

(No Model.)

L. BENDER.
SLEIGH.

No. 353,117.

Patented Nov. 23, 1886.

Fig. 1.

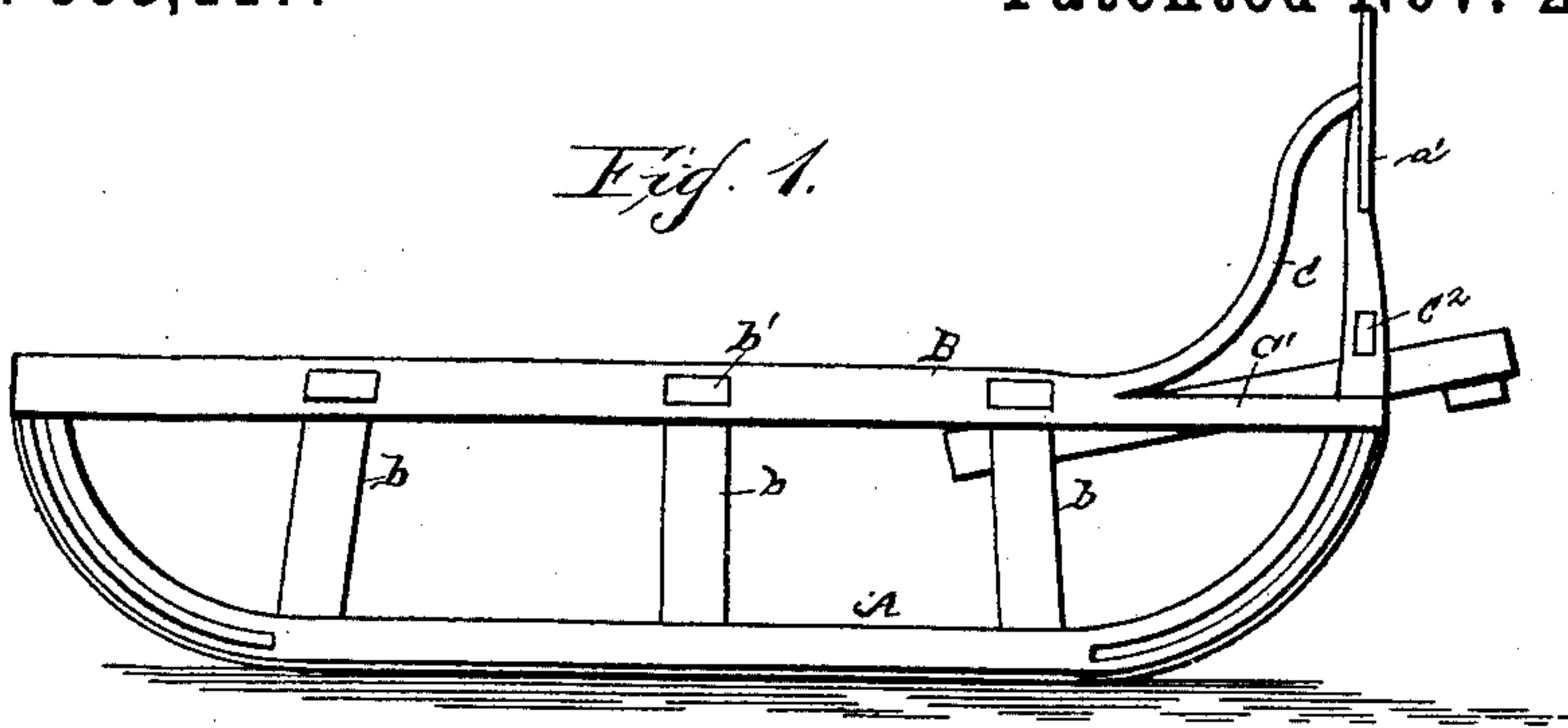


Fig. 2.

