

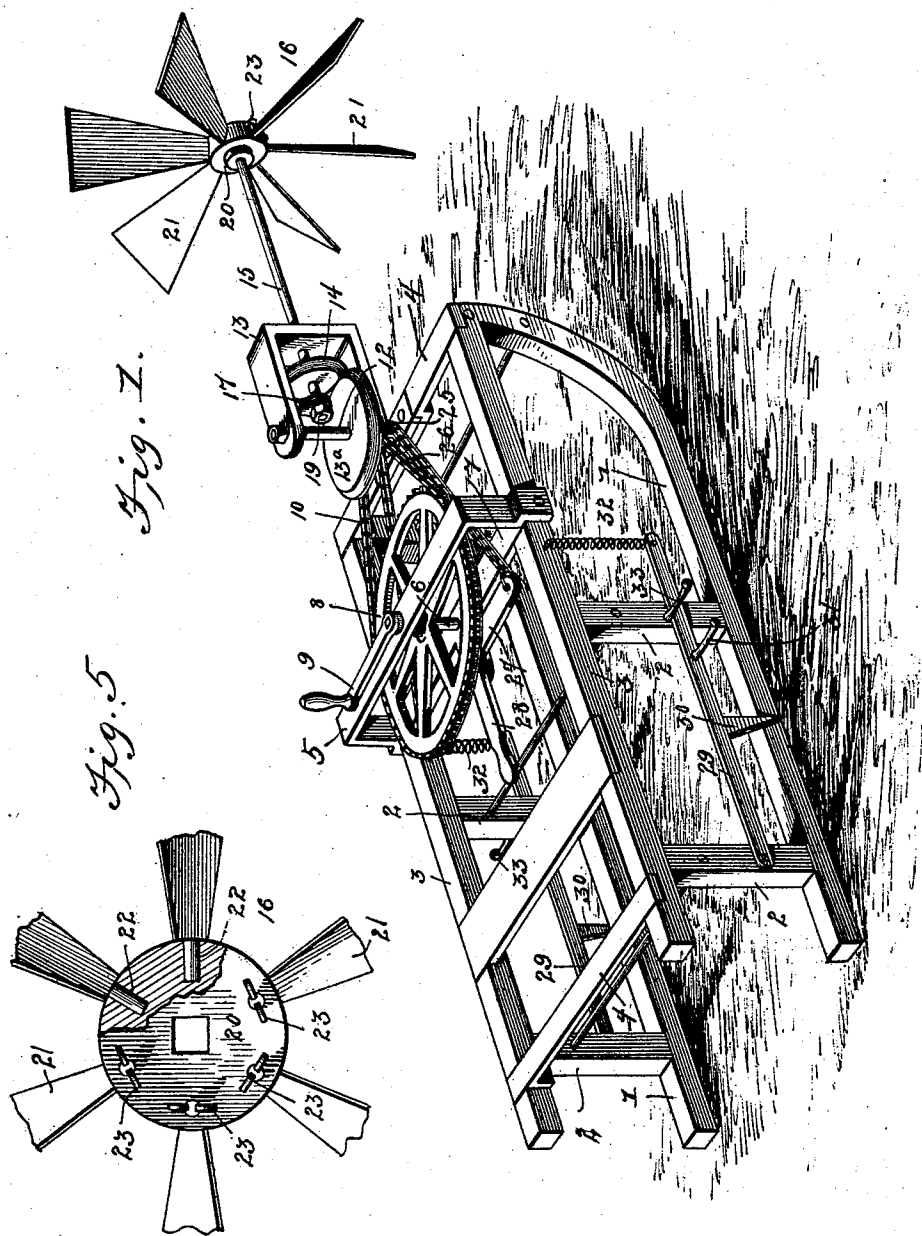
(No Model.)

2 Sheets—Sheet 1.

J. C. ROBERTSON.
SLED PROPELLER.

No. 572,568.

Patented Dec. 8, 1896.



Inventor
James C. Robertson

Witnesses

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By *his* Attorneys,

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(No Model.)

