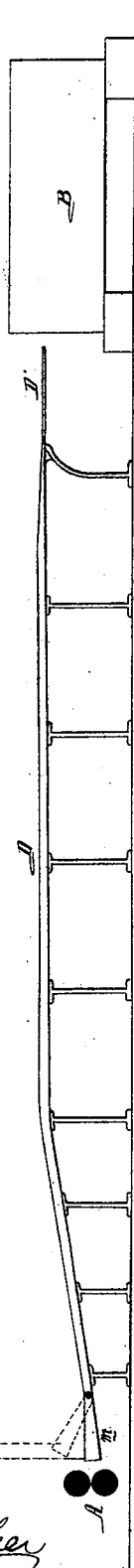


D. EYNON.  
ART OF MANUFACTURING SPIKES.

No. 107,602.

Patented Sept. 20, 1870.

Fig. 1.



Witnesses

*John Parker*  
*Jos. B. Harding.*

Fig. 2.

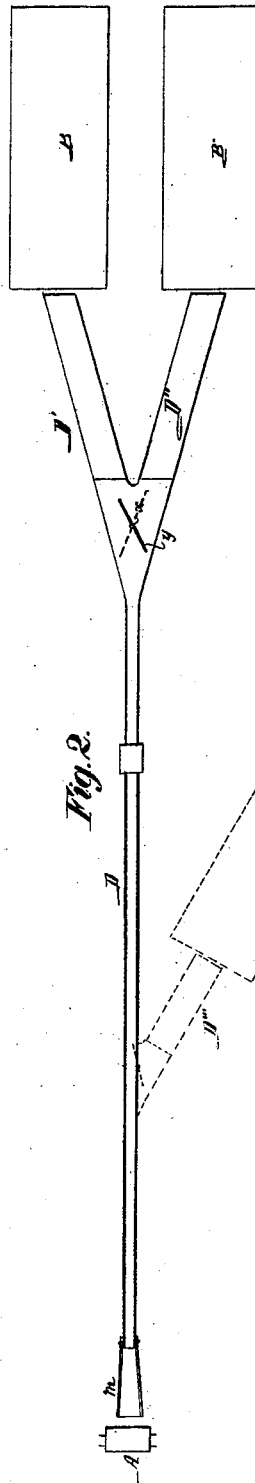
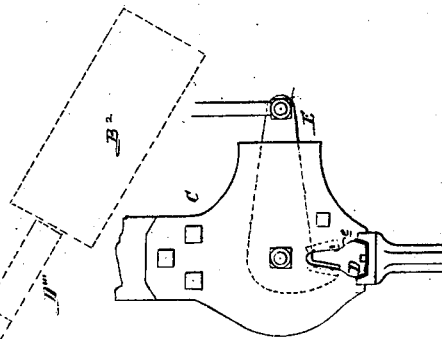


Fig. 3.



*David Eynon*  
*By his Atty*  
*Howson & Son*

# United States Patent Office.

DAVID EYNON, OF RICHMOND, VIRGINIA, ASSIGNOR TO THE TREDEGAR COMPANY, OF SAME PLACE.

Letters Patent No. 107,602, dated September 20, 1870.

## IMPROVEMENT IN THE ART OF MANUFACTURING SPIKES.

The Schedule referred to in these Letters Patent and making part of the same

I, DAVID EYNON, of Richmond, county of Henrico, State of Virginia, have invented a Method of Facilitating the Manufacture of Spikes, of which the following is a specification.

### *Nature and Object of my Invention.*

My invention consists of the method, fully described hereafter, and illustrated by the accompanying drawing, of facilitating the manufacture of spikes, the said method enabling me to produce rapidly, and from scrap or inferior iron, spikes of a superior quality; and, also, enabling me to save the fuel, heretofore required for reheating spike-bars, preparatory to subjecting them to the action of a spike-machine.

### *Description of the Accompanying Drawing.*

Figure 1 is a side view of apparatus, illustrating my method of facilitating the manufacture of spikes; Figure 2, a plan view; and

Figure 3, a view of a shearing device, which may be used in connection with the apparatus.

### *General Description.*

A represents part of an ordinary train of rolls, of a character suitable for converting billets or fagots into bar-iron, of appropriate size for making spikes.

B and B' represent, in outline, two machines known as Swett's spike-machines, in which the heated bar is converted into spikes, the bar being fed to rolls in front of the machine, severed into lengths, and headed, in a manner well understood by those familiar with iron-works in which nails, chairs, and spikes are manufactured.

