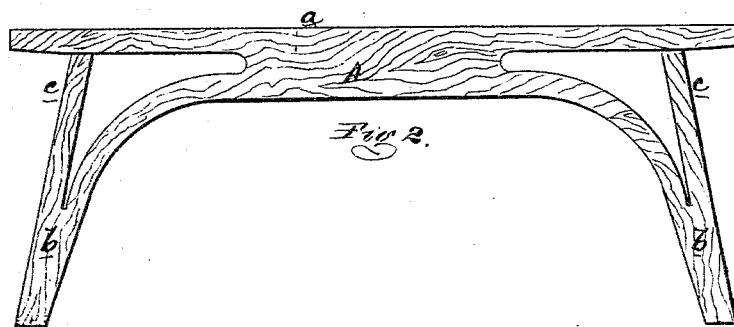


GEORGE IVES & HIRAM IVES.

Improvement in Bent Sleigh Knees, Benches, and Braces,

No. 115,860.

Patented June 13, 1871.



ATTEST

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## UNITED STATES PATENT OFFICE.

GEORGE IVES AND HIRAM IVES, OF DETROIT, MICHIGAN.

## IMPROVEMENT IN BENT SLEIGH-KNEES, BENCHES, AND BRACES.

Specification forming part of Letters Patent No. 115,860, dated June 13, 1871.

*To whom it may concern:*

Be it known that we, GEORGE IVES and HIRAM IVES, of Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Improvement in Bent Sleigh-Benches, Knees, and Braces; and we do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon and being a part of this specification, in which—

Figure 1 is a front elevation of our invention. Fig. 2 is a plan of a piece of timber from which Fig. 1 is made, with lines showing the saw-kerfs made in the same preparatory to bending. In Fig. 1 a dotted line is shown, for the purpose hereinafter explained.

This invention has for its object the better construction of bent work for sleigh-benches and knees where the same are constructed from one piece of timber. As ordinarily constructed, if a heavy weight is imposed upon the sleigh the bend which connects the vertical portion of the knee with the bench is inclined to spring or buckle. This invention consists in providing the knee with a vertical

or nearly vertical supplementary knee or brace, in combination with a bench and knee, all cut and bent from one piece of timber.

In the accompanying drawing, A represents a suitable piece of timber, in which the saw-kerfs are shown in open lines, and in which the part *a* forms the bench, *b* the knee, and *c* the supplementary knee or brace. As the knee *b* is bent down, as shown in Fig. 2, the supplementary knee *c* assumes the position shown in 2, and its upper end may be secured to or near the ends of the bench *a*, so that it will receive a portion of weight imposed on the bench in the direction of the grain of the wood or nearly so. The dotted lines in Fig. 2 show how a supplementary bench may be employed, if desired.

What we claim as our invention, and desire to secure by Letters Patent, is—

A sleigh-bench, *a*, knee *b*, and supplementary knee or brace *c*, when bent from one piece of timber, substantially as set forth.

GEORGE IVES.  
HIRAM IVES.

Witnesses:

THOS. S. SPRAGUE,  
H. F. EBERTS.