

(No Model.)

H. H. HOMER.
SLED PROPELLER.

No. 569,201.

Patented Oct. 13, 1896.

Fig. 1.

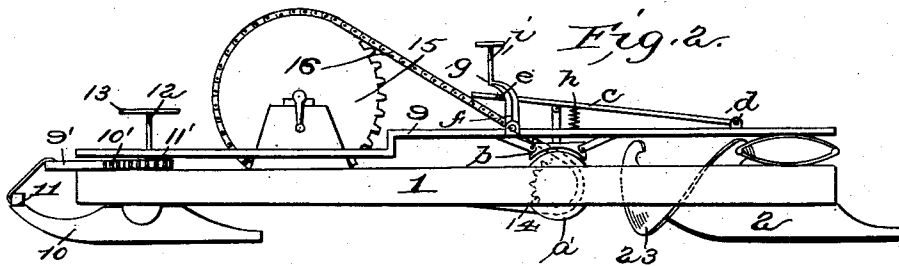
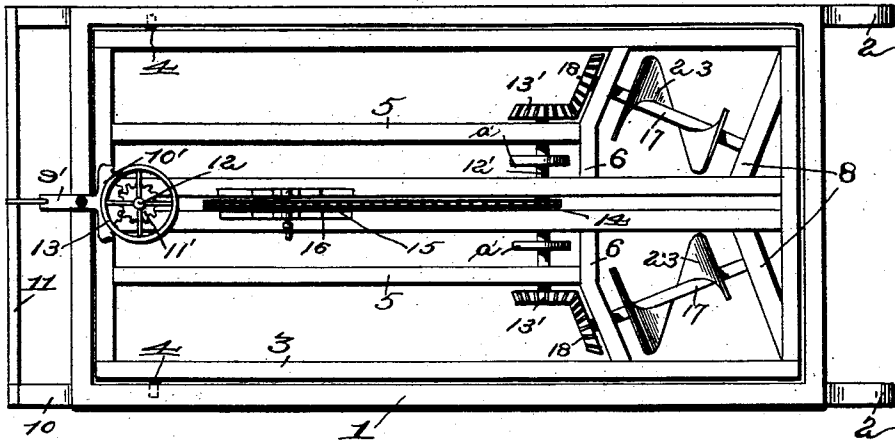
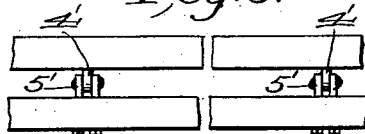


Fig. 3.



Attest

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UNITED STATES PATENT OFFICE.

HOWARD H. HOMER, OF FRANKLIN, MAINE.

SLED-PROPELLER.

SPECIFICATION forming part of Letters Patent No. 569,201, dated October 13, 1896.

Application filed March 18, 1896. Serial No. 583,689. (No model.)

To all whom it may concern:

Be it known that I, HOWARD H. HOMER, a citizen of the United States, residing at Franklin, in the county of Hancock and State of Maine, have invented certain new and useful Improvements in Sled-Propellers, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to ice-sleds, such as are driven by rearwardly-placed screws rotated by means of the hand or feet.

The invention consists principally in the arrangement of these screws whereby an increased speed may be obtained with only the customary expenditure of power.

It consists, further, in the construction for eliminating the side draft occasioned in the ordinary sleds of this class by the side pressure of the screws upon the ice.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan view, and Fig. 2 is a side elevation, of the sled. Fig. 3 is a detail view of a modification.

The sled comprises the outer rectangular frame 1, having the rear runners 2 attached to the under side thereof. Fitted within the outer frame is an inner frame 3, carrying trunnions 4, which project from opposite sides thereof and enter bearings in the forward part of the inner sides of said outer frame. This pivotal connection permits of the rear end of the inner frame rising slightly to clear all obstructions encountered when the sled is in motion. A modification of this connection is shown in Fig. 3, in which 4' represents an eye projecting from the front bar of the outer frame, and this eye is secured by a bolt between the eyes 5', fixed in the inner frame. The inner frame is provided with the central longitudinal braces 5, the transverse braces 6, and the oblique end braces 8.

