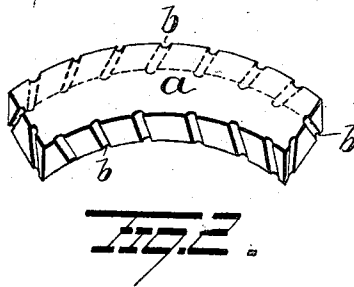
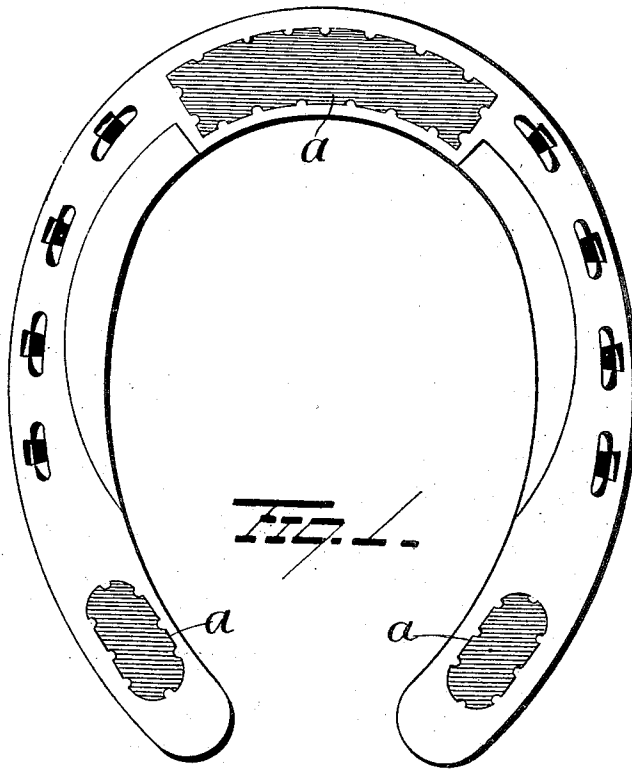


(No Model.)

C. C. JEROME.
METHOD OF MANUFACTURING HORSESHOES OF ALUMINUM.
No. 511,777.

Patented Jan. 2, 1894.



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES C. JEROME, OF CHICAGO, ILLINOIS.

METHOD OF MANUFACTURING HORSESHOES OF ALUMINIUM.

SPECIFICATION forming part of Letters Patent No. 511,777, dated January 2, 1894.

Application filed September 6, 1893. Serial No. 484,892. (No specimens.)

To all whom it may concern:

Be it known that I, CHARLES C. JEROME, of Chicago, in the State of Illinois, have invented certain new and useful Improvements in Processes for the Manufacture of Horse-shoes; 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 improvement in processes of treating aluminium for the manufacture of horse shoes or similar articles and it consists in a certain procedure hereinafter described and pointed out in the claims.

In the accompanying drawings Figure 1 is a view of my improved horseshoe, and Fig. 2 is a detached view of a bearing.

It has been found from experiments that aluminium can not be alloyed with any other metal to render it suitable for horse-shoes as any metals with which it may be alloyed render it brittle and absolutely useless for this purpose. I propose to bend the aluminium into the shape of a horseshoe and then I harden the horseshoe under a drop hammer or under any pressure sufficient to compress and condense the metal. This I find to be the only way in which aluminium can be treated to consolidate it and render it strong enough to stand under a horse's foot. In my experiments I applied the blows from a five hundred pound hammer gradually increasing up to fifteen hundred pounds, and until the fifteen hundred pound hammer was reached I failed to get the material sufficiently solid and dense to prevent bending out of shape. To obtain the desired pressure I find it necessary to use very expensive dies. These dies have to be made of at least a cubic foot of solid steel and made in the form of male and female dies, the male entering the female die to a nice fit so that the metal can not flush or be forced out between the dies. In this manner the metal has to compress and I have found that nothing less than a fifteen hundred pound hammer with a ten foot drop will consolidate and force the grains of this metal together sufficiently to render it fit for a horse shoe.

The metal is first bent into shape and when

put in the dies is much thicker than the finished shoe, as the compressing is all done after the article has been given the desired shape or approximately the desired shape.

In addition to forming a horse shoe of aluminium by compression, I may insert steel bearings *a, a*, in the lower face of the shoe. When these bearings are used they are preferably provided on their edges with diagonal grooves *b, b* as shown in Fig. 2, these grooves extending in opposite directions on the opposite edges usually and one in each direction on the ends if desired. The bearings being thus constructed they are laid in the die and before the metal is consolidated or while it is being consolidated by the blows which are required to strike it up, the steel plates are pressed into the aluminium shoe as shown in Fig. 1, and the aluminium is driven into the diagonal grooves thus making it absolutely firm and solid.

In treating the shoe as I do, the aluminium is rendered more dense and stronger than steel and by the addition of the bearings the shoe will wear even longer as the bearing plates are made of the best steel and hardened as hard as fire and water can make them which would be impossible if the entire shoe were made of hardened steel, as a steel shoe would break from the concussion under a horse's foot if so hardened.

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

1. The herein described process of manufacturing horse-shoes of aluminium consisting in first giving the metal the general form desired for a horseshoe and then subjecting the material of which the shoe is made to a pressure sufficient to consolidate and force the grains of metal together whereby it is made to withstand the punishment required, substantially as set forth.

2. The herein described process for manufacture of horseshoes of aluminium consisting in first giving the metal the general form desired for a horseshoe and then subjecting the material of which the shoe is made to a pressure sufficient to consolidate and force the grains of metal together, and pressing bearing plates of other material into the sur-

face of the aluminium, substantially as set forth.

5 3. The herein described process of the manufacture of horse shoes, of aluminium consisting in first giving the metal the general form desired for a horseshoe and then subjecting the material of which the shoe is made to a pressure sufficient to consolidate and force the grains of metal together, and pressing steel

bearing plates into the surface of the aluminium, substantially as set forth.

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

CHARLES C. JEROME.

Witnesses:

A. B. ELLIOTT,
C. L. FORWARD.