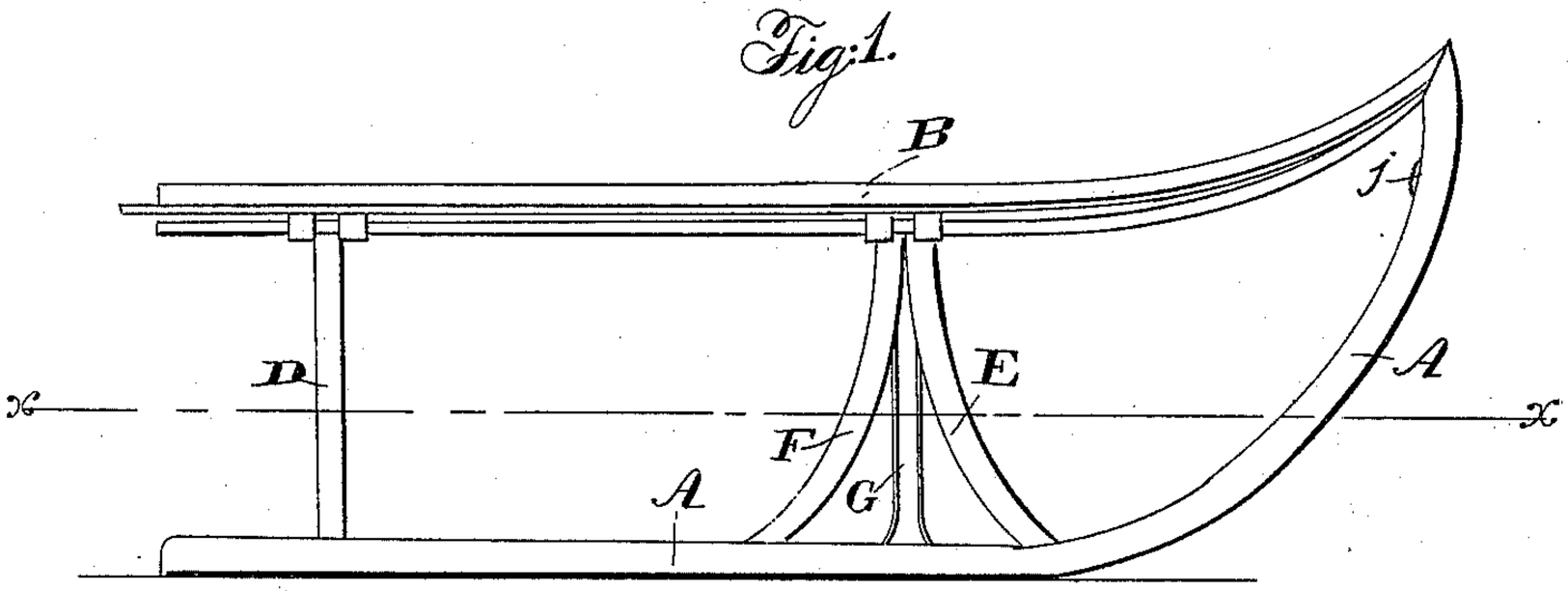
R. J. MANN.

Sled.

No. { 2,198, / 33,202 }

Patented Sept. 3, 1861.

Fig: 1.



