

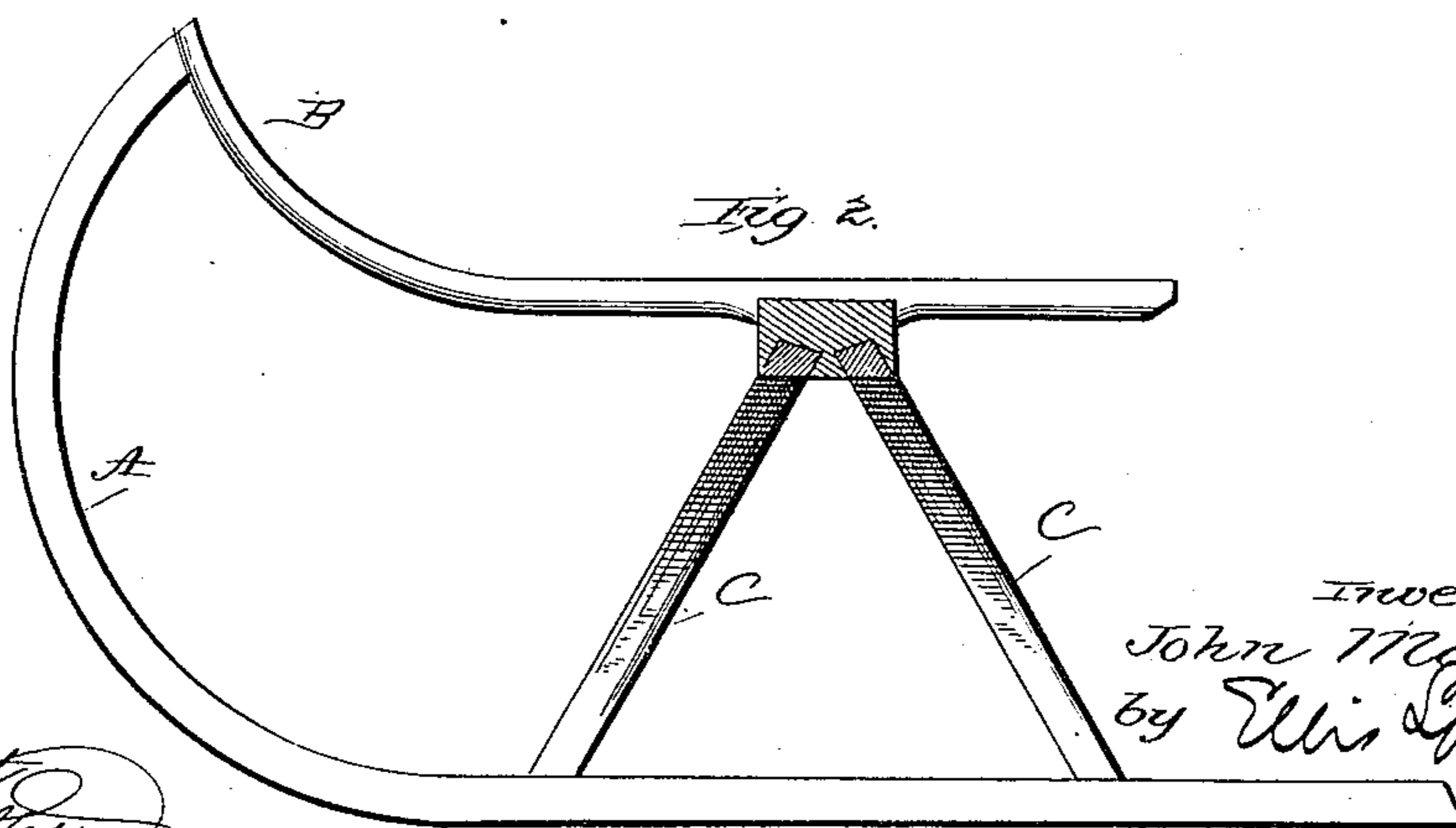
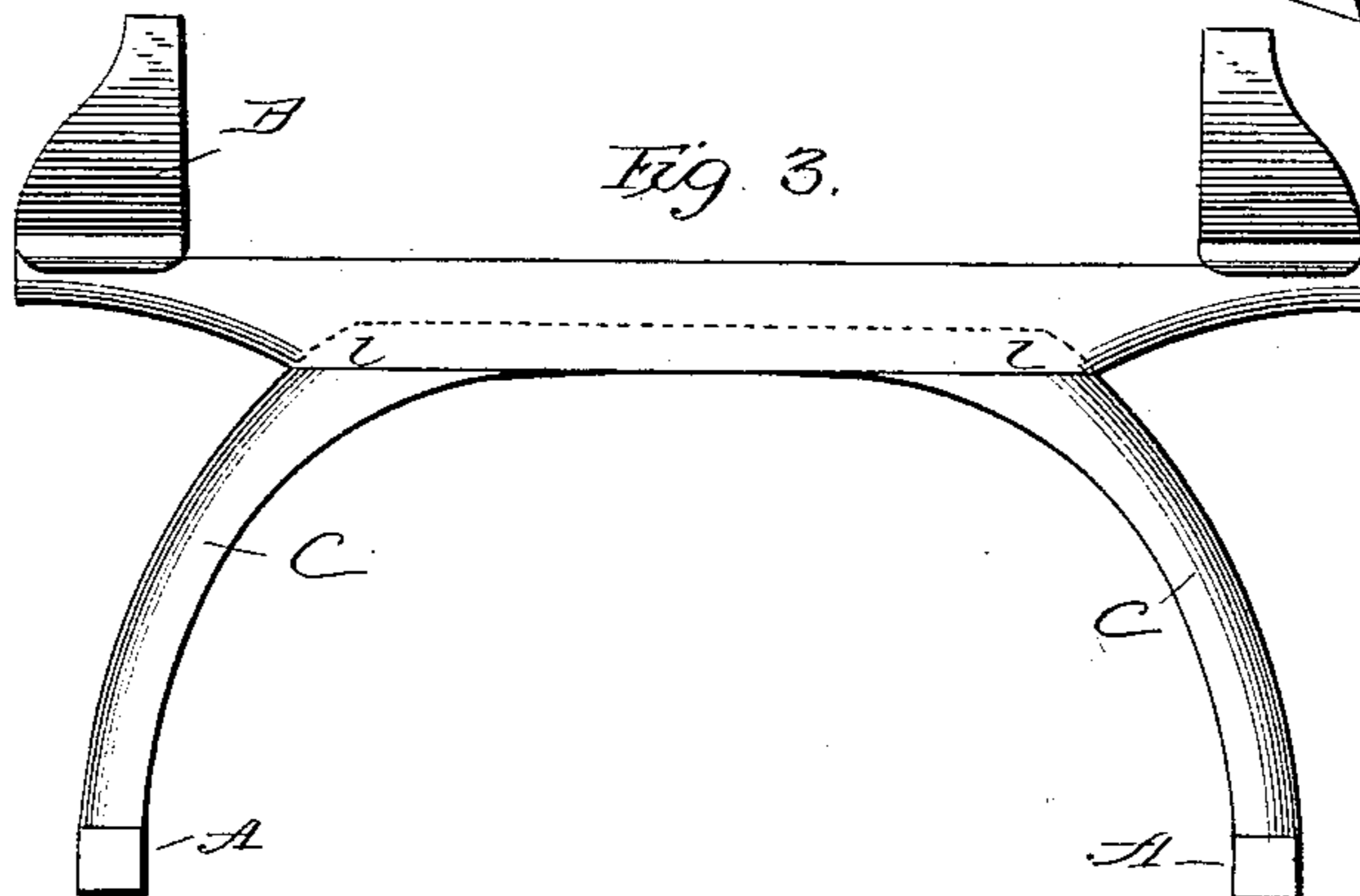
