

N. W. Russell,
Casting Sleigh Shoes.

N^o 82,353.

Patented Sep. 22, 1868.

Fig. 1.

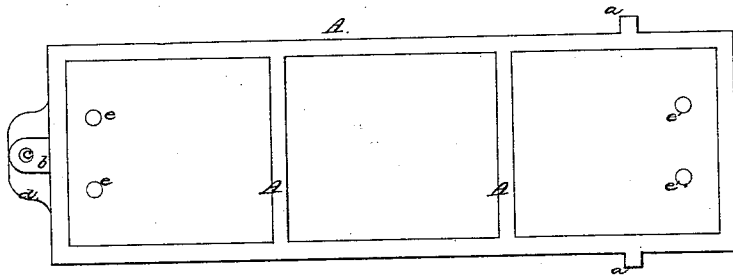


Fig. 2.



Fig. 3.

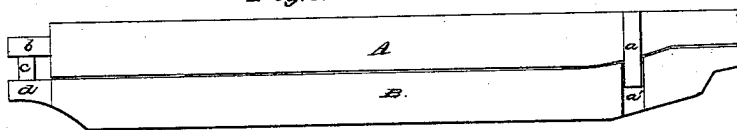


Fig. 4.

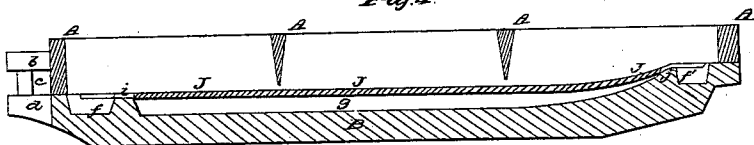


Fig. 5.

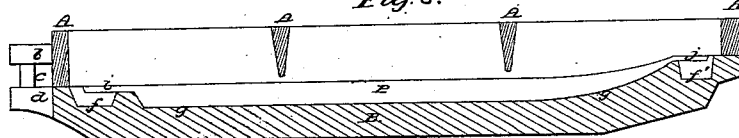


Fig. 6.

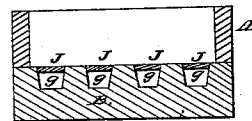
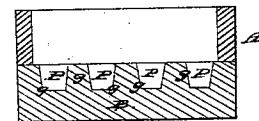


Fig. 7.



Inventor.

Witnesses:
R. H. Russell
Edw. Schaffer

N. W. Russell
By Messrs. F. A. Smith & Co.

UNITED STATES PATENT OFFICE.

N. W. RUSSELL, OF CEDAR FALLS, IOWA.

IMPROVEMENT IN MOLDS FOR CASTING SLEIGH-SHOES.

Specification forming part of Letters Patent No. 82,353, dated September 22, 1868.

To all whom it may concern:

Be it known that I, N. W. RUSSELL, of Cedar Falls, in the county of Black Hawk and State of Iowa, have invented a new and Improved Mold adapted for Casting Sleigh-Shoes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a top view of the mold ready for pouring molten metal into it. Fig. 2 is a top view of the lower section of the mold. Fig. 3 is a side view of the mold. Fig. 4 is a longitudinal section taken through the mold in the vertical plane indicated by line *x x* in Fig. 2, showing one of the thin covering-strips for covering the mold-chambers while filling the cope or flask with sand. Fig. 5 is a transverse section of Fig. 4. Figs. 6 and 7 are sections *e*, showing the castings in the mold.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to a new and useful improvement in the manufacture of cast shoes for the bottoms of sleigh-runners, whereby such shoes can be made more perfect and provided with greater facility; and consists in producing these shoes in molds which are made partly of sand for the purpose of chilling the bottoms and sides of the shoes, and thus rendering these portions, which are subject to wear, much harder and more durable than they would be if cast in sand, and also for the purpose of preserving intact that portion of the mold which gives shape to the bottom and sides of the shoes, as will be hereinafter explained.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

The upper section or cope of the mold consists of an oblong rectangular metal frame, *A*, with transverse bars at intermediate points between its ends, and with guide and stay pins *a a c*, for holding it in place upon the lower section of the mold. The lower section *B* of the mold is made of metal, and constructed with grooves *a' a'* on its sides for receiving the guide-pins *a*, and also with an eye-

piece, *d*, upon one end for receiving the steady-pin *C*. The upper surface of this mold-section *B* is covered, as shown in Figs. 3, 4, and 6, so as to conform to the curvature of the bottom of the upper section, and also to the curvature of the upper edges of the front ends of the shoes *P*, as shown in Fig. 6. In the upper surface of the lower section *B* a number of channels, *g*, are made, which, in cross-section, have a slightly-flaring form, as shown in Figs. 5 and 7, and which are designed to form molds in which to produce the shoes. At the extremities of these channels *g* they communicate, by means of grooves *i j*, with depressions which are made in cups *f f'*, which cups are formed in the section *B*, and filled with molders' sand, as shown in Figs. 2, 4, and 6.

In order to prepare the mold for casting, the channels *g g* in the section *B* are all covered by means of thin metal strips *J*, to prevent the sand from filling these channels, which strips fit into the channels so as to lie flush with the top surface of the lower section. The cap *A* is then adjusted in place upon the bottom section *B*, and filled with sand, which is rammed into it in the usual well-known manner of making sand molds. Sprue and air holes *e e e' e'* are then made through the sand in the cope *A*, directly over the sand-cups *f f'*, and this upper section carefully removed from the lower section. The covering-strips *J* are then removed, after which the said cups *f f'* are properly filled and channeled, as shown in Fig. 2, and the cope returned to its place again, as shown in Figs. 6 and 7. The metal is then poured into the molds through two of the sprue-holes at one end of the mold, and as this molten metal flows into and fills the several channels *g*, the air and vapor will escape at the opposite end of the mold.

The sand-cups, which are located directly beneath the sprue or pouring holes, are designed for protecting the metallic section *B* at these points, from being burned and destroyed by the molten metal as it first enters the mold. The sand or other refractory substance in said cups will not suddenly chill the metal while flowing into the mold, nor will it allow the metal of the lower mold to be injured at these points.

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

1. The sand flask or cope A and metallic mold-section B, constructed substantially as described, when used in combination with each other for the production of sleigh-shoes, as set forth.

2. The covering-plates J, in combination with the channeled metal section B and sand cope A, substantially in the manner and for the purpose described.

N. W. RUSSELL.

Witnesses:

CHAS. P. BROWN,
S. H. PACKARD.