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1,453,607

H. L. SAUCIER

RATCHET SOCKET WRENCH

Filed Feb. 25, 1922

Fig. 1.

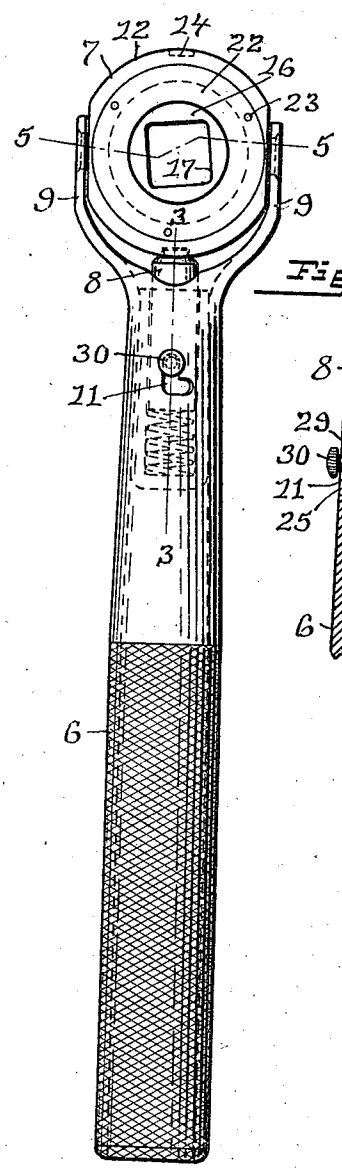


Fig. 2.

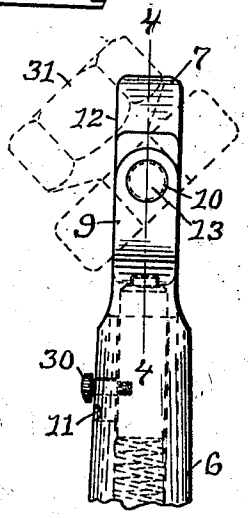


Fig. 3.

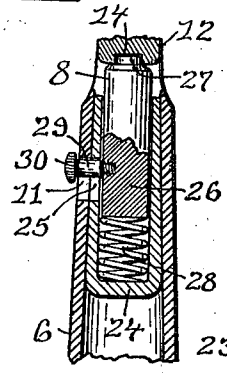


Fig. 4.

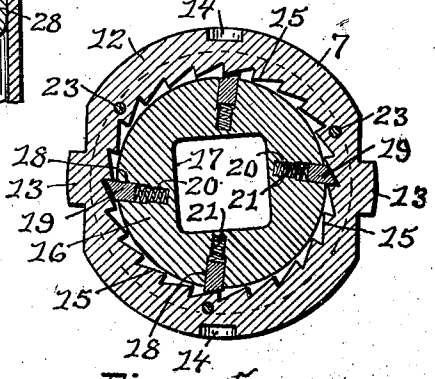
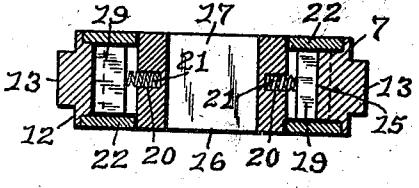


Fig. 5.



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UNITED STATES PATENT OFFICE.

HENRY LOUIS SAUCIER, OF PROVIDENCE, RHODE ISLAND.

RATCHET SOCKET WRENCH.

Application filed February 25, 1922. Serial No. 539,265.

To all whom it may concern:

Be it known that I, HENRY LOUIS SAUCIER, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Ratchet Socket Wrenches, of which the following is a specification.

My invention has reference to an improvement in wrenches and more particularly to an improvement in ratchet wrenches in which various sizes of wrench sockets may be used.

The object of my invention is to improve the construction of a ratchet socket wrench whereby a comparatively light wrench is produced which has the necessary strength and in which the operation of the wrench is greatly improved.

A further object of my invention is to improve the construction of the ratchet member of the wrench and to place the pawls so that the ratchet is stronger and less movement of the wrench is required to engage the pawls with the ratchet.

My invention consists in the peculiar and novel construction of a ratchet socket wrench, said ratchet socket wrench having details of construction as will be more fully set forth hereinafter and claimed.

Figure 1 is a side view of my improved ratchet socket wrench.

Figure 2 is an edge view of the wrench with the greater portion of the handle broken away.

Figure 3 is a detail longitudinal sectional view taken on line 3, 3 of Figure 1.

Figure 4 is an enlarged detail sectional view taken on line 4, 4, of Figure 2 of the ratchet member of the wrench, removed from the wrench, and

Figure 5 is an enlarged detail sectional view taken on line 5, 5, of Figure 1 of the ratchet member removed from the wrench.

