R. E. STEVENS.

SLED KNUCKLE.

APPLICATION FILED MAR. 30, 1915. RENEWED JULY 6, 1916.

1,195,410. Patented Aug. 22, 1916.

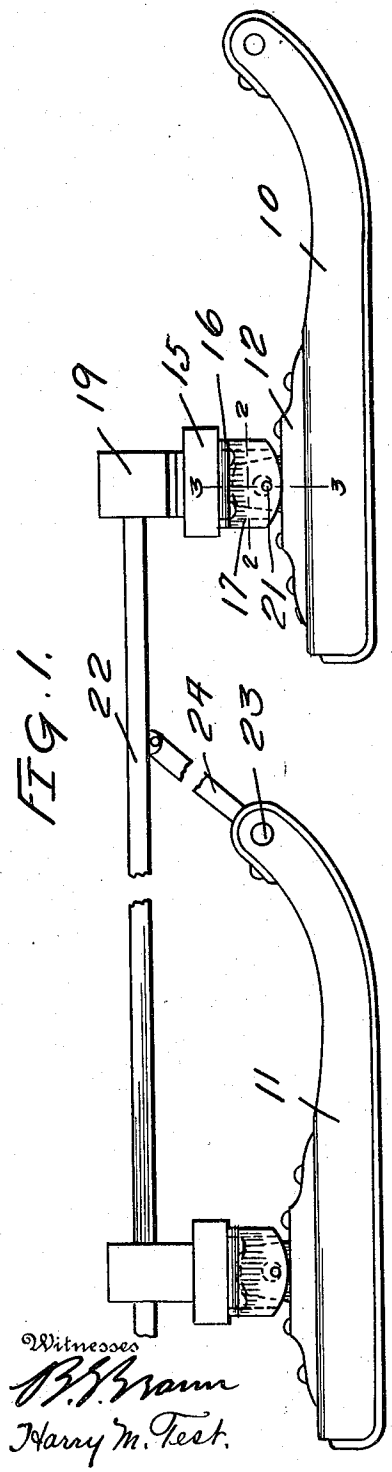



FIG. 1.

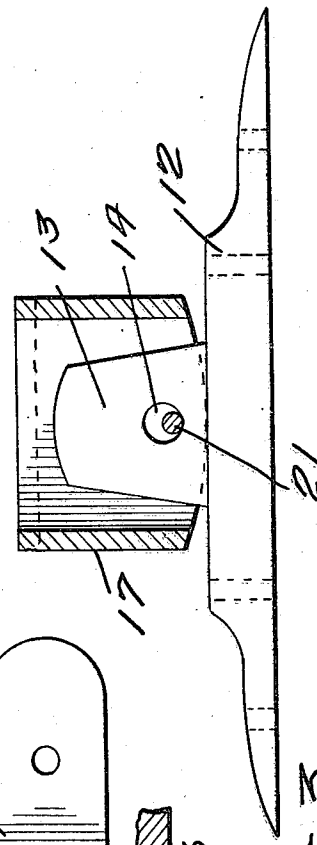



FIG. 4.

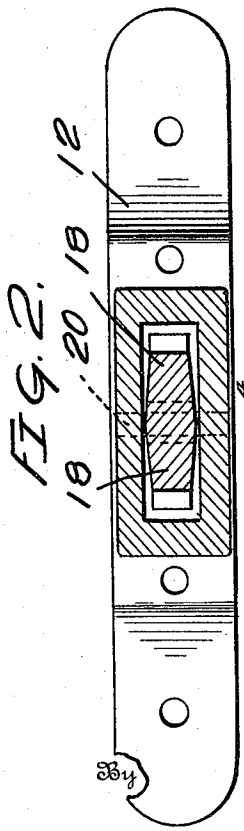



FIG. 2.

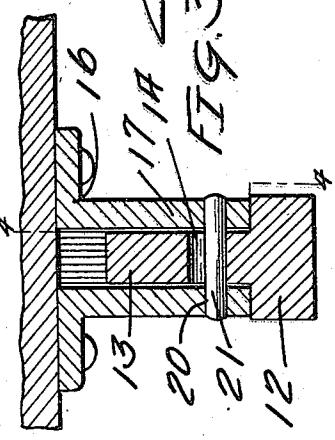



FIG. 3.

