A. S. STEEN.

WRENCH.

APPLICATION FILED MAR. 26, 1909.

964,067.

Patented July 12, 1910.

2 SHEETS—SHEET 1.

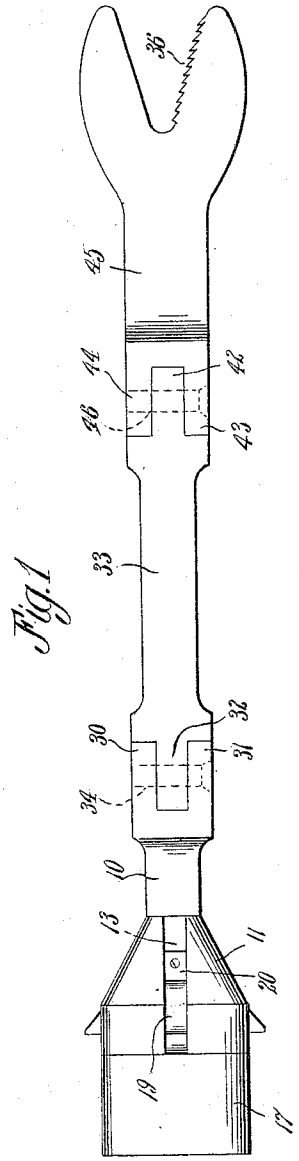

Fig. 1.

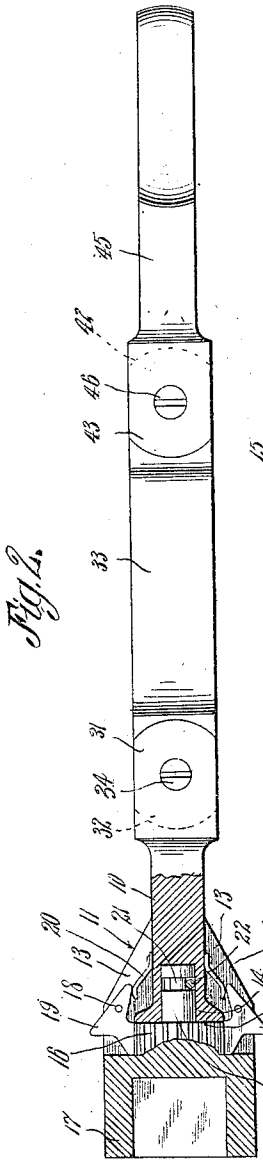

Fig. 2.

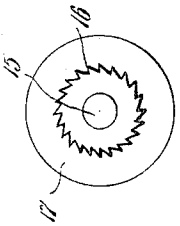

Fig. 3.

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2 SHEETS—SHEET 2.

Fig. 6.

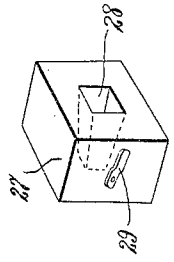


Fig. 3.

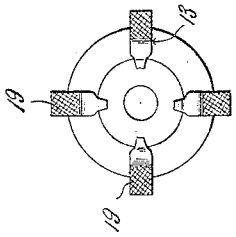


Fig. 5.

Fig. 4.

Fig. 9.

