

L. CHAPMAN.

Improvement in Dies for making Wrench Heads.
No. 123,554.

Patented Feb. 13, 1872.

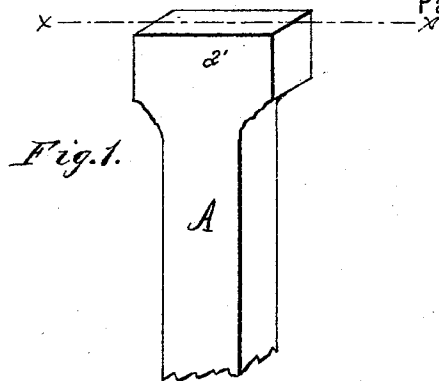


Fig. 2.

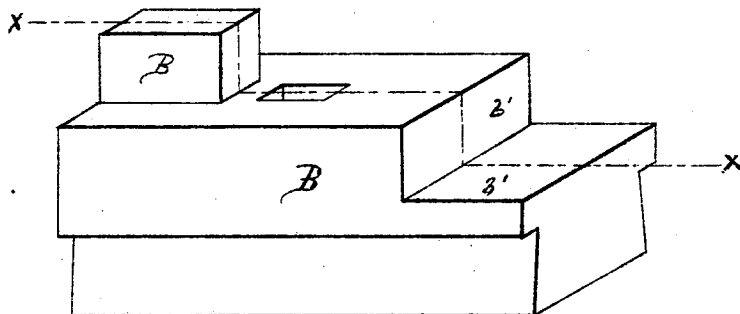
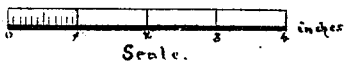
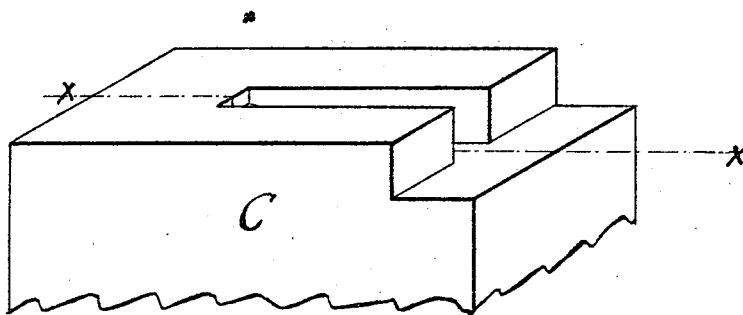


Fig. 3.



Witnesses.

E. Häfeli
F. E. Steele

Inventor.

Luke Chapman
by W. E. Simonds
1872

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2 Sheets--Sheet 2.

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Fig. 4

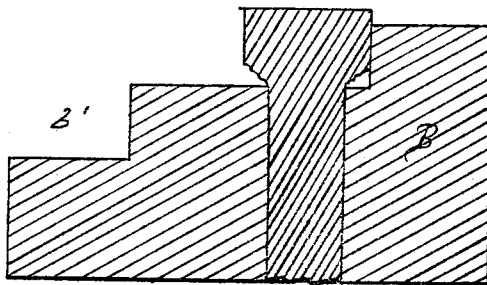
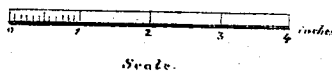
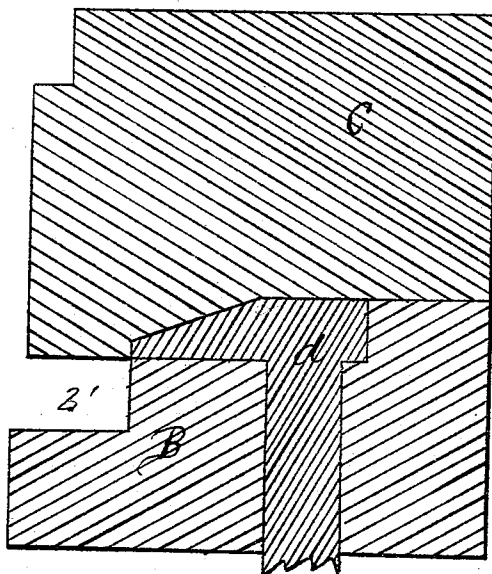


Fig. 5



Witnesses.

