Jan. 23, 1934. A. DAUGHERTY 1,944,171

RATCHET WRENCH

Filed March 14, 1933

Fig-1-

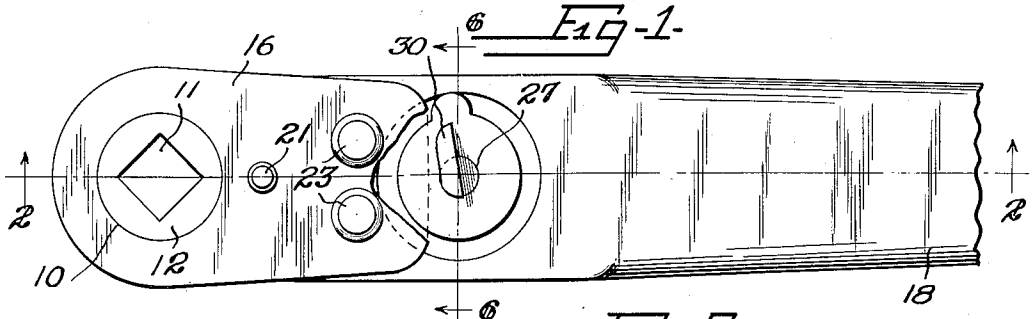


Fig-2-

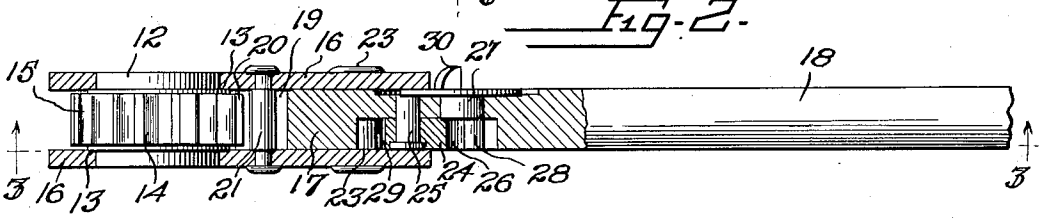


Fig-3-

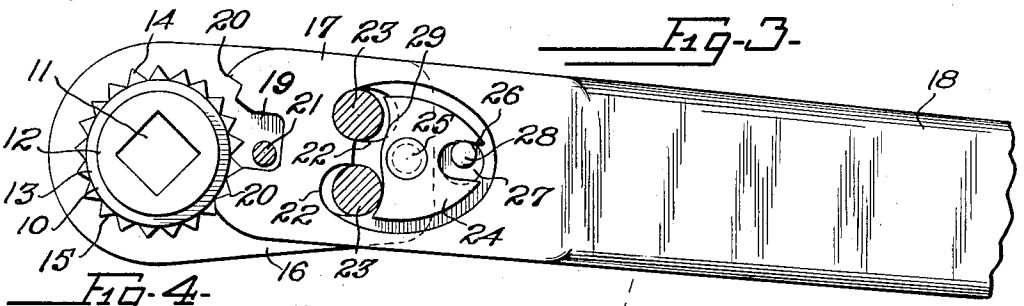


Fig-4-

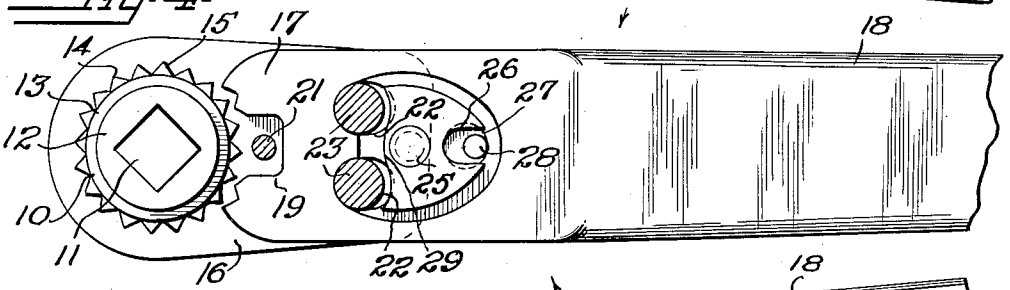


Fig-5-

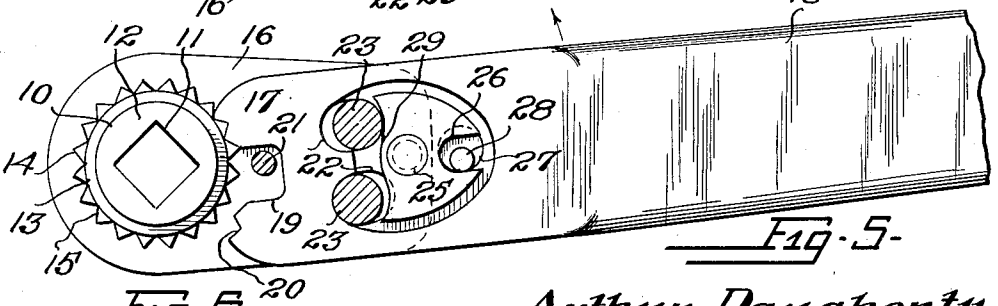
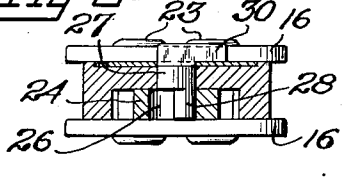


Fig-6-



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RATCHET WRENCH

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Application March 14, 1933. Serial No. 660,756

3 Claims. (Cl. 81—58)

The invention relates to a wrench and more especially to ratchet wrenches.

The primary object of the invention is the provision of a wrench of this character, wherein the jaw thereof is adaptable for movement in opposite directions, so that the wrench is reversible and susceptible for a maximum of leverage with a minimum of strain upon the head and handle, the jaw being reversed and moved under the ratchet action of dogs or detents, these being of novel form.

Another object of the invention is the provision of a wrench of this character, wherein the same is susceptible of two-way ratchet action, whereby the wrench may be operated for the turning of a part either from the right or from the left, thereby rendering such wrench handy in the turning of parts in reverse directions.

A further object of the invention is the provision of a wrench of this character which is extremely simple in construction, readily and easily adjusted for reverse ratchet action, thoroughly reliable and efficient in its operation, strong, durable yet light in weight, and inexpensive to manufacture.

With these and other objects in view, the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described in detail, illustrated in the accompanying drawing, which discloses the preferred embodiment of the invention, and pointed out in the claims hereunto appended.

In the accompanying drawing:

Figure 1 is a fragmentary plan view partly broken away of a wrench constructed in accordance with the invention.

