

(No Model.)

W. W. MINER.

METHOD OF MANUFACTURING HORSESHOE NAILS.

No. 481,962.

Patented Sept. 6, 1892.

FIG 1

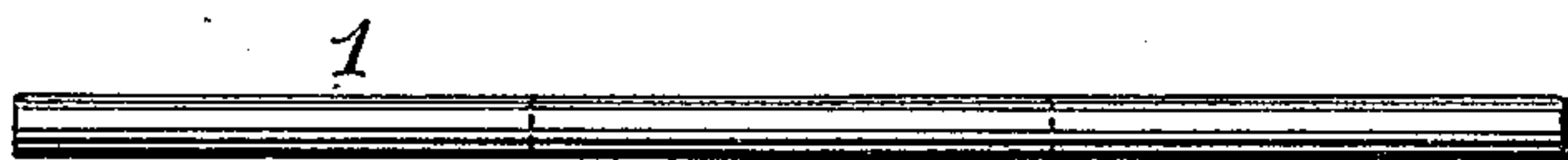


FIG. 2.



FIG. 3.

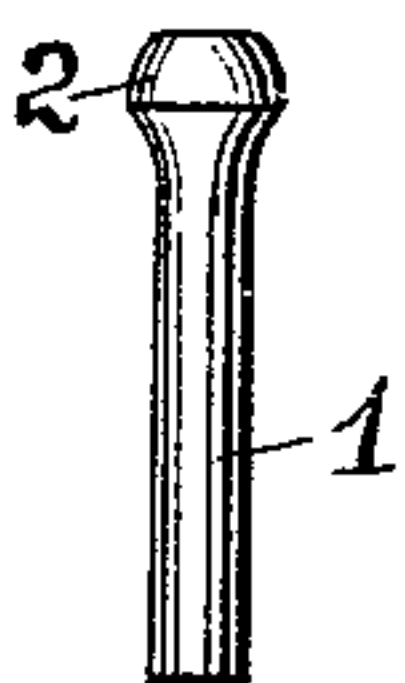


FIG. 4.

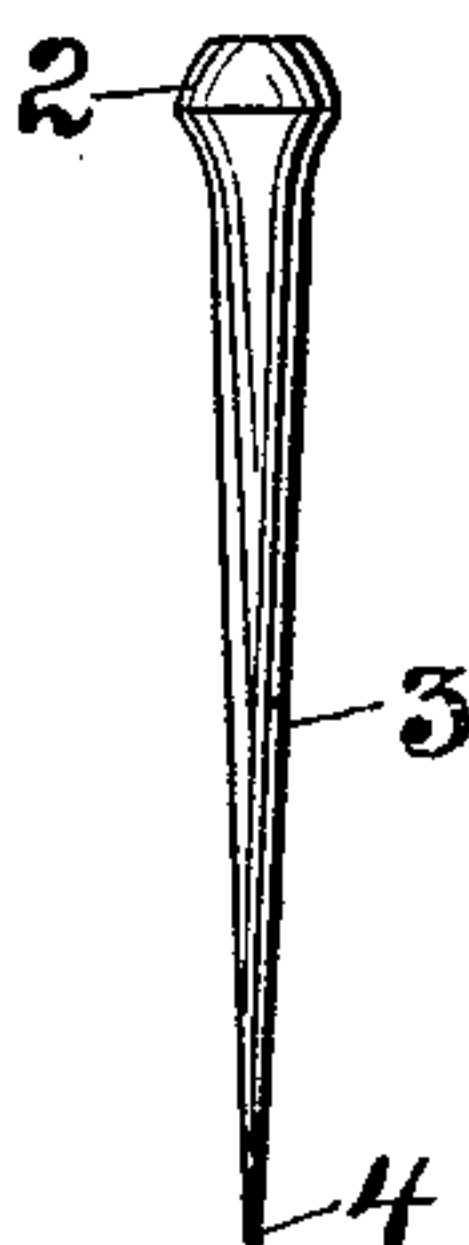


FIG. 5.

