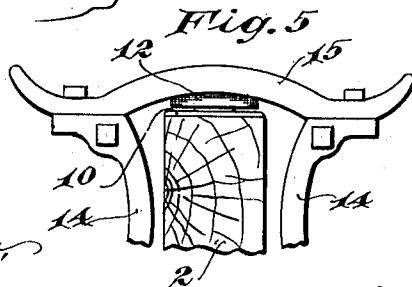
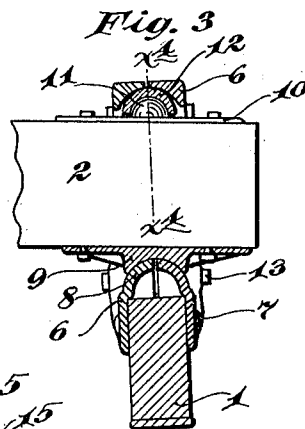
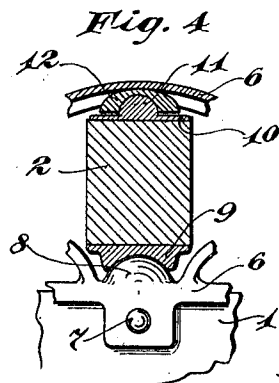
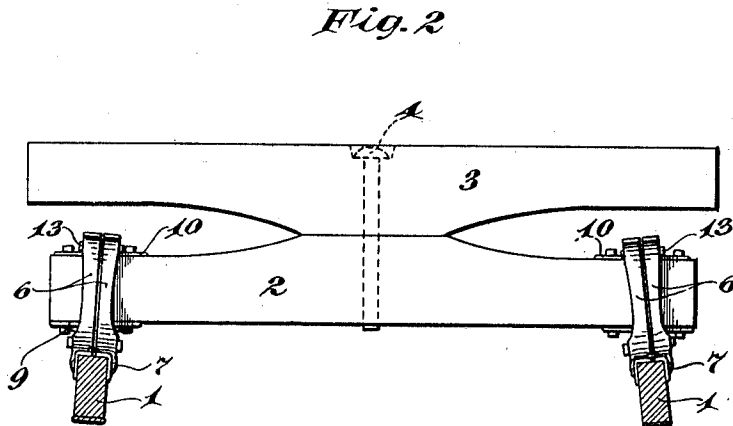
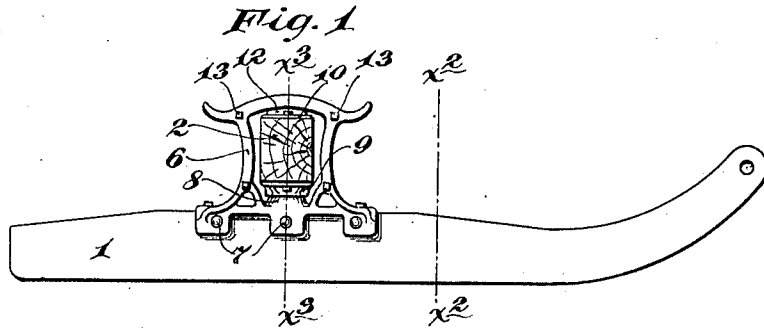


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BOB SLED.

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UNITED STATES PATENT OFFICE.

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BOB-SLED.

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To all whom it may concern:

Be it known that I, ENOCH HOIBY, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Bob-Sleds; and I do hereby 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.

My invention relates to bobsleds and has for its object to generally improve the construction of the connections between the runners and the cross tree or beam to which the runners are attached.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a view in side elevation, showing a pair of runners connected to a cooperating cross tree, in accordance with my invention; Fig. 2 is a transverse section, taken on the line $x^2 x^2$ of Fig. 1; Fig. 3 is a transverse section, taken on the line $x^3 x^3$ of Fig. 1, the parts being shown on a larger scale than in Figs. 1 and 2, and some parts being broken away and some parts left in full; Fig. 4 is a view partly in side elevation, but chiefly in section, on the line $x^4 x^4$ of Fig. 3, and some parts broken away; and Fig. 5 is a detail view in side elevation, with some parts broken away, illustrating a modification in the construction of the so-called pedestal brackets.

Referring first to the construction illustrated in Figs. 1 to 4, inclusive, the numeral 1 indicates the runners, the numeral 2 the cross tree or beam to which the runners are connected, and the numeral 3 indicates a bolster which, as shown, is centrally pivoted to the cross tree 2 by a king bolt 4.