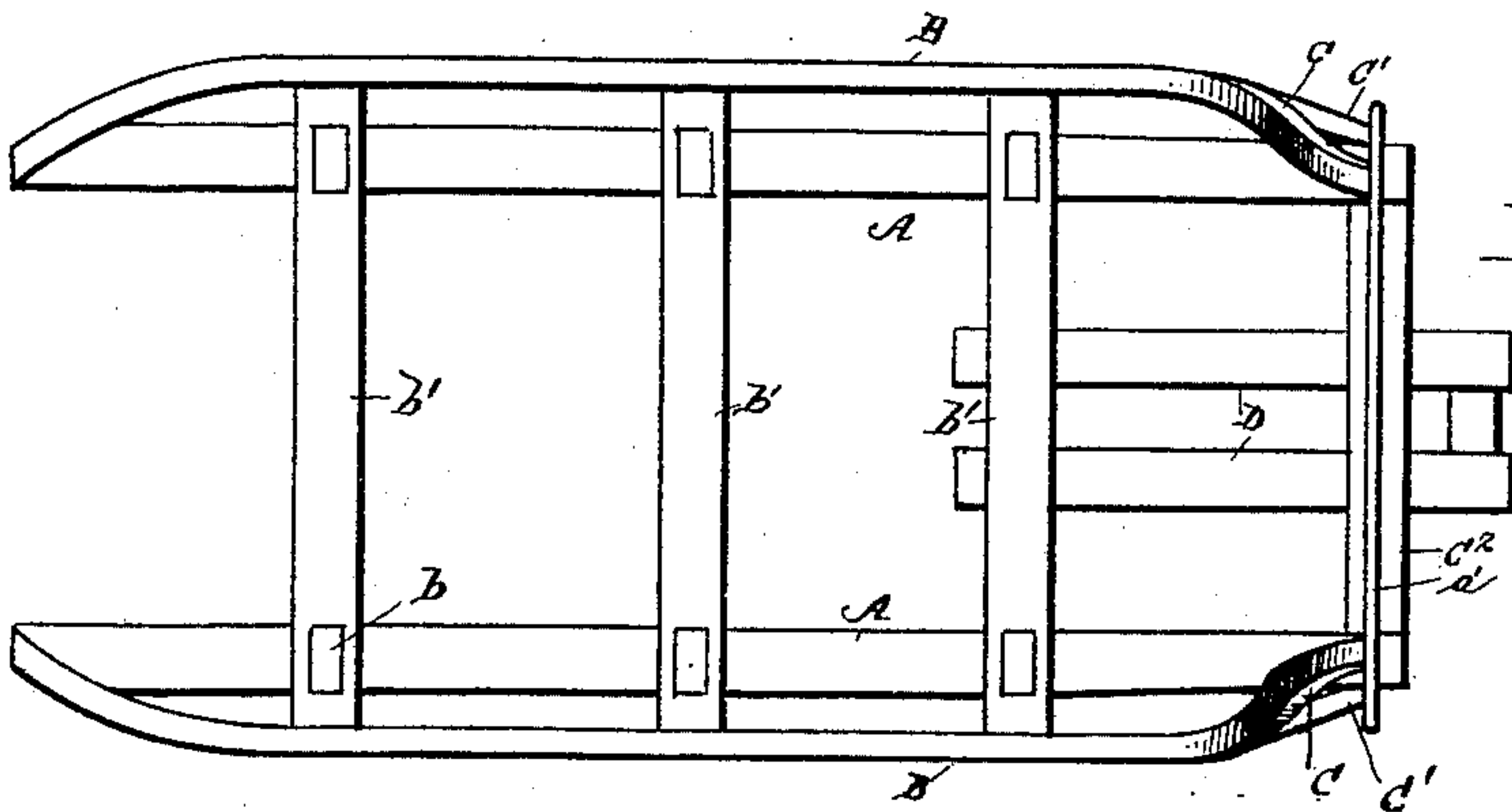


Fig. 3.

