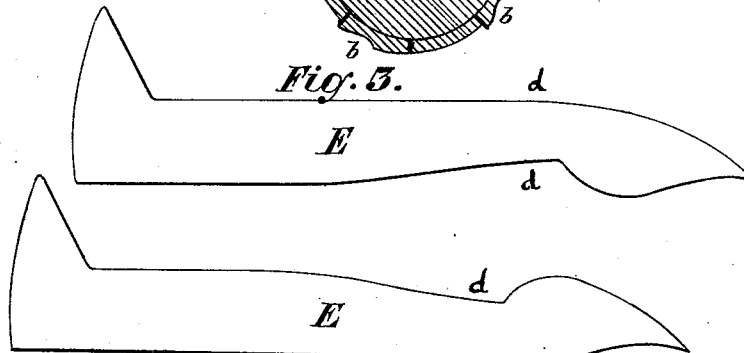
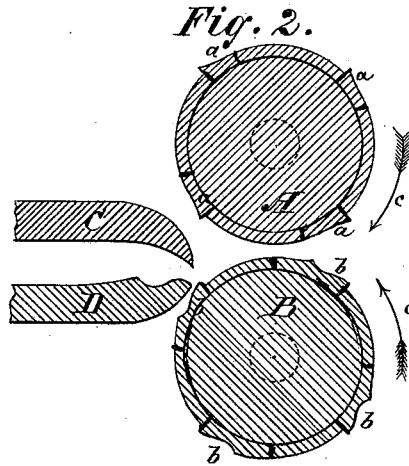
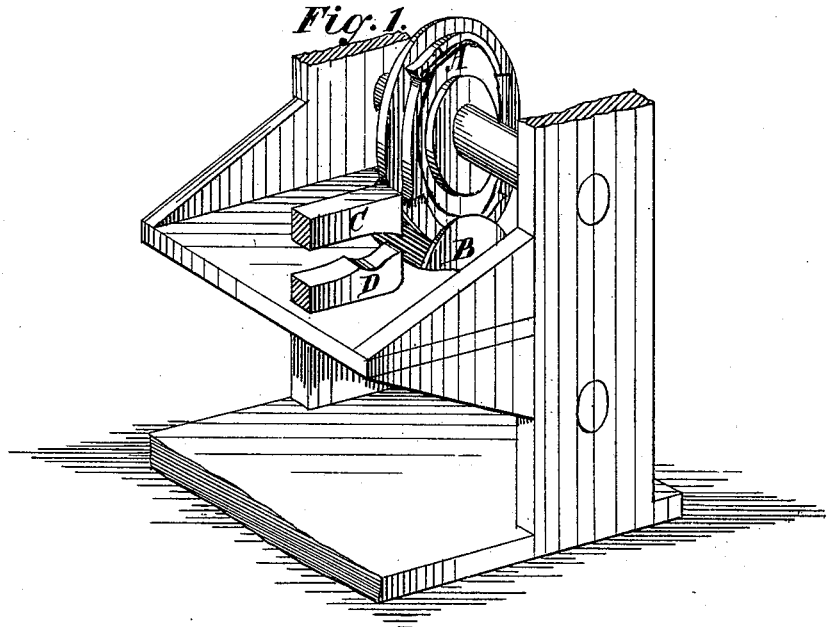


G. N. SANDERS.

MACHINES FOR MAKING SPIKES.

No. 180,648.

Patented Aug. 1, 1876.



Witnesses:  
*Louis Sanders*  
*E. J. E. Schuck*

& Inventor:  
*Geo. Sanders.*

# UNITED STATES PATENT OFFICE

GEORGE N. SANDERS, OF NEW YORK, N. Y.

## IMPROVEMENT IN MACHINES FOR MAKING SPIKES.

Specification forming part of Letters Patent No. **180,648**, dated August 1, 1876; application filed January 3, 1876.

*To all whom it may concern:*

Be it known that I, GEORGE N. SANDERS, of No. 39 Nassau street, city of New York, N. Y., have invented the Improvement in Spike Machinery for Making the Patent Curvo-Spikes, of which the following is the specification:

Referring to the accompanying drawing, Figure 1 represents that portion of the spike machinery in which the improvements are made; Fig. 2, a section formed by passing a plane transversely through the rolls at the point where the spike passes through, showing the formation of the dies *a a b b*, which shape the point of the spike, and of the griping and finishing dies C and D. These dies are all adjustable, being separate pieces attached to the periphery of the rolls. Fig. 3, the curvo-spikes.

The hot bar-iron or spike-rod (whether in a whole piece or cut into spike lengths is immaterial) is fed into the rolls A B, Figs. 1 and 2, (turning in the direction indicated by the arrows *c c*.) The dies *a a* correspond in shape to the die C used for finishing the upper side of the spike E, Fig. 3, and the dies *b b* to the die D, used for finishing the lower side of the spike E, making the proper allowance in the form of the dies for their being on the periphery of the rolls, and for the drawing or elongation of the spike-rod or blank at the part *d d*, Fig. 3, in pressing through the rolls A B. After going through the rolls A B, where the shank or body is

shaped and pointed, the spike-blank is passed into the griping and finishing dies C D, which press the shank and point into perfect shape, correcting any irregularities of the rolls; and at the same time holding the blank as gripers until the header strikes the other end, and forms the head in the usual manner. It is immaterial whether A or B be made the upper roll, or whether they are operated vertically or horizontally, as long as C is made to correspond with A, bearing the dies *a*, and D to correspond with B, bearing the dies *b*; and as to the number of dies, that varies, of course, with the size of the rolls. The walls projecting up beside the eccentrics, to keep the iron from spreading while passing through the rolls A B, are of the forms now in use in the various machines to which the invention herein described is applicable.

I claim as my invention—

The combination of the rolls A B, carrying the preparatory dies *a b*, with the dies C D, shaped, as described, so as to compress and finish the spike, both body and point, and hold it while being headed, substantially as and for the purpose set forth.

In witness whereof I have hereunto set my hand in the presence of two witnesses this 31st day of December, 1875.

GEO. N. SANDERS.

Witnesses:

LEWIS SANDERS,  
E. J. E. SCHRECK.