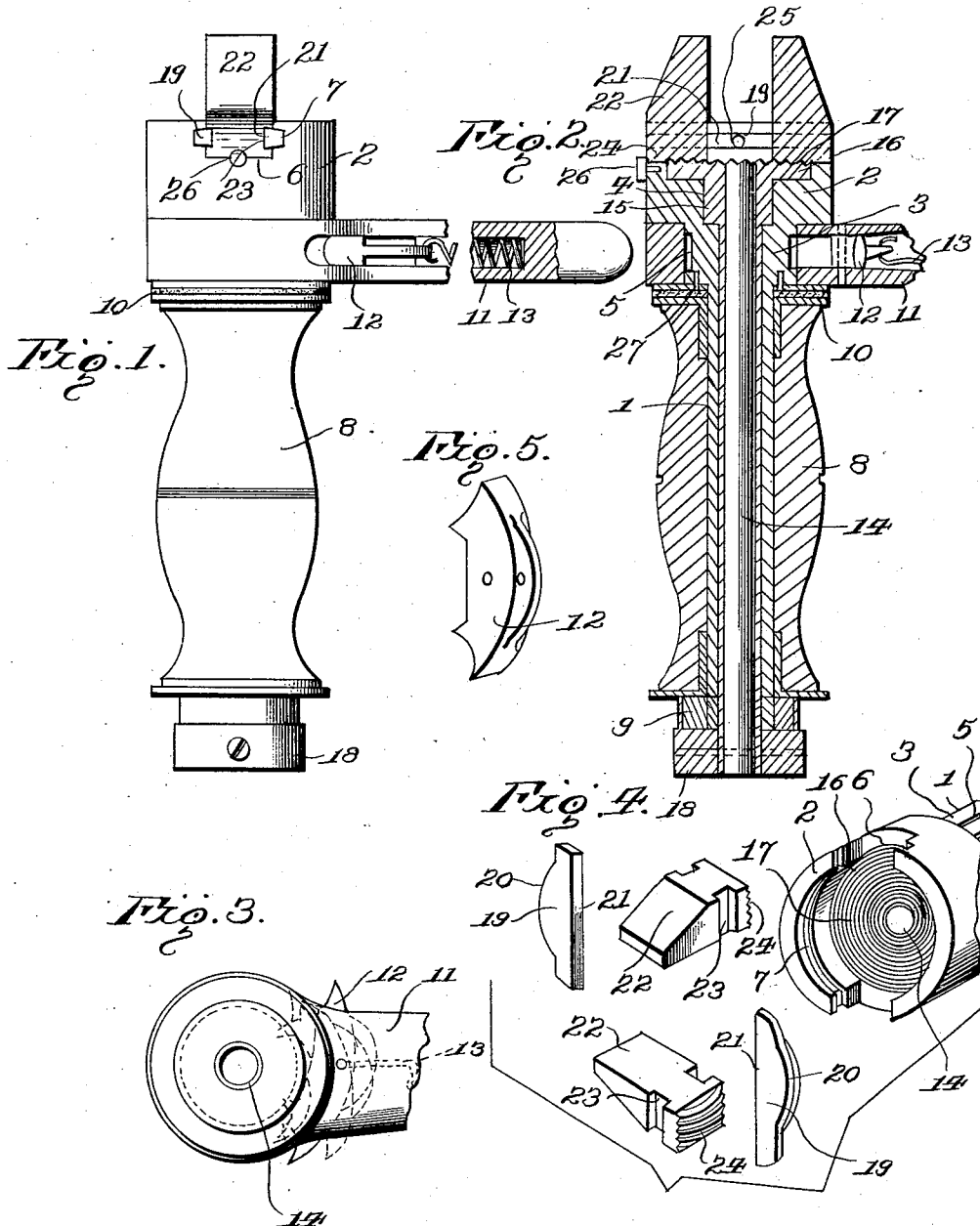


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 RATCHET WRENCH.
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RATCHET-WRENCH.

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To all whom it may concern:

Be it known that I, WILLIAM WINKLE, citizen of the United States, residing at Waitsburg, in the county of Walla Walla and State of Washington, have invented certain new and useful Improvements in Ratchet-Wrenches, of which the following is a specification.

This invention has relation to ratchet wrenches, and has for its object to provide a simple and durable structure, the parts of which may be easily and quickly adjusted to receive nuts of different sizes to apply or remove the same from bolts.

The wrench includes a structural and tubular member having at one end an enlarged socket portion provided with a set of detachable guides and an exteriorly located set of ratchet teeth. A handle is pivoted upon this member and is provided with a pawl adapted to engage the teeth. A handle grip is journaled upon this member. A pair of jaws is slidably mounted on the guides which are provided at their inner ends with spiral grooves. A hollow shaft is journaled in the said tubular member and is provided with a head which is snugly received in the socket of the said tubular member, and this head is provided with a spiral groove that engages the spiral grooves of the jaws. A knob is fixed to the end of the hollow shaft at one end of the grip, and by turning the said knob the said shaft is rotated whereby the said jaws are moved along the guides toward or away from each other.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings in which:

Figure 1 is a side elevation of the wrench with parts in section. Fig. 2 is a vertical sectional view of the end portion of the wrench. Fig. 3 is an end view of part of the wrench. Fig. 4 is a perspective view of part of the wrench disconnected. Fig. 5 is a perspective view of the pawl used in the wrench.

The wrench consists of a tubular member 1 which is provided at one end with an enlarged socket portion 2. This member 1 is hollow throughout its length, and at that end which joins with the socket member 2 it is provided with an annular enlargement 3 which is bored out, forming a chamber 4.

