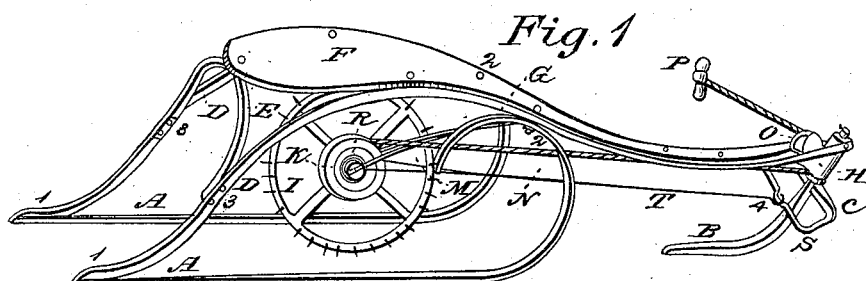
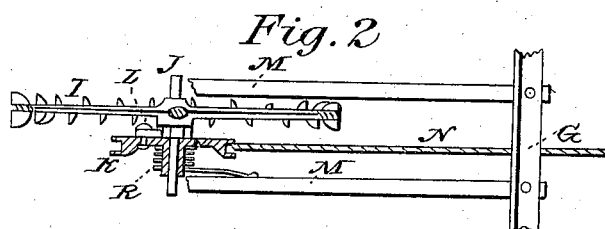


Sled Propeller.

Patented Sept. 13, 1870.



Albert Bolles
Frank Douglas

C. H. Douglas

United States Patent Office.

CHARLES H. DOUGLAS, OF HARTFORD, CONNECTICUT.

Letters Patent No. 107,345, dated September 13, 1870.

IMPROVEMENT IN SLEDS.

The Schedule referred to in these Letters Patent and making part of the same.

I, CHARLES H. DOUGLAS, of Hartford, in the county of Hartford and State of Connecticut, have invented certain Improvements in Sleds, (for boys and girls,) by which they are rendered more simple to construct and elegant in form, also capable of being propelled with ease by the rider on the level ice or snow; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawing making a part of this specification, in which—

Figure 1 is a perspective view of a sled embracing my improvements, drawn on a scale of one-eighth the full size, and

Figure 2 is a transverse section of the driving-wheel, pulley, &c., drawn on a scale of one-fourth the full size.

A A are the main runners, over which the rider sits.

B is the steering-runner, with a cross-bar, C, attached to it, upon which the feet of the rider rest.

D D are raves or top rails, which are bent in such a form as to allow the rear ends to be bolted or riveted to the rear ends of the runners A A, at 1 1, the centers to be bolted to the top of the bow on the front of the runners at 2 2, and the front ends to come together over runner B.

E is a stiff bow, which is riveted to the raves D D at 3 3, and serves the double purpose of a brace to the back of the sled, and a support to the back end of the top board or seat F.

G, figs. 1 and 2, is a small beam, which connects the front ends of runners A A, and may be placed between the runners and raves, and all three secured by one bolt at each end, as represented in fig. 1 at 2 2, or this beam may be secured to the runners, and the raves D D secured to the beam.

H is a socket of either metal or wood, in which the upper end of runner B is held and allowed to revolve. This is secured firmly between the raves near the point where they come together.

I, figs. 1 and 2, is a propelling-wheel, on both sides of the rim of which are wings with sharp edges, which are designed to catch into the ice or snow. This wheel is attached firmly to the shaft J, which is hung in a couple of boxes on the ends of the arms M M, in which it is designed to revolve.

K is a grooved pulley, which is loose upon the shaft J, on one side of which there is a pawl, l, fig. 2, which catches upon the teeth on the hub of the wheel I when it is revolved forward, causing said wheel I to revolve with it.

R is a light wire spring, coiled upon the hub of pulley K, one end of which is attached to said pulley, and the other to one of the arms M.

N is a rope or cord, one end of which is attached to pulley K, and wound once or more around it in the groove, and the other end is carried forward over the sheave o, fig. 1, and secured to the handle P.

S is a small rod which is curved around inside the runner B, and hinged at each end to the cross-bar C. Attached to the center of this bent rod, at 4, there is a small rod, T, which extends back and is attached to the rear ends of arms M M. These arms are secured to the beam G, and are sufficiently limber to allow the propelling-wheel I to yield to the unevenness of the snow or ice, and, by pressing the heels upon the rod S, the wheel I is brought down more firmly upon the ice when desired.

To propel this sled, the rider sits upon the seat F, places his feet upon the cross-bar C, seizes the handle P, and draws back, as in rowing a boat. This gives one or more revolutions to the pulley K and propelling-wheel I, the wings of which propelling-wheel catch upon the snow and give a forward motion to the sled. The rider then throws the handle P forward, and the pulley K is revolved back to its original position by the action of spring R, and thereby winds up the rope N in its groove for the next pull.

The propelling-wheel I will revolve forward independent of the pulley K, and therefore does not retard the speed of the sled when the propelling apparatus is not being worked.

The sled is guided to the right or left by turning the steering-runner B with the feet, upon the cross-bar C.

The outer edge of the rim of wheel I is thin and sharp, to enable it to press easily into the snow, and thereby allow the side wings to take a firmer hold to propel the sled. By this device the snow is prevented from clogging upon the wheel.

It is essential that wheel I should be so hung that it may rise or fall far enough to conform to the unevenness of the surface on which the sled is to run. This result is obtained by hanging it upon the ends of the springy arms M M, but may also be obtained by a clutch or by friction.

These sleds may be constructed of either metal or wood.

I do not claim a toothed wheel to propel a sled, as that is old; nor do I claim the pivoted runners, either in front or in the rear, for steering a sled. I am also aware that the device herein described for driving the wheel I with force in one direction, has already been applied to wheel vehicles.

Claims.

I claim as my invention—

1. Constructing a sled with raves, D D, which are

directly attached to the rear ends of the runners A A, and to the front ends or bows of said runners, or to the beam G, (either or both,) and which extends forward of runners A A, and rest upon one or more runners B, substantially as set forth.

2. The flexible arms M M, in combination with wheel I, pulley K, and rope N, substantially as and for the purpose specified.

3. The rod T and rod or bar S, in combination with the arms M and wheel I, for the purpose specified.

G. H. DOUGLAS.

Witnesses:

ALBERT S. BOLLES,
FRANK DOUGLAS.