June 13, 1939. F. A. VASTANO ET AL 2,162,039

SLED

Filed Oct. 5, 1938

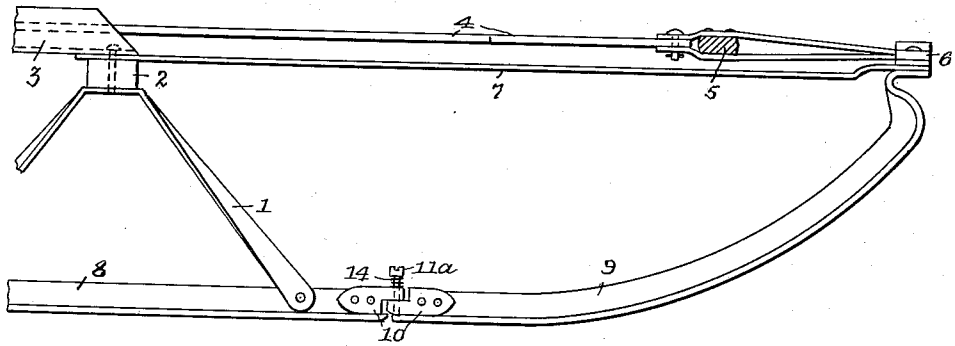


Fig. 2.

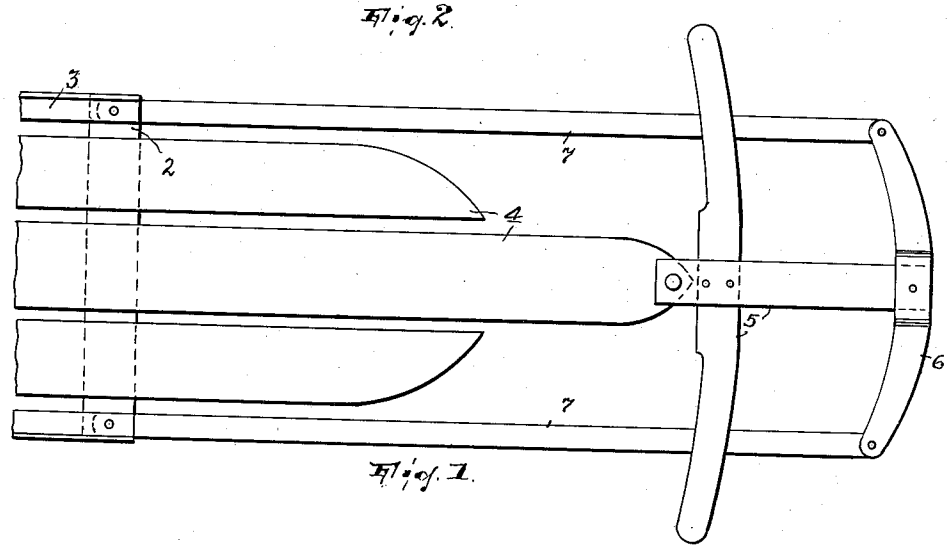


Fig. 1.

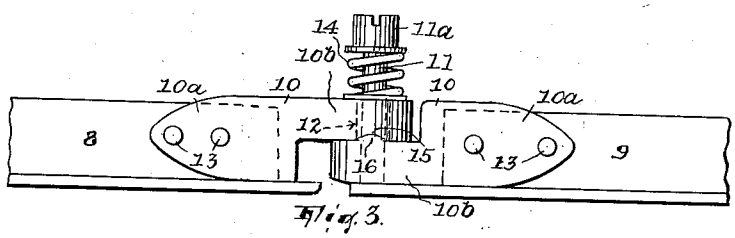


Fig. 3.

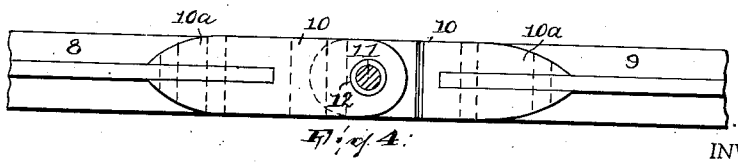


Fig. 4.

INVENTOR,
Frederick A. Vastano, and
Julius Otten,
BY John W. Steward
ATTORNEY.

Patented June 13, 1939 2,162,039

UNITED STATES PATENT OFFICE

2,162,039

SLED

Frederick A. Vastano and Julius Otten,
Paterson, N. J.