Figure 2 is a sectional view on the line 2—2 of Figure 1 looking in the direction of the arrows.

Figure 3 is a sectional view on the line 3—3 of Figure 2 looking in the direction of the arrows showing the handle shifted for ratchet action in one direction.

Figure 4 is a view similar to Figure 3 with the handle further adjusted.

Figure 5 is a view similar to Figure 4 showing the action of the wrench for ratchet movement in a reverse direction.

Figure 6 is a sectional view on the line 6—6 of Figure 1 looking in the direction of the arrows.

Similar reference characters indicate corresponding parts throughout the several views in the drawing.

Referring to the drawing in detail, the wrench, which is of the ratchet type, constituting the present invention, comprises a barrel 10 of circular form and provided axially with a socket 11 of flat-sided form so as to compel the head or nut of a bolt or other article of corresponding shape placed in the same to turn with the barrel. The opposite ends of the barrel 10 are provided with circular trunnions 12, these being reduced or of smaller diameter than the central portion of the barrel, thereby providing outwardly facing shoulders 13 at the base of said trunnions. On the periphery and between the trunnions of the barrel 10 is an annular row of ratchet teeth 14, each of which preferably has the sloping or angular faces 15.

The barrel is preferably mounted in a head which includes a pair of spaced parallel cheek plates 16, these having openings accommodating the trunnions 12 and being spaced the required distance for the reception therebetween of the ratchet end 17 of an actuating handle or lever 18. The ratchet end 17 is formed with a center bifurcation 19 locating on opposite sides thereof the ratchet dogs or detents 20, these being shaped to fit snugly against the ratchet teeth 14 when engaged therewith. Located in the bifurcation 19 is a connecting pin 21 for the cheek plates 16 and this pin is made fast in said plates.