A deck or platform 9, supported by the frame 1, extends over the frame 3 and provides a place, free from the driving mechanism of the sled, for the reception of the operator of the same or his luggage. The forward or steering pair of runners 10 are carried by a frame 11, provided with an intermediate rearwardly-extending arm 9', which is centrally pivoted between the platform 9 and the frame 1. The inner end of the arm 9' carries

a toothed segment 10', which meshes with a gear 11', carried on the lower end of the steering-bar 12, having the handle 13 mounted thereon.

A transverse shaft 12' is journaled in bearings in the braces 5, and upon the opposite ends of this shaft the beveled gears 13' are fixed. A sprocket-wheel 14 is secured to the shaft 12', intermediately of the same, and this sprocket is connected to a larger sprocket-wheel 15 by a chain 16.

The sprocket-wheel 15 is mounted in bearing-boxes supported centrally of the frame 3 and rotated by either mechanical or manual means. I have shown and described a conventional form of driving mechanism; but I wish it understood that I may employ any means desirable in place of the same without departing from the spirit of the invention.

Between the braces 6 and the end braces 8 the shafts 17 extend, the forward ends of which project through the braces 6 and carry beveled gears 18, that mesh with the gears 13', before described. Secured to or formed integral with these shafts are the screws 23 of peculiar form, only one of which I will describe, as the other is of the same construction, the only difference being that it is oppositely turned. The screw is provided with two or more turns, and the turns are separated comparatively a considerable distance from each other. The edge of the screw is sharpened, and it is my intention to have the front end of the flange cut a crease in the ice and the remaining portion of the flanges to follow in the crease as the same is rotated.

In a screw where the turns are widely separated the crease cut by the front end of the flange runs obliquely to the shaft of the screw, and it is necessary, to prevent the sled being forced sidewise, to have the crease or groove parallel to the end of the sled. I set my shafts obliquely in the frame and extending in opposite directions to each other. These shafts are shown herein as converging, as viewed from the front of the sled.

It will be understood from the foregoing that the pressure of the screws will force the sled forward in a straight line, and by reason of the wide separation of the turns of the screws a comparatively large area is covered by one revolution of the same. In the sleds

of this class as heretofore constructed the screws press upon the ice obliquely of their shafts, that is, the sides of the flanges press against the ice, and as the screw does not slip the sled is forced forwardly and laterally, the lateral movement of the sled being counteracted by the steering device. By such a construction a good deal of power is uselessly expended, but by my arrangement the only tendency of the screw is to force the sled straight ahead.

I provide a brake mechanism for the sled which consists of the frictional disks *a'*, fixed to the shaft 12', and the brake-shoes *b*, adapted to be brought into engagement with the same. These shoes are carried by the plate C, pivoted at *d* and having a pin *e* projecting from the side edge thereof near its forward end. A pivoted standard *f*, having a curved upper end *g*, bears on this pin. The plate C and brake-shoes are normally held up by the spring *h* or equivalent means.

To bring the brake into action, the operator places his foot on the end of the plate C, depressing the same, at the same time drawing forwardly on the standard *f* by means of the handle *i*. This will bring the brake-shoes into contact with the frictional disks and thereby prevent the further rotation of the shaft 12'. The screws will thus be locked against rotation and will act as brakes against the surface of the ice.

I claim—

1. A sled with means for propelling the same, said means comprising the obliquely-arranged screws.

2. A sled with means for propelling the

same, said means comprising the pair of obliquely-arranged screws.

3. A sled with means for propelling the same, said means comprising the obliquely-arranged screws, said screws extending in opposite directions to each other.

4. A sled with means for propelling the same, said means comprising the pair of obliquely-arranged screws, said screws being driven from a common shaft.

5. A sled with means for propelling the same, said means comprising the screws carrying beveled gears, the transverse shaft carrying gear meshing therewith, the sprocket-wheel arranged centrally of said transverse shaft, and the chain and sprocket for rotating said transverse shaft, substantially as described.

6. A sled with means for propelling the same, said means comprising the obliquely-arranged screws, and the brake mechanism for locking said screws against rotation.

7. A sled with means for propelling the same, said means including the shaft 12' and the screws carrying the gears, the frictional disks also carried by said shaft, the brake-shoes, the pivoted plate under spring-tension carrying said shoes, and the means for depressing said plate to bring said shoes into contact with said disk to lock said screws.

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

HOWARD H. HOMER.

Witnesses:

MARY E. HOMER,

ALICE L. HOMER.