L. CHAPMAN.

Dies for Forming Wrench-Heads.

No. 137,053. Patented March 25, 1873.

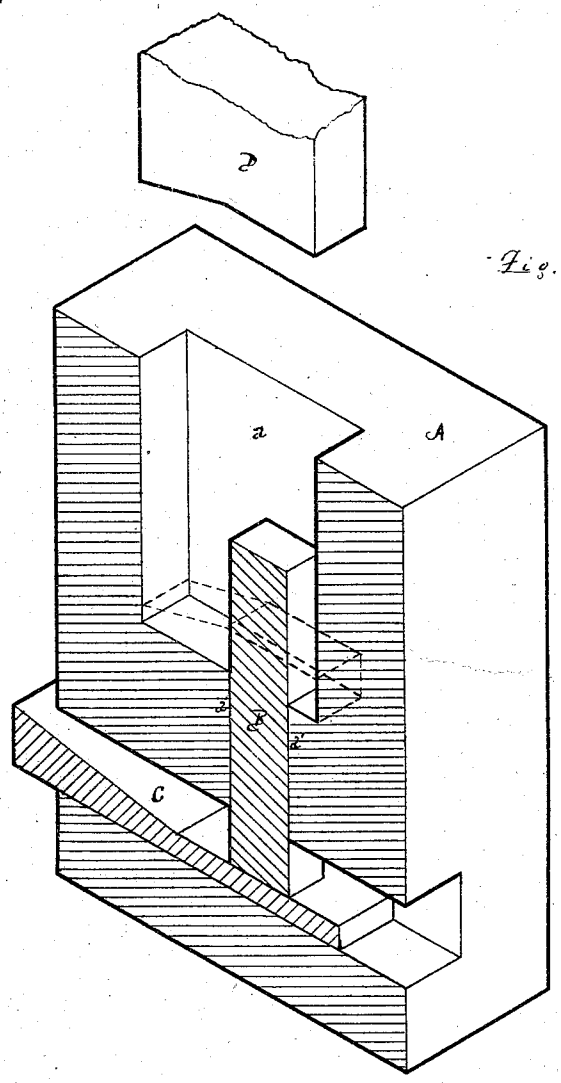

Fig. 1.

Witnesses.

F. G. Fuller

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UNITED STATES PATENT OFFICE.

LUKE CHAPMAN, OF COLLINSVILLE, CONNECTICUT, ASSIGNOR TO THE COLLINS COMPANY, OF SAME PLACE.

IMPROVEMENT IN DIES FOR FORMING WRENCH-HEADS.

Specification forming part of Letters Patent No. **137,053**, dated March 25, 1873.

To all whom it may concern:

Be it known that I, LUKE CHAPMAN, of Collinsville, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in the Manufacture of Wrench-Heads, of which the following is a specification, reference being had to the accompanying drawing, in which—

Figure 1 is a central vertical section of the die, plunger, and key made use of, the figure showing but half of the same.

The common method of forming these wrench-heads has been to take a bar of iron or steel, of a width corresponding to the length of the wrench-head, and of a thickness corresponding to the thickness of the wrench-head, and then, by hand-forging and the aid of certain forming-tools, form the wrench-head and draw down a part of the bar into the shape and size of the wrench-bar, this, of course, requiring skilled labor and considerable expense.

My invention consists in dies and process for forming a wrench-head upon a bar of the width and thickness of the wrench-bar, requiring only unskilled labor and at a great reduction of cost, the product being a much superior article than that formed by the old process.

The letter A indicates the die made use of, having in its upper surface the rectangular cavity *a*, in which the head of the wrench is formed. The letter B indicates the wrench-bar upon which a head is to be swaged. Its upper end is heated to about a welding-heat so as to make it malleable, and the bar is then set into the die A, extending down through the hole *a'* and resting on the key C. The plunger D (its under face of the same shape as the top of a wrench-head) now comes down under power and upsets the upper end of the bar down into the shape of a wrench-head, as indicated by the dotted lines, within the opening *a*. The plunger now moves up again, and the bar B, which wedges in somewhat by the upsetting, is started out by driving the wedge-shaped key C inward, after which it can more readily be removed.

It is understood, of course, that the bars are cut into the proper length before the head is swaged.

There are obviously a number of substitutes or equivalents which can be used in the place of the key C—as screws, levers, &c.—but I prefer the wedge-shaped key. It is also obvious that the bar may be partially headed in a number of ways before being subjected to the action of this die and plunger, and while I make no special claim, so far as these Letters Patent are concerned, to any such process, I intend that my claim shall cover the application of this die and plunger to heading wrenches whether the whole or only a part of the heading process is performed by them.

I claim as my invention—

1. The die and plunger constructed and designed to act in combination, substantially as described, for the purpose set forth.

2. The combination of the die, the plunger, and the key, designed and constructed for use substantially as described, for the purpose set forth.

LUKE CHAPMAN.

Witnesses:

OLIVER F. PERRY,

EDWARD H. SEARS.