

No. 823,684.

PATENTED JUNE 19, 1906.

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SLED.

APPLICATION FILED JAN. 21, 1905. RENEWED JAN. 19, 1906.

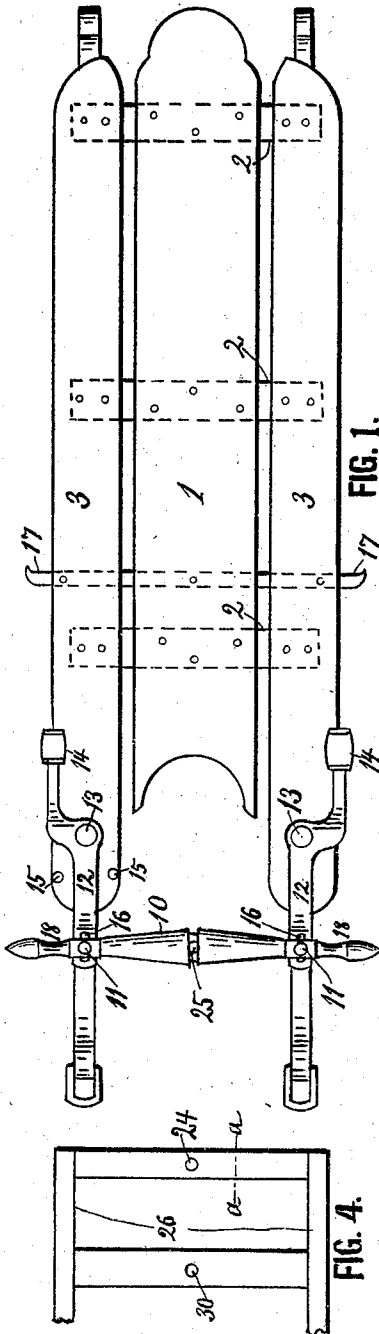


FIG. 1.

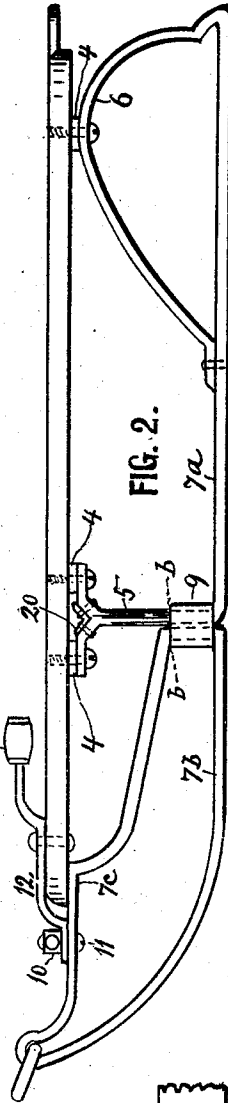


FIG. 2.

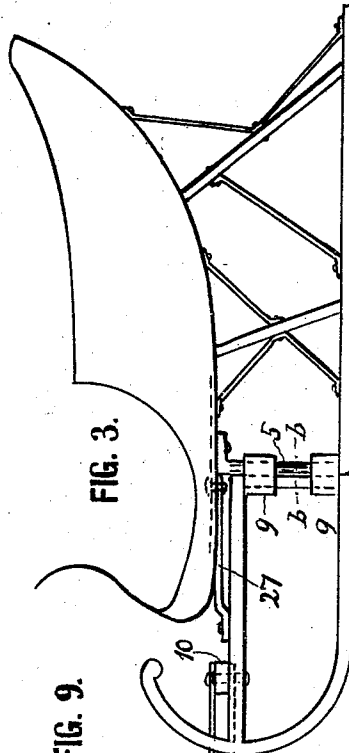


FIG. 3.



FIG. 4.

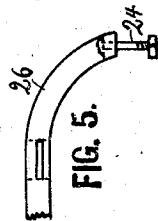


FIG. 5.

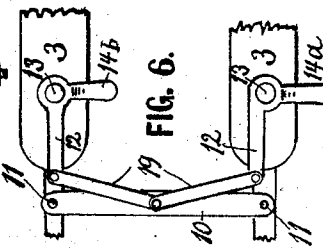


FIG. 6.

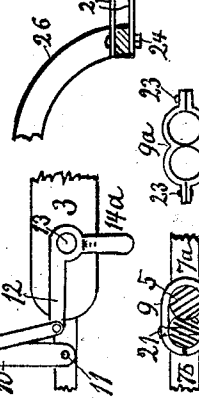


FIG. 7.

FIG. 8.

WITNESSES:

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SLED.

No. 823,684.

Specification of Letters Patent.

Patented June 19, 1906.

Application filed January 21, 1905. Renewed January 19, 1906. Serial No. 296,830.

To all whom it may concern.

Be it known that we, WILLIS L. HOLLOWAY and ELI BROWNING, citizens of the United States, residing at West Branch, in the county of Cedar and State of Iowa, have invented certain new and useful Improvements in Sleds; and we 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.

This invention relates to improvements in sleds, and is especially adapted for coasting-sleds.

The main object of the invention is to provide a sled that is easy to steer by giving each runner a joint and then yoke the front sections of the runners together in an always-parallel position and control them by levers within the easy reach of the occupant of the sled, or a horse may be hitched to the yoke and draw the sled. This and other objects we attain by the novel construction and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a top view, and Fig. 2 a side view, of a coasting-sled embodying our invention. Fig. 3 is a side view of a cutter, showing how our invention may be applied to cutters and other sleds. Fig. 4 is a top view, and Fig. 5 a side view, of the rear ends of a pair of shafts adapted to be hitched or connected to the sled Fig. 1 or a heavier sled with similar yoke-bar at the front. Fig. 6 is a modification of the front end of the sled Fig. 1. Fig. 7 is a sectional top view on the line *b b* in Figs. 2 and 3. Fig. 8 is a modification of the hinge-strap 9 in Fig. 7. Fig. 9 is a further modification of Fig. 8.

