

(No Model.)

J. J. O'NEILL.
METHOD OF MAKING SPIKES.

No. 521,571.

Patented June 19, 1894.

Fig. 1.

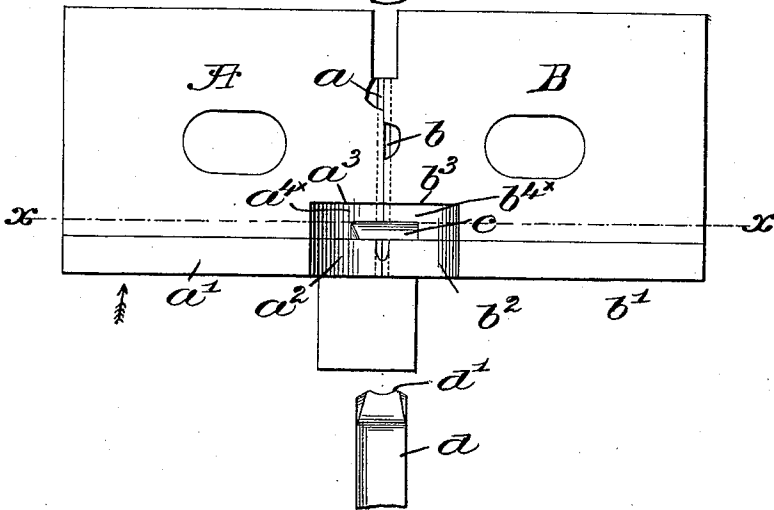


Fig. 2.

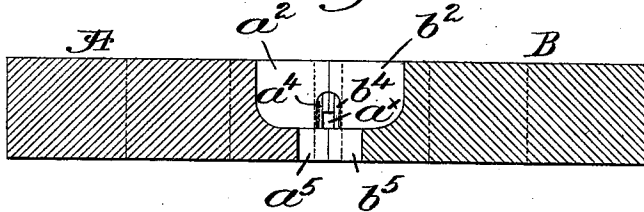


Fig. 3.

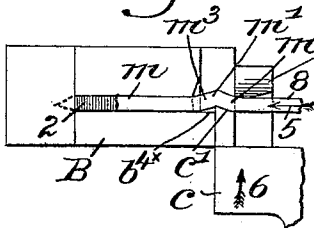


Fig. 4.

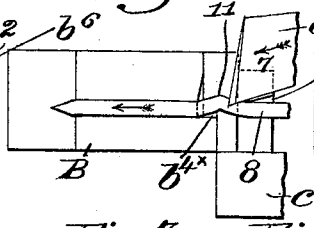


Fig. 5.

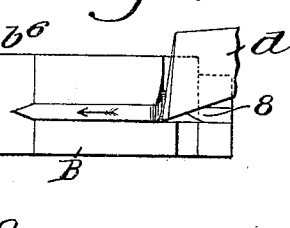


Fig. 6.

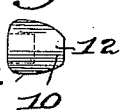


Fig. 7.

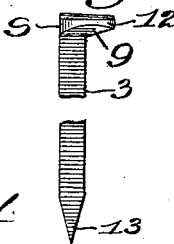
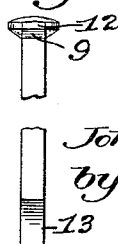


Fig. 8.



Witnesses.

Edward F. Allen.

Thomas Drummond.

Inventor.

John J. O'Neill.

by Crosby & Gregory
attys.

UNITED STATES PATENT OFFICE.

JOHN J. O'NEILL, OF LAWRENCE, MASSACHUSETTS.

METHOD OF MAKING SPIKES.

SPECIFICATION forming part of Letters Patent No. 521,571, dated June 19, 1894.

Application filed January 2, 1894. Serial No. 495,411. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. O'NEILL, of Lawrence, county of Essex, State of Massachusetts, have invented an Improvement in Methods of Making Spikes, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object to provide a new and improved method of manufacturing railway spikes and the like from bar metal, whereby said spikes may be formed with properly shaped heads and points without waste of material.

