

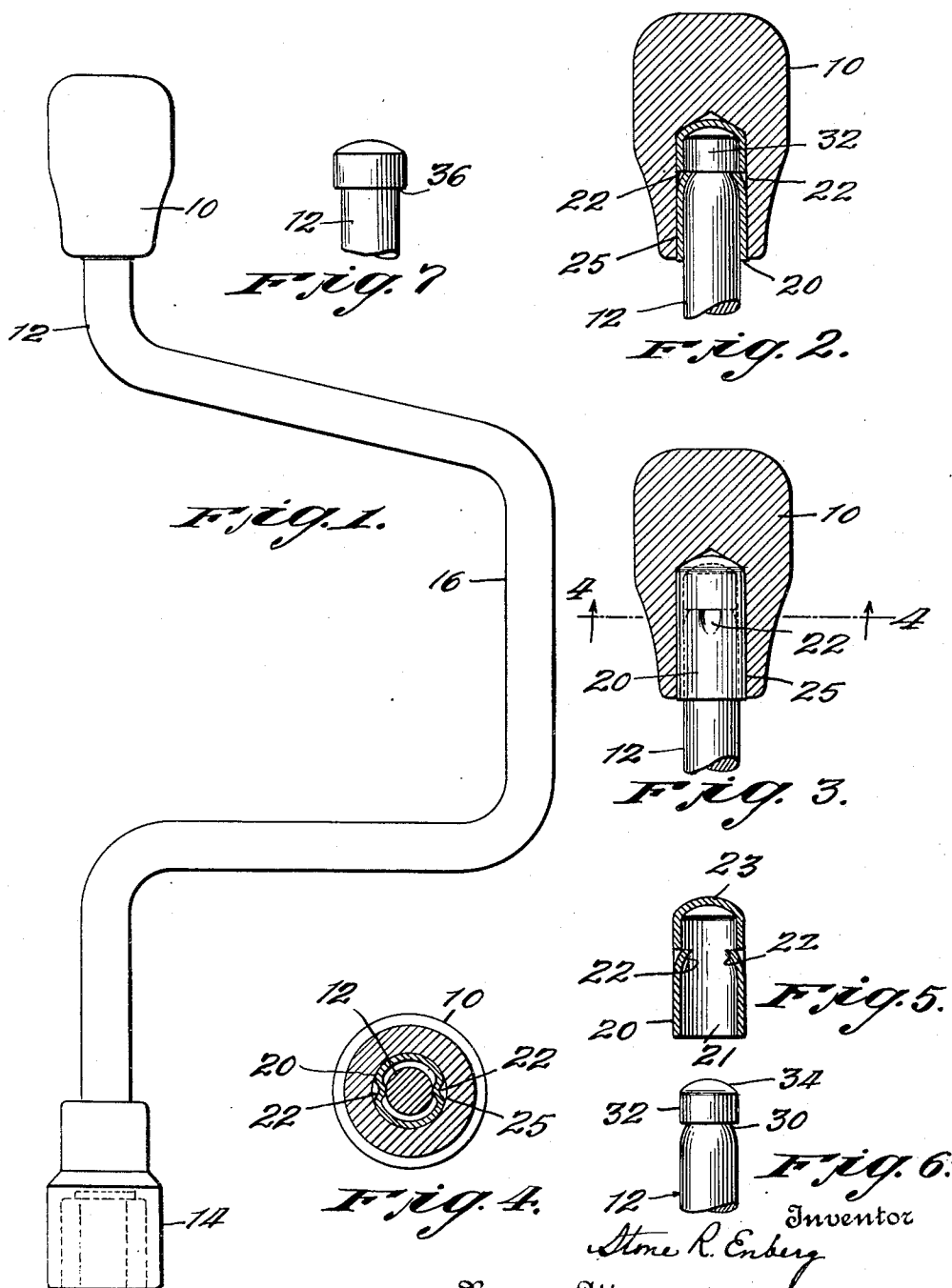
May 12, 1925.

1,537,529

S. R. ENBERG

TOOL HANDLE

Filed March 1, 1923



Inventor
Stone R. Enberg
By Attorneys
Morse, Hammond, Morse & Holt

UNITED STATES PATENT OFFICE.

STONE R. ENBERG, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO WALDEN-WORCESTER, INCORPORATED, OF WORCESTER, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

TOOL HANDLE.

Application filed March 1, 1923. Serial No. 621,985.

To all whom it may concern:

Be it known that I, STONE R. ENBERG, a citizen of the United States, residing in Worcester, county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Tool Handles, of which the following is a specification.

This invention relates to improvements in tools, and more especially to improved methods and means for mounting tool handles.

The purpose of this invention is to provide a means whereby tool handles may be securely attached to the tool shank without the use of pins, screw threads, specially formed handles, or other complicated parts difficult to manufacture, accomplishing the desired results with a means at once simple, easily and quickly applied, manufactured without use of special machinery and from inexpensive materials.

The means formerly employed for such purposes have involved either a considerable amount of difficult and costly labor, joined with even more costly processes involving intricate machinery, or the use of screws, lock nuts, threaded parts, extra holes, pins, lock rings, springs or the like, often forming peculiarly shaped handles having inconvenient projections and knobs.

