(No Model.) 2 Sheets—Sheet 1.

C. P. CARY.

SLED.

No. 345,829. Patented July 20, 1886.

Fig. 1

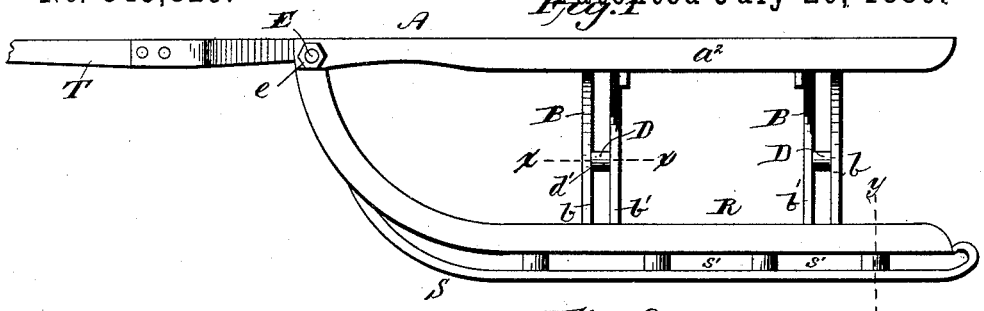


Fig. 2

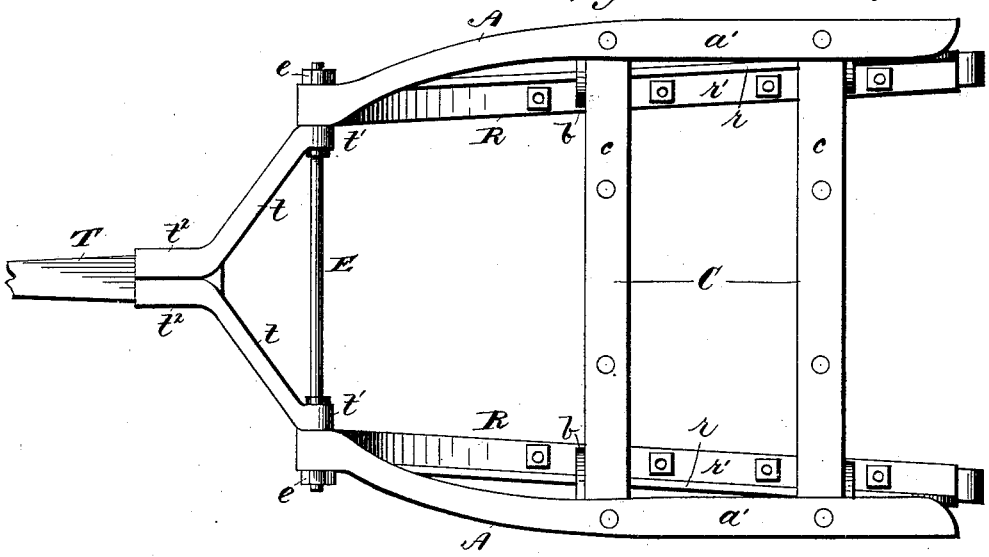
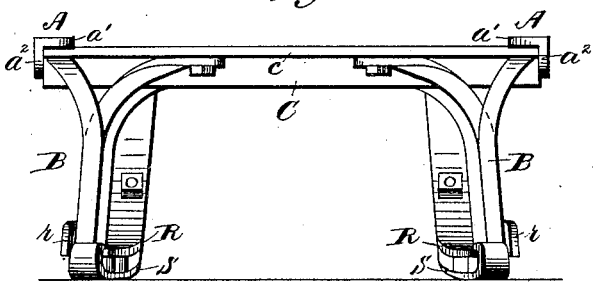


Fig. 3



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(No Model.) 2 Sheets—Sheet 2.

C. P. CARY.

SLED.

