

(No Model.)

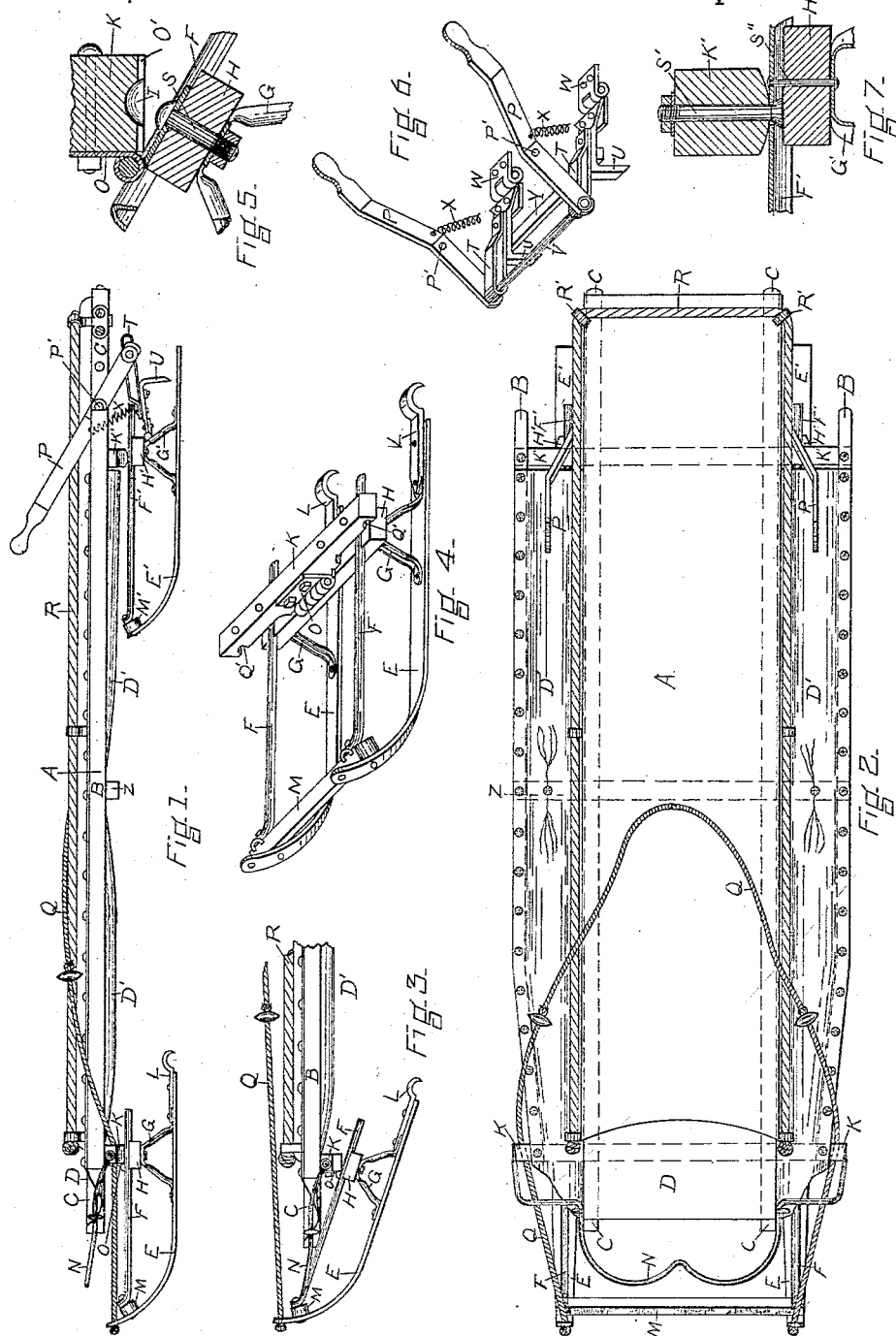
2 Sheets—Sheet 1.

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SLED.

