

(No Model.)

H. A. HARVEY.  
MANUFACTURE OF SCREWS.

No. 248,169.

Patented Oct. 11, 1881.

Figure 1.

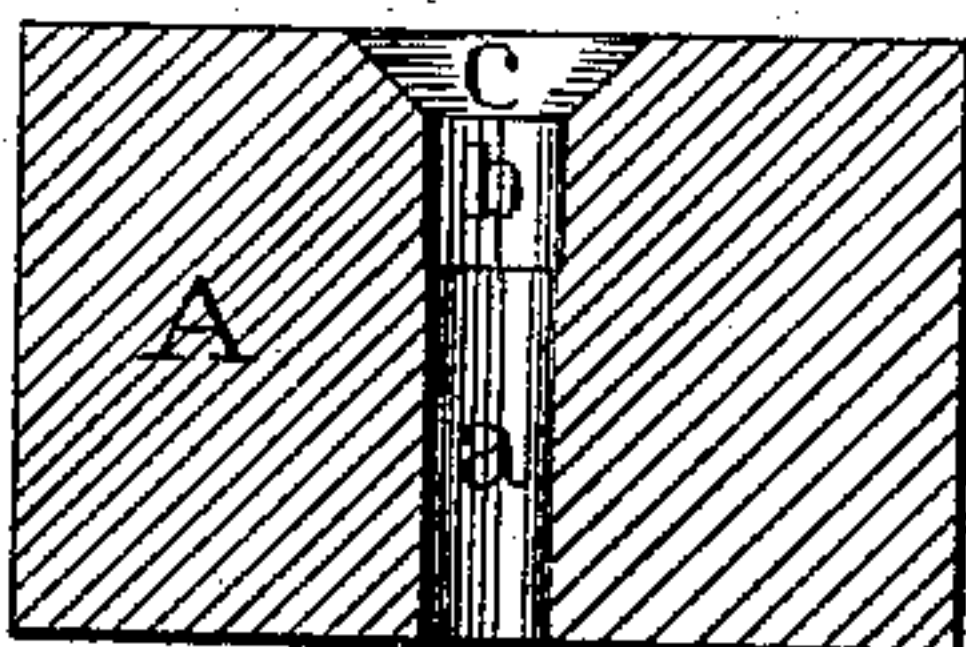
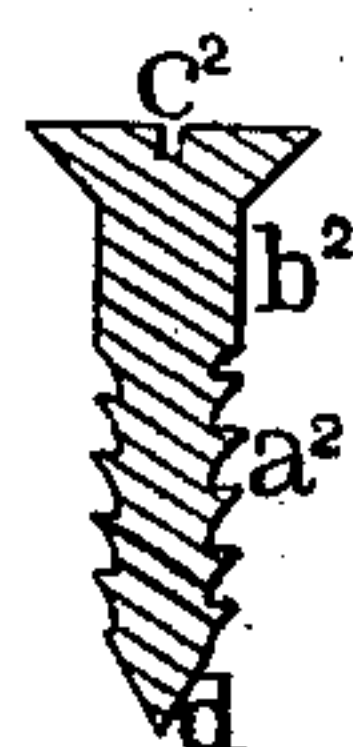


Figure 2.



Figure 3.



Witnesses

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## MANUFACTURE OF SCREWS.

SPECIFICATION forming part of Letters Patent No. 248,169, dated October 11, 1881.

Application filed May 11, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, HAYWARD A. HARVEY, of Orange, New Jersey, have invented a certain Improvement in the Manufacture of Screws and Bolts with Rolled Threads, of which the following is a specification.

My improvement relates to the manufacture of that class of screws or bolts with rolled threads in which the diameter of the unthreaded portion of the shank is the same as the diameter of the threaded portion

In another pending application for a patent I have described a method of making the blanks for such screws by rolling down and reducing the diameter of the portion of the shank which is to be threaded.

My present invention consists in longitudinally compressing the piece of wire of which the blank is to be formed in a counterbored heading-die, and thereby enlarging the diameter of so much of the upper portion of the shank as is to remain unthreaded, and in subsequently rolling up upon the unenlarged lower portion of the shank a thread of the same diameter as the previously enlarged unthreaded portion of the shank. The advantage of this method is that the threading-dies are enabled to perform their work upon material which has not been previously compressed or hardened by rolling, in order to reduce its diameter.

The accompanying drawings, illustrating my invention, are as follows:

Figure 1 is a section of the counterbored heading-die. Fig. 2 is an elevation of the shouldered blank as it comes from the die, and Fig. 3 is a central longitudinal section of the finished screw.

Referring to the drawings, it will be seen that the heading-die A is provided with the hole *a*, the upper portion of which is enlarged in diameter by the counterbore *b*, and has the usual countersink, *c*, to form the head of the screw-blank.

The blank B is formed from wire of substantially the diameter of the smaller portion *a* of the hole in the die. The lower portion, *a'*, of the shank of the blank is that which is to be threaded. The upper portion, *b'*, of the shank has the enlarged diameter of the counterbore *b*, and is surmounted by the usual flaring head, *c'*, the enlargement *b'* and the head *c'* being formed by the longitudinal compression of the wire in the die.

In forming the threads by rolling, the ribs upon the faces of the die impress a spiral groove upon the body of the blank, and in so doing form the outer portion of the thread by throwing the metal of the blank laterally outward.

In practice it will be found that when the difference in the diameters of the upper and lower portions of the shank is equal to about one half of the depth of the finished thread the effect of rolling the thread will be to make the diameter of the threaded portion *a<sup>2</sup>* the same as the diameter of the unthreaded portion *b<sup>2</sup>* of the shank.

The finished screw is provided with the usual nicked head, *c<sup>2</sup>*, and with the usual conical point, *d*.

It will, of course, be understood that the head of the screw or bolt may be of any desired shape.

I claim as my invention—

The improvement in the manufacture of screws and bolts with rolled threads herein described, which consists in heading the blanks in a counterbored heading-die, and thereby enlarging the diameter of the upper portion of the shank, which is to remain unthreaded, and in subsequently rolling up upon the unenlarged lower portion of the shank a thread of the same diameter as the previously enlarged portion of the shank, which is to remain unthreaded.

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Witnesses:

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