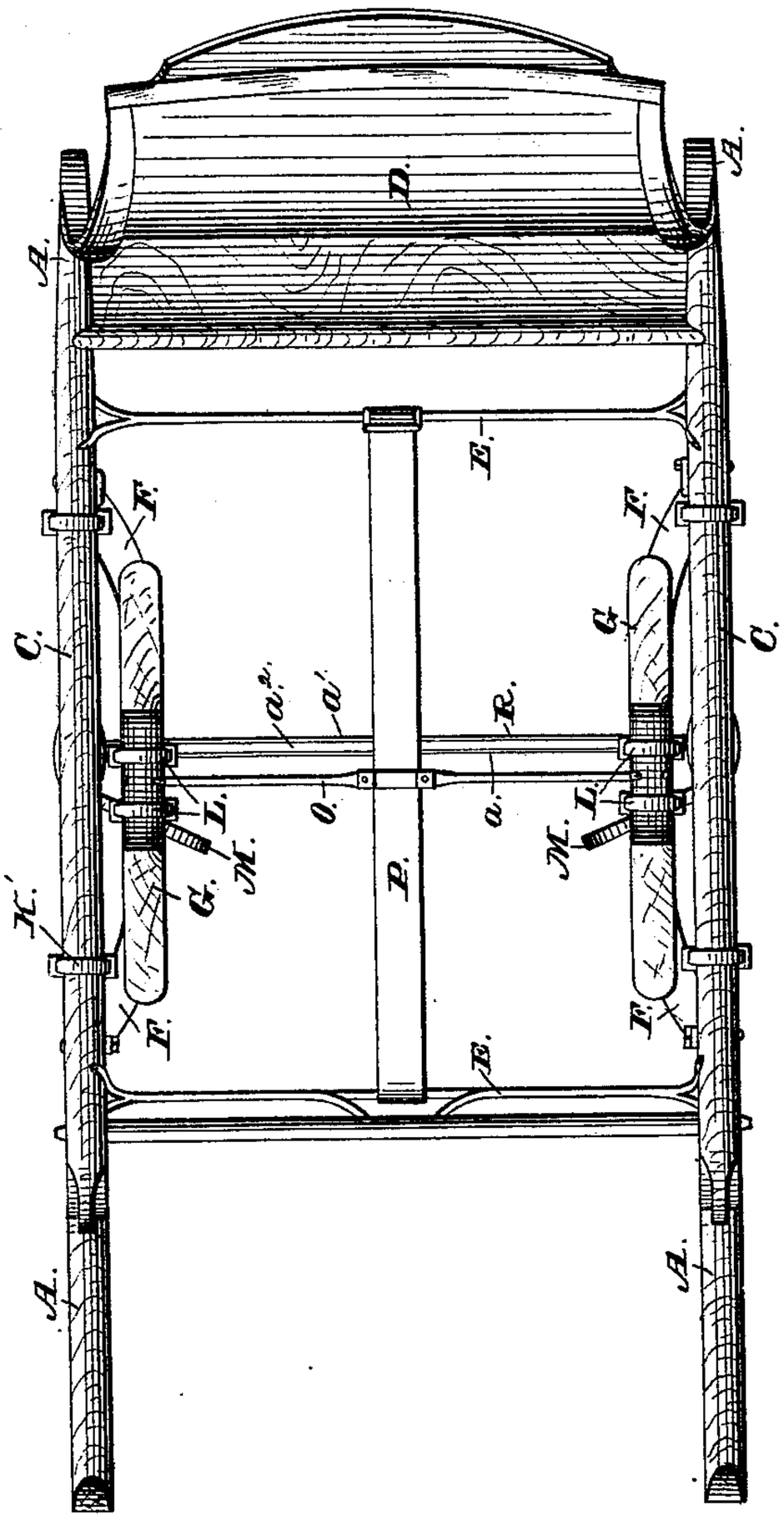
(No Model.) 2 Sheets—Sheet 1.

A. B. WEBSTER.

Sleigh.

No. 234,104. **Patented Nov. 2, 1880.**

Fig. 1.



WITNESSES=

Jas. E. Hutchinson.

Albert H Norris.

INVENTOR.

Albert B. Webster;

by James L. Norris.

