(No Model.)

F. S. THRING.

WRENCH.

No. 419,571. Patented Jan. 14, 1890.

Fig. 1.

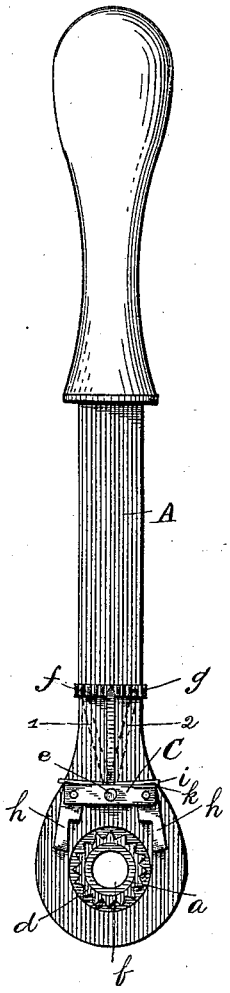


Fig. 2.

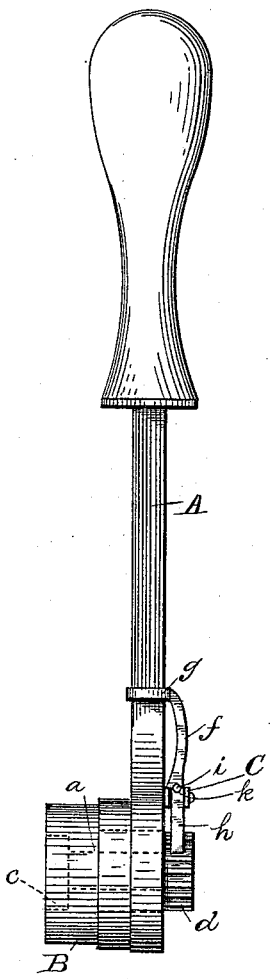
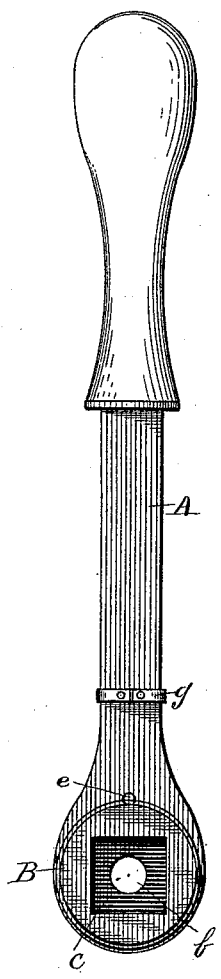


Fig. 3.



WITNESSES

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WRENCH.

SPECIFICATION forming part of Letters Patent No. 419,571, dated January 14, 1890.

Application filed May 31, 1889. Serial No. 312,818. (No model.)

To all whom it may concern:

Be it known that I, FREDRICK S. THRING, a citizen of the United States, residing at New York, in the county of New York and State of New York, 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.

My invention relates to improvements in wrenches, and more particularly to that class of such tools known as "ratchet-wrenches."

The object of the invention is to obtain a wrench of the character described, which will be simple in construction, effective in its operation, and which can be used under all circumstances and with nuts of various sizes and forms; and to the accomplishment of the above the invention consists in certain novel parts and combination of parts, as will be described and claimed.

Reference will be made to the accompanying drawings, in which Figure 1 is a top plan of the wrench, Fig. 2 a side elevation, and Fig. 3 a bottom plan.

In the drawings, A represents a handle, preferably rounded at one end to accommodate the hand of the user and flattened at the opposite end. The flattened end of the handle is bored vertically, the opening thus formed being adapted to receive the chuck B. This chuck is provided on its upper face with a stud *a*, which is of such a size as to adapt it to enter and revolve in the opening formed in the handle. The chuck is bored vertically, the opening *b* being thus formed, this arrangement being provided to allow for the passage through the chuck of the bolt upon which the nut is being placed, such arrangement adapting the wrench for use on any length of bolt. On its under face the chuck is cut away, as shown at C, to a form corresponding to the form of the nut, the chuck shown in the drawings being adapted to use on a square nut; but it will be understood that any shaped or sized depression may be formed, it being my intention to furnish with each wrench a number of chucks adapted to use on different styles and sizes of nuts.

Around the upper end of the stud *a*, which protrudes up beyond the upper face of the handle, a cog-ring *d* is secured; or such ring may be part of such stud.

C is an arm pivoted at *c* upon the handle A, which arm is located, as shown, slightly to the rear of the cog-ring *d*, and provided with a rearwardly-extending arm *f*, such arm being slightly curved, as shown in Fig. 2, and arranged to act as a pawl engaging the teeth of a rack *g*, such rack consisting of a toothed band secured around the handle, as shown; or it may be a toothed ridge cast or formed with the handle. In each end of arm C there is pivoted a dog *h*, each such being preferably hollowed out on its rear end, as at *i*, to receive the ends of spring *k*, such spring being secured to the pivoted arm C.

The operation and manner of using is as follows: The parts are first arranged, as shown in Fig. 1, in full lines, the pawl *f* being situated at the center of the rack *g*. The proper size and form of chuck being selected, the stud *a* thereof is passed up through the opening formed in the handle, and if the nut is to be removed from its bolt the pawl *f* is moved to the extreme right of the rack, as shown in dotted lines marked 1, which movement will turn the arm C on its pivot and bring one dog thereof to a position to engage the teeth of the cog *d*. The handle is then moved backward and forward, the dog in one movement sliding over the teeth of the cog and in the reverse engaging therewith and revolving the chuck. To tighten a nut or drive it to its seat, the parts are carried to the position shown by dotted lines marked 2 and the operation continued.

What I claim is—

In a wrench, the combination, with a vertically-bored handle A and chuck B, the latter formed with cogs *d*, of arm C, pivoted to the handle, dogs *h*, pivoted upon said arm and recessed on their rear ends, spring *i*, secured to the arm C and resting in the recessed ends of the dogs, pawl *f*, secured to arm C, and rack *g*, formed upon the handle, as and for the purpose set forth.

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

FREDRICK S. THRING.

Witnesses:

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