No. 381,665.

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WITNESSES.

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UNITED STATES PATENT OFFICE.

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SLED.

SPECIFICATION forming part of Letters Patent No. 381,665, dated April 24, 1888.

Application filed December 7, 1887. Serial No. 257,251. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL L. ALLEN, a citizen of the United States, residing at Cinnaminson, in the county of Burlington and State of New Jersey, have invented certain new and useful Improvements in Sleds, of which the following is a full specification.

My invention relates particularly to that class of sleds known as "double runners," in which the seat or platform is supported upon two bobs or single sleds; and it consists of the devices and improvements hereinafter described.

Figure 1 of the accompanying drawings is a side elevation of one form of my improved sled, the front bob being there shown in a position for steering. Fig. 2 is a plan view of the same. Fig. 3 shows in side elevation the front portion of the sled with the front bob in a position to act as a brake. Fig. 4 is a perspective view of the front bob; Fig. 5, a transverse section through the middle of the bench and cross-piece of the front bob, showing method of attachment of the front bob. Fig. 6 shows in perspective the rear brake detached, and Fig. 7 is a sectional view showing the method of attaching the rear bob. Fig. 8 is a plan view, and Fig. 9 a side elevation, of a modification of my sled; Fig. 10, a detail view of the locking device used on the front bob; Fig. 11, a section through the middle of the runner, showing the manner of attaching the top piece of the bob to the runner.

The form of sled shown in Figs. 1 to 7, inclusive, is especially designed for use on a toboggan-slide, for which the extreme width of the bobs and of the runners particularly adapt it. The improvements herein described are intended, however, to be equally applicable to sleds for coasting on ordinary roads.

The frame-work of the body of this sled, as herein illustrated in Figs. 1 to 7, inclusive, consists of the longitudinal bars B B and C C, bolted or otherwise firmly secured to the cross-pieces K, Z, and K', of which K and K' are attached to the front and rear bobs, respectively. Over the two bars C C are stretched tightly the covering D, made preferably of canvas, and on this is made the seat proper or stuffed cushion A, covered with cloth or any suitable material. The outer edges of the covering D are secured to the outside bars, B B,

so as to form between the bar B and the bar C on each side a trough, D', which acts as a rest for the feet and serves at the same time as a dress and knee protector from the snow. Along the sides and back of the cushion A is secured the rope R, which passes through the ring-supports R' and forms a side rail to be grasped by the hand in coasting. The hand-rail, being arranged along the edge of the cushion and inner edge of the trough, is so situated that the hand grasping it is fully protected from injury while the sled is in motion.

Projecting forward from the front of the body of the sled is the curved rod N, made preferably of rounded metal and serving as a foot-brace for the person steering. The construction of the front and rear bobs is essentially the same.

E and E' are the runners, made, preferably, of flat metal strips curving upward in front and tapered—that is, made narrower—at their upper forward ends. This tapering of runners at its forward end allows the portion of the runner resting on the ground to be very wide without permitting it to be an obstruction as it rises on its curve in front.

Along the top of each bob pass the wooden cross-pieces M M', to which are riveted the channeled or ribbed metal top pieces, F F', which are preferably bent slightly upward at their forward end. I prefer to sink the lower edges of the channeled top pieces slightly into the wooden cross-pieces M M' and to secure each in place by one or more rivets passing through the channeled top piece, the wooden cross-piece, and the upper part of the runner, as best shown in Fig. 4. The rear portions of the channeled or ribbed top pieces, F F', are in like manner sunk into the wooden cross-benches H H', to which they are riveted. The cross-benches are supported by the struck-up metal braces G G', to which they are securely riveted, said metal braces G G' being in turn riveted to the runners E E', the whole thus forming a bob at the same time stiff, strong, and light.

The braces C C' are made of metal and consist of channeled uprights joined by a hollow-faced top all in one piece, which gives great strength and a perfect attachment for cross-benches.