The object of my invention has been to so connect these spike-machines with the rolls, that a bar from the latter can be subjected to the machines, and there converted into spikes without reheating.

In order to accomplish this end I use a long trough, D, terminating at one end near the rolls A, and at the opposite end in two branches, D' and D'', the end of the branch D' being adjacent to the feed-rolls of the spike-machine B, and the end of the other branch D'' adjacent to the feed-rolls of the machine B'.

At the point *x*, where the two branches meet each other and the trough D, I hinge a plate, *y*, which can be adjusted to the position shown by plain lines, or that shown by dotted lines, at pleasure, and above the trough D, at a point explained hereafter, I suspend a pair of shears, which, as illustrated in the enlarged sectional view, fig. 3, consists of a stationary hanger, C, carrying a lever, E, which may be vibrated by any appropriate mechanism, and which has a knife, *m*, operating in conjunction with a stationary knife.

As the bar takes its last pass through the rolls, it is directed by the latter along the trough D, and, owing to the position of the plate *y*, along the branch D' to the spike-machine B, and it should be here understood that the trough D and its branch are long enough to take in the entire bar.

As the operation of a spike-machine is comparatively slow, the entire bar could not be converted into spikes before it became too cold to submit to the machine; hence, the employment of two, or even more, spike-machines in connection with a pair of rolls.

The moment the hot bar has been lodged in the trough D and its branch, the first operation is to sever the bar about midway between its opposite ends. This is accomplished by elevating the bar, so as to subject it to the action of the shears, fig. 3, by which the bar is promptly cut.

The severed outer end of the bar, partly in the trough D and partly in its branch D', is now directed to the feed-rollers of the machine B, and is there left to be converted into spikes.

The operator, as soon as the first portion of the bar is clear of the junction *x* of the two branches of the trough, changes the position of the plate *y*, seizes the remaining portion of the bar in the trough D, pulls it along the branch D'', and directs it to the feed-rollers of the spike-machine B', to be converted into spikes.

In the meantime, before the last portion of the bar has been entirely consumed by the machine B', the first portion of the bar has been converted into spikes by the machine B; and the branch D' is clear, so that after adjusting the plate *y* to its former position, the trough and its branch D' are ready to receive another bar, to be treated in the same manner as the first.

If desired, three spike-machines may be used in connection with one set of rolls, the third machine being situated at the point B'', shown by dotted lines in fig. 2. In this case two shearing-machines (fig. 3) must be used at appropriate points for severing the bar into three lengths, and the trough must have an additional branch, D'''.

In some cases the trough may not be clear and in a proper condition to receive the bar. I, therefore, hinge a portion, *m*, of the trough nearest the rolls, so that it can be elevated, as shown in fig. 1, thereby permitting the bar to be projected onto the ground by the rolls.

Shears may be used in connection with the spike-machine B, for cutting off the ragged end of the bar before the latter is fed to the machine, and shears may also be used in connection with the machine B', or the last machine, for cutting off the rear ragged end of the bar; but as these are minor features it has not been deemed necessary to illustrate or describe them.

It will be evident, without further description, that, not only is the manufacture of spikes facilitated, but the fuel required by the usual process of reheating the bars is saved, and much tedious manipulation avoided.

The most important result of my invention, however, is the quality of the spikes, which, although they may be made from old rails and other scrap-iron, are superior, as regards toughness, to ordinary spikes.

Heretofore it has been the practice to roll especial bars of a superior quality to be converted into spikes,

but the reheating of these bars expands the fibers and deteriorates the iron, so that the spikes produced do not possess that solidity and toughness which the rolled iron itself possessed after passing from the rolls, and before reheating.

Spikes, however, made from rolled scrap-iron without reheating, according to the above-described methods, are not only more economical than, but superior, as regards toughness, to ordinary spikes.

Tubes may be used in place of an open trough, for guiding the bars to the spike-machines, there being open spaces at intervals where the bar has to be severed, and where the severed portions are directed to the different machines, a tubular, or partly tubular guide is in fact to be preferred in one respect. It serves to retain the heat of the bar longer than an open trough.

I have alluded to Swett's spike-machine as that

used in connection with my invention, (I refer to Swett's patent of March 14, 1854, extended March, 1868.) It should be understood, however, that my apparatus may be used in connection with any self-feeding spike-machine.

*Claim.*

The method herein described, and illustrated by the accompanying drawing, as an improvement in the art of manufacturing spikes.

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

DAVID EYNON.

Witnesses:

J. M. COLGAN,

F. B. RICHARDS.