Witnesses

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# UNITED STATES PATENT OFFICE.

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## SLED-KNUCKLE.

1,195,410. Specification of Letters Patent. Patented Aug. 22, 1916.

Application filed March 30, 1915, Serial No. 18,171. Renewed July 6, 1916. Serial No. 107,879.

*To all whom it may concern:*

Be it known that I, RAYMOND E. STEVENS, a citizen of the United States, residing at Steamburg, in the county of Cattaraugus, State of New York, have invented certain new and useful Improvements in Sled-Knuckles; 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.

This invention relates to improvements in sleds and particularly to knuckles which connect the runners with the bunks of the sled.

The principal object of the invention is to provide a knuckle for a sled of such construction that a free fore and aft rocking of the runners is permitted, while at the same time each of the runners is permitted a slight longitudinal movement independently of the bunk and the other runner.

Other objects and advantages will be apparent from the following description when taken in connection with the accompanying drawing.

In the drawing: Figure 1 is a side elevation of the lower portion of a sled equipped with my improved knuckles, Fig. 2 is a horizontal section on the line 2—2 of Fig. 1, enlarged, Fig. 3 is a vertical section on the line 3—3 of Fig. 1, enlarged, and Fig. 4 is a vertical section on the line 4—4 of Fig. 3.

Referring particularly to the accompanying drawing, 10 represents the front sled and 11 the rear sled. Secured to the upper side of each of the runners is a metal casting 12 which has formed on its upper face an upwardly extending lug 13, said lug being formed with a transverse opening 14. Disposed across each pair of runners is a bunk 15, and secured to the under side of each end of each of the bunks is a casting 16, this casting having a depending integral box 17 which receives the upstanding lug of the casting 12. The space within the box is rectangular, but the lug 13 is slightly narrower, at its forward and rear portions than in the middle portion, as clearly seen at 18. This will permit of a sidewise rocking movement of the lug within the box, for a purpose which will appear later. Secured to the upper side of each of the bunks 15 is a bolster 19 on which the box, (not shown) of the sled is attached.

In opposite sides of each of the boxes is formed an opening 20 in alinement with the opening 14 of the lug, but the said openings 20 are of lesser diameter than the opening 14. Disposed through the openings 20 and opening 14 of the lug is a bolt 21. The lower edges of the sides of the box are curved or bowed downwardly in the manner of rockers and rest on the upper face of the casting 12, the same being adapted to rock on said casting and support the entire weight of the body or box of the sled. The fact that the opening 14 is larger than the openings 20 permits the rocking engagement between the casting 12 and the box 17 without any wearing action on the bolt. The opening 14 also permits the lateral rocking movement of the lug 13 within the box.

A reach 22 connects the front and rear bolsters, as clearly shown and connecting the front ends of the rear runners is a transverse bar 23 connected to the reach by means of a link connection 24.

It will thus be seen that by reason of the loose movement of the lug 13 in the box, and the forward pull on the sled is exerted to one side of a straight line running longitudinally through the sled, one of the runners will be drawn to a position slightly in advance of the other runner. This is advantageous in cases where the runners freeze to the snow or ice, and greatly assists in prying them loose.

What is claimed is:

The combination with the bunk and runner of a sled, of a vertically disposed lug carried by the runner and provided with a transverse opening, a rectangular open-bottomed box secured to the bunk and receiving the lug therein, said box having transverse openings alining with the opening of the

lug, a pivot bolt passing through the box and lug, the opening of the lug being greater in diameter than the openings of the box, the lower edge portion of the box being curved in the form of rockers and bearing on the sides of the lug member, said lug being tapered fore and aft whereby the runner is permitted lateral swinging movement and by means of the pin and opening connection a fore and aft rocking motion.

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

RAYMOND E. STEVENS.

Witnesses:
EARLE T. JAQUAY,
LEROY R. STEVENS.

**Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."**