

(No Model.)

J. C. SPEIRS.
METHOD OF MAKING WRENCHES.

No. 536,301.

Patented Mar. 26, 1895.

Fig. 1.

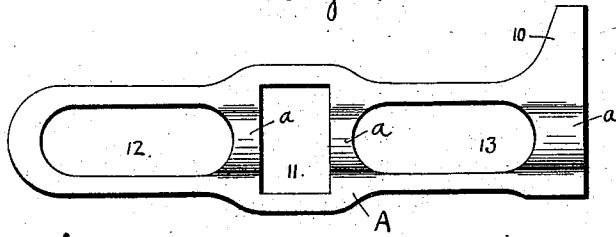


Fig. 2.

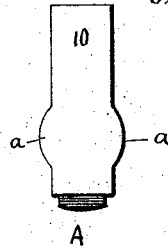


Fig. 3.

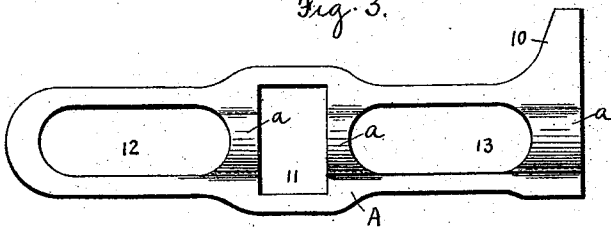


Fig. 4.

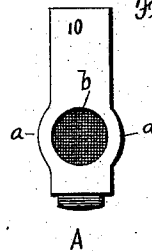


Fig. 5.

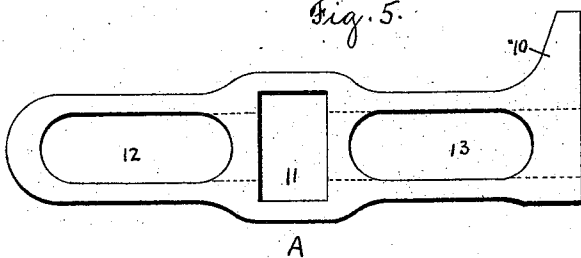
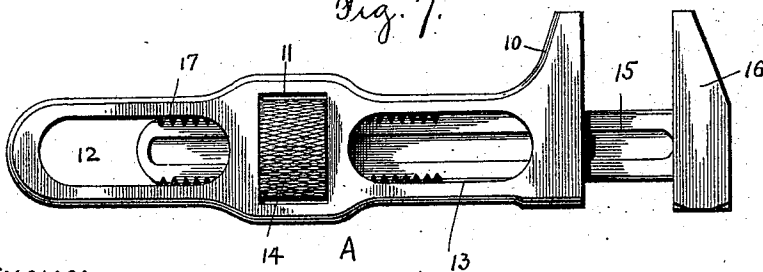


Fig. 6.



Fig. 7.



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METHOD OF MAKING WRENCHES.

SPECIFICATION forming part of Letters Patent No. 536,301, dated March 26, 1895.

Application filed February 23, 1894. Serial No. 501,163. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. SPEIRS, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Methods of Making Wrench-Bodies, of which the following is a specification.

My invention relates to the parts or forgings which are employed in making monkey wrenches, and the especial object of my invention is to cheapen and improve the construction of monkey wrenches by providing an efficient and simple method of so forming or forging wrench bodies that they will be provided with elliptical or non-circular sockets for receiving the movable jaw or shank of the wrench.

To these ends, my invention consists of the improved methods, as hereinafter described and more particularly pointed out in the claims at the end of this specification.

Referring to the accompanying drawings, Figure 1 is a side elevation of the forging or blank from which my body is made. Fig. 2 is an end elevation of the same. Fig. 3 is a side elevation of the forging after the central longitudinal hole has been drilled. Fig. 4 is an end elevation of the blank at this stage of its manufacture. Fig. 5 is a side elevation of the wrench body in its complete form, or after the bosses have been flattened by pressure. Fig. 6 is an end elevation of the same, and shows the form which the longitudinal hole assumes after this operation, and Fig. 7 is a side elevation of a complete wrench constructed according to my invention.