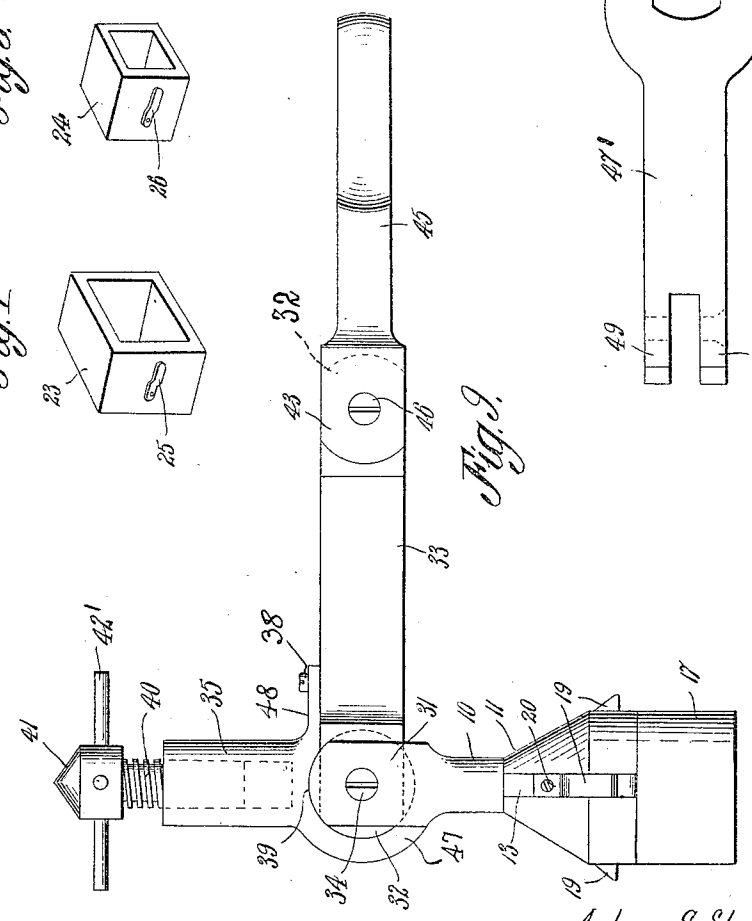
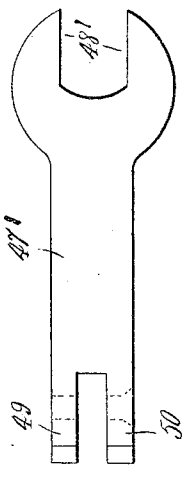


Fig. 7.



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UNITED STATES PATENT OFFICE.

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WRENCH.

964,067. Specification of Letters Patent. Patented July 12, 1910.

Application filed March 26, 1909. Serial No. 485,907.

To all whom it may concern:

Be it known that I, ANDREW S. STEEN, a citizen of the United States, residing at Adams, in the county of Walsh, State of North Dakota, have invented certain new and useful Improvements in Wrenches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in wrenches, more particularly to implements of this character known as combined ratchet and nut wrenches, and has for one of its objects to improve the construction and increase the efficiency and utility of devices of this character.

With this and other objects in view, the invention consists in certain novel features of construction as hereafter shown and described and then specifically pointed out in the claims, and in the drawings illustrative of the preferred embodiment of the invention, Figure 1 is a view from one side of the improved implement arranged as a nut wrench. Fig. 2 is a front view, partly in section, of the same. Fig. 3 is a bottom plan view of the wrench head end of the implement with the nut engaging member detached. Figs. 4 and 5 are perspective views of two of the sockets employed to adapt the implement to nuts of various sizes. Fig. 6 is a perspective view of the socket employed to receive a bit or drill. Fig. 7 is a view of a supplemental wrench element adapted to be employed in connection with the implement. Fig. 8 is a plan view of the nut engaging member, detached. Fig. 9 is a side elevation of the implement arranged as a ratchet drill.

The improved implement comprises a stock 10 flaring outwardly at one end as shown at 11 and provided with a circular cavity or seat 12 in its enlarged end and with a plurality of recesses 13 extending into the enlarged portion 11 and leading at the lower ends into the seat 12. Formed within the stock 10 and leading from the seat 12 is a longitudinal socket 14.

Fitting within the socket 14 is a stud 15, and formed upon the stud 15 or integral therewith is a ratchet disk 16, the ratchet fitting within the seat 12 of the stock. Extending from the outer face of the ratchet is a socket member 17 in which the nut or drill-engaging devices are supported, as hereafter explained.

Mounted to swing at 18 in each of the recesses 13 is a pawl 19, the pawls engaging at one end in the teeth of the ratchet 16 and each yieldably supported at its opposite end by a spring 20, the springs thus operating to maintain the pawls yieldingly in engagement with the ratchet, as shown.

The stud 15 is provided with an annular channel 21 in which a pin 22 is engaged, the pin passing through the flaring portion 11 of the stock, as shown. By this means the stud 15 and its attached ratchet disk and socket member 17 are firmly coupled to the stock while at the same time free to rotate therein subject to the control of the pawls. The socket 17 is designed to receive sockets for supporting various sizes of drills or similar tools.