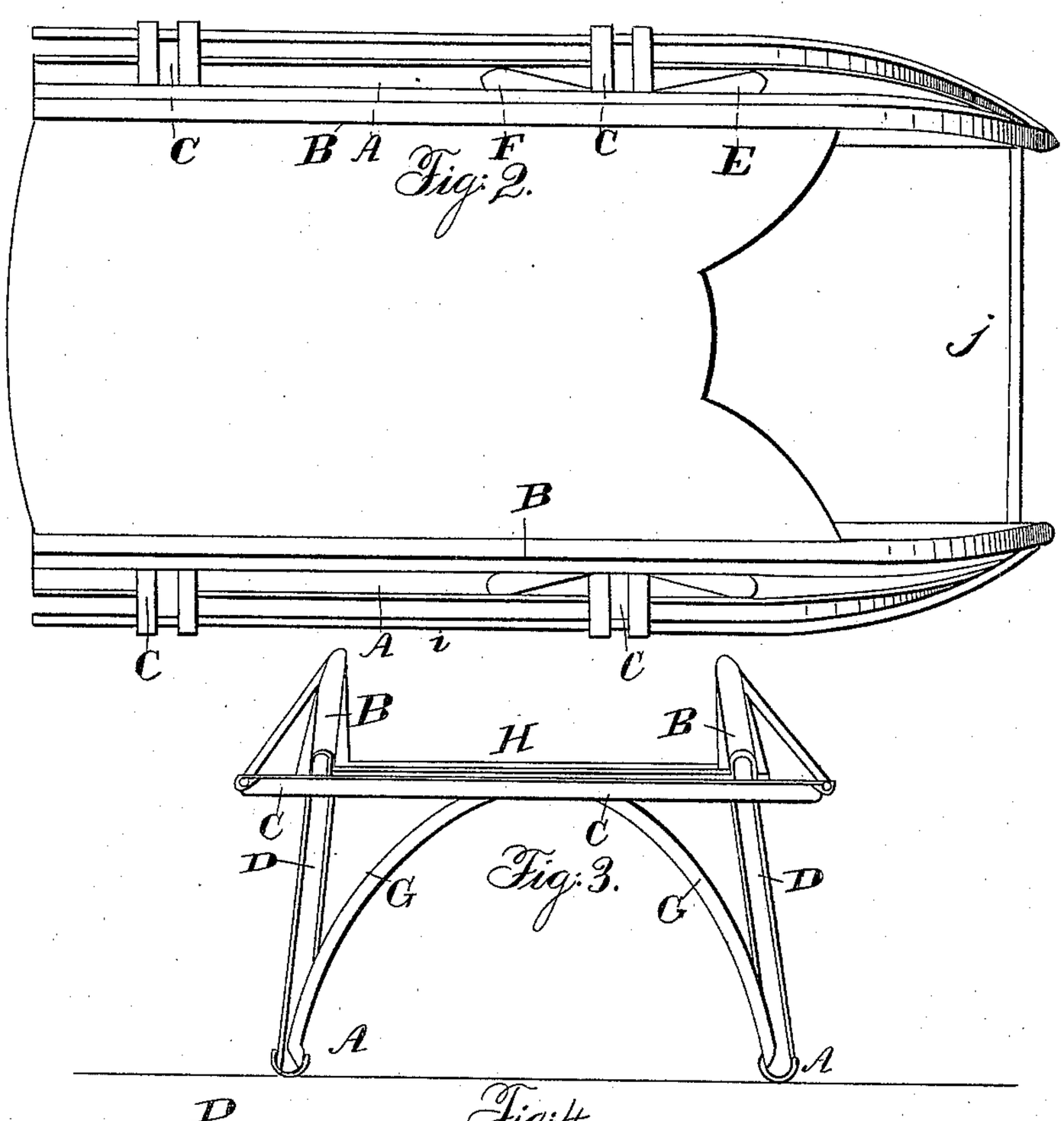


Fig: 2.

Fig: 3.

Fig: 4.

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ROBERT J. MANN, OF SENECA FALLS, NEW YORK.

IMPROVEMENT IN METALLIC SLEDS.

Specification forming part of Letters Patent No. **33,202**, dated September 3, 1861.

To all whom it may concern:

Be it known that I, ROBERT J. MANN, of Seneca Falls, in the county of Seneca and State of New York, have invented certain new and useful Improvements in Sleighs; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 represents a side elevation of a boy's sleigh constructed according to the principles of my invention. Fig. 2 represents a plan of the same. Fig. 3 represents an elevation of the hinder end of the same, and Fig. 4 a horizontal section of a portion of the same at the line *x x* of Fig. 1.

My improvement has reference principally to boys' sleighs. These have been constructed hitherto mainly of wood, with either solid or framed runners. The object of my invention is to enable them to be made of lighter weight and of greater strength, as well as at a lower cost; and my invention is divided into several parts.

The first part of my invention consists in forming the runners of semi-tubular metal with the convex side downward, whereby a runner of great strength and light weight is obtained, and the employment of a shoe separate from the runner is dispensed with, the semi-tubular metal forming both runner and shoe.

The second part of my invention consists in a frame of corrugated metal to support the bed of the sleigh, such frame consisting of longitudinal and cross bars secured together substantially as hereinafter described.

The third part of my invention consists in combining the runners with the frame that supports the bed of the sleigh by means of semi-tubular metal braces, whereby a sleigh running-gear of great lightness and strength is produced.