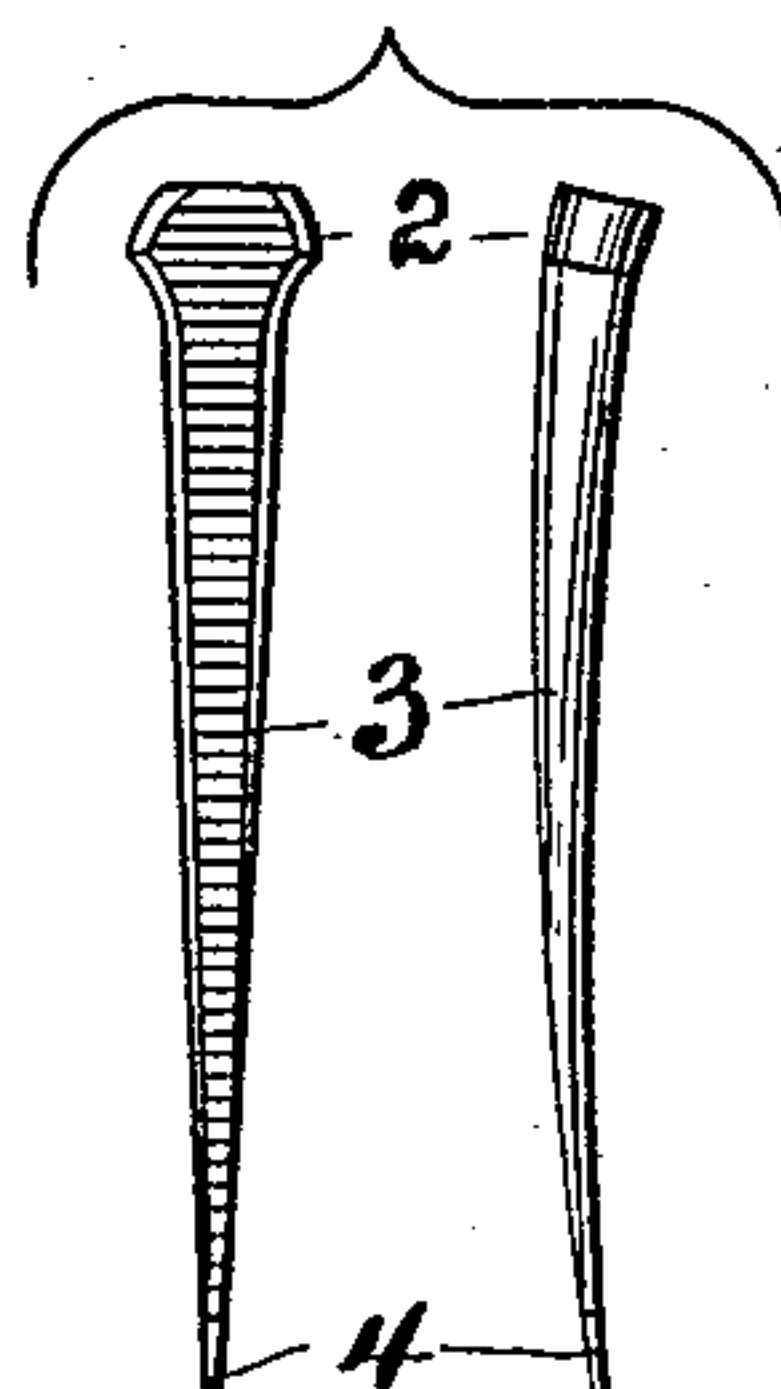