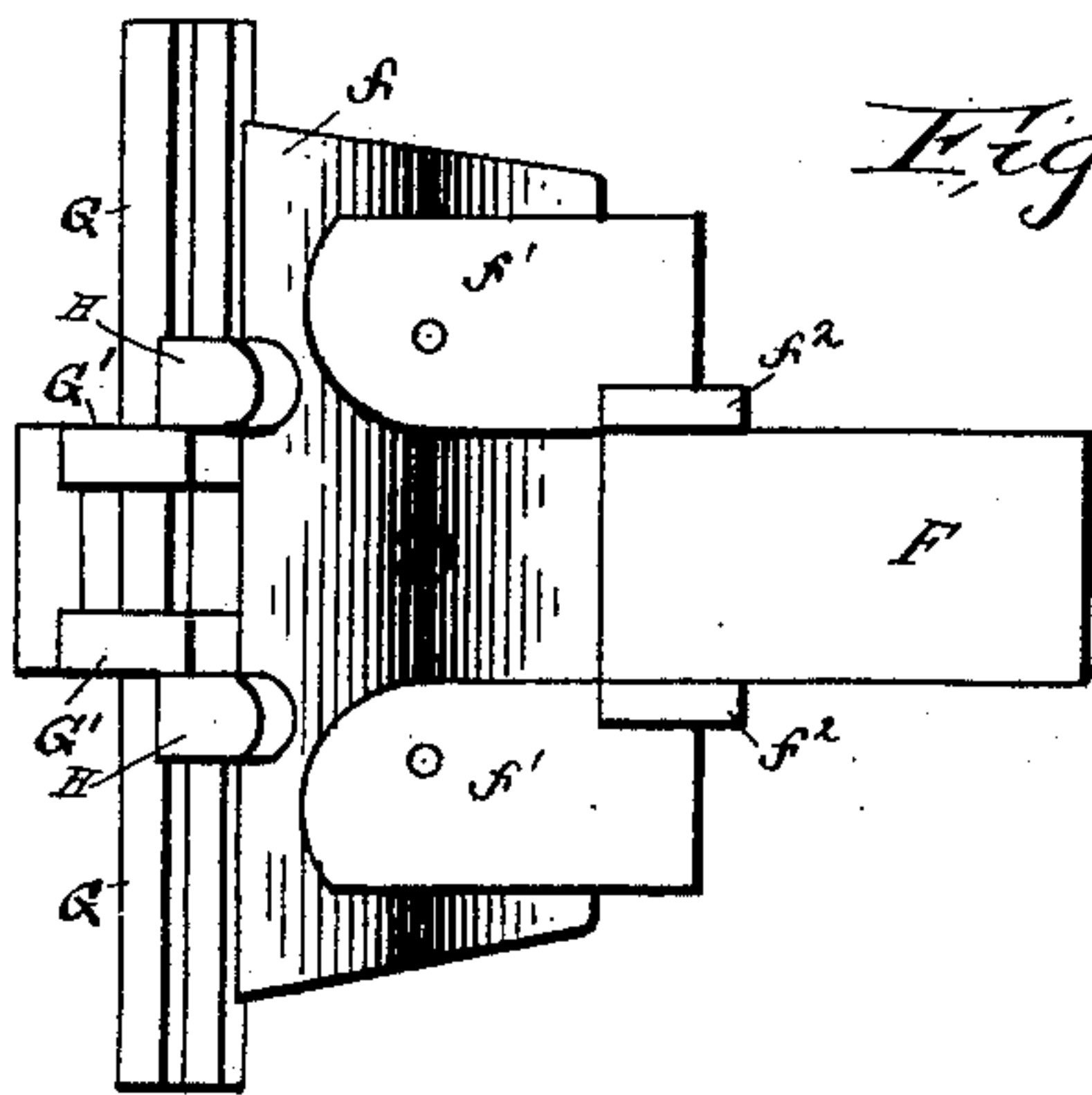