The fourth part of my invention consists in the combination of a sleigh-bed, corrugated sleigh-frame, semi-tubular runners, and semi-tubular braces, all of metal, so that a metallic sleigh is produced of great strength and of light weight.

All of my improvements are embodied in the boy's sleigh represented in the accompanying drawings.

The runners A A of this sleigh have a semi-tubular section, as shown at Figs. 3 and 4. They extend from the hinder end of the sleigh forward, being curved upward at their front extremities and connected at their front ends with longitudinal bars of the frame B B. The frame of the bed of the sleigh is composed in this instance of two longitudinal bars B B and of two cross-bars C C, all formed of sheet metal corrugated by swaging or other means, so that their section has the form of the letter **U**, the legs terminating in broad flanges. The two longitudinal bars are arranged with their flanges downward. They are connected at their front ends by riveting or otherwise with the runners A A, and extend backward parallel with each other, or thereabout, and with the straight portions of the runners to the hinder end of the sleigh. The two cross-bars C C are arranged with their flanges upward, so that the flanges of the longitudinal bars and cross-bars are applied flatwise to each other. These cross-bars extend across the longitudinal bars and are securely fastened by rivets or otherwise where they cross each other. The bed-frame thus formed is connected with the runners by means of braces D E F G. These extend in different directions, according to the direction of the strains which they are intended to sustain. They are arranged in pairs, one member of each pair being appropriated to one runner and the other member to the other runner. One pair of braces connect the hinder extremities of the runners with the bed-frame. The members D D of this pair are straight. Two pairs of braces connect the forward extremities of the straight parts of the runners with the bed-frame. The members E of one of these pairs incline forward, and the members F of the other pair incline backward, so that all tendency of the runners to change their longitudinal relations to the longitudinal bars of the bed-frame is effectually prevented. In addition to the braces thus described, each cross-bar of the bed-frame is connected with each runner by means of a diagonal brace G, so as to prevent the runners from being moved crosswise in reference to the bed. These diagonal braces G G, as well as the other braces above mentioned, are all made of semi-tubular or corrugated metal, and are firmly secured at their ends either by riveting or other fasten-

ing to the runners and to the bars of the bed-frame. The running-gear is surmounted by a bed H, which in this instance is a flat sheet of metal riveted or otherwise secured to the flanges of the cross-bars and of the longitudinal bars.

The cross-bars C C extend at either side of the sleigh beyond the longitudinal bars. The extended ends of the cross-bars have their curved portions removed, so as to leave the flanges projecting in the form of flat strips. These strips are then bent downward over bars *i i*, which form fenders, and which are secured at their front ends to the front ends of the longitudinal bars B B and runners. The front ends of the runners are maintained at their proper distances apart by a cross-brace *j*, formed of a round metal rod whose ends are riveted into the runners.

The metal which forms the runners, the braces, and the frame of the sleigh thus described may either be rolled into the proper section or may be swaged out of strips of sheet metal. The longitudinal curvature may then be imparted to each piece by subjecting it to the action of proper dies, so that hand-fitting may be dispensed with. The rivet-holes, if rivets be used, may also be drilled or punched according to a templet, so that the parts of the sleigh may be put together without any hand adjustment.

The invention, although applicable principally to boy's sleighs, may be applied to horse-sleighs.

The strength and lightness of a sleigh constructed upon this principle are remarkable, being far superior in both respects to those of a wooden sleigh, and when the dies are prepared boys' sleighs can be produced in quantities at a less price than if made of wood.

Having thus described a sleigh embodying my improvements, what I claim as my invention, and desire to secure by Letters Patent, is—

1. A semi-tubular sleigh-runner constructed substantially as described.

2. A bed-frame of a sleigh, consisting of a combination of longitudinal and cross bars of corrugated metal, combined together substantially as described.

3. Combining the runners of a sleigh with the bed-frame thereof by semi-tubular braces, constructed and arranged substantially as described.

4. The combination of semi-tubular sleigh-runners, a corrugated bed-frame, semi-tubular braces, and a bed, the four members of this combination being constructed and combined substantially as described.

In testimony whereof I have hereunto set my hand this 21st day of January, 1861.

ROBERT J. MANN.

Witnesses:
E. T. RENWICK,
W. L. BENNEM.