N. HELLEM.

WRENCH.

APPLICATION FILED MAR. 13, 1919.

1,414,949. Patented May 2, 1922.

Fig. 1.

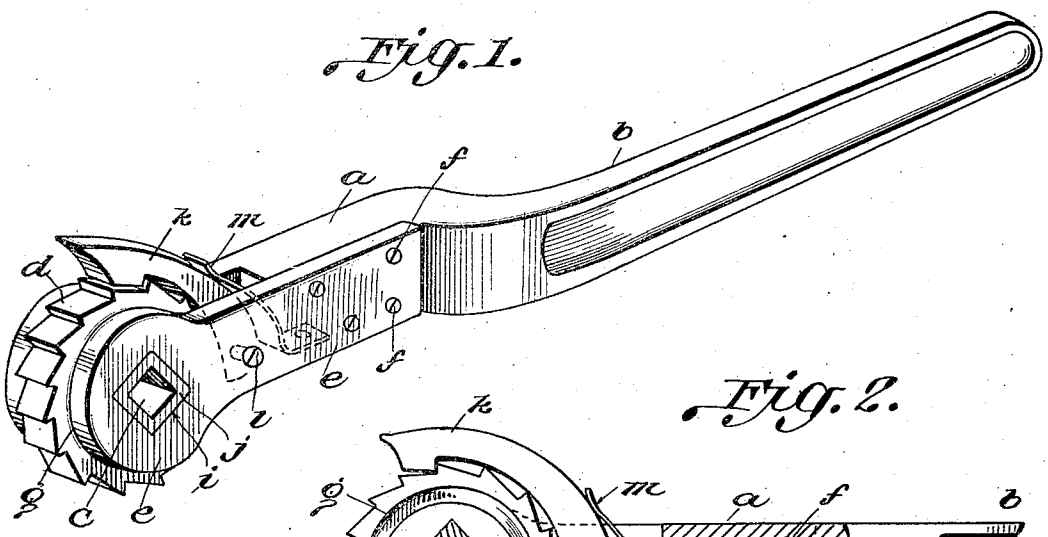


Fig. 2.

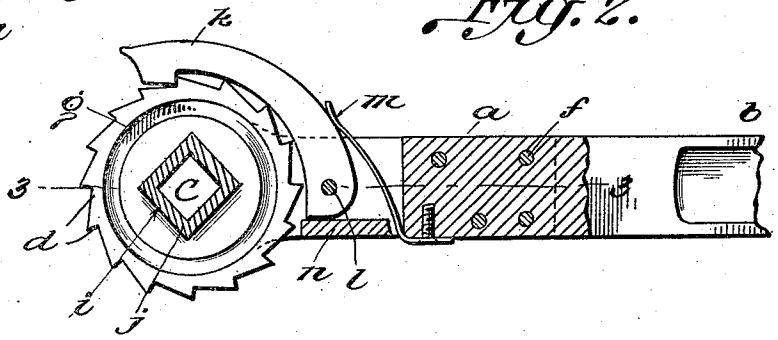
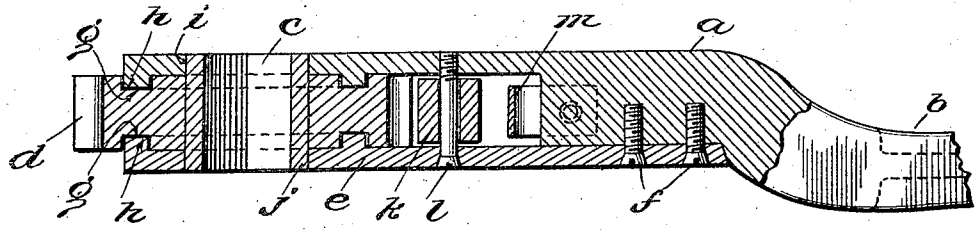


Fig. 3.



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UNITED STATES PATENT OFFICE.

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WRENCH.

1,414,949. Specification of Letters Patent. Patented May 2, 1922.

Application filed March 13, 1919. Serial No. 282,441.

To all whom it may concern:

Be it known that I, NELS HELLEM, a citizen of the Kingdom of Norway, and a resident of the city of Portland, county of Multnomah, State of Oregon, have invented a new and useful Improvement in Wrenches, of which the following is the specification.

My invention has for its object to provide a simply constructed, efficient wrench which is especially adapted for operating in places where there is but little working room, or where, by reason of the location of the bolt heads or nuts in crowded places, they are hard to get at, or an ordinary wrench would be hard to manipulate.

My further object is to so arrange my wrench that it need not be removed from the bolt head or nut until the operation of tightening up or loosening is completed. Also to adapt my wrench for use on different sized bolt heads and nuts.

I attain my object by the device illustrated in the accompanying drawings, in which—

Figure 1 shows a perspective view of my wrench;

Fig. 2 is a partial side elevation with the near plate constituting the near side of the housing of the ratchet wheel included in my wrench removed;

Fig. 3 is a larger scale section taken on line 3 in each of Figs. 1 and 2.

I will describe my wrench in its preferred form without, however, desiring it to be understood that it can only be made in accordance with the exact details of construction hereinafter given.

The shank *a* is made at its handle end with an offset as at *b*, in this way providing for the more convenient use of my wrench under conditions where the bolt head or nut is set back. At the opposite extremity the shank is made with an integral projection *c* constituting one side of the housing for the ratchet wheel *d*. The shank *a* is provided with an offset *a'* having a face a^2 parallel with the housing side *c* on which face is firmly secured a plate *e* by screws *f*, the plate *e* constituting the other side of the housing for the ratchet wheel *d*, and by the described construction is so spaced from the side *c* as to rotatably hold the ratchet wheel without tending to bind the same and thus interfere with its free rotation. The ratchet wheel is provided with annular recesses *g* on its flat faces, said recesses being concentric with the axis of rotation of the ratchet-wheel and the inner faces of the housing sides are provided with annular ribs or bosses *h* adapted for bearing in said annular recesses of the ratchet wheel and thereby rotatably and firmly supporting the latter. The ratchet wheel is made with a central rectangular hole *i* for receiving the bolt head or nut, and in order that my wrench may be used on bolt heads and nuts of various sizes I provide an insert as *j*, or a series of such inserts adapted to fit the sizes of the bolt heads and nuts on which my wrench is to be used. The housing sides *c* and *e* have parts cut away corresponding with the apertures of the ratchet wheel. Between the housing sides is pivoted a pawl *k* on a pintle *l* and a spring *m* tends to hold the head of the pawl in engagement with the teeth of the ratchet wheel *d*. The pintle *l* also serves to hold the sides *c* and *e* firmly together at the same time preventing the sides from binding with the ratchet-wheel. The shank may be provided with a rib *n* adapted to limit the forward throw of the pawl by the spring *m* as illustrated in Fig. 2. The latter arrangement is convenient in that it facilitates the assemblage of the parts.

The operation of the wrench is self-evident from its illustration and description above given.

I claim:

In a ratchet wrench of the character described, a shank provided with an integral offset portion constituting one side of the ratchet wheel housing, a plate firmly secured on said shank overlying and extending the full length of such offset portion, such plate constituting the other side of said housing, a ratchet wheel between the sides, the ratchet wheel being provided on each side face with an annular recess concentric with its axis of rotation, the interior faces of the housing sides being provided with perpendicular annular portions bearing in said recesses of the ratchet wheel and extending completely around the said recesses of the latter, and a curved spring controlled pawl engaging with that side of said ratchet wheel located approximately in that plane of its diameter which is normal to the longitudinal axis of the shank of the wrench.

NELS HELLEM.