The method of making my wrench body is as follows:

I first forge or form a suitable blank A, of substantially the shape shown in Figs. 1 and 2. This blank is formed with a jaw portion 10, and with a series of bosses *a*. The bosses are segmental in shape, and are formed on opposite sides of the blank in order to form a thickened portion in that part of the blank in which the longitudinal hole for receiving the wrench-shank is formed. The blank A is provided with an aperture to receive the nut which forms a part of the complete wrench, and with cut-away portions 12 and 13 at each side of the nut-aperture 11.

The next step in the manufacture of my wrench body is to form or drill a hole *b* longitudinally in the blank A, through that part of the blank which is reinforced or thickened by the bosses *a*. The form of the blank after this operation, is substantially that shown in Figs. 3 and 4. I then place the blank A in a suitable press, or otherwise apply pressure to the same, and flatten the bosses or enlargements *a*, until the blank or body portion presents substantially a plane surface. This step in the manufacture of my wrench body converts the longitudinal hole *b* from the circular shape shown in Figs. 3 and 4 to the substantially elliptical shape shown in Figs. 5 and 6. I have found by following this method of forming a wrench body, that I am able to produce an elliptical hole longitudinally in the body of the wrench, which requires very little or no finishing, and which is well adapted to receive the ordinary shank of the wrench.

The advantage of my method is that the wrench body is practically completed by forging, and the slow step of shaping the hole by broaches or cutters is done away with.

If it is desired to make a more nicely finished hole in completing the wrench body, the hole *b* may be dressed out or finished, and this may be done either by driving a broach through the same, or by using a suitable milling cutter, and I preferably use a broach for this purpose.

It will be seen that as the hole is practically brought to the desired shape by forging, all that remains to be done by the broach or cutter is simply to smooth out or dress the hole.

The wrench body having thus been formed into shape, its surface may be smoothed and polished, or may be milled in order to present a smooth surface, and may then be plated or may be finished up in any of the ordinary manners.

Fig. 7 illustrates the wrench body, as used in the complete wrench. In the aperture 11, I insert a nut 14, which has a roughend or milled periphery, and a shank 15, which carries the jaw 16, is inserted through the hole *b*, and the nut 14 is adapted to engage the partial thread 17, which is formed upon this wrench-shank.

I am aware that changes may be made in the construction and the precise form of

wrench body which I have shown is illustrative merely, and simply shows one form which can be produced by my method. I therefore do not wish to be limited to the details of construction, but

5 What I do wish and desire to secure by Letters Patent is—

1. The herein described method of forming a wrench body, which consists in forming a blank with enlarged portions or bosses, boring or forming a longitudinal hole through these enlarged portions, and then compressing the enlarged portions of the blank so that the longitudinal hole will assume substantially an elliptical shape, substantially as described.

2. The herein described method of forming a wrench body, which consists in forming a blank with segmental enlarged portions or bosses, forming a longitudinal hole through the enlarged portions, and applying pressure to the enlarged portions, until the blank has substantially plane sides, so that the longitudinal hole will assume a flattened or elongated form, substantially as described.

3. The herein described method of forming

a wrench body, which consists in forging a blank with enlarged portions or bosses, drilling a longitudinal hole through these enlarged portions, flattening the enlarged portions or bosses so that the longitudinal hole will assume a flattened or elongated shape, and finishing or smoothing out the longitudinal hole, substantially as described.

4. The herein described method of forming a wrench body, which consists in forging a blank with segmental enlargements or bosses *a*, drilling a longitudinal hole *b* through these enlarged portions or bosses, compressing the bosses *a* until the blank has substantially plane sides and the hole *b* has an elongated or flattened shape, smoothing or finishing the hole *b*, and finally finishing and polishing the exterior of the blank, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN C. SPEIRS.

Witnesses:

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