L. Haplin
T. E. Steele

Inventor.

Louke Chapman
by W. C. Simmonds Atty

UNITED STATES PATENT OFFICE.

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

IMPROVEMENT IN DIES FOR MAKING WRENCH-HEADS.

Specification forming part of Letters Patent No. 123,554, dated February 13, 1872.

SPECIFICATION.

I, LUKE CHAPMAN, of Collinsville, in the county of Hartford and State of Connecticut, have invented an Improvement 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 view of a forging, known hereinafter as a "wrench-forging," having a head upon the end of about the dimensions relative to the body of the bar, as shown, which wrench-forging is to be afterwards subjected to the action of the dies hereinafter described. Fig. 2 is a view of the lower die. Fig. 3 is a view of the upper die, it being turned face upward in an exactly reversed position from that it has when in use, for the purpose of exposing the face to view. Fig. 4 is a central vertical longitudinal section of the heated bar and the lower die through the dotted line $x x$ in Figs. 1 and 3, the bar being inserted in the die. Fig. 5 is a central vertical longitudinal section through the same plane as in Fig. 4 of the bar and both dies after the dies have acted upon the bar and formed the wrench-head.

One object of this improvement is to produce a wrench-head by a process very much abridged from that in common use, as heretofore, in which common process the tools commonly known as "heading tools" are used, involving the expenditure of a great deal of skilled labor.

Another object is to produce a wrench in which the fibers of the metal shall be continuous from the bar into the body of the head, which is not the case in wrenches made by the old process.

The process is as follows: A wrench-forging substantially like that shown in Fig. 1, and having a headed end, a' , of about the same dimensions relative to the bar A, as shown, is first produced.

I produce this, preferably, by taking a bar of the size of the headed end a' and then heating it and drawing its body down under a hammer, or by other similar manipulation, to the size of the bar A. This might be done by dies, rolls, or other equivalent machinery; but I prefer the process indicated.

Having produced the "wrench-forging" as

shown in Fig. 1, leaving metal enough in the large end to form the intended wrench-head, and leaving the bar A of about the right size for the intended wrench-bar, this wrench-forging is reheated and placed in the lower die B, as shown in Fig. 4, this lower die being secured in the stationary seat of a "drop." The upper die C, shown in Fig. 2, being fastened properly to the drop-weight is then allowed to descend upon it from the proper height, generally about three feet, which upsets the top of the headed bar into the form of a wrench-head, d , as shown in Fig. 5. When the drop-weight moves upward again, carrying the die C with it, the forward wrench-head will stick in the die C and rise with it, from whence the operator immediately takes it with a pair of tongs and lays the formed head sidewise on the cut-away end b' of the die B, and allows the die C to again descend upon it in this position, which completely flattens the two sides of the head just formed, and removes any web or other similar imperfection that may have formed upon these sides. The forging is immediately again placed in the die B and re-struck by the die C, and is now finished so far as the forging process is concerned.

The cut-away b' is of just the right depth to give the wrench-head the proper thickness from side to side.

In the swaging process the lower die B forms the hammer end of the wrench-head, and also the under surface thereof; the toe end, the two sides, the top, and the bevel of the head are all formed by the upper die C.

Claims.

I claim as my invention—

1. The process of forming a wrench-head by first producing a wrench-forging, substantially like that shown in Fig. 1, and afterward subjecting the same to the action of dies, substantially the same as those shown in Figs. 2 and 3, all being done substantially in the manner and for the purpose set forth.

2. Also, the die B and the die C, made substantially as described, and for the purposes set forth.

Witnesses:

LUKE CHAPMAN.

W. J. WOOD,

O. F. PERRY.