No. 647,188. Patented Apr. 10, 1900.

R. A. KNEELAND.

SLED PROPELLER.

(Application filed Mar. 8, 1899.)

(No Model.)

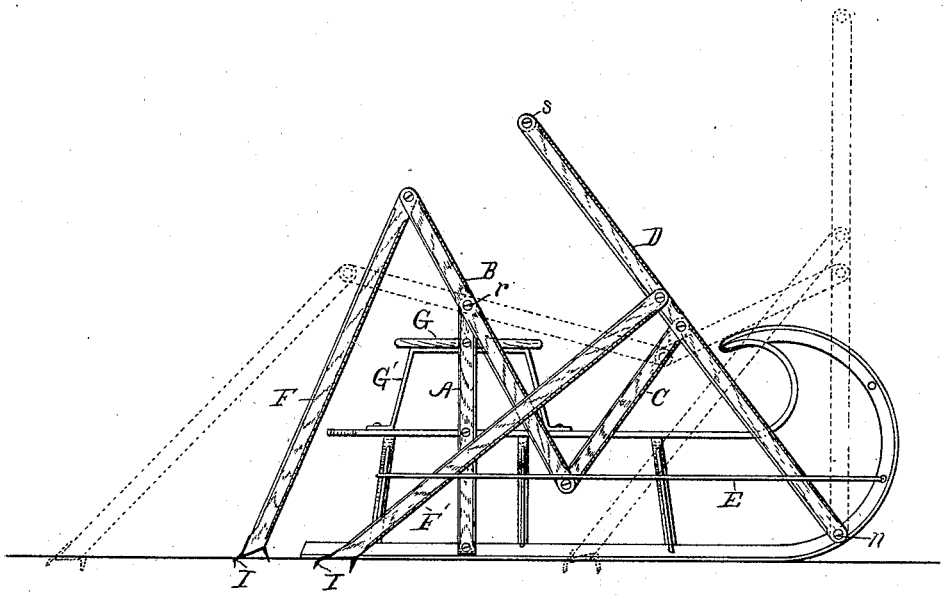

Fig. 1

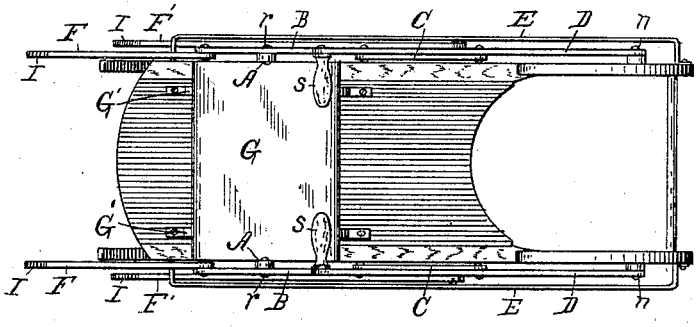

Fig. 2

Witnesses:
Otis A. Earl
Cora M. Chappell

Inventor,
Remus A. Kneeland
By Fred L. Chappell
Att'y.

UNITED STATES PATENT OFFICE.

REMUS A. KNEELAND, OF BENTON HARBOR, MICHIGAN.

SLED-PROPELLER.

SPECIFICATION forming part of Letters Patent No. 647,188, dated April 10, 1900.

Application filed March 8, 1899. Serial No. 708,273. (No model.)

To all whom it may concern:

Be it known that I, REMUS A. KNEELAND, a citizen of the United States, residing at the city of Benton Harbor, in the county of Berrien and State of Michigan, have invented certain new and useful Improvements in Sled-Propellers, of which the following is a specification.

This invention relates to sled-propellers.

The objects of this invention are, first, to provide a simple and efficient means for propelling a sled in which there shall be no lost motion, and, second, to provide a simple and inexpensive means for use as an attachment for a sled to propel it over snow and ice.

Further objects will definitely appear in the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in this specification.

The invention is definitely pointed out and described in the claims.