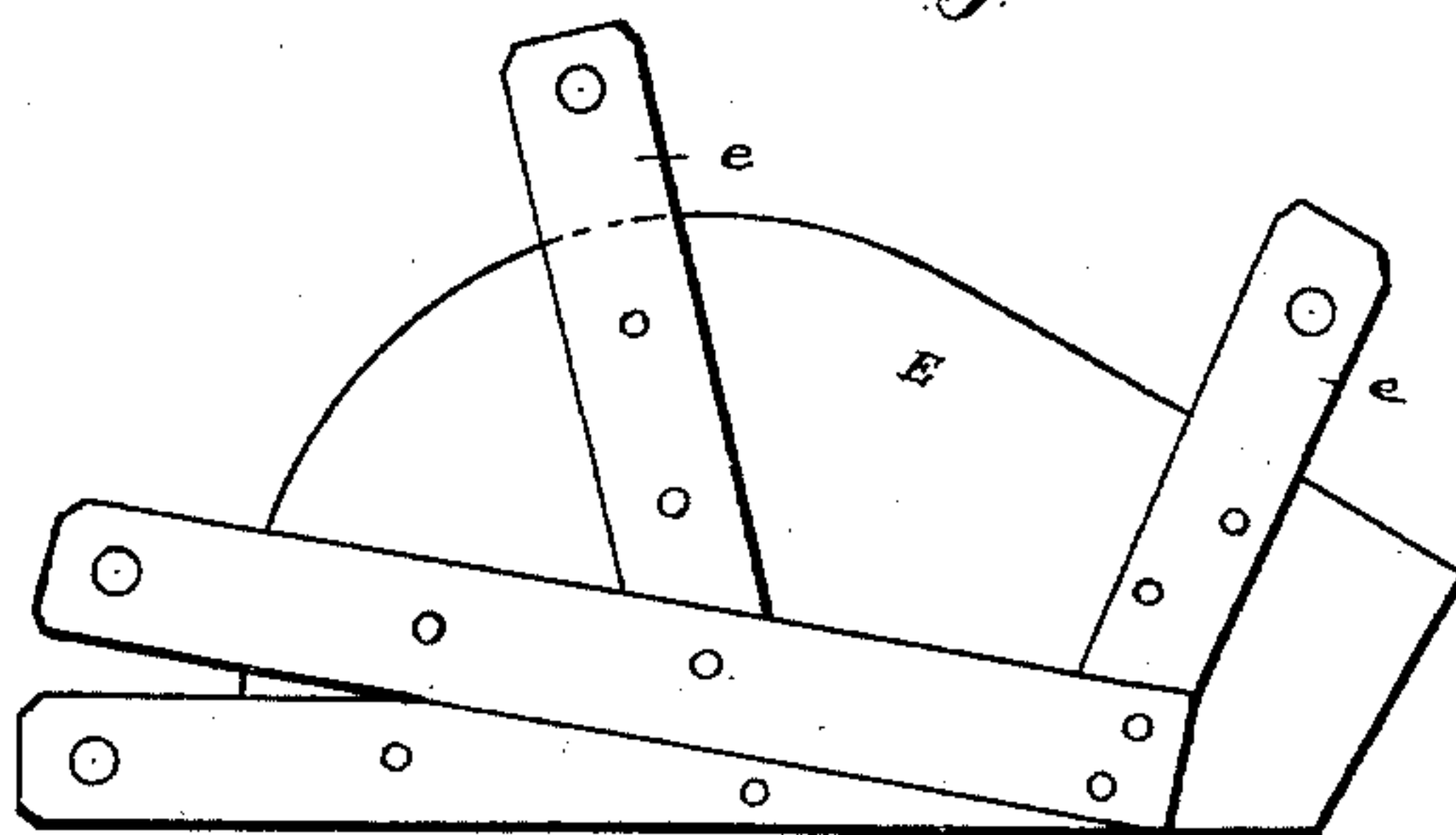


