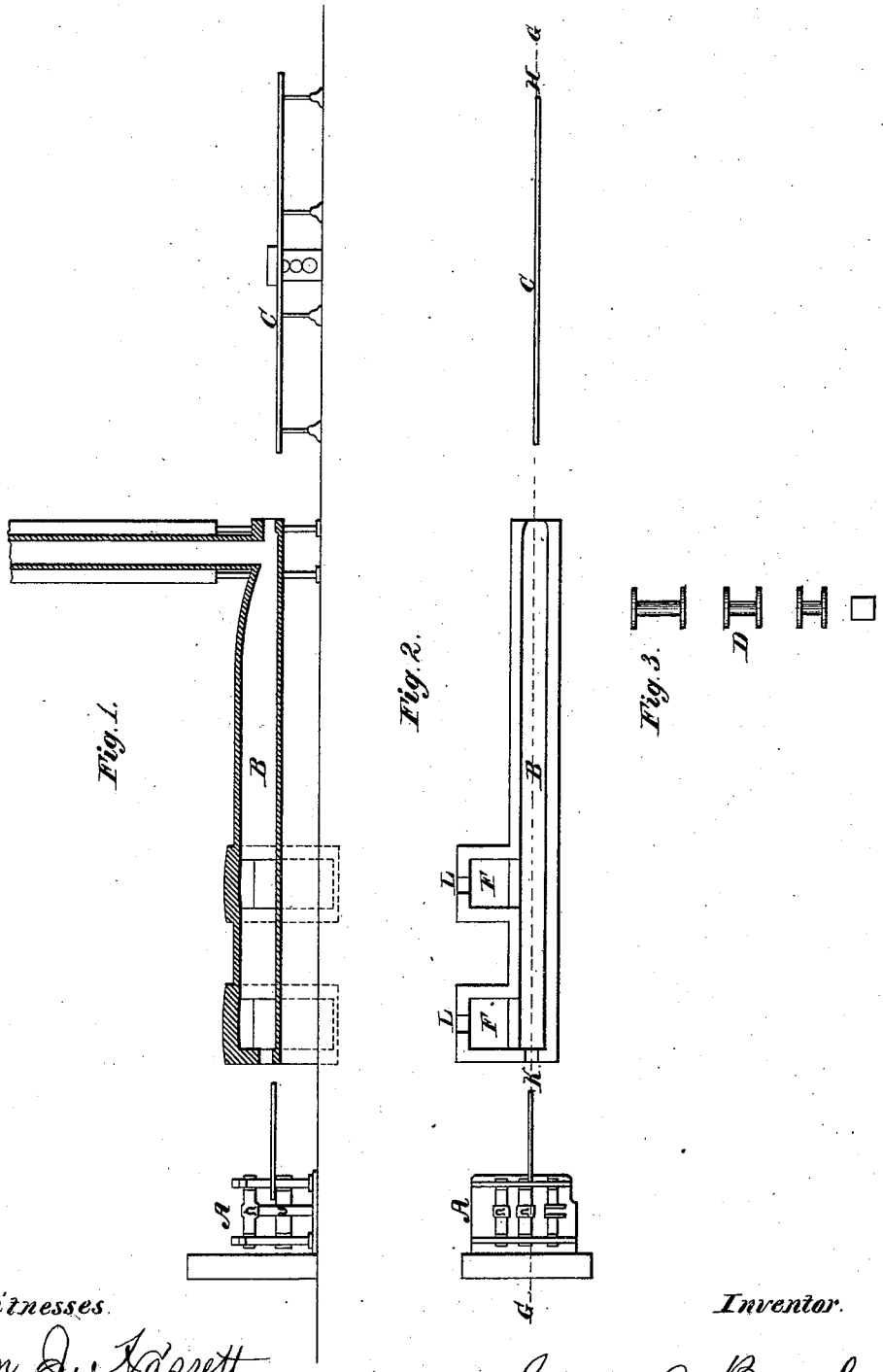
J. A. BURDEN.

MANUFACTURE OF HORSE-SHOES.

No. 183,250. Patented Oct. 17, 1876.



Witnesses.

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JAMES A. BURDEN, OF TROY, NEW YORK.

IMPROVEMENT IN THE MANUFACTURE OF HORSESHOES.

Specification forming part of Letters Patent No. **183,250**, dated October 17, 1876; application filed March 20, 1876.

To all whom it may concern:

Be it known that I, JAMES A. BURDEN, of the city of Troy, in the county of Rensselaer and State of New York, have invented a new and useful Improvement in the Manufacture of Horseshoes by Machinery; and that the following is a full, true, and exact description of my said improvement, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to the manufacture of horseshoes by passing rolled bars of iron through machines, which cut off portions of said rolled bars of the proper length, and bend the same into the proper shape to form horseshoes.

It has been found by experience that to make a practical and successful horseshoe by the mode referred to the bars must be taken from the rolls and fed to the cutting and bending machine before cooling and while in a highly-heated state.

To make a good shoe, the angles or corners of the bar must be sharp and well defined. If a bar reduced by rolling to the proper size for a horseshoe is allowed to become cold, and is then reheated, the angles of the bar will be melted or burned off before the interior has become sufficiently heated to be submitted to the operation of the horseshoe-machine, so that, as above stated, the bar can only be used before cooling and while still highly heated; but in using the bar in this condition another difficulty is encountered, which it is the object of my invention to obviate.

It has been found that in passing through the rolls which are kept constantly chilled by water dropping on them the bar becomes unequally heated—that is to say, the exterior, which is in actual contact with the rolls, becomes cooled or chilled, so that it is much more solid than the interior of the same bar. The result is, that different parts of the bar oppose an unequal resistance to the bending force, and the shoes so made are imperfect and defective.

I obviate this difficulty by the use of an intermediate furnace between the rolls and the horseshoe-machine after the bar of iron has been reduced to the proper size and shape by passing through the rolls, and while it is still highly heated I pass it slowly through such intermediate furnace, and from the furnace directly into the cutting and bending machine. By passing through this furnace, the exterior of the bar is reheated, and the whole bar brought to a uniform temperature, thus obviating the defects above mentioned.

I do not confine myself to a furnace of any particular shape or size; but it should be of such a length that the exterior of the bar will be sufficiently heated by passing through the furnace at the ordinary rate of speed at which such bars can be fed to the cutting and bending machine.

In the accompanying drawings, Figure 3 is a representation of the rolls through which the bars of horseshoe-iron are passed to reduce them to the proper size and shape. Fig. 2 is a plan of machinery, showing one mode of applying my invention; and Fig. 1 is a section of said machine through the lines G G.

In Figs. 2 and 3, C represents an elevated trough, on which the bars are laid as they come from the rolls D. B is my intermediate furnace, and A is the cutting and bending machine.

The operation of my invention is as follows: The bars of iron are rolled to the proper size in the train D. They are then placed on the trough or guide C. A workman with a pair of tongs seizes the bar at H, and pushes it along the trough into the furnace B. Another workman seizes the end of the bar at K, and pushes it into the cutting and bending machine A. The furnace B is fired at doors L L.

It will be seen that as one bar follows another their rate of progression through the furnace will be the same as that at which they can be fed into the cutting and bending machine.

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

The above-described improvement in the manufacture of horseshoes by machinery, consisting in passing the horseshoe-bars, after they have left the rolls, and while they are still highly heated, through an intermediate furnace, and thence into the cutting and bending machine, substantially as and for the purposes specified.

In witness whereof I have hereunto set my hand this 18th day of March, 1876.

JAMES A. BURDEN.

Witnesses:

JOHN J. HASSETT,

C. D. KELLUM.