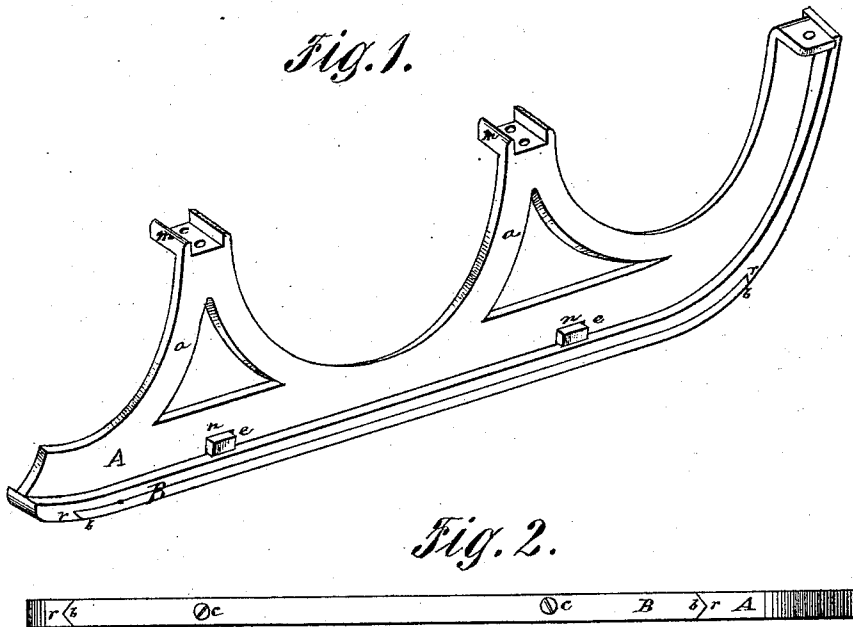


D. HOLDIMAN.
METAL SLEIGH RUNNER.

No. 104,309.

Patented June 14, 1870.



Witnesses:
H. P. Sanders
B. S. Hedrick

Inventor:
Danl. Holdiman
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United States Patent Office.

DANIEL HOLDIMAN, OF WATERLOO, IOWA.

Letters Patent No. 104,309, dated June 14, 1870.

IMPROVEMENT IN METAL SLEIGH-RUNNER.

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

To all whom it may concern:

Be it known that I, DANIEL HOLDIMAN, of Waterloo, in the county of Black Hawk and State of Iowa, have invented a new and improved Sleigh-Runner, of which the following is a clear, full, and exact description, reference being had to the accompanying drawing making a part of this specification, and in which—

Figure I is a perspective view of my runner.

Figure II is a view of the steel shoe, made of spring-steel.

The object of my invention is to provide a substantial sleigh-runner by combining steel with cast-iron, and furnishing a cast-iron runner with a steel shoe, of spring-steel.

To enable others skilled in the art to understand and use my invention, I will proceed to describe how I have carried it out.

In the said drawing—

A is a cast-iron sleigh-runner, cast with circular knees *a a*, and rests *a' a'* for the cross-beams.

On the bottom of the runners are cast the dovetailed shoulders *r r*, and diamond-pointed, so as to re-

ceive and hold snugly the shoulders *b b* of the steel shoe.

n n are slots or openings for the reception of the nuts *e e*, into which screw the bolts *c c*, to secure the shoe to the runner.

B is a steel shoe, with its ends or shoulders *b b* so pointed and beveled as to dovetail into the cast-iron runner at *r r*. When thus fitted to the runner, the shoe is further secured in position by the bolts *c c* passing through the shoe into the nuts *e e*.

Claim.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of a spring-steel shoe with a metal sleigh-runner, the spring-steel shoe being sprung into place and secured to the runner by means of a dovetail at each end, and intermediate bolts, substantially as and for the purpose described.

DANIEL HOLDIMAN.

Witnesses:

J. C. CROPPER,
D. A. JONES.