Application October 5, 1938, Serial No. 233,419

2 Claims. (Cl. 280—21)

This invention relates to that class of sleds which are constructed so as to be flexible for steering. According to the present invention this is accomplished by resort to runners which are laterally flexible in the sense that each runner comprises fore and aft independent sections pivotally connected together, whereby steering is facilitated since the rider has not to overcome the resistance to bending which is manifested by the one-piece type of runners of the known sleds made flexible for steering. One object of the invention is to provide a runner which shall be strong and durable notwithstanding its sectional character, and to this end the invention contemplates a novel form of coupling whereby the sections exist pivoted together. Another object is so to construct the sled as to provide for absorption of shocks incident to its travel over surface irregularities; to this end its forward portion, while elastically held in normal relation to its aft portion, is capable of angular displacement upwardly from that relation.

In the drawing,

Fig. 1 is a fragmentary plan of the improved sled;

Fig. 2 is a fragmentary side elevation thereof;

Fig. 3 is a side elevation on a larger scale of one coupling and fragments of the corresponding runner sections; and

Fig. 4 is a plan of what is shown in Fig. 3, with the pivoting stud in section.

The superstructure of the sled is of well-known construction, thus: Uprights 1 carry cross-bars 2 (only one of each being shown), and the cross-bars are rigidly connected by side bars 3 and also by the seat-slats 4, the latter extending well forward of the front cross-bar. The steering equipment, which may be regarded as a part of the superstructure, includes a T-shaped member 5 pivoted to the middle seat-slat and to a yoke 6 in turn pivoted at its ends to links 7 having their rear ends pivoted to the front cross-bar.

Each runner is constructed as follows: It comprises two independent sections, 8 and 9, and a coupling connecting them. Each section is here shown as of the inverted cross-sectionally T-shaped form, or with a horizontal web and a vertical web upstanding therefrom. To the aft section 8 the uprights 1 are rigidly secured. The forward end of the fore section 9 is pivoted to the corresponding end of the bow 6 of member 5, as usual. As for the coupling:

This comprises two substantially counterpart substantially alined members pivoted together. By "alined" we mean with respect to their top and bottom and side faces. Each such member 10 is slotted in the same vertical plane as the other to form a fork portion 10*a*, and extending from such fork portion but having about one-half the depth of the same a lug 10*b*. The pivot for the members is afforded by a stud 11 which here is a fixture with respect to the lug of one member but at least penetrates a hole, as 12, in the lug of each member, it being provided with a head 11*a* to prevent separation of the members. The adjoining terminals of the vertical webs of the runner sections being cut away, as shown, the members of the coupling are made to straddle such terminals and rest on the horizontal webs and are rigidly secured to the vertical web, as by rivets 13. The construction is such that not only is the coupling itself strong and durable but the joint between each member thereof and the corresponding runner section is such as practically to make these two parts as much a unit as if they were integral. It will be understood that since each runner comprises two independent portions pivoted together, instead of being one-piece, as usual, and hence requiring appreciable effort to bend it, the operation of steering is facilitated.

In this example a spring 14 is interposed between that terminal of one runner portion which overlaps the other and the head of the stud. Further, the hole 12 is sufficiently enlarged to permit play of the stud therein, as by upward angular displacement of the fore portion relatively to the aft portion of each runner, the former obtaining a fulcrum on the latter, i. e., the one lug on the other. The purpose here is to permit the fore portion of either runner, on encountering a sudden rise in the surface over which the sled travels, to yield angularly upwardly relatively to the aft portion, which yield of course is transmitted to the fore portion of the superstructure, itself of ample yielding character. In this way the shock incident to irregularities in the surface travelled is appreciably absorbed.

It is possible that sleds are known having runners whose fore portions are angularly displaceable upwardly relatively to their aft portions and subject to spring resistance, as where the fore and aft portions are integral and the runner somewhat elastic. But according to our invention such portions are independent, the fore portion having a fulcrum on the aft portion.

To normally but releasably maintain the fore portion of a runner, as viewed in plan, in alinement with the aft portion one lug may have a

notch, as 15, to be engaged in that state of the portions by a projection 16 on the other lug, the projection being adapted to be cammed clear of the notch on application of force in steering.

Having thus fully described our invention what we claim is:

1. In combination, with the superstructure of a sled, runners carrying the superstructure and each comprising fore and aft portions having their adjoining terminals pivoted together on a vertical axis, the fore portion of each runner being angularly displaceable upwardly on the aft portion as a fulcrum, and spring means opposing upward displacement of the fore portion.

2. A sled comprising runners, a superstructure supported on the aft portions of the runners, the fore portions of the runners being coupled with and fulcrumed on and movable upwardly independently of the aft portions thereof, in combination with spring means resisting upward displacement of the fore portions relatively to the aft portions of the runners.

FREDERICK A. VASTANO.
JULIUS OTTEN.