Att'y.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

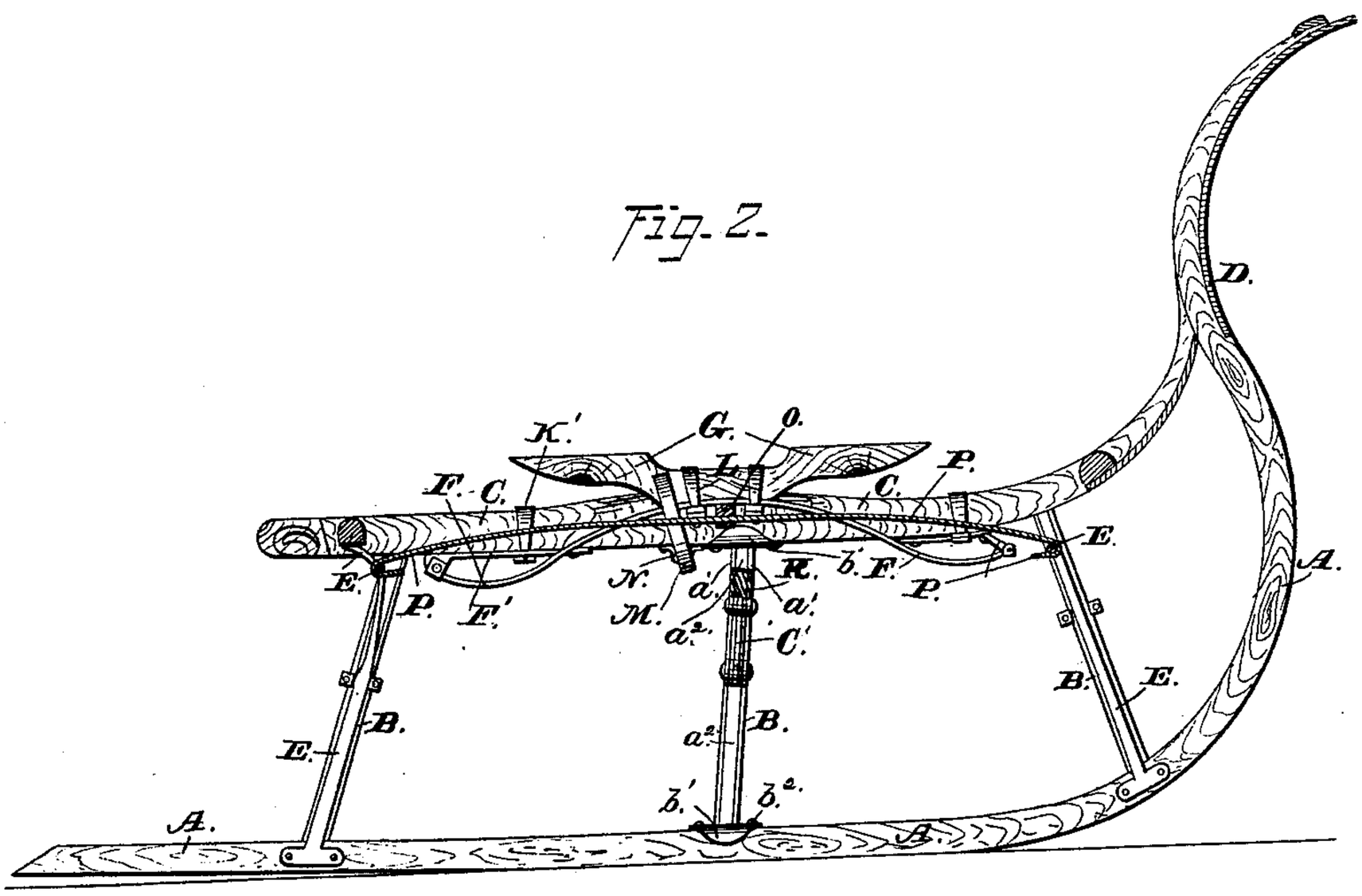
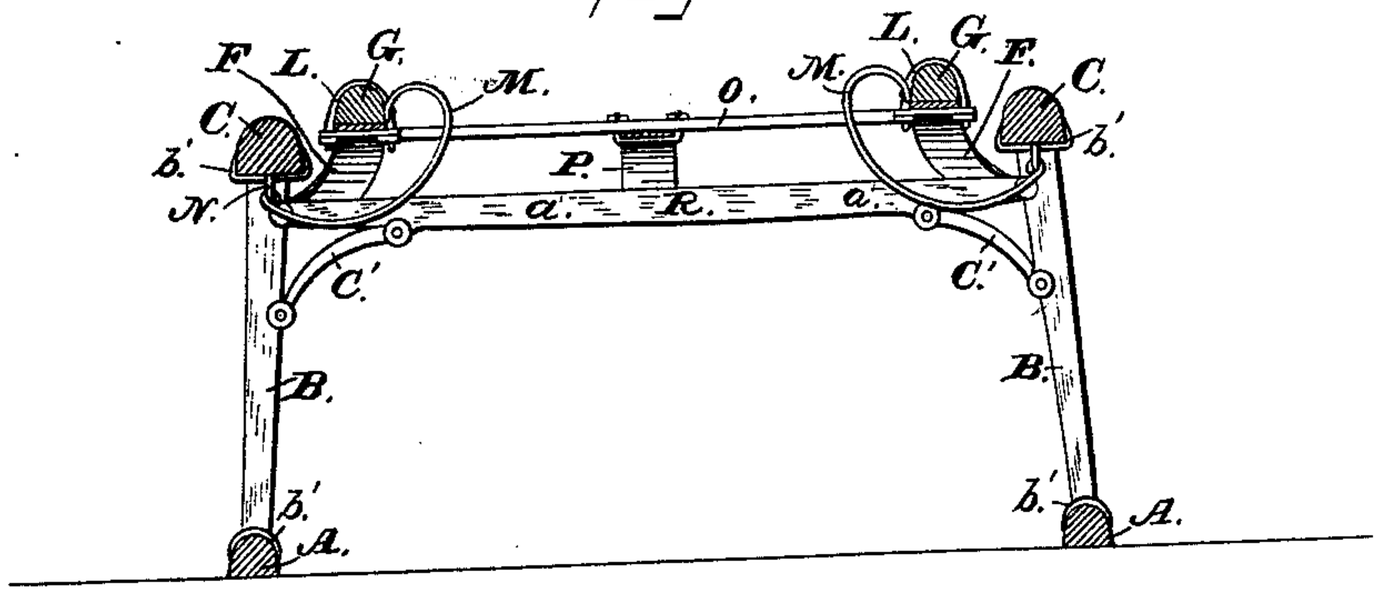


