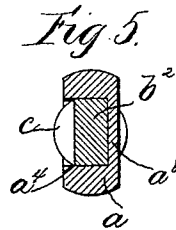
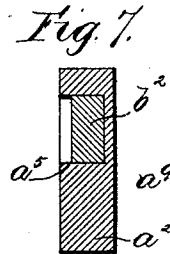
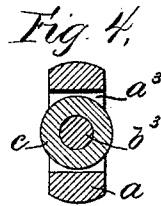
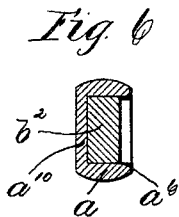
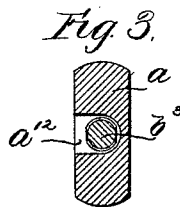
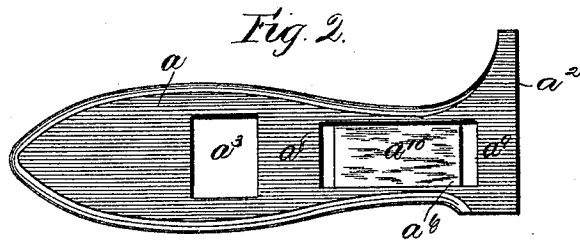
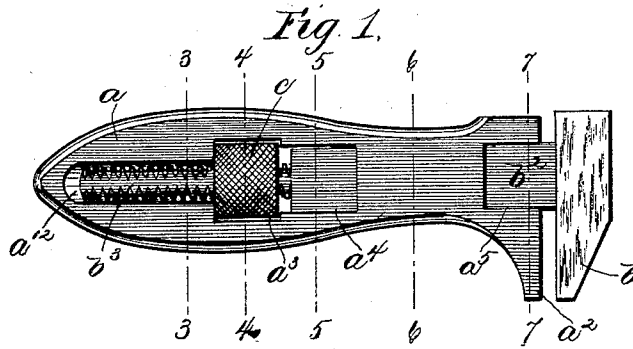


(No Model.)

R. T. TORKELSON.
WRENCH.

No. 459,218.

Patented Sept. 8, 1891.



Witnesses
Jas. J. McAloney.
W. E. Heine.

Inventor.
Reinhard T. Torkelson
by J. P. Guinn.
Att'y.

UNITED STATES PATENT OFFICE.

REINHARD T. TORKELSON, OF HATFIELD, ASSIGNOR TO JOHN C. SPEIRS, OF WORCESTER, MASSACHUSETTS.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 459,218, dated September 8, 1891.

Application filed January 28, 1891. Serial No. 379,421. (No model.)

To all whom it may concern:

Be it known that I, REINHARD T. TORKELSON, of Hatfield, county of Hampshire, State of Massachusetts, have invented an Improvement in Wrenches, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention is embodied in a wrench of that class in which the handle and one jaw of the wrench are formed in a single forging or piece of metal provided with a longitudinal recess, and the other jaw is made in one piece of metal or forging with a shank that works in the said longitudinal recess of the handle portion and is operated by a nut working on a threaded portion of said shank and engaging with the handle portion of the wrench.

The object of the invention is to produce a wrench of the kind just described, in which the handle portion can be made by forging in dies and recessed properly to receive the shank of the other jaw of the wrench without subsequent cutting or finishing operation by tools. Wrenches of this kind have been heretofore made in which the handle and one jaw are formed in a single drop-forging and a portion of the shank recess is formed in the handle in the operation of forging, the said handle being longitudinally slotted or grooved from one side for a portion of its length; but in order to complete the socket for the shank the groove formed in the forging has to be undercut in a subsequent operation by a milling-tool.

In accordance with the present invention the handle member of the wrench is made by drop-forging, and the handle is so constructed that recesses are made from both sides of the handle in the operation of forging, the recess from one side occupying a space lengthwise of the handle intermediate between the recesses at the other side and all the recesses extending more than half-way through the handle, so that together they form a complete longitudinal recess or mortise to properly guide and support the shank for the other jaw, the said mortise being opened for a part of its length to the side of the handle at each side thereof, and also being closed for a part of its length of the handle at each side thereof

sufficiently to confine and guide the shank of the other member of the wrench in all positions. The shank may be operated by the usual nut, and the recess for the threaded portion of the shank may be formed in forging the handle, or, if preferred, may be formed by a subsequent boring operation, the present invention relating especially to the construction by which the rectangular mortise for confining the rectangular portion of the shank-jaw is produced.

Figure 1 is a side elevation of a wrench embodying this invention; Fig. 2, a side elevation showing the opposite side of the handle of the wrench to that presented in Fig. 1; and Figs. 3 to 7, inclusive, transverse sections on lines 3 3, 4 4, 5 5, 6 6, 7 7, respectively, Fig. 1.

The invention relates especially to the construction of the handle member *a* of the wrench, which has one jaw *a*² made integral with it in the usual manner and co-operates with another jaw *b*, having a shank portion *b*², that is rectangular in cross-section and has a threaded continuation *b*³ of said shank that co-operates with a nut *c*, working in a transverse opening *a*³ in the handle portion, all said parts, except the handle portion, being shown as of the same construction and having the same mode of operation as in a well-known form of wrench now in common use.

In order to provide a suitable mortise or longitudinal guide-passage in the handle *a* to receive and support the shank *b*², the said handle *a* is in the operation of forging provided with recesses *a*⁴ *a*⁵, (see Figs. 1, 5, and 7,) extending from one side of the handle and more than half-way through the handle, and a recess *a*⁶, (see Figs. 2 and 6,) extending in from the other side of the handle. The width of the said recesses is the same as the width of the shank *b*², so that the side walls of the recess form a continuous guide for the upper and lower edges of the shank *b*², as shown, and the said recesses are so formed as to afford bridges *a*⁸ *a*⁹ opposite the recesses *a*⁴, *a*⁵, (see Figs. 5 and 7,) and *a*¹⁰ opposite the recess *a*⁶, (see Figs. 2 and 6,) which bridges form guides extending a part of the length of the shank *b*² at each side face thereof, the said bridges, together with the side walls of the recesses, constituting a complete guide for the shank

b^2 . The said guide is all formed in the act of drop-forging the handle, it being necessary only to provide dies with proper projections to form the recesses a^4 a^5 a^6 and at the same time with the hollow of the other die to form the bridges a^8 a^9 a^{10} . No machine-work will be required, it being necessary only to remove the fins that may be formed by the action of the die.

10 The recess to receive the threaded portion b^3 of the shank may be made by boring the handle in the usual manner, or, if desired, to save the cost of additional machine-work, it may be formed, as shown in Figs. 1 and 3, by

15 a recess or groove a^{12} , extending in from one side of the handle deep enough to accommodate said threaded shank b^3 , said groove be-

ing produced by proper projection on the die that acts on that side of the handle-forging.

I claim—

The herein-described wrench-handle, provided with recesses on the opposite sides of said handle and bridges at the bottoms of said recesses which unite to form the guide-opening for the shank of the other member of the wrench, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

REINHARD T. TORKELOSON.

Witnesses:

GEORGE A. ELDER,
CHARLES N. CLARK.