In carrying out my invention the metal bar is first bent in such manner that a portion of the concaved side of the bend shall present the bevel required for one side or face of the tapering point of a spike, the other side or face of the point being formed by severing the bar diagonally commencing at a point outside said bend and working toward the center thereof the point thus formed presenting two substantially like faces as to bevel or taper. The remaining, in fact the larger portion of the metal included in said bend is thereafter utilized by an upsetting or swaging operation to form a head for the spike or the like, previously formed, the bar being thereafter fed along for the formation of a second point and head in similar manner. One part of my invention therefore comprehends the method of making spikes and the like from bar metal which consists in clamping the bar; forming a short bend therein a portion of which presents the bevel required for the production of one side of a tapering point for the completed spike, then forming the second half of said point by severing said bar diagonally commencing back of and working toward the center of said bent portion; and as the second half of the point is being formed upsetting the larger portion of said bend not used in the said point to form a head for another spike, substantially as will be described.

Other features of my invention will be hereinafter described and particularly pointed out in the claims.

I have shown a sufficient number of parts of a machine for making spikes in accord-

ance with my novel method, to enable the same to be clearly understood.

In the drawings, Figure 1 represents in top or plan view a pair of dies, a bender and a cutter; Fig. 2, a cross section of the same taken on the dotted line $x-x$, and looking in the direction of the arrow Fig. 1; Fig. 3, a side view of one of the dies showing the bar bent; Fig. 4, a similar view showing the cutter just entering the bent portion; Fig. 5, a similar view showing the bar severed and the part of the bend in front of the point as being upset to form a head for another nail; Figs. 6, 7 and 8 top, side and face views respectively of a completed spike formed in accordance with my improved method.

Referring to the drawings Figs. 1 to 5 inclusive, A, B, represent two like, right-and-left dies, one of which, as the die A, is preferably stationary, while the other B, is movable laterally toward and from it. The dies A, B, at their adjacent or abutting faces are provided respectively with grooves or channels a, b , shaped to fit the cross section of the metallic bar from which the spikes are to be made, said grooves, when the dies are moved together as in Figs. 1 and 2, co-operating to form a guide-way or passage a^x , Fig. 2, through which the bar may be fed. The bottoms 2 of the grooves, see Fig. 3, are preferably corrugated, as shown, to better enable the dies to grip and hold the bar against longitudinal movement, as will be described, and also to indent and roughen the sides of the spike as at 3 Fig. 7, to increase its holding power. To the front edges of the dies A, B, I have secured the blocks a', b' , see Fig. 1, which in effect constitute part of the dies. The front and abutting edges of the dies A, B, are cut away as shown at a^2, b^2 , the vertical rear walls a^3, b^3 , formed by said cut-away portions being recessed at either side of and adjacent the guideway a^x to form the head-forming recesses a^4, b^4 , which extend to the ledges a^{4x}, b^{4x} . Immediately back of the blocks a', b' , the dies are each provided with grooves a^5, b^5 , for the reception of the bender c , shown as having a beveled top or end c' , the highest portion of which is preferably at that side nearest the head-forming recesses, as best shown in Figs. 3 and 4. The blocks a', b' , at the bottoms of the cut away portions a^2, b^2 ,

are preferably made beveled or inclined as shown at b^6 , Figs. 3, 4, and 5, to serve as guide surfaces for the diagonally movable combined cutter and header d having its front end grooved as at d' Fig. 1 for a purpose to be described.