Fig. 3.



WITNESSES:

Jas. E. Hutchinson.

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UNITED STATES PATENT OFFICE.

ALBERT B. WEBSTER, OF MANCHESTER, NEW HAMPSHIRE.

SLEIGH.

SPECIFICATION forming part of Letters Patent No. 234,104, dated November 2, 1880.

Application filed May 12, 1880. (No model.)

To all whom it may concern:

Be it known that I, ALBERT B. WEBSTER, a citizen of the United States, of Manchester, in the county of Hillsborough and State of New Hampshire, have invented a new and useful Sleigh, of which the following is a specification.

This invention relates to certain improvements in sleighs; and it has for its object to provide an improved system of springs for supporting the body upon the frame of the sleigh, whereby all jolting motion and violent shocks, when the sleigh is passing over a rough surface, are partially, if not entirely, avoided.

To this end the invention consists, first, in the combination, with the bars of the sleigh-frame, of two semi-elliptical springs, secured at each end to the under side of the side bars, respectively, and bent laterally and upwardly at their central portions to form seats for the side sills, which support the sleigh-body, as more fully hereinafter specified; second, in combination with the side bars of the sleigh, the semi-elliptical springs pivoted to said side bars at their front ends, and at their rear ends pivoted to the free ends of the supplemental spring-plates secured to the side-bars, substantially as hereinafter more fully specified; third, in the combination, with the side bars of a sleigh and the semi-elliptical springs secured thereto and to the side sills for supporting the sleigh-body, of two curved springs attached to the side bars of the sleigh and to the side sills supporting the sleigh-body, whereby a lateral spring movement is provided for the body of the sleigh and the upward movement of the body is restricted, as more fully hereinafter described; fourth, in the combination, with the semi-elliptical springs and the side bars, of a transverse connecting-rod and a longitudinal spring loosely attached to said rod and loosely secured at its ends to the transverse end braces of the sleigh, as more fully hereinafter specified; fifth, in the combination, in a sleigh, of the semi-elliptical springs secured to the side bars and forming supports for the side sills of the sleigh-body, the curved springs secured to the side bars of the sleigh and to the side sills which support the body, the transverse rod connecting the semi-elliptical springs, and the longitudinal spring secured to the transverse braces of the sleigh and to the transverse connecting-rod, the whole arranged as more fully hereinafter specified; sixth, the invention further consists in the combination, with the side bars of the sleigh and the side sills, supported by the semi-elliptical springs connected at each end to the side bars, of a center cross beam or bar arranged below the under edges of the side bars of the sleigh and attached at its opposite ends to the center, side bars, runners, and intermediate sleigh-knees are firmly braced, and at the same time the body is permitted to play vertically between and below the side bars, as hereinaffer set forth.

In the accompanying drawings, Figure 1 is a plan view of a sleigh constructed according to my invention, the body being removed; Fig. 2, a longitudinal central vertical section thereof, and Fig. 3 a transverse vertical section.

The letter A indicates the runners, B the knees, C the side bars, and D the dash-board, forming the frame of a sleigh, which may be strengthened by the braces E, secured at their ends to the runners, extending upwardly along the knees and passing transversely across the sleigh-frame.