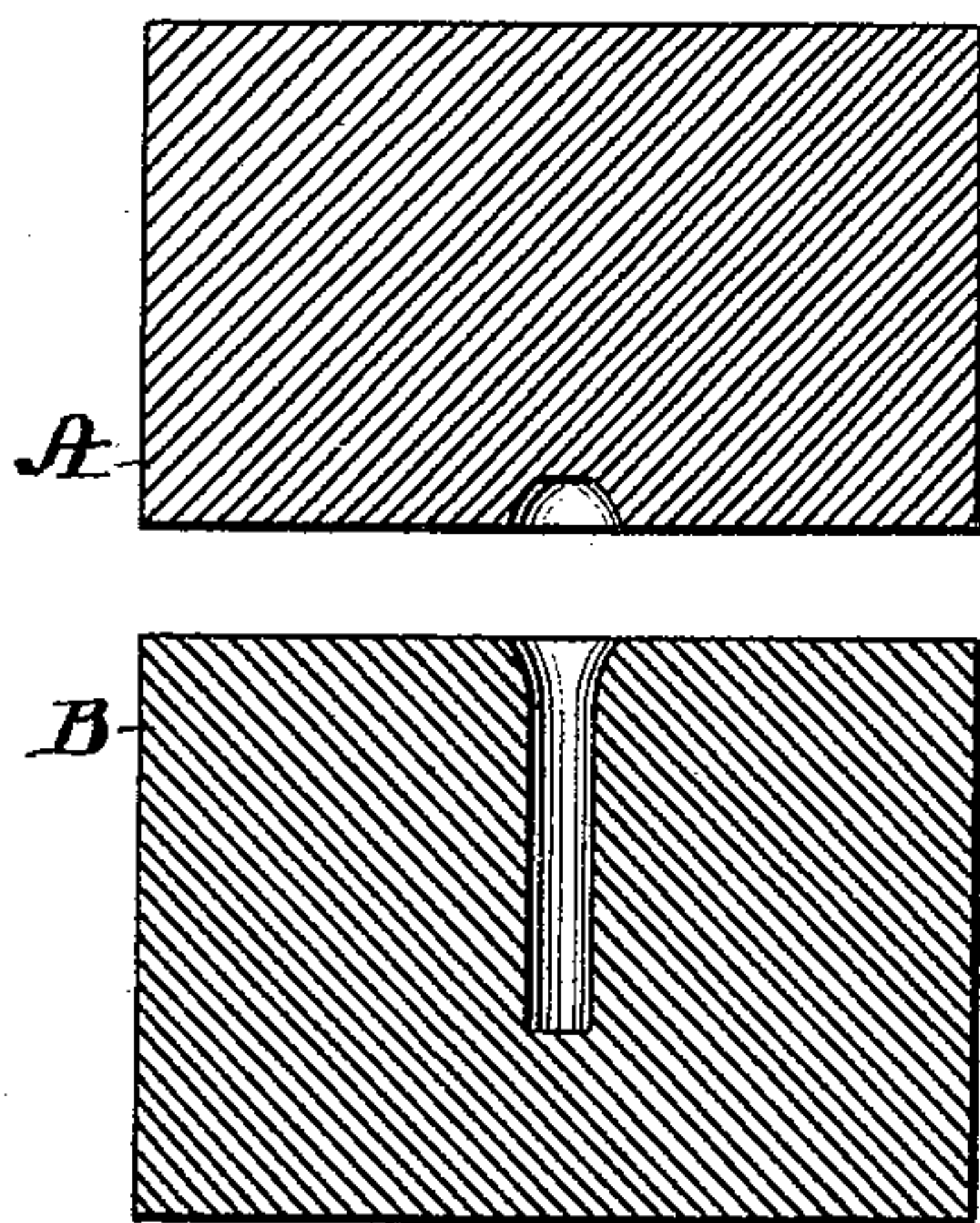