The ratchet end 17 has formed therein spaced elongated openings 22 in which are received the pins or fulcrum members 23, these being stationarily secured in the plates 16. It will be apparent that when the wrench is operated in either direction the strain on the said pins 23 is from opposite directions, thus limiting the movement of the handle 18 in so far as the movement required to rotate the barrel 10 is concerned. In Figure 3 of the drawing the wrench has been operated so that a ratchet action of the same will be had in one direction, while in Figure 5 the wrench is adjusted for ratchet action thereof in a reverse direction.

Fitted in a countersink in one side face of the ratchet end 17 is a latch 24, the same being pivoted for rocking movement upon a pivot axle 25 carried by said ratchet end 17. The latch plate 24 is formed with a center notch 26 in which is received a cam 27 having a rotary arbor 28 journaled in the handle or lever 18 so that on the turning of the cam 27 the plate 24 will be rocked in a right hand or left hand direction and thus the portions 29 will be brought into a position for the contact of the fulcrum pins or members 23 with said plate and thus assuring a right hand or left hand ratchet action of the ratchet end 17 of the lever or handle 18 in the

working of the wrench. The latch 24 has little or no lost motion when moved in either direction and fits snugly against the fulcrum members or pins 23 excepting when the handle or lever 18 is in direct line with the head of the wrench as is clearly shown in Figure 4 of the drawing.

The cam arbor 28 carries a finger grip 30 for the manual turning thereof to reverse the position of the cam 27.

It will be apparent that the wrench is susceptible of both right and left hand ratchet actions, or, in other words, the manipulation of the barrel 10 can be effected in reverse directions.

What is claimed is:

1. A wrench of the character described comprising a barrel of circular form having a center socket of flat sided form, circular trunnions on opposite sides of the barrel and concentrically of the center socket, a head including a pair of cheek plates having openings accommodating the trunnions of the barrel, a lever located between the cheek plates and having double reverse ratchet action upon the barrel, said lever being furcated, a pin securing the cheek plates and received in the furcation, said lever having elongated openings, fulcrum members carried between the cheek plates and received in said elongated openings, a latch pivoted for rocking movement upon the lever and having a center notch, and a rotatable cam operative in the center notch in said latch to rock the latter either in a right hand or left hand direction to locate the latch relative to the fulcrum members for assuring a right hand or left hand ratchet action of the lever.

2. A wrench of the character described comprising a barrel of circular form having a center socket of flat sided form, circular trunnions on opposite sides of the barrel and concentrically of the center socket, a head including a pair of cheek plates having openings accommodating the trunnions of the barrel, a lever located between the cheek plates and having double reverse ratchet action upon the barrel, said lever being furcated, a pin securing the cheek plates and received in the furcation, said lever having elongated openings, fulcrum members carried between the cheek plates and received in said elongated openings, a latch pivoted for rocking movement upon the lever and having a center notch, a rotatable cam operative in the center notch in said latch to rock the latter either in a right hand or left hand direction to locate the latch relative to the fulcrum members for assuring a right hand or left hand ratchet action of the lever, and a finger grip associated with the cam for reversing the position thereof.

3. A wrench of the character described comprising a barrel of circular form having a center socket of flat sided form, circular trunnions on opposite sides of the barrel and concentrically of the center socket, a head including a pair of cheek plates having openings accommodating the trunnions of the barrel, a lever located between the cheek plates and having double reverse ratchet action upon the barrel, said lever being furcated, a pin securing the cheek plates and received in the furcation, said lever having elongated openings, fulcrum members carried between the cheek plates and received in said elongated openings, a latch pivoted for rocking movement upon the lever and having a center notch, a rotatable cam operative in the center notch in said latch to rock the latter either in a right hand or left hand direction to locate the latch relative to the fulcrum members for assuring a right hand or left hand ratchet action of the lever, a finger grip associated with the cam for reversing the position thereof, and ratchet teeth formed peripherally of the barrel for double ratchet action of the lever.

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