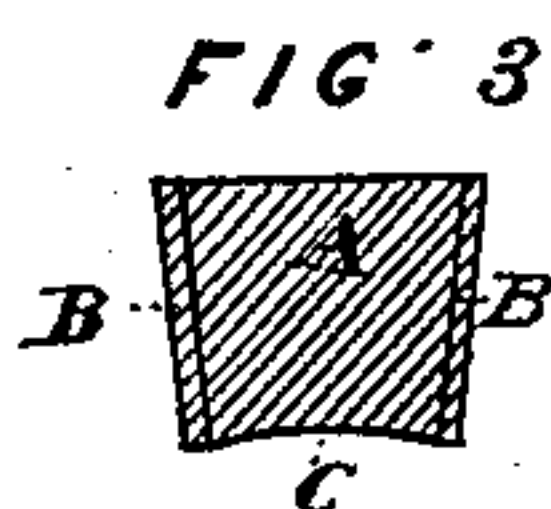
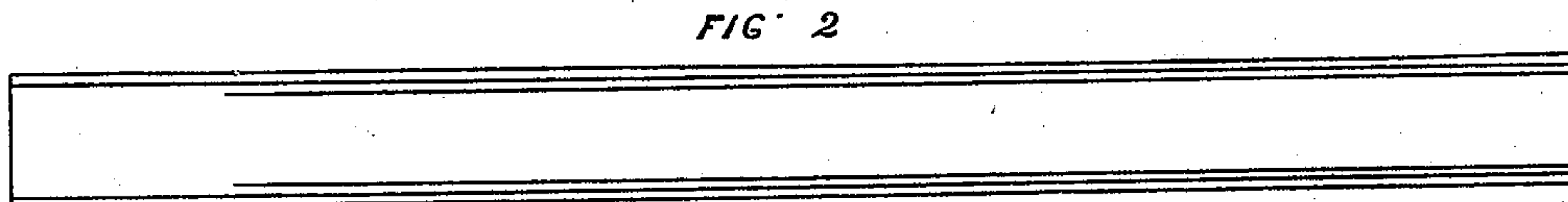
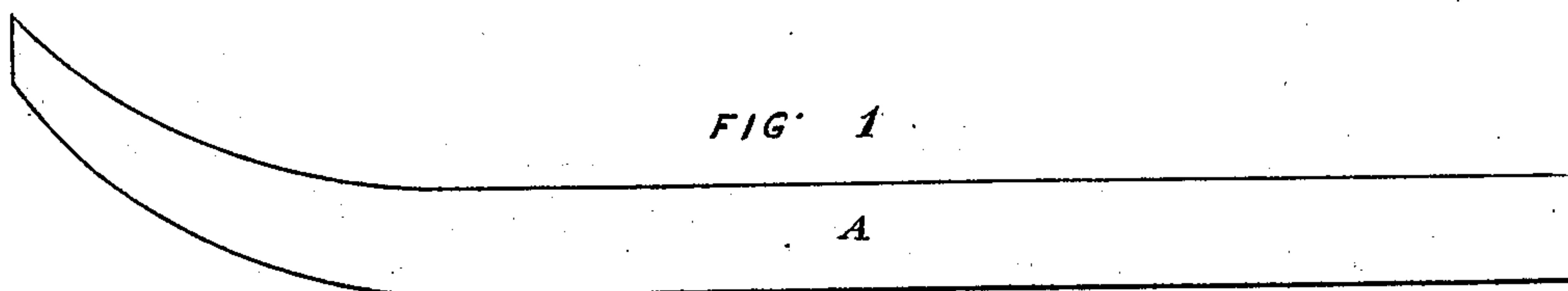


W. G. CALKINS.  
SLEIGH-RUNNER.

No. 177,092.

Patented May 9, 1876.



*Q. Palmer*  
*A. W. Otto*

Witnesses

*William G. Calkins* Inventor.

# UNITED STATES PATENT OFFICE.

WILLIAM G. CALKINS, OF WINNECONNE, WISCONSIN.

## IMPROVEMENT IN SLEIGH-RUNNERS.

Specification forming part of Letters Patent No. **177,092**, dated May 9, 1876; application filed February 14, 1876.

*To all whom it may concern:*

Be it known that I, WILLIAM G. CALKINS, of the town of Winneconne, in the county of Winnebago and State of Wisconsin, have invented certain Improvements in Sled-Shoes, of which the following is a specification:

The two vertical sides of the shoe are chilled in casting, so that there is on each side a shell of chilled iron one-quarter of an inch, more or less, in thickness. The iron between these shells being softer, will wear faster and gradually form a longitudinal groove in the base of the shoe. The shoe may or may not be slightly grooved when it is cast. The chilled sides, being so much harder than the middle of the shoe, will always wear slower, and thus constantly maintain the grooved form of base.

The advantage of a shoe thus constructed is that the snow under it is constantly pressed and packed toward the middle, hardening it,

and thus making the sled haul easier; and, further, when being hauled over hard or icy roads the shoe acts like a skate, cutting the ice, and thus preventing sloughing, which makes hauling much easier for the horses.

In the drawings, A, Figure 1, is a side elevation of the shoe. Fig. 2 is a plan of the base, and Fig. 3 is a section. B B represent the chilled outsides, and C the grooved base.

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

A sled-shoe, A, cast with chilled sides B B, substantially as and for the purposes specified.

WILLIAM G. CALKINS.

Witnesses:

C. PALMER,  
A. W. OTTO.