In Fig. 4 is shown a "head" 23 adapted to be supported within the socket 17, and large enough to receive a relatively large nut, while in Fig. 5 is shown a smaller head 24 adapted to fit within the head 23, and to receive a smaller size nut, and it is obvious that any required number of these telescoping heads may be employed, and thus adapt the instrument to a number of different sizes of nuts. The head 23 is provided with a friction spring 25 adapted to engage against the inner face of the socket 17 and thus support the head therein, while the head 24 is provided with a similar spring 26 adapted to engage by friction against the inner face of the head 23, the springs being of sufficient strength to maintain the heads in position against accidental displacement.

If a drill or similar tool is to be employed the form of head shown in Fig. 6 will be employed consisting of a block 27 having a drill receiving socket 28. This device is provided with a spring 29 similar to the springs 25—26, and for the same purpose. By this means it will be obvious that a simply constructed ratchet wrench head is produced.

The end of the stock 10 opposite to the flaring portion 11 is provided with spaced ears 30—31, and between these ears the reduced terminal 32 of an arm 33 is inserted and secured swingingly in position therein by a pin 34. By this means the arm is free to swing laterally of the stock. The joint between the parts 10—33 is so arranged that when the member 33 is arranged at right

angles to the member 10 as shown in Fig. 9, the arm will be prevented from moving beyond a right angled position by the construction of the joint as will be obvious. When the arm 33 is thus arranged at right angles to the member 10, it will be obvious that a strong leverage may be obtained. This is an important feature of the invention and materially increases the efficiency and advantage without material increase of expense or weight.

In Fig. 9 is shown the means for arranging an attachment when transforming the improvement into a ratchet drill, this attachment consisting in a body 35 having a right angled recess at one end whereby two arms 47—48 are produced, the arm 47 having its inner face curved to bear around the curved end of the arm 32 and the arm 48 having a flat inner face adapted to bear upon the side member 33. When the parts are thus arranged the arm 48 is firmly secured by a clamp screw 38 tapped into the arm 33. The inner end of the body 35 is provided with cavities, one of which is shown at 39, to receive the projecting ends of the ears 30—31. The arm 47 partly enwraps the curved end of the member 32 and is thus firmly supported in position by one single clamp bolt 38, as will be obvious. The body 35 is provided with a threaded bore in its outer end, and fitting in this bore is a feed screw 40 having a conical head 41 and the usual rotating pins 42′. By this simple means it will be obvious that an efficient ratchet drill is produced, which may be quickly and easily transformed from the nut wrench previously described.

The free end of the arm 33 is reduced as shown at 42, and engaging this reduced portion are the spaced ears 43—44 of a wrench 45, the wrench being swingingly coupled to the arm by a pin 46. The member 46 is preferably in the form of a threaded pin so that it may be readily detached to enable wrenches having various forms of jaws to be coupled to the member 33. To this end a wrench having alligator jaws 36 is shown coupled to the member 33, while in Fig. 7 is shown a wrench stock 47′ having an ordinary nut engaging wrench head 48′, the stock 47′ having spaced ears 49—50 corresponding to the ears 44—43 of the stock 45, and adapted to be coupled by the pin 46 to the reduced terminal 42 of the member 33.

The improved device is simple in construction, can be inexpensively manufactured, and in various sizes, and of any suitable material, but will preferably be of tool steel or similar material, so that it will withstand the severe strains to which implements of this character are generally subjected.

What is claimed, is:—

1. A wrench comprising a stock, a nut engaging device at one end of said stock, an arm mounted to swing from the opposite end of said stock, said arm adapted to be located at right angles to said stock, a supporting body having a right angled recess at one end bearing over the jointed ends of said stock and arm when the same are in right angular position, means for securing said body to said arm, and a feed screw operating in said body.

2. A wrench comprising a stock, a ratchet head at one end of said stock, an arm mounted to swing from the opposite end of said stock, said arm adapted to be located at right angles to said stock, a supporting body having a right angled recess at one end bearing over the jointed ends of said stock and arm when the same are in right angular position, means for securing said body to said arm, and a feed screw operating in said body.

3. A wrench comprising a stock formed in two parts swingingly united, means for limiting the movement of the stock parts in one direction, a wrench head at one end of one of said stock members, a supporting body having a right angle recess at one end bearing over the jointed ends of said stock members when the same are in right angular position, means for securing said body to said stock members, and a feed screw operating in said body.

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

ANDREW S. STEEN.

Witnesses:
O. H. LUNDQUIST,
C. R. VIORY.