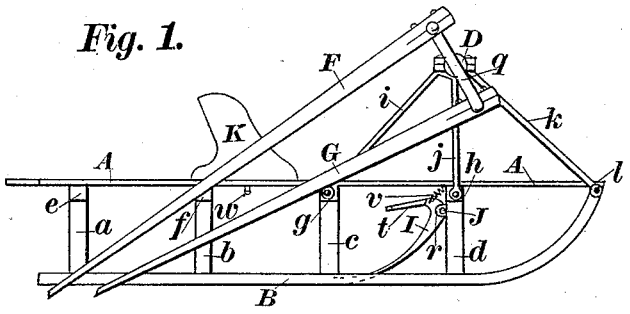
(No Model.)

T. F. HENNESY.

SLED PROPELLER.

No. 421,933. Patented Feb. 25, 1890.

Fig. 1.



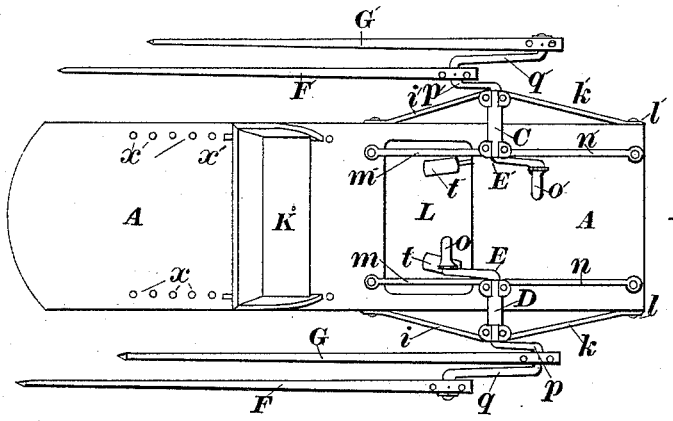


Fig. 2.

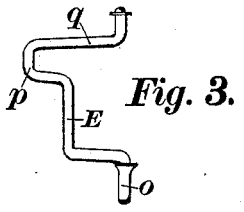
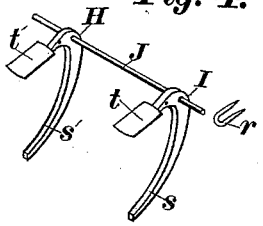


Fig. 3.

Fig. 4.



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THOMAS F. HENNESY, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO EMIL KUBITZ, OF SAME PLACE.

SLED-PROPELLER.

SPECIFICATION forming part of Letters Patent No. 421,933, dated February 25, 1890.

Application filed January 4, 1890. Serial No. 335,889. (No model.)

To all whom it may concern:

Be it known that I, THOMAS F. HENNESY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented an Improvement in Propelling and Controlling Sleds, of which the following is a specification.

My invention relates to means for propelling sleds by the action of the hands and feet of the one riding; and my object is the combination of a few simple parts so arranged in relation to one another that very little expense is added to the building of an ordinary sled with a propelling apparatus, thus adapting it to the wants of children and at a cost within the means of everybody.

Referring to the drawings, Figure 1 is a side view; Fig. 2, a top view; Fig. 3, a view of a propelling-crank, and Fig. 4, a perspective view of the controlling-levers detached from the sled.

Similar reference-letters indicate like parts in the several views.

A shows the top board, and B the runner on the right side of an ordinary sled. The sled shown is composed of four bents of posts *a*, *b*, *c*, and *d*. The ends of the cross-pieces which connect the posts from side to side and upon which the top board A rests, are shown at *e*, *f*, *g*, and *h*.

At *i*, *j*, and *k* and *i'*, *j'*, and *k'* are shown iron braces, the lower ends of which are secured to the ends of the cross-pieces at *g* and *h*, both sides of the sled, and at the top end of the runners at *l* and *l'*. There are other brace-rods shown at *m* and *n* and at *m'* and *n'*, Fig. 2. The tops of all these braces are firmly secured to the crank-shaft boxes C and D, and are for the purpose of holding these boxes solidly in the proper position above the sled to receive the crank-shafts, as shown in Figs. 1 and 2. The crank-shafts and the cranks *o*, *p*, and *q* are usually formed of one piece of round steel, as shown by Fig. 3. The ends, as shown at *o* and *o'*, are provided with a spool to form a handle, which turns loosely upon its crank-pin. The double cranks at *p* and *p'* and the single cranks at *q* and *q'* have journaled on their pins rods of wood or metal F and G and F' and G', and these rods are pointed at their lower ends, as shown in Figs. 1 and 2.

The crank-shafts E and E' are journaled in the boxes C and D, as shown in Fig. 2.

The controlling mechanism is operated by the feet in conjunction with the propelling apparatus.

In Fig. 4 is shown two elbow-levers H and I, which are journaled to a round rod J, Figs. 1 and 4. This rod passes across the sled from side to side under board A, and the ends of the rod are secured to the rear sides of the posts of the bent *h* by means of a staple shown at *r*, Figs. 1 and 4. Each of these elbow-levers has arms *s* and *s'*, made of such a length that they will contact with the surface of the road when the foot-plates *t* and *t'* are pressed by the feet of the operator of the sled. The arms *s* and *s'* of the elbow-levers H and I are held from contact with the surface of the road by means of spiral springs, Fig. 1, at *v*. The upper end of each spring is attached to the under side of the top of the sled, and the lower end of each spring is attached to its respective lever.

The seat is shown at K, in Figs. 1 and 2, and it can be shifted in its position longitudinally with the sled, and is held at any desired place by means of pins *w*, Fig. 1, these pins being secured to the bottom of the seat on each side. These pins fit into holes *x*, bored into the top A of the sled.

In operation the person to ride takes his position on the seat K, and there being a large square-shaped opening L through the top board A, he can place his feet directly upon the foot-plates *t* and *t'*. To propel the sled, the hands grasp the handle-spools *o* and *o'*, and by turning the cranks in either direction the rods G and F and G' and F' are caused to reciprocate. The lower ends of these rods, coming in contact with the road near the rear of the sled, act to push the sled forward, and there being four of the rods, and their action taking effect at various times in the revolution of the cranks, together with the momentum of the sled, causes an almost regular forward movement at a high rate of speed. If from any cause one of the cranks E or E' is turned more rapidly than the other,

or any change in the direction the sled is running is required, or in case it is desired to come to a full stop, either one of these results can be quickly and efficiently attained by pressing either one or both of the feet, as may be necessary, upon the foot-plates *t* and *t'* of the elbow-levers H and I, which will cause the arms *s* and *s'* to drag upon the surface of the road at the side of the runners B and produce friction sufficient to accomplish the desired purpose.

I claim as my invention—

1. In a sled, the combination of the driving-shafts E and E', provided with cranks *o* *o'* and *p q p' q'*, pitmen G F G' F', attached to said cranks, as shown, boxes D and C, in which are journaled said shafts E and E', braces *i j k i' j' k'* and *m n m' n'*, said braces being firmly attached to said boxes and to the body of the sled, as shown and described.

2. In a sled, in combination with the propelling mechanism, and operated in conjunction therewith, the controlling mechanism consisting of two elbow-levers H and I, pivotally attached at the under side of the top of the sled, to a rod J, said rod being attached at each end to the front bent *d* of the sled, and spiral springs *v* for lifting the elbow-levers from contact with the road, the parts being constructed, arranged, and operated substantially as shown, and for the purpose specified.

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