Fig. 4.



Witnesses:

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By *[Signature]*

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UNITED STATES PATENT OFFICE.

LEONARD BENDER, OF ELIZABETHVILLE, PENNSYLVANIA.

SLEIGH.

SPECIFICATION forming part of Letters Patent No. 353,117, dated November 23, 1886.

Application filed August 4, 1886. Serial No. 209,959. (No model.)

To all whom it may concern:

Be it known that I, LEONARD BENDER, a citizen of the United States of America, residing at Elizabethville, in the county of Dauphin and State of Pennsylvania, have invented certain new and useful Improvements in Sleighs, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention pertains to certain new and useful improvements in sleighs, whereby means are employed for bracing and securing the forward ends of the runners; and my invention also comprises a bending-machine for
15 the proper formation of the parts in the accomplishment of the above result; and it consists in the detailed construction, combination, and arrangement of the parts, substantially as hereinafter fully set forth, and pointed out in
20 the claims.

In the accompanying drawings, Figure 1 is a side elevation of my improved sleigh. Fig. 2 is a plan view thereof; and Figs. 3 and 4 are plan and side views, respectively, of the two
25 devices constituting my bending-machine.

In carrying out my invention I provide two parallel runners, A, the forward bent ends of which have a portion of their center surface removed, so as to aid in the bending thereof,
30 and providing for additional elasticity therefor. The upper forward ends of these runners are connected together by means of a plate or shield, *a*, extending a short distance beyond the upper ends of said runners. The parallel
35 runners A are also slightly bent at their rear ends, which bending is effected prior to the bending of the forward ends thereof. Secured to these runners at suitable distance apart are three (more or less) inclined standards, *b*, the
40 upper ends thereof being provided with short projections, formed by removal of a portion of the other surface thereof. The opposite standards are connected together by horizontal cross-pieces *b'*, said cross-pieces projecting a
45 short distance beyond the standards at either side.

B B are two horizontal side bars suitably connected to the outer end of each cross-piece *b'*, and at a point just beyond the front cross-piece
50 said side bars are sawed in about their center, forming long and short projecting arms, C C',

respectively, the latter being slightly bent inwardly and secured by ordinary means to the outer side of the curved portion of the afore-described runners A. The other longer arm, 55 C', of each side bar is bent upwardly and inwardly a short distance, and thence again bent forwardly until its outer end reaches the extreme upper end of the bent portion of each runner, to which and the shield or plate it is 60 rigidly secured.

The bent portions of the runners are additionally secured or held together by means of a cross-bar, C², connected at each end to said portion of the runners. 65

Two parallel bars, D D, are connected at their inner ends to the under side of the front cross-piece, *b'*, and to the under side of the cross-bar C², and to their front ends, is connected a small cross-bar, to which is pivotally con- 70 nected the whiffletree for application thereto of a draft-horse.

E is a block, to which is secured at suitable points on either side four or more outwardly-projecting arms, *e*, which arms are correspond- 75 ingly apertured for the insertion therethrough of suitable securing-pins. The block E is curved on its upper outer portion to provide for the bending thereon of the runners of the formation before described. Said runners are 80 first subjected, as usual, to the application of steam, and are then placed on the bending-block E and securely held in position by the pins, as aforesaid.

F is a block or frame, to which is rigidly se- 85 cured in a recess formed in the upper surface thereof a guide bar or plate, *f*, which curves from the center toward the front and rear edges thereof, the former having the greatest curvature. To the central portion of this guide bar 90 or plate is pivotally secured near either end thereof one end of a curved plate, *f'*, the forward end of which extends to within a short distance of the front edge of the guide bar or plate. These curved plates *f'* are securely 95 held in position by means of two upwardly-projecting bars, *f*² *f*², secured to the sides of the block F, said guide-plates having a portion of their surfaces removed to provide for the secure retention thereof in contact with 100 said bars *f*². Two horizontal cross-bars, G, are passed through corresponding apertures

formed in two oppositely-disposed uprights or bars, G', secured in recesses formed in the sides of the block F, near the front end thereof.

5 In the formation of the side bars, B, before described, the same are placed on the upper surface of the block, and the longer arm is bent around the curved portion of the curved plate *f'*, and is secured or retained at the desired point by means of a slide, H, which has
10 a portion of its surface removed to permit of the sliding thereof on the front edge of the guide bar or plate *f*, said slide being curved on its front portion where it comes in contact with the said arm of the side bar. The slides
15 H are securely held against said guide bar or plate by the horizontal cross-bars G. The point of adjustment of these slides may be regulated by means of pins inserted in apertures formed in the upper surface of the guide
20 bar or plate *f*.

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

1. The herein-described sleigh, comprising the runners having a portion thereof removed 25 at the front end for the purpose stated, the inclined standards having cross-pieces connected thereto, the horizontal side bars having long and short arms, the said long arm being connected to the said runners, and the shield or 30 plate, substantially as shown and described.

2. The combination, with the runners having a portion of their bend removed, and the shield or plate, of the side bars having each a 35 long and short arm connected to said runners, substantially as shown, and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

LEONARD BENDER.

Witnesses:

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H. E. BUFFINGTON.