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Fig. 4

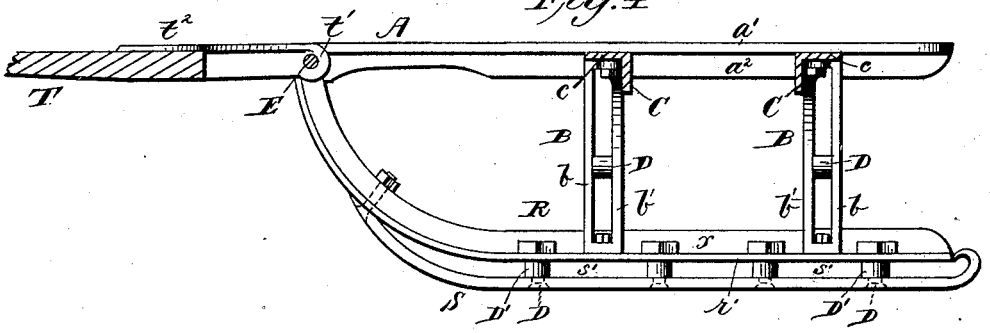


Fig. 5

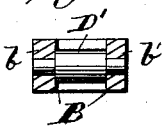


Fig. 6

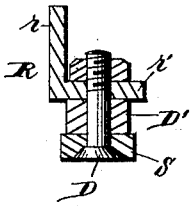


Fig. 7

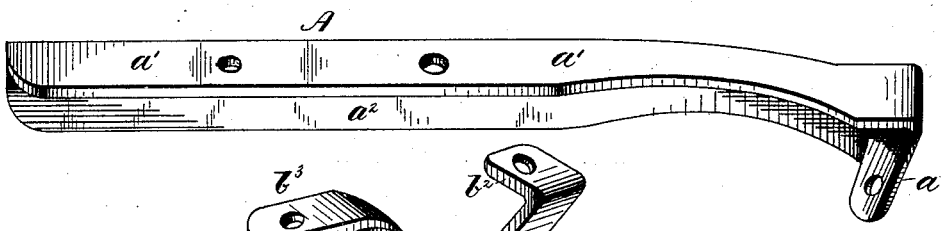
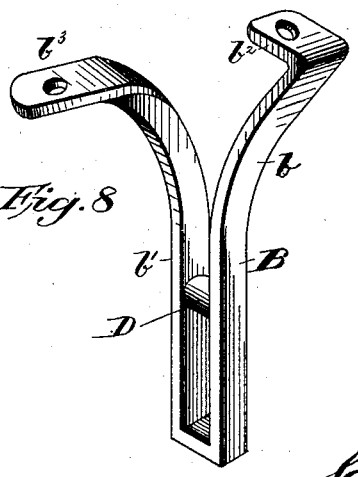


Fig. 8



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UNITED STATES PATENT OFFICE.

CHARLES P. CARY, OF PEKIN, ILLINOIS.

SLED.

SPECIFICATION forming part of Letters Patent No. 345,829, dated July 20, 1886.

Application filed April 21, 1886. Serial No. 199,676. (No model.)

To all whom it may concern:

Be it known that I, CHARLES P. CARY, a citizen of the United States, residing at Pekin, in the county of Tazewell and State of Illinois, have invented certain new and useful Improvements in Sleds; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention has for its object certain improvements in the construction of sleds, whereby greater simplicity as well as greater strength is obtained, and whereby less power is required to propel the sled, than is the case with sleds as heretofore constructed.

To these ends the invention consists, essentially, in a novel construction of the frame and the means of supporting the frame from the runners, substantially as hereinafter fully described.

The invention further consists in a novel construction of runners, and in means for connecting the shoes thereto, substantially as hereinafter fully described.

Referring to the accompanying drawings, in which like letters of reference indicate like parts, Figure 1 is a side elevation; Fig. 2, a top plan view; Figs. 3 and 4, an end elevation and a central longitudinal vertical section, respectively. Fig. 5 is a transverse section of one of the braces on line *x x* of Fig. 1. Fig. 6 is a like section of the runner and shoe, taken on line *y y* of said Fig. 1. Fig. 7 is a detached isometric detail view of one of the longitudinal frame-bars, and Fig. 8 a like view of one of the knees or braces.

In the above drawings, A A indicate the upper longitudinal girts or side bars of the frame. They are constructed of angle-iron, and shaped to the required or desired configuration. The horizontal portion or flange *a'* of the girts is extended and bent downward to form a lip, *a*, to which the upwardly-bent forward end of the runner R is bolted or riveted. The runners R are likewise formed of angle-iron and bent to the desired or required shape, the vertical portion or flange *r* thereof lying at their upper outer end against the inner face of the corresponding flange, a^2, of the longitudinal girts A, and are riveted or preferably bolted to the depending lips *a*, formed by bending down the outer end of the horizontal flange *a'* of the girts, as above stated and as shown.

C C are transverse bars, also made of angle-iron, and riveted or bolted at their ends to the longitudinal girts A A.

The runners R R are further connected to the girts and cross-bars by means of knees or braces B B, practically of a U shape, the legs *b b'* whereof are bent so as to project inwardly and outwardly, respectively. The leg *b* at its outer end is bent at right angles, as shown at b^2, Fig. 8, to form a bearing that fits against the under side of the horizontal flange or portion *c* of the cross-bars C, and is riveted or bolted thereto and to the like portion *a'* of the girts A. The leg *b'* is bent inwardly and twisted to form a bearing, b^3, by means of which it is riveted or bolted to the horizontal flange or portion *c* of the cross-bars C, as shown in said Fig. 8.

The legs *b'* of the knees extend inwardly toward each other a distance equal to one-third (more or less) of the width of the sled or the distance between the inner faces of the vertical flanges a^2 of the longitudinal girts A, thus providing strong supports for the load and firm braces for the girts and runners.

