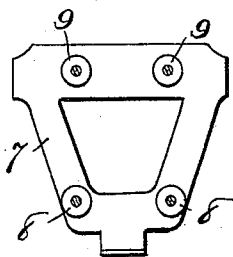
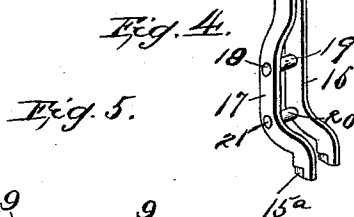
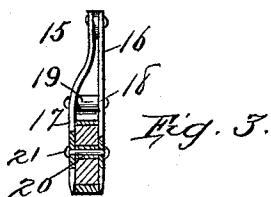
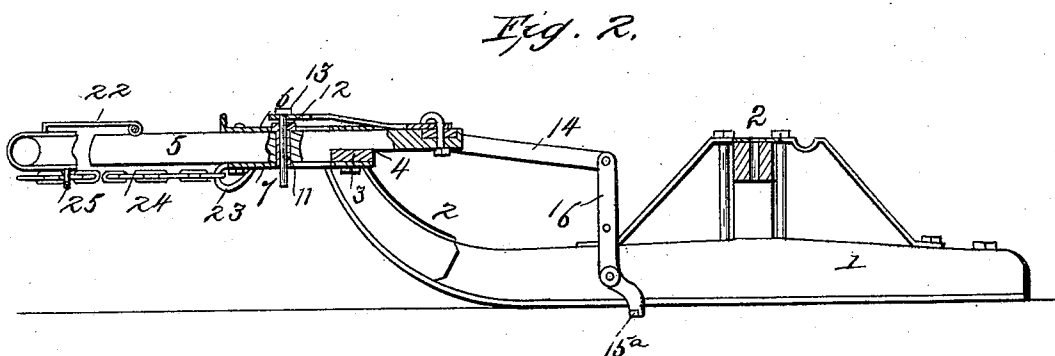
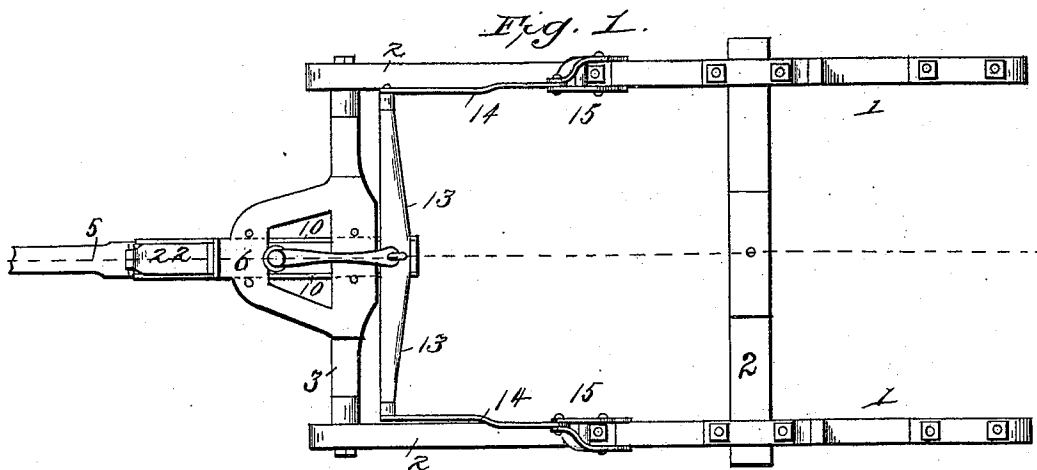


(No Model.)

C. C. SKINNER.
SLED BRAKE.

No. 470,263.

Patented Mar. 8, 1892.



Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES C. SKINNER, OF EAU CLAIRE, WISCONSIN.

SLED-BRAKE.

SPECIFICATION forming part of Letters Patent No. 470,263, dated March 8, 1892.

Application filed September 3, 1891. Serial No. 404,666. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. SKINNER, a citizen of the United States, residing at Eau Claire, in the county of Eau Claire and State of Wisconsin, have invented certain new and useful Improvements in Sled-Brakes; 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 figures of reference marked thereon, which form a part of this specification.