Referring to the drawings by reference-numerals, 1 represents the ordinary board or platform of a coasting-sled. It is supported on cross-bars 2, whose ends are secured in two hounds 3, resting upon rubber cushions 4, supported upon the elevated front end 5 and rear ends 6 of the runners, which are each divided into a rear main section 7^a and a front section 7^b, joined together by one or more hinge-straps 9, which may be of any of the forms shown in Figs. 7, 8, and 9, or any other suitable form by which the adjacent

ends of the runners are hinged so closely together that the rear section or runner will follow the track of the front section or runner.

The front runners are secured together in parallel position by a transverse yoke-bar 10, pivoted at 11 to the upper bar 7^c of the runner. To said bars are also pivoted, preferably upon the same pivots 11, the front ends of two levers 12, fulcrumed at 13 to the hounds and having handles 14, by which the occupant of the sled in either lying or sitting position can swing the front runners to either side, and thus steer the sled without interfering with its speed by engaging or braking on the ground, as is usually done with the feet, to the great wear of the shoes and retarding of the speed of the sled.

To prevent accidental turning of the front runners too far to either side, stops 15 in Fig. 1 may be provided at both sides of one of the levers 12, or the slotted holes 16 in the levers may be so short as to resist the pivots 11 when the runners are swung sidewise to the permitted limit, it being understood that said pivots 11 move back and forth in the slots 16, since the lever-arm 12 is shorter than the bar 7^c of the runner, so that their segmental motion at the pivot is not parallel.

17 represents foot-rests for the rear occupant of the sled when two persons are riding. The front rider may use the outer ends 18 of the yoke-bar 10 for foot-rests, and may even in that way help to steer the sled. The hand-levers 14 may to good advantage stand outward like the handle 14^a or inward like 14^b in Fig. 6, in which view is also shown that the lever-arms 12 may be connected by link-rods 19 to the yoke-bar 10.

The rear runners, especially when the rubber cushions 4 are used, are secured together by suitable cross-bars, the end of one of which is seen at 20 in Fig. 2 as being made from common angle-iron. For said cushions suitable springs may be substituted. The idea is to make the sled easy to ride on. To that end the yoke-shaped form of the front and rear runners will also contribute some vertical springy motion, so that cushions may be used only at the top of the post 5 of the runner, while the transverse rear bar 2 in Fig. 1 may be placed like the rear cushion 4 in Fig. 2, and thus stiffen the runners against side strain.

In Fig. 7 it will be seen that the vertical

bar 5 of the rear runner is partly grooved into the vertical bar of the front runner and the bar 5 forms the pintle of the joint, and the strap 9 is closed about the two bars and held firmly upon the front bar by a rivet 21. In Figs. 8 and 9 the strap is made in halves and secured together by either a single central screw 22 or two screws 23, one at each end. In either case only one end of the strap forms a journal. The other is held firmly on the runner. If it be desirable to hitch a horse to Fig. 1 or similar flat sled, a pair of shafts like 26 in Figs. 4 and 5 may easily be attached to the sled by dropping the bolt 24 into the hole 25 of the yoke 10.

In Fig. 3 is shown how our invention may be applied to a cutter. Auxiliary link-bars 27 may be used to connect the bottom of the sled with the front runners; but the latter may also be simply connected to the rear runners by an upper and a lower joint strap or hinge 9, and shafts may be attached to the cross-bar 10 the same as just described about Fig. 1, or link-bars 28, Fig. 3, may extend forward from the middle of the bar 10 and receive the bolt 24 forward of the front runners, as in Fig. 3. It will be understood that the joints of the runners are free to allow a slight vertical play to make the sled more easy running on uneven ground. Such play must, however, not exceed the curve at the front end of the bottom of the rear runner, and where the latter has no curve the joint should have no play.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A sled having two runners, each comprising a front and rear section pivotally joined together with their adjacent ends, a transverse bar or yoke pivotally connecting the front sections of the runners, and operating-levers pivoted to the sled and operatively connected with the front runner-sections to swing them from side to side.

2. A sled having two runners, each com-

prising a front and rear section pivotally joined together with their adjacent ends, a transverse bar or yoke pivotally connecting the front sections of the runners, and operating-levers pivoted to the sled and operatively connected with the front runner-sections to swing them from side to side, and means to limit such side motion.

3. A sled having two runners, each comprising a front and rear section pivotally joined together with their adjacent ends, a transverse bar or yoke pivotally connecting the front sections of the runners, and operating-levers pivoted to the sled and operatively connected with the front runner-sections to swing them from side to side, the front end of the sled being partly supported on the front sections of the runners.

4. A sled having two runners, each comprising a front and rear section pivotally joined together with their adjacent ends, a transverse bar or yoke pivotally connecting the front sections of the runners, and operating-levers pivoted to the sled and operatively connected with the front runner-sections to swing them from side to side, the front end of the sled being partly supported on the front sections of the runners, and the joint of the runner-sections having a vertical play.

5. A sled having two runners, each comprising a front and rear section pivotally joined together with their adjacent ends, a transverse bar or yoke pivotally connecting the front sections of the runners, and operating-levers pivoted to the sled and operatively connected with the front runner-sections to swing them from side to side, said yoke being adapted also for hitching shafts and a horse to it.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIS L. HOLLOWAY.
ELI BROWNING.

Witnesses:

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G. P. BRUCE.