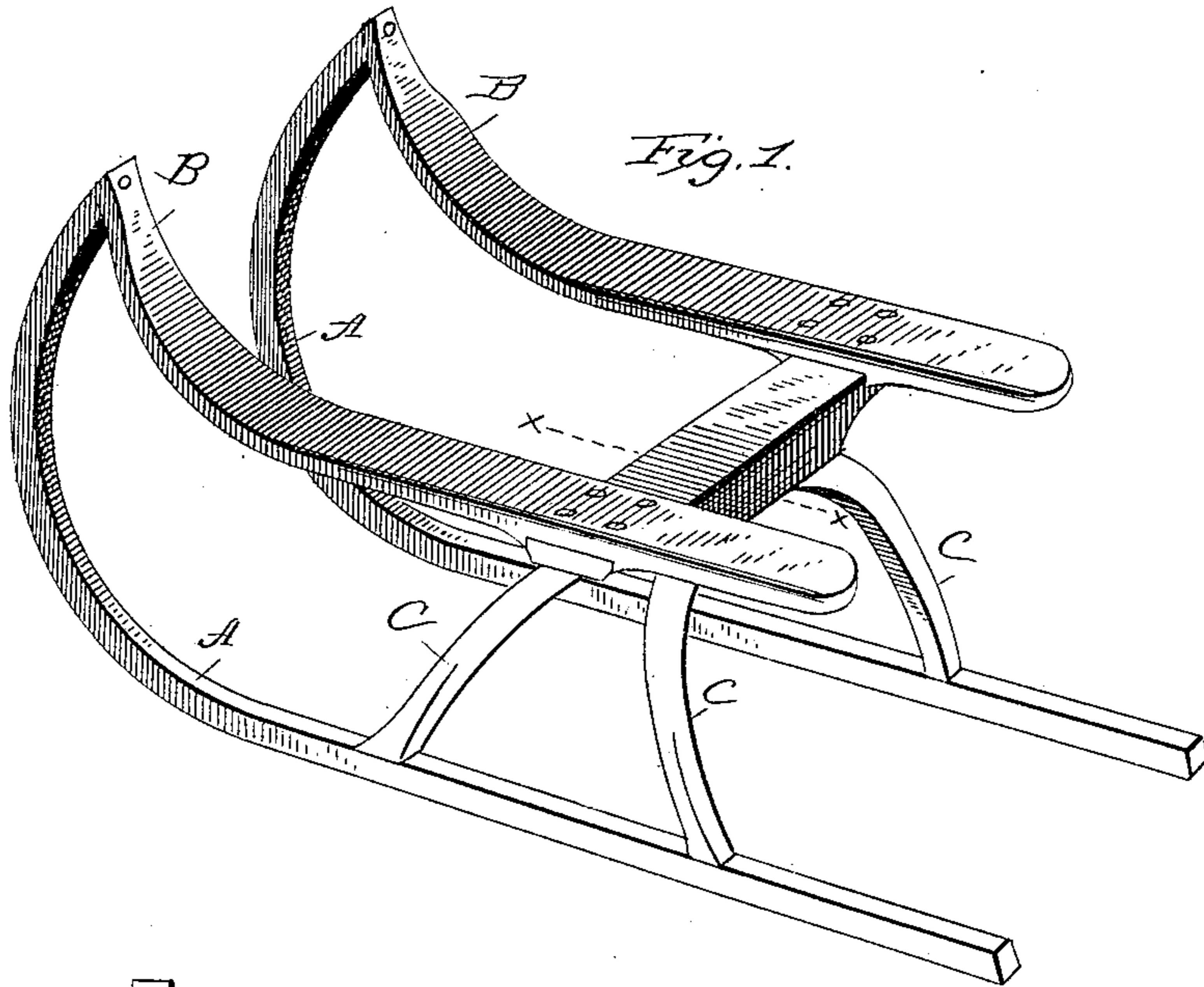
(No Model.)