The letter F indicates two semi-elliptical flat springs secured to the lower edges of the side bars, C, at their forward extremities, the central portions extending inwardly, and being bent upwardly to support the side sills, G, to which the body of the sleigh is attached.

The rear ends of the semi-elliptical springs F are pivoted to the free ends of supplemental flat spring-plates F′, secured to the under part of the side bars, C, by means of clips K′, whereby the length of the semi-elliptical springs is practically increased, and such supplemental spring-plates materially aid in taking up the shocks received in passing over obstructions. The front ends of the springs F are attached to metal plates secured to the under side of the side bars by means of links or loops pivoted to the ends of said plates and to the ends of the springs.

The side sills, G, of the sleigh-body are secured to the springs F by means of clips L or other fastening devices, and the sleigh-body is secured to said sills in any convenient manner.

The letter M indicates two curved springs loosely secured at one end to the side bars, C, by means of the staples N or other suitable device, and extending laterally and upwardly, and attached at their other ends to the side sills, G, in any convenient manner, such laterally-arranged springs serving to permit a lateral yielding movement of the sleigh-body, and at the same time to a great extent restrict the upward vibrations of the body, avoiding too great strain on the clips.

The side sills, G, are connected and braced together by means of a transverse connecting-rod, O, which may be attached to the said sills in any suitable manner, and such brace also steadies and braces the semi-elliptical springs against lateral strain.

The letter P indicates a longitudinal flat spring, loosely attached at its ends to the transverse end braces, E, so as to spring freely. The said spring P passes loosely through a clip secured to the center of the transverse rod O, in order that it may slide and operate in connection with the semi-elliptical springs C, above mentioned.

The letter R indicates the center beam or bar of the sleigh-frame. This beam or bar is dropped below the side bars—that is, it is arranged a short distance below the under edges of the side bars, and has its opposite ends mortised in the center knees or standards of the sleigh-frame. This dropped arrangement of the center beam or bar permits the sleigh-body to hang low between the side bars, and at the same time permits the sleigh-body to play freely in a vertical plane between said side bars, besides performing its function of strengthening and bracing the knees and runners, and it also acts as a stop to limit the downward motion of side sills and springs of the sleigh-body. This dropped beam is made of plates of metal a' a', confining between them a wood filling, a^2, and likewise the center knees or standards of the sleigh are similarly constructed, whereby the strength and stiffness of the structure are materially increased.

The angular braces or strips C′ C′ are detachably secured to the center beam and to the knees, and can be readily removed at pleasure without disturbing the other parts of the structure. The metal plates of the center knees or standards are formed at their ends with solid caps b' b', having sockets in which the side bars and the runners respectively set, and are confined by bolts or screws b^2 passing through the said caps b'.

The operation of my invention will be readily understood in connection with the above description, and without further explanation.

It will be seen that as constructed a spring motion will be provided for the sleigh-body both laterally and vertically, which will relieve the sleigh-body from the shocks and jars, and the disagreeable jolting motion usually experienced in sleighs of ordinary construction when passing over rough surfaces will be materially lessened, if not wholly obviated.

What I claim is—

1. The combination, with the side bars, supported in a fixed position by the sleigh-knees, of the semi-elliptical springs F, bent laterally and upwardly at their central portion, which carry side sills for supporting the sleigh-body, and having their ends extending beneath the fixed side bars and attached to the under side thereof, as shown and described.

2. In combination with the side bars of the sleigh, the semi-elliptical springs, pivoted at their front ends to said bars, and at their rear ends pivoted to the free ends of the supplemental spring-plates F′, secured to the side bars, substantially as set forth.

3. The combination, with the side bars of a sleigh, the semi-elliptical springs secured thereto, and the side sills of the sleigh-body, of the curved laterally-arranged springs, secured to said side sills and to the side bars, substantially as and for the purposes specified.

4. In combination with the semi-elliptical springs, the transverse connecting-rod O, the transverse end braces, E, and the central longitudinal flat springs loosely attached at their ends to the end braces and loosely confined to the connecting-rod O, substantially as specified.

5. The combination, in a sleigh, of the semi-elliptical springs secured to the side bars and forming supports for the side sills of the sleigh-body, the laterally-arranged curved springs, secured to the side sills and to the side bars of the sleigh, the transverse rod connecting the semi-elliptical springs, and the longitudinal spring secured loosely to the transverse connecting-rod and end braces, substantially as specified.

6. The combination, with the side bars, C, and the side sills, G, supported by semi-elliptical springs F, which are connected at each end to the side-bars, of a center cross beam or bar arranged below the under edges of the side bars, and having its ends connected with the center knees or standards, substantially as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

ALBERT B. WEBSTER.

Witnesses:

RICHARD J. P. GOODWIN,

JOHN BELL.