In practice, to give the knees B greater strength, I bolt the legs *b b'* thereof together by means of bolts D, having that portion which passes through the legs of less diameter than the portion which lies between said legs, to form bearing-shoulders *d'*, against which the legs firmly bear, and by which they are held in proper position relatively to each other. The same result may be obtained and in a much simpler manner by using bolts or rivets of equal diameter throughout their length and employing a tubular bearing or spacing sleeve, D', as shown in the connection of the shoes to the runners in Fig. 5.

It will be readily seen that by the construction of sled-frame, runners, and knees as described, I obtain a sled of great strength yet

very light and of a very simple construction, readily put together or taken apart when necessary.

In vehicles of this character it has been customary heretofore to attach the shoes directly to the runners, and one of the objects of my invention is to attach the shoes to the runners in such manner as to leave a space between the two.

By means of this construction I am not only able to construct a sled equally as strong as if the shoes were directly connected with or to the runners, but I have found that a great saving in power to propel the sled is effected by this construction, as the shoes and runners are better able to cut through the snow.

The forward bent end of the shoes S S is bolted directly to and lies in close contact with the horizontal portion or flange r' of the runners, while the body of the shoe is secured so as to be completely isolated from the runner and to leave a space, s', between the two. This may be effected by means of shouldered bolts or rivets D, as above described in reference to the knees, or by means of bolts of equal diameter throughout and spacing and bearing sleeves D'.

I have stated that either rivets or bolts may be employed in connecting and securing the various parts of the sled together.

It is obvious that when rivets are used the operation of securing the parts is more tedious than will be the case with bolts, and to this end I prefer to use the latter, and when necessary I countersink the head thereof, so as to leave the surface smooth, the nut being applied at the upper end, as in the connection of the runners with the shoes and the runners with the heads of the knees, or at the lower end, as in the connection of the knees to cross and longitudinal girts, respectively. By these means I leave the outer surfaces, or those surfaces with which the body or the material carried on the sled is liable to come in contact with, perfectly smooth.

By using angle-irons for the runners R, I obtain in a simple manner a cheek or vertical flange, r', along their outer edges, that performs the function of a guard or shovel that will move the snow laterally in opposite directions, as the sled moves forward in a manner similar to that of the ordinary snow-plow, and this function is considerably enhanced by forming the sled tapering from its rear to its forward end, as shown in Fig. 2.

The forward end of the sled-frame and the runners are braced by means of a draft-bar, E, that is preferably screw-threaded at its outer ends to receive nuts e, said screw-threaded ends, which pass through the vertical walls or cheeks r', and the corresponding flanges, a^2, of the girts A, being of smaller diameter than the body of the draft-bar, and to this bar I attach the tongue T, in any usual or preferred manner.

In the drawings I have shown the tongue as secured to arms t t, also made of angle-iron, and having at one end a bearing, t', for the draft-bar.

By using angle-iron each arm forms a half-socket, t^2, for one-half of the tongue T, thus facilitating the connection of the latter with the arms.

It will of course be understood that the peculiarly-constructed braces B and the runners R may be used in connection with any other construction of sled-frame, and that the shoes may be applied in the manner described to any usual form of runner and produce good results. By combining these improvements in the same structure I obtain a comparatively cheap, light, and yet a strong and durable sled that will require less power to propel than is required in ordinary sleds.

The angle-iron employed in the construction of my improved sled is that which is usually employed for cross-rails in certain classes of metallic fences, and can be readily obtained and at a comparatively low price.

Any other form of angle-iron may be used in the construction of the sled—as, for instance, T or U iron, such as has heretofore been employed in the construction of metallic fencing—without departing from the nature of my invention.

If U-iron is employed for the runners, it will be understood that the open end thereof will face the shoes, thus leaving a vertical flange on both sides of the shoes. I would also have it understood that I do not limit the application of my invention to sleds only, as it is obvious that it may be applied to the construction of sleighs of almost any form, or to the construction of wagon-bodies, my invention having for its primary object the production of a light, strong, and cheap knockdown metallic vehicle-body, capable of being bunched for shipment and adapted to be set up by any one knowing how to handle a wrench.

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

1. In a sled, the combination, with the runners and sled-frame, of the knees B, the lower end of which constitutes the chair, the legs b b' thereof being bent in opposite directions, and terminating in seats or bearings b^2 b^3 at right angles to each other, and the brace-bolts D and spacing-sleeves D', substantially as and for the purpose specified.

2. In a sled, the combination, with the runners, of shoes secured to said runners so as to leave a space between the two from the forward to the rear end of said shoes, as described, for the purpose specified.

3. A sled-frame made tapering from its rear to its front end, in combination with runners provided with cheeks or vertical flanges along their outer edges, substantially as and for the purpose specified.

4. A sled-frame made tapering from rear to front and runners having a cheek or vertical flange along their outer edge, in combination with a shoe secured to the runners to leave a space between them from the forward to the rear end of said shoes, substantially as described.

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

CHARLES P. CARY.

Witnesses:
CHRISTOPHER HEFFT,
CYRUS E. ALFORD.