J. MACK.

SLEIGH.

No. 389,397.

Patented Sept. 11, 1888.



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UNITED STATES PATENT OFFICE.

JOHN MACK, OF GRAND RAPIDS, MICHIGAN.

SLEIGH.

SPECIFICATION forming part of Letters Patent No. 389,397, dated September 11, 1888.

Application filed May 24, 1888. Serial No. 274,962. (No model.)

To all whom it may concern:

Be it known that I, JOHN MACK, of Grand Rapids, in the county of Kent and State of Michigan, have invented a new and useful Improvement in Sleighs; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention is an improvement in the construction of sleighs and sleds. It is especially adapted to that form of sleighs known as "bob-sleighs," though it is not necessarily confined to that particular class. The object I had in view was to secure economy in the construction, and this is accomplished by the peculiar construction of the wood-work, by means of which this wood-work is made very strong and so as to require but very little iron, all as hereinafter explained.

In the accompanying drawings I represent in Figure 1 the frame of a bob-sleigh made in accordance with my invention. Fig. 2 is a transverse section of the beam on line $x x$ of Fig. 1. Fig. 3 is a rear view of Fig. 1.

The invention relates exclusively to the knees and beams of the sleigh.

In the drawings, the runners A and the fenders B are of ordinary construction. The knees C are shown as formed out of a single piece bent into the proper shape. The beam is made of a width greater than usual, and is cut on its under surface with two inclined grooves, which are fitted to receive the crown or beam part of the knees. I have shown the beam as having two grooves; but obviously one may be used instead, and the crowns of the knees may be set with their inner faces in contact where they are sunk into the beam. A pair of these knees is used in connection with each beam, the knees being inclined to front and rear, as shown, so as to form a firm support on the runners and to brace the structure in all directions. The crown part of the knees is sunk into the beam a sufficient depth to give

a firm hold, and thus to form the knees and beams practically into one solid piece, while permitting a separate and economical manufacture of the parts. The knees are glued or otherwise secured snugly into the cavities or grooves. They are formed thicker on the lines 1 1 at the point of junction with the beam, and by being firmly united with the beam make a very strong brace at that point to withstand any strain which may be thrown upon it. Two pairs of knees form, when arranged in the manner shown, sufficient support for the structure for ordinary bob-sleighs, and this requires to be ironed for cheap sleighs only with a little piece on the inside of the runner where the knee is mortised in, doing away with inside braces. This of course does not include the irons necessary for making the connections with the other parts.

I do not limit myself to a pair of knees formed out of one piece, as the knees C may be made in two pieces—that is to say, may be made each of one piece—the crowns being brought together in the groove at the middle of the beam B. Manifestly the construction may be applied to longer sleighs or sleds, as this would involve simply a duplication of the knees and beams, which requires no further explanation.

I claim as my invention—

In combination with the runners, a pair of knees bent to form crowns or beam-supports, and a beam having a groove or grooves in which the crowns are fitted, said knees being set in an inclined position and fixed in the grooves, all substantially as described.

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

JOHN MACK.

Witnesses:

O. F. POWELL,
M. B. CHURCH.