FIG. 6.



WITNESSES:

A. J. Tanner,
C. M. Newman,

INVENTOR:

William W. Miner
by his attorney
D. H. Hubbard.

UNITED STATES PATENT OFFICE.

WILLIAM W. MINER, OF NEW HAVEN, CONNECTICUT.

METHOD OF MANUFACTURING HORSESHOE-NAILS.

SPECIFICATION forming part of Letters Patent No. 481,962, dated September 6, 1892.

Application filed April 15, 1891. Serial No. 389,005. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. MINER, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in the Manufacture of Horseshoe-Nails; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improved method of manufacturing horseshoe-nails, the object being to provide a nail perfectly homogeneous in structure, not liable to split or sliver, and having smooth and rounded corners.

With these ends in view my invention consists in the method of operation hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 represents a length of wire from which the nail-blanks are severed. Fig. 2 is a severed blank. Fig. 3 represents the blank of Fig. 2, having a rounded head formed thereon by swaging or upsetting. Fig. 4 shows the blank of Fig. 3 after its body or shank has been attenuated and tapered. Fig. 5 represents the finished nail, while Fig. 6 shows the dies for heading the blank.

I first take a length of round wire, preferably of Bessemer steel, and by any suitable machinery cut the same into suitable short lengths, and thereby form blanks like those represented in Fig. 2, the dotted lines in Fig. 1 illustrating the lengths of the blanks cut from the wire. The short blank 1 thus formed is then by suitable dies—such, for instance, as the dies A and B—illustrated in Fig. 6, subjected to a swaging operation, whereby a head is formed on one end thereof, as shown in Fig. 3. The heading-die subjects the blank to endwise pressure, and forms thereon a head which is of greater diameter than that of the body of the blank. As represented in the drawings, the head is cylindrical in cross-section, and hence has rounded sides. The pressure exerted in the formation of the head is sufficient to render it very tough and homogeneous in structure. The headed blank of Fig. 3 is then subjected to the action of a suitable machine, which operates to elongate the body or shank and impart a tapering form to

it from the head to its point, it being circular in cross-section throughout its length. The body or shank may be reduced to a tapering form, having a circular cross-section throughout its length by its being subjected to the action of a wire-pointing machine—such, for instance, as the well-known Hopson & Brooks or the Goodrich machines—or by any other suitable machine adapted to deliver against the periphery of the body of the blank a multiplicity of blows applied substantially equally to every portion of its surface throughout its length, as by so doing the density of the shank throughout its length is rendered practically uniform, and has imparted thereto a perfectly-smooth and highly-polished surface. The blank thus produced is illustrated in Fig. 4, in which 2 represents the head, 3 the body or shank, and 4 the point. The head, as will be observed, is flattened on its upper end, and from such flattened portion it is gradually enlarged to the point of its greatest diameter, from which it is gradually contracted in diameter until it merges into or joins with the body of the shank. It will thus be seen that the blank represented in Fig. 4 is circular in cross-section throughout its entire length, and hence its entire periphery is composed of smooth and rounded surfaces.

The blank of the form represented in Fig. 4 is subjected to a swaging or rolling process by which it is flattened, as represented in Fig. 5. This step in the process may be performed by machinery of the character set forth in Letters Patent No. 415,818, granted to me November 26, 1889, or any other suitable machinery may be employed for this purpose. The flattening of the blank operates to transform it into the shape of a completed nail; but it does not detract from the smoothness of surface and regularity of structure which characterized the blank. The opposite edges of the nail from its point to its flattened head are formed of smooth rounded surfaces, and hence the entire surface of the nail has imparted thereto a smooth and highly-finished appearance.

The various steps heretofore recited may be performed in any desired manner, either by separate machines or by a single machine constructed and adapted to automatically perform the different steps in the order set forth.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The method of making horseshoe-nails, substantially as set forth, which consists in upsetting a rounded head on one end of a blank, reducing the body or shank of the blank to a tapering form circular in cross-section and then flattening the head and shank of the blank, and thereby producing a nail having flattened sides and rounded edges throughout its length.

2. The method of making horseshoe-nails, substantially as set forth, consisting in up-

setting on the end of a blank a head circular in cross-section and flattened at its upper end, reducing the body or shank of the blank to a tapered form circular in cross-section throughout its length, and then flattening the shank and head and thereby producing a nail having flattened sides, rounded side edges, and a flattened driving-surface on top of its head.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM W. MINER.

Witnesses:

JAMES GARDNER CLARK,
HENRY A. L. HALL.