The structure is clearly and fully illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation of a sled with my improved propeller means attached. Fig. 2 is a plan view of the structure appearing in Fig. 1.

In the drawings similar letters of reference refer to similar parts throughout the several views.

The structure is made in duplicate, one propeller for each side of the sled. Each propeller consists of a main actuating-lever D, which is pivoted at *n* to the lower front portion of the sled-runner and has transverse handles at the top, projecting outwardly or inwardly, as the case may be, depending on the width of the sled. A post A is rigidly secured to each side of the sled toward the rear. A lever B is pivoted thereto at *r*. The forward end of this lever B extends downwardly and is connected by a link C to the actuating-lever D. Secured to each actuating-lever is a downwardly-extending push bar or arm F′, suitably pivoted thereto, the lower end of which bar is provided with prongs I, the forward one of which is considerably longer than the one at the rear. A similar arm F is secured to the upper end of the lever B, and this is provided with similar spurs or prongs at its lower end. The lever D and the forward push-bar F′ are guided within a longitudinal rod E, extending from the front of the sled to the rear knee and serving as a guide therefor.

As I have before stated, the structure is exactly duplicated on each side. An elevated seat G is preferably provided, though of course the rider could sit on top of an ordinary sled and operate it quite satisfactorily in the usual way. It will be found more convenient and comfortable, however, to have an elevated seat, as I have shown, which can be made cheaply of a pair of iron brackets G′ G′, with a seat-board across the top. This elevated seat also serves as an additional support for the upper part of the seat-posts A.

In propelling the sled the rider will take his place on the seat G, grasping the handles S S in his hands. If he desires to proceed straight ahead, he moves the handles together forward and back at exactly the same rate and parallel to each other. On the forward movement it will be observed that through the links C and lever B the rear push-bars F are acted on, which, owing to the spurs on the bottom, will engage the ground and propel the sled forward, and as they swing back the long spur at the rear will still keep the bottom of the bars well engaged with the ice to secure the best results. When the levers D have been moved forward as far as convenient, the rider then pulls them back. This of course reverses the movement of the push-bars F and draws them forward, but causes the push-bars F′ to act on each side, so that each movement of the levers D forces the sled forward. When one pair of the push-bars is engaging and forcing the sled forward, the other pair is being drawn up for a fresh engagement, and so on. When it is desired to steer the sled to either side, the lever on the opposite side from the direction desired will be operated, when the sled will swing to that position. In going down an incline or in coasting anywhere the rider can release the hold on the handles and grasp hold of the forward push-bars F and by applying pressure to one side or the other steer the sled as he may see fit. The sled of course could be propelled with but a single pair of push-bars; but by having both pairs the propulsion is complete

and steady instead of a step-by-step propulsion.

Having thus described my improved sled-propeller, I desire to state that it can be considerably varied in its details without departing from my invention. The guide-rod E might be dispensed with, though of course it serves a very useful function. It would be possible to guide the structure almost equally well from different joints, though of course that might add considerably to the expense.

While I have described the structure principally as an attachment to a sled, it must be clear that a sled could be specially constructed with only the elevated seat and that the various points of pivoting might be provided specially by the form of the sled, thus improving and facilitating the structure.

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

1. In a sled-propeller, the combination of a lever D, pivoted to the lower forward portion of the sled; a push-bar pivoted thereto; a second lever pivoted at a considerable height and toward the rear of said sled; a link connecting the second lever to the actuating-lever; and a push-bar pivoted to the upper part of said rear lever coacting, for the purpose specified.

2. In a sled-propeller the combination of a lever pivoted to the lower forward portion of the sled; a post toward the rear of said sled; a lever pivoted to the top of said post; a link connecting said rear lever to the forward lever; a push-bar pivoted to the upper part of said rear lever, and a push-bar pivoted to the forward lever, for the purpose specified.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

REMUS A. KNEELAND. [L. S.]

Witnesses:.

M. W. JENNINGS,

GEO. D. ALGER.