In the manufacture of tool handles, especially those intended for wrenches, it is essential, if the handle is to be of practical utility, that it be strong enough to withstand the roughest use and abuse without sustaining serious damage, that it be of such low cost that it may be easily replaced in the event of loss, and that it be of such construction as to be produced with a minimum of labor and materials so that its selling cost will be low enough to compete with the prices of tools now on the market.

The herein-disclosed method and means of handle mounting accomplishes all of the foregoing essentials and such other improvements as will appear in the drawings, description and claims which form a part of this specification.

In the drawings like numerals have been employed to designate like members throughout the several views, in which:

Fig. 1 is an elevation of a complete wrench provided with a handle employing one embodiment of my invention.

Fig. 2 shows the embodiment shown in Fig. 1 in vertical section.

Fig. 3 is a further sectional view of the embodiment shown in Figs. 1 and 2.

Fig. 4 serves to illustrate a section of the embodiment shown in Figs. 1 and 2, taken on the line 4—4 of Fig. 3.

Fig. 5 is a sectional view of a detail.

Fig. 6 discloses a preferred construction of a further detail.

Fig. 7 discloses a fragmentary elevation of a modified detail.

An inspection of the complete wrench shown in Fig. 1 will show that the handle 10 is revolvably mounted upon the shank 12 without affecting the exterior form of the handle and, in fact, without exterior evidence of the means employed. The handle may be grasped without danger of injury or discomfort to the operator's hands, an important feature when work covering a considerable period of time has to be done, a comfortable hand grip assisting materially in convenience and facility of operation.

The particular wrench shown is of the well-known "brace" form provided with a socket portion 14 for engaging the work and with an offset portion 16 whereby the wrench is turned when held upon the work by the handle 10. It should be understood, however, that this wrench serves but to illustrate one embodiment of the invention and that my invention is equally applicable to many other forms of tools.

My improved mounting means comprises a metal cup or cap 20, best seen in Fig. 5. This cup 20 is preferably pressed, or drawn, from sheet metal to form an internal bore 21, slightly larger than the external diameter of the tool shank 12. Lugs or projections 22 are formed in the walls of the cap 20. These lugs 22 may be formed or cut during the process of formation or during the assembly of the handle 10 upon the shank 12.

The upper end 23 of the bore 21 is preferably made closed, as shown, to form a thrust bearing for the upper end of the shank 12, but it should be understood that the upper end of this cap may be open and the thrust taken up by the bottom of the bore 25 in the handle 10.

The shank 12 is provided with a circumferential groove 30 and preferably has its end portion rounded over as at 34 to form a

bearing of low frictional qualities. The groove 30 and the rounded end 34 may be conveniently formed when the shank 12 is cut from the bar, although in many cases it has been formed with equal satisfaction by swaging, rolling or pressing processes.

The handle 10 requires no other provision than a straight internal bore 25, of such diameter that the cap 20 is a driving fit therein.

To assemble the handle upon the shank, the cap 20 is slipped over the end of the shank 12; the lugs 22 of the cap 20 are then forced inward until they enter the groove 30, as seen in Figs. 2 and 4; the cap 20 is then forced into the bore 25 in the handle 10. The clearance fit of the cap 20 upon the shank 12 permits the handle 10 to rotate easily upon the shank, all rotation occurring between the cap and the shank. Cap 20 may be made of brass or anti-friction metal if required. It will be evident that if desired the shank 12 may be supported with the cap 20 upon it and the handle 10 driven over the cap.

It will also be evident that if preferred the lugs 22 may be preformed to full size, the cap 20 driven, or pressed, into the handle 10 and the shank 12 then pressed or driven into the cap in the handle.

Manifestly, the end portion 32 of the shank 12 can be either of larger, or smaller, diameter than the rest of the shank, if the cap 20 be made of such size as to fit thereover. This allows the end portion 32 to be formed by heading over the end of the shank 12, if such method is preferred, whereby the groove 30 will be replaced by the shoulder 36 formed at the juncture of the headed-over portion with the shank proper, as is shown in Fig. 7.

From the foregoing description and from

the figures of the drawings, it will be evident that the applicant has provided an extremely simple and effective means for securing a handle upon a shank. It will, of course, be plain that many changes in embodiment may be made, as an instance: if the end 23 of the cap 20 be left open, the cap becomes a simple sleeve and yet serves to provide a considerable improvement over means previously provided, accomplishing many of the functions of the preferred form shown in the drawings; that the cap need not be rotatable on the shank if a rotating handle is not required; and that many other changes and modifications may be made without departing from the spirit of my invention or the scope of the following claims.

What I claim is:

1. In a tool handle mounting, a tool shank having an annular groove adjacent the end thereof, a metal cup adapted to fit over the end of said tool shank, and having a portion of the walls thereof displaced inwardly to engage in said groove and prevent removal of said cup while permitting rotation of the same on the shank, and a handle member tightly enclosing and substantially concealing said cup.

2. The method of forming a tool handle mounting, which comprises providing a shank with a portion of reduced diameter adjacent the end thereof, fitting a metal cup over the end of said shank and displacing a portion of the walls thereof into said portion of reduced diameter to secure the cup rotatably on the shank, and securing a smooth handle member around said cup to conceal the displaced portions thereof and provide a smooth hand grip.

STONE R. ENBERG.