The said chamber 4 being of greater diameter than the bore through the member 1 and less in diameter than the socket in the portion 2. This enlargement 3 is provided upon its exterior with a set of ratchet teeth 5. The socket portion 2 is provided at its opposite sides and at its end with recesses 6. The said socket member is also provided upon its inner side with arcuate grooves 7. These grooves extend from one of the recesses 6 to the other recess.

A handle grip 8 is journaled upon the tubular member 1 and abuts at one end against the enlargement 3. A nut 9 is screwed, or otherwise secured, at the other end portion of the tubular member 1 and holds the grip 8 in position upon the said tubular member, the member 1, however, being free to rotate in the grip. A washer 10 is interposed between the end of the handle grip 8 and the enlargement 3.

A handle 11 is journaled upon the enlargement 3 and is provided with a pivoted pawl 12 which is adapted to be swung to engage the teeth 5 upon the enlargement 3. This pawl is of that type generally known as double acting, inasmuch as it may be positioned so that either of its end portions will engage the teeth 5, and a spring 13 is located in the handle 11 and engages the said pawl so as to hold either of its end portions in operative engagement with the teeth 5 upon the enlargement 3.

The hollow shaft 14 is journaled in the tubular member 1 and is provided with an enlargement 15 which fits snugly in the chamber 4. The shaft 14 is provided at one end with a circular head 16 which fits snugly in socket portion 2 of member 1. This head 16 is provided upon its outer face with a spiral groove 17. A knob 18 is fixed on the end of the shaft 14 and bears against the end of the tubular member 1 and incloses the nut 9. By turning the knob 18 the shaft 14 and the head 16 may be rotated with relation to the tubular member 1. Guide plates 19 are provided with flanges 20 which fit snugly in the grooves 7. These plates are also provided with straight flanges 21 which are disposed parallel with relation to each other when the guide plates are in position in the socket member 2 and when so positioned, the ends of the flanges 21 extend transversely through the recesses

6 at the opposite sides of the socket member 2. Jaws 22 are provided at their sides with grooves 23 which slidably receive the flanges 21. These jaws are provided at their inner 5 faces with spiral grooves 24 which engage the spiral grooves 17 at the outer face of the head 16. Therefore, it will be seen that as the head 16 is rotated the jaws 22 will be moved toward or away from each other 10 along the flanges 21 of the guide plates 19, and thus the said jaws may be positioned at desired distances apart in order to receive nuts of different sizes. The shaft 14 is hollow throughout its length in order that the 15 bolt to which the nut is being applied may be projected into or through the wrench. The plates 19 are held in position in the socket member 2 by means of tap screws 25 which pass through the sides of the socket 20 portion 2 and engage the said plates 19.

A stop 26 is located at the outer side of one of the recesses 6 and projects up into the path of movement of one of the jaws 22. This stop may be of any desired form, and, 25 as shown in the drawing, it consists of a screw which is threaded up into the path of movement of the said jaw. This stop is to prevent the jaw from being moved to such an extent as to pass out of the socket mem- 30 ber 2 when the wrench is in use, and inasmuch as the jaws move simultaneously, the retention of one of the jaws in the said socket portion will retain the other one through the connecting head 16.

35 It will be readily understood that by positioning the pawl 12 in the handle 11 so that one or the other of its end portions will engage the teeth 5, the wrench may be used by swinging the handle 11 to one side or 40 the other with relation to the grip 18. In other words, the wrench is what is generally known as a right or left hand wrench.

The washer 10 is preferably secured to the enlargement 3 by means of tap screws 27.

45 From the above description, it will be seen that a simple and durable wrench is provided and that the parts may be easily and quickly manipulated to position the jaws at desirable distances apart. Inasmuch as the 50 jaws are slidably mounted upon the plates 19 and in view of the fact that these plates are detachably connected with the socket portion 2 of the tubular member 1, the said plates may be removed when they have be- 55 come worn, and new plates substituted in their stead. Also the said plates may be made of relatively hard material inasmuch as they are subjected to the most direct strain, while the tubular member 1 and its

socket portion 2 may be cast from relatively 60 soft material, as, for instance, iron.

Having thus described the invention, what is claimed as new is:

1. A wrench comprising a tubular member having a socket portion, guide members de- 65 tachably mounted in the socket portion, jaws slidably mounted between the said guide members and provided at their inner faces with spiral grooves, and a member rotatably 70 mounted in the tubular member and having a head provided upon its face with spiral grooves engaging the grooves in the jaws.

2. A wrench comprising a tubular member having an enlarged socket portion provided at its opposite sides with recesses, guide 75 plates detachably mounted in the socket portion of the tubular member and having flanges which extend across said portion, jaws slidably mounted upon the flanges of 80 said plates and having at their inner faces spiral grooves, and a shaft journaled in the tubular member and having a head which fits in the socket portion thereof, said head having upon its face a spiral groove which 85 engages the grooves upon the jaws.

3. A wrench comprising a tubular member having an enlarged socket portion provided at its sides with recesses and having grooves which communicate at their ends with the 90 recesses, guide plates having flanges which fit in said grooves, said plates also having straight flanges which extend across the socket portion in parallel relation to each 95 other, jaws slidably mounted upon the last-mentioned flanges and having spiral grooves, and a shaft journaled in the tubular member and having an enlarged head which fits in the socket portion thereof, said head having 100 a spiral groove which engages the grooves upon the jaws.

4. A wrench comprising a tubular member having an enlarged socket portion, a grip 105 journaled upon the tubular member, a handle journaled upon the tubular member and having a pawl adapted to engage the same, guide plates carried by the tubular member, jaws slidably mounted upon said plates and hav- 110 ing spiral grooves, and a shaft journaled in the tubular member and having a head provided with a spiral groove which engages the grooves of the jaws.

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

WILLIAM WINKLE. [L. S.]

Witnesses:

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