My invention relates to sled-brakes for preventing the sled from crowding the horses when going downhill and for holding the sled while the horses are resting in going uphill; and it has for its object certain improvements upon the construction of such a device, as shown in my former patent, No. 436,464, dated September 16, 1890, whereby the effectiveness of the brake is improved, as will be hereinafter more fully set forth.

In the drawings, Figure 1 is a top plan view of a sled provided with my improvements. Fig. 2 is a longitudinal central sectional view. Fig. 3 is a vertical sectional view through one of the runners, and Figs. 4 and 5 are detail views.

Referring more particularly to the drawings, in which the same reference-numerals indicate corresponding parts in each of the figures, 1 1 indicate the runners of a sled, which may be of the ordinary kind and which are secured together with the usual knee 2 and provided at the front ends with a roller 3. The top of the roller is provided with a notch 4, in which the rear end of the tongue 5 fits and slides back and forth in applying the brakes. Two triangular plates 6 and 7 are secured upon the top and bottom of the roller, respectively, and form bearings, through which the tongue slides. The wearing-plates 10 10 upon the sides of the tongue are a trifle wider than the tongue, so that the wooden portion of the tongue will not come against the plates 6 and 7 and become worn and rough, and thereby prevent the easy operation of the parts. To prevent the doubletrees from coming in contact with the upper plates 6, a bushing 11 is passed through the hole for the wrench or hammer 12 and has its upper

end enlarged and extended above the upper surface of the tongue far enough to raise the doubletrees above the plate, and thereby prevent the chafing or wearing of the under side of the doubletrees. When desired, anti-friction rollers 8 8 may be mounted between the forward ends of the plates 6 and 7, one upon each side of the tongue, as shown in Fig. 5, and two similar rollers 9 9 may be journaled in the notch 4 upon two of the bolts which secure the plates in position, as shown in the said view, these several anti-friction rollers, like the plates 10, being a trifle wider than the tongue. By using triangular plates 6 and 7 instead of U-shaped ones, as in my former patent, they will not interfere with the horses when the tongue is slipped back in applying the brakes, and by securing the doubletrees forward of the roller 3 shorter tugs or traces can be used than were necessary with the point of attachment at the rear end of the tongue or to the rear of the roller.

Secured to the rear end of the tongue, which projects slightly through the notch in the roller 3, is a cross-piece 13, to the ends of which are connected links or side arms 14 14. The rear end of each of these side arms is pivotally connected with the upper end of a brake 15, the lower end of which is pivotally connected with the runner of the sled. The brake is preferably formed of two pieces, the inner one of which 16 is straight at its upper portion, or without any lateral bend, while the outer piece 17 is bent inward. This permits of the lower ends of the two pieces being separated and placed upon opposite sides of the runner. They are held in this separated position by means of a bolt 18, which is passed through them just above the top of the runner. Besides holding the two pieces together more firmly, the bolt will prevent the brake from tilting too far forward, which would render it more difficult to operate, by throwing it more in a line with the side arms. If desired, a short piece of tubing or gas-pipe 19 can be placed upon the bolt 18, which will prevent the possibility of drawing the lower ends of two pieces together to such an extent as to bind upon the sides of the runner, and instead of using a nut for securing the bolt in position the inner end of it can be screw-threaded and made to screw into the hole

through the inner piece. To prevent wearing the pivot-hole through the runner, which is placed as near the bottom as possible, a bushing 20 is driven into it, through which the bolt 21 is passed and upon which the brake is secured to the runner. By using a bushing instead of the plates, as in my former patent, the brake-pieces are brought closer to the sides of the runner and a more effective result is secured, and by making the inner piece straight a straight side arm or link can be used for connecting it with the end of the cross-bar, which is much cheaper than a bent arm, and it also permits of the arms working down between the ends of the runners, and especially in raising the tongue for any purpose. It also prevents the outer brake-piece from catching upon stumps, trees, and posts by having it bent into the inner side of the runner.