The bar from which the spikes m are to be made, it preferably being rectangular in cross section, is fed in the direction of the arrow 5, Fig. 3, by suitable feed mechanism, not shown, between the slightly separated dies, in the guide-way a^x therein, until a length sufficient for a single spike is obtained, when the feed is stopped and the two dies are pressed together to clamp and hold the bar against longitudinal movement. The bender c is now moved in the direction of arrow 6, Fig. 3, to cause its beveled top to push up the bar, between the blocks a' , b' , and the walls a^3 , b^3 , to form a bend m' therein, the same being preferably a \wedge shaped bend with its concave side bent into about the middle or axis of the bar, a portion m^2 of the bend, having the bevel necessary for one side or face of the tapering point 8 of a completed spike. While the bender is still in position supporting the bend m' in the bar, the cutter d is moved down diagonally in the direction of arrow 7 thereon, the point of said cutter entering the said bar back of and at the base of said bend and severing the bent portion thereof diagonally toward the middle of said bend, as best shown in Figs. 4 and 5, to form the other face of the tapering point 8, and, the bender being withdrawn, and with the bar still clamped in the same position, the cutter continues its forward diagonal movement in the direction of the arrow 7, pushing the remaining portion m^3 of said bent portion then in front of the cutter and severing from the point, bodily before it into and filling the head-forming recess a^4 , b^4 , thus giving form and shape to the head of the spike pointed by the previous movement of the cutter. The head-forming recess a^4 , b^4 , is shaped to give the desired curvature to the under side 9 of the head s of the completed spike. The groove d' in the end of the cutter is such as to give the requisite curvature to the top 10 of the spike head, and the crown or convex portion 11 of the bend in the bar, see Fig. 4, as the said bend is swaged or crowded up into the head-forming recess, rounds over and forms a nicely rounded straight edge 12 to the head of the spike where said head meets the web of the rail, the side edges of the said head being likewise nicely rounded over by the upsetting of the head. The head having been formed, the cutter is withdrawn and the bar fed forward for the formation in like manner of another point and head as described.

In the formation of spikes by my improved method, no material whatever is wasted.

The shape of the point and head may be varied as desired by changing the shapes

and direction of movement of the several parts.

I am aware that it is old to bend a wire between its ends and then sever the same diagonally through the bent portion to form the points of two nails; and I am aware that it is old to offset a wire, sever it at the offset portion and force or swage the severed portions laterally into a point-forming die or recess.

So far as I am aware it is new to bend the bar or stock so that one portion of the bend or offset shall have the bevel required for one side of the tapering point of the finished spike or nail; then sever it diagonally commencing back of said bend and working toward the middle thereof to form the other face of said tapering point, and, while still holding the bar in the same position, and preferably by a continuation of the cutting operation, upset the portion of the bend in front of said point and severed therefrom to form a head.

By bending and severing the bent part of the bar as above described, the point 8 is left central with relation to the body of the spike or nail which is most desirable if not an absolute necessity for good work. Again the remaining portion of the upset or bent portion is so shaped and located, see Fig. 4, as to be most easily carried forward to form a head entirely or nearly at one side the body of the spike or nail.

The method above described might be carried out by devices or mechanism other than shown, if desired, therefore my said invention is not restricted to the shape, construction or movement of the parts shown and described.

In the device herein shown, it is obvious that the bar may be fed in either direction, as desired, the only difference being that with the feed in the direction shown the point of a spike is formed before it is headed, and with a feed in an opposite direction the head would be formed in advance of the point.

I claim—

1. The herein described method of making spikes and the like from bar metal, which consists in clamping a bar of sufficient length for a plurality of spikes, offsetting the bar to form a short bend therein to form one side of a point for a spike, severing the bar diagonally to form the other side of the point for the same spike, and at a continuous operation upsetting the bar beyond the point of severance to form the head of another spike, substantially as described.

2. The herein described method of making spikes and the like from bar metal, which consists in clamping a bar of sufficient length for a plurality of spikes, offsetting the bar to form a short bend therein the concaved face of which has the bevel of one side of a point for a spike, severing the bar diagonally from the convex side of the bend or offset commencing back of and working toward the cen-

ter of said offset to thus form the second half
or side of the same point, and at a continu-
ous operation upsetting the bar, beyond the
point of severance and principally at that
5 side of the spike toward which the metal of
the bar was bent to form the offset to thereby
form the head of another spike, substantially
as described.

In testimony whereof I have signed my
name to this specification in the presence of 10
two subscribing witnesses.

JOHN J. O'NEILL.

Witnesses:

FREDERICK L. EMERY,
JOHN C. EDWARDS.