In the drawing 6 indicates a tubular handle, 7 a ratchet member, and 8 a locking device.

The tubular handle 6 has a bifurcated end forming arms 9, 9 in each of which is a pivot hole 10 in opposite disposed relation. The handle 6 also has in its side, adjacent the bifurcated end, a bayonet slot 11, as shown in Figure 1.

The ratchet member 7 consists of a strong ring 12 having oppositely disposed trunnions 13, 13 which are pivotally secured to the arms 9, 9 in the holes 10, 10 by upsetting the ends of the trunnions. This ring 12 also has oppositely disposed locking holes 14, 14 in its outer edge, as shown in Figure 4 and a series of ratchet teeth 15, 15 on its inner circumference, of an even number, preferably twenty four. An inner ratchet member 16 has a central hole 17 preferably square and four slots 18, 18 in its periphery in which are pawls 19, 19 shaped to fit the ratchet teeth 15, 15. These slots 18, 18 are so placed that when two oppositely disposed pawls are in close engagement with adjacent ratchet teeth the other two pawls are in half way engagement with adjacent ratchet teeth, as shown in Figure 4. Back of each slot 18 is a round recess 20 in which is a coiled spring 21 engaging with a pawl 19 to keep the pawls into engagement with the ratchet teeth under spring tension. On each side of the ratchet member 7 are flat rings 22, 22 recessed into the ring 12 and into the inner ratchet member 16 and these flat rings are secured in place to the ring 12 by rivets 23, 23, as shown in Figures 1 and 4, thereby holding the ratchet member 16 in place in the ring 12.

The locking device 8 consists of a thimble 24 driven into the bifurcated end portion of the handle and having a bayonet slot 25 coinciding with the bayonet slot 11 in the handle. In the thimble 24 is a locking bolt 26 having an end 27 adapted to enter a locking hole 14 in the ratchet member 7 and lock the ratchet in its normal position, as shown in Figures 1 and 2. A coiled spring 28 in the thimble holds the bolt in its locked position under spring tension and the bolt is unlocked by a screw-pin 29 on the bolt in the bayonet slots 11 and 25, and having a head 30 on the outside of the handle for operating the bolt.

When in use any size of a wrench socket 31, shown in dotted lines in Figure 2 and having a stem to fit the hole 17 in the ratchet member 16, may be used. The wrench may be used with the ratchet member 7 in its normal locked position, as shown in Figures 1 and 2 or by unlocking the bolt 26 and moving the pin 29 into the right angle portion of the bayonet slots 11 and 25 the bolt is held in its unlocked position. The ratchet member 7 may now be used at any angle desired, as indicated in dotted lines in Figure 2. By the construction and position of the pawls 19, 19 less movement of the handle 6 is required to engage the pawls with the

ratchet and a more durable and perfect ratchet socket wrench is produced, than has heretofore been done.

Having thus described my invention I claim as new:—

1. A ratchet socket wrench, comprising an elongated tubular handle member having a bifurcated end forming oppositely disposed arms, an outer ratchet member pivotally secured to the oppositely disposed arms and having an even inner number of ratchet teeth, an inner rotatable ratchet member having oppositely disposed spring actuated pawls so arranged that when two oppositely disposed pawls are in operative engagement with coinciding ratchet teeth the other oppositely disposed pawls will be only half into engagement with coinciding ratchet teeth and means for locking the outer ratchet member to the handle.

2. A ratchet socket wrench comprising an elongated tubular handle member having a bifurcated end forming oppositely disposed arms, an outer ratchet member in the form of a ring and pivotally secured to the oppositely disposed arms and having an even inner number of ratchet teeth, an inner rotatable ratchet member and having two sets of oppositely disposed spring actuated pawls so arranged that when one set of two oppositely disposed pawls are in operative engagement with coinciding ratchet teeth the other set of two oppositely disposed pawls will be half way into engagement with coinciding ratchet teeth and means for locking the outer ratchet member to the handle.

3. A ratchet socket wrench, comprising an elongated tubular handle having a bifurcated end forming arms, an outer ratchet member in the form of a ring having trunnions pivotally secured to the arms, said ring having an inner even number of ratchet teeth, an inner rotatable member having means for holding a wrench socket, and two sets of oppositely disposed spring actuated pawls so arranged that when one set of pawls are in operative engagement with coinciding ratchet teeth the other set of pawls will be half way into engagement with coinciding ratchet teeth, means for rotatably securing the inner rotatable ratchet member to the outer ratchet member and means for locking the outer ratchet member to the handle.

In testimony whereof, I have signed my name to this specification.

HENRY LOUIS SAUCIER.