Yoke-like pedestal brackets 6, so-called, are radially secured to the runners, and the ends of the cross tree 2 are extended through the openings therein. The bases of these brackets are flanged, so that they embrace the runners, and these flanges are rigidly connected to the runners by bolts or rivets 7. On their lower runner engaging members, the brackets 6 are formed with approximately semi-spherical bearing surfaces 8 that engage correspondingly formed sockets of lower bearing plates 9 rigidly secured to

the under surfaces of the cross tree 2. The upper bars or members of the brackets 6 are grooved on their under surfaces and are curved on an arc struck from the axis of the lower bearing surface 8. Rigidly secured to the upper surfaces of the end portions of the cross tree 2 are upper bearing plates 10 provided, as shown, with semi-spherical bearing projections 11 that engage correspondingly formed depressions of bearing caps 12, which latter work in the channels formed in the under surfaces of the curved upper bars of the said brackets. Preferably, the upper surfaces of the bearing caps 12 are curved both transversely and longitudinally, and the grooves in the upper bars of the brackets, with which they engage, are curved in cross section. In this way, the runners are connected to the cross tree with freedom for oscillatory movements, both in vertical planes and in horizontal planes. The movements of the runners in vertical or approximately vertical planes are permitted by movements of the bearing caps 12 in the channeled upper bars of the pedestal brackets and by movements of the lower bearing plate 9 on the lower bearing surface 8. Horizontal oscillatory movements of the runners is permitted by the pivotal connections between the lower bearing members 8 and 9 and between the upper bearing members 11 and 12. These pivotal connections are preferably so applied that the runners will stand upwardly inclined in respect to each other, so as to thereby steady the bob against lateral wobbling movements.

The preferred manner of constructing the pedestal brackets is to make the same in two duplicate parts, which, when put together, form split castings, the dividing line of which extends centrally through the upper and lower and upright members, including the bearings 8, of the said brackets. The bolts, which secure the lower flanges of the said brackets to the runners and other bolts or rivets 13, serve to rigidly but detachably connect the sections of the said brackets. This manner of splitting the brackets makes it an easy matter to assemble the parts, it being obvious that when the said sections are secured in working positions, the said brackets are interlocked to the bearing caps 12, upper and lower bearing plates 10 and 9 and to the ends of the cross tree.

In the modified form shown in Fig. 5, the

lower and upright portions of the pedestal brackets 14 are cast integral, and the channeled upper member 15 is separately formed and secured to the upright members by bolts or other suitable device.

The construction above described, while simple and of comparatively small cost, is very strong and durable. By means thereof, the runners are connected to the cross tree or connecting beam, by flexible joints, which permit one of the runners to move ahead of the other in starting a heavy load, thereby permitting the draft strain to be gradually applied in overcoming the inertia of the load. The flexible joints also permit the runners to more readily adapt themselves to irregularities in a road bed.

What I claim is:

1. In a bobsled, the combination with runners and yoke-like pedestal brackets secured thereto, of bearing caps mounted for sliding movements in the upper portions of said brackets, and a cross tree pivotally supported by bearings on the lower portions of said brackets and pivotally connected to said bearing caps, substantially as described.

2. In a bobsled, the combination with runners and yoke-like pedestal brackets secured thereto, said brackets having rounded bearings on the lower portions and channeled upper bars, of bearing caps mounted to slide in the channeled upper bars of said brackets, a cross tree, lower bearings secured to the ends of said cross tree and formed with sockets engaging the rounded lower bearings on said brackets, and upper bearing plates secured to the ends of said cross tree and having rounded bearings seated in said bearing heads, whereby said runners

are mounted for oscillatory movements in approximately vertical and horizontal planes, substantially as described.

3. In a bobsled, the combination with runners and yoke-like pedestal brackets secured thereto, said brackets having rounded bearings on the lower portions and channeled upper bars, and a cross tree pivotally mounted on the lower bearings of said brackets and connected to the channeled upper bars of said brackets with freedom for horizontal pivotal movements and for oscillatory movements in a vertical plane, the said brackets being split or divided, substantially as and for the purposes set forth.

4. In a bob-sled, the combination with runners and yoke-like pedestal brackets secured thereto, said brackets having rounded bearings on the lower portions and channeled upper bars, of bearing caps mounted to slide in the channeled upper bars of said brackets, a cross tree, lower bearings secured to the ends of said cross tree and formed with sockets engaging the rounded lower bearings on said brackets, and upper bearing plates secured to the ends of said cross tree and having rounded bearings seated in said bearing heads, whereby said runners are mounted for oscillatory movements in approximately vertical and horizontal planes, the said brackets being split or divided longitudinally and rigidly but detachably secured together, substantially as described.

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

ENOCH HOIBY.

Witnesses:

F. D. MERCHANT,
HARRY D. KILGORE.