The mode of attachment of the front and

rear bobs differs essentially. The front bob is designed to turn on the king-bolt S, Fig. 5, as a vertical axis to steer the sled, and also, when required, to turn on the pivot O, preferably that of an ordinary butt-hinge, as a horizontal axis, as shown in Fig. 3, thereby causing the rear portion of the runner to dig into the track, thus tending to quickly stop the sled. To this end one portion of the hinge O is firmly bolted or secured to the cross-piece K, (best shown in Figs. 4 and 5,) while the other portion of the hinge is attached to the cross-bench H by means of the king-bolt S. This arrangement allows perfect freedom of motion in both the vertical and horizontal planes. The bottom of the cross-piece K is grooved at O' to admit the hinge, and is provided, also, with a recess, I, to receive the head of the bolt when the bob is in its normal position on the ground. To the rear of the two runners E of the front bob are rigidly secured the bent sharpened claws L, shaped as shown in Figs. 1, 3, and 4, the sharpened edges of which, by digging into the snow or ice, act as a brake when the bob is in the position shown in Fig. 3; or, if desired, the bent sharpened piece L may be made integrally with and forming a part of the runner E.

The under surface of the cross-piece K is provided near its outer ends with the slots Q' to receive the steering-rope Q, or vertical slots may for the rope be made in the projecting ends of the cross-bench, as shown at Q in Figs. 8 and 9. This rope Q is attached to the runners of the front bob at the same height as the slot Q' when the bob is in its normal position, as shown in Fig. 1. When the rope Q is passed on each side through the slots Q', as in Figs. 1 and 2, the sled may be steered by pulling on either side of the rope, since, the point of application of the upward thrust when the rope is pulled being theoretically a point in or back of the same vertical plane as that passing through the axis of the horizontal hinge-bolt O and in the same horizontal plane as the points of attachment of the rope to the sled-runners, the bob is prevented from turning up on the hinge O and is constrained to turn either to one side or the other on the king-bolt S as an axis. When, on the other hand, the person steering sees fit to use the front bob as a brake, he simply removes the rope Q from the slots Q', and by pulling directly on the rope the front bob turns up on the hinge O, assuming the position shown in Fig. 3.

The rear bob is attached by means of two tire-bolts, S', one directly above each runner, to the rear cross-piece, K', which is rounded on its under side, as best shown in Fig. 7. Previous to securing the channeled or ribbed top piece, F', to the cross-bench H' by means of the bolt or rivet S'' the tire-bolt S' is passed up through a hole in the top of the said piece F', so that when the latter, as previously explained, is secured in place with its edges slightly sunk into the said cross-bench H' the head of said tire-bolt S' lies between the said cross-bench H' and the curved under surface

of the top piece, F', as clearly shown in Fig. 7. The two tire-bolts S' passing up through the rear cross-piece, K', are provided with nuts at their upper ends. In this way a slight oscillation of the rear bob on the heads of the two tire-bolts S', as a horizontal axis—a result highly essential in coasting on rough tracks—is easily brought about, and at the same time the bob is firmly secured in place.

In Fig. 1 is shown my improved rear brake in place, a detached view of which is shown in Fig. 6. The brake is operated by the levers P—one on each side—pivoted at P' on the longitudinal bars C. The levers P terminate at their upper ends in handles, and at their lower ends are connected by the rod V, which moves back and forth along the guides T, each of which is attached either directly or through the angle-iron U to one plate of a hinge, W, the other plate of said hinge being secured to the cross-bench H' of the rear bob. In the present case the guide T is riveted to the angle-iron U, which is in turn attached to the hinge-plate W; but obviously the angle-iron U and the guide T might be made of one and the same piece. A cross-piece, Y, attached to the two angle-pieces U, serves to make them move together as one piece when the levers P are moved. The angle-pieces U are pressed down when the levers P are moved in the direction of the arrow, the sharpened edges of the said angle-pieces being thus caused to dig into the track and act as a brake, the parts P, T, and U working as a system of compound levers pivoted at P' and W. A spring, X, serves to uphold this brake when it is not in use.