Instead of making the lower ends of the brake pieces or shoes inclined or beveled, as in my former patent, I bend them rearwardly and then downwardly, so that when they are not in use they will just clear the ground; but when they are in use they will stand vertical and will project below the bottom of the runner sufficiently to enter the snow or ice and hold the sled from going forward and crowding the horses downhill or check it in going uphill while the horses are resting. The lower front corner of each of the brake-pieces, which are of iron about five-sixteenths of an inch thick, is beveled, so as to present an edge to the ice or snow when the brake is first applied. This beveled portion 15^a extends about half-way back to the rear edge of the shoe and also about half-way to the bottom of the runner when the brake is vertical or fully applied. By making the brake-shoes in this manner a much better result is obtained, as they act quicker than with an inclined end and enter the ice more readily, and when they are in their vertical position the flat or unbeveled portion offers more resistance to the ice and it is brought nearer to the pivotal point, and thus gives much more leverage, and makes it easier for the horses. With the inclined brake-shoes the tongue had to be moved about a foot or fourteen inches, whereas by making them as above described it is only necessary to move it half that distance or less. The rear portion of the shoe may be made flat and parallel with the front side or it can be made rounding to a greater or less extent, the object being to cause it to operate quickly and effectively when holding the sled from running backward in going uphill. In a full-sized sled the length of the brake is about sixteen inches, only one-fourth of which is below the pivotal point, and it is still further reduced by the backward bend, which throws the effective part of the brake very close to the pivotal point.

When it is desired to back the sled, it is necessary to lock the tongue, so that it cannot move backward and set the brakes. I ac-

complish this by means of a latch 22, which is pivotally secured to the tongue in front of the upper plate 6, and which can be turned down flat upon the tongue with its free end bearing against the front end of the plate. This of course will prevent the movement of the tongue backward. The end of this latch is bent up and slightly forward, which gives it a better bearing-surface against the end of the plate, which is also bent up, and it also gives a catch, by means of which it can be lifted out of engagement with the plate when it is desired to operate the brakes.

The lower plate is provided with a ring or hook 23, by means of which a chain 24 may be used for hitching one or more horses in front of the main team. As this chain passes along under the tongue and through a ring 25 near the front end, the draft upon it does not affect the operation of the tongue in the least, and thus the front horses cannot destroy the efficiency of the brake, even if they should happen to pull up on the chain.

As above described, my improved brake can be applied by raising the latch from its engagement with the plate and backing the horses when going uphill, or by making them hold back the tongue when going downhill. This will cause the brakes to swing upon their pivots and make their lower ends enter the snow or ice in proportion to the amount of backward movement of the tongue, which of course will depend upon the weight or force of the load. When the forward pressure of the sled is not very great, only the sharpened points of the brake will enter, but when the load is heavy and a greater resistance is required the brakes will be raised more nearly vertical and the flat portions of the brakes above the beveled portion will be caused to enter and offer a correspondingly greater resistance. In this manner the brake becomes automatic both in its application and in its graduation of the resistance to be given to the movement of the sled.

Having thus described my invention, I claim—

1. In a sled-brake, the combination, with the runners, of the brake 15^a, pivotally secured to the lower portions thereof, the lower end of which is bent rearwardly and then downwardly, as shown, and beveled upon the lower front corner at 15^a, and means for causing the end of the brake to project below the bottom of the runner, substantially as described.

2. In a sled-brake, the combination, with the runners, of a brake pivotally secured to the lower portion thereof, consisting of two pieces, one upon each side of the runner, the inner one being straight and the outer one being bent inwardly at its upper end, a bolt through the pieces above the top of the runner and a piece of tubing around the bolt, and means for causing the lower ends of said pieces to project below to the bottom of the runner, substantially as described.

3. In a sled-brake, the combination, with a roller and a tongue longitudinally movable through the same, of two plates, one above and one below the tongue of the roller, a hook or
5 ring upon the lower plate, and a hinged latch for engaging with the upper plate, and a bushing through the tongue, the upper end of which projects above the upper plate, whereby the doubletrees are prevented from coming in contact with said plate, substantially as is described.

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

CHARLES C. SKINNER.

Witnesses:

FRANK C. MOORE,
HENRY MGBAIN.