A locking device is shown in detail in Fig. 10, whereby the front bob may be rigidly secured with runners parallel to the body of the sled, in which case the steering is accomplished by the foot or otherwise, as in most single sleds, or, if desired, the front bob may be unlocked by a simple movement and the sled used as a double runner.

On the rear of the front cross-piece, K², are attached the locking-bars S³, pivoted at *a*. These may be turned by means of the knobs *h*, which act also as set-screws, being threaded, so as to screw into the bars S and the tappet-holes *b* and *c*.

S⁴ is a socket attached to the cross-bench H², and into which the bar S³ is turned when the set-screw *h* is screwed into the hole *b*. Of the two locking-bars shown in Fig. 10 the right-hand bar is represented as locked, while the left-hand bar is unlocked. Both bars would commonly be in the same position when in use. When the front bob is unlocked, it is free to turn horizontally about the king-bolt or vertically on the hinge O².

When the sled is small, to seat comfortably only two persons, the form of foot-brace shown at N' in Figs. 8 and 9 is desirable. In this case the person sitting in front rests the feet on the curved portion *n n*, while the person in the rear uses the straight portions *n' n'* as a foot-rest.

In Fig. 11 I have shown an improved top piece or side bar and runner connection, F⁴. This connection F⁴ is made of metal and is riveted, as shown, to its two connecting-pieces, and is also provided with a rope-hole when used for a front bob.

Great strength and firmness, as well as neatness of appearance, are secured when cross-channelled bars are used with wood by sinking the channeled portion into the wood, and I believe that this is entirely new.

I claim—

1. A sled provided with a bob hinged on a horizontal pivot and having claws rigidly secured to the rear of the runners, whereby when the said bob is raised to a more or less vertical position the said claws act as a brake, substantially as described.

2. A sled having a seat provided with a trough along the outer edge of said seat, arranged substantially as and for the purposes described.

3. In a sled, the combination of a king-bolt, a butt-hinge, and the cross-bench of a sled-bob, whereby the bob is free to turn on both a vertical and horizontal axis, substantially as described.

4. A sled provided with a one piece double foot-rest, one part of which, *n*, is directly in front of the user and the other part, *n'*, at the sides, whereby two persons may make use of the same at the same time, substantially as described.

5. A sled-runner provided with a rearwardly-projecting claw rigidly secured thereto, as and for the purposes substantially as described.

6. A brake consisting of a claw hinged to a sled and provided with a slotted guide, in combination with a pivoted hand-lever provided with a spring and a rod or pin, whereby the rod or pin slides in the slotted guide, substantially as and for the purposes described.

7. In a sled, the combination of a seat provided along its outer edges with a hand-rail and a trough projecting beyond the hand-rail, whereby the hand-rail is protected, substantially as described.

8. In a sled, the combination of the cross-piece K', the cross-bench H', provided with the top piece, F', and the bolt S', whereby the bolt is free to oscillate, substantially as described.

9. A vertically and horizontally turning bob provided with a locking device whereby the bob is either held rigidly or is free to turn, substantially as described.

10. A sled provided with two bobs, the front bob having the ends of its cross-piece or cross-bench grooved, in combination with the steering-rope, substantially as described.

11. A sled provided with a front horizontally and vertically turning bob having the outer ends of its cross-pieces or cross-benches grooved, in combination with a steering-rope, whereby the steering-rope may be used to steer the front bob or to operate it as a brake, substantially as described.

12. A bob-sled provided with rope steering grooves situated in or back of the same vertical plane as the axis of the horizontal hinge-bolt of the sled and in the same horizontal plane as the points of attachment of the rope to the runners, substantially as described.

13. A sled having its side bar and runner of struck-up metal provided with a connecting-piece, F⁴, riveted thereto, substantially as described.

In witness whereof I have hereunto set my hand.

SAMUEL L. ALLEN.

Witnesses:

EDWARD W. BURT,
A. L. JACOBY.