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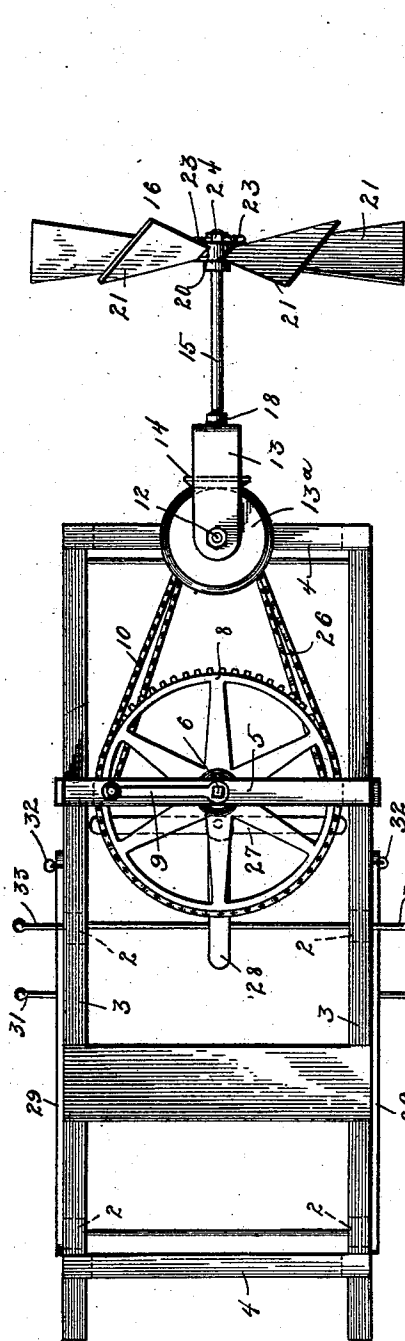


Fig. 2.

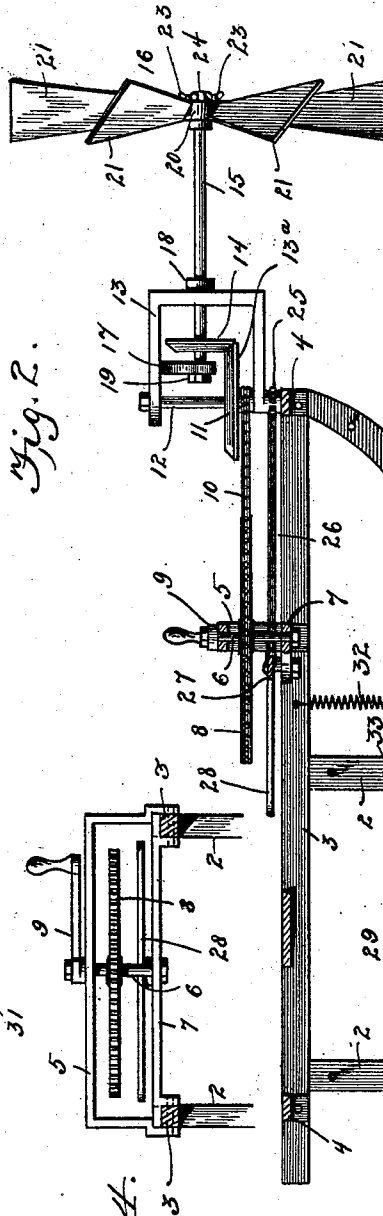


Fig. 3

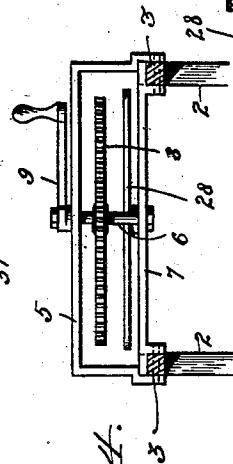


Fig. 4.

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UNITED STATES PATENT OFFICE.

JAMES C. ROBERTSON, OF GLENGLADE, PENNSYLVANIA, ASSIGNOR OF
ONE-THIRD TO THOMAS PRICE, OF VINTONDALE, PENNSYLVANIA.

SLED-PROPELLER.

SPECIFICATION forming part of Letters Patent No. 572,568, dated December 8, 1896.

Application filed August 21, 1896. Serial No. 603,514. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. ROBERTSON, a citizen of the United States, residing at Glenglade, in the county of Cambria and State of Pennsylvania, have invented a new and useful Sled-Propeller, of which the following is a specification.

This invention relates to sled-propellers, and has for its object to provide, in connection with a sled of ordinary construction, propelling mechanism adapted to be actuated by manual power for driving the sled with either a pulling or pushing action along stretches where there is not sufficient declivity to enable the sled to move without the aid of propelling mechanism.

Other objects and advantages of the invention will appear in the course of the subjoined description.

The invention consists in certain novel features and details of construction and arrangement of parts, as hereinafter fully described, illustrated in the drawings, and embodied in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a sled equipped with the improved propelling mechanism. Fig. 2 is a plan view of the same. Fig. 3 is a longitudinal section through the same. Fig. 4 is a cross-section taken adjacent to the shaft of the main driving-sprocket. Fig. 5 is a view in elevation, partly in section, of the wind-wheel or propeller.

Similar numerals of reference designate corresponding parts in the several figures of the drawings.

The sled to which the improved propelling mechanism is applied may be of any usual or preferred construction, being illustrated for convenience as comprising the usual runners 1, the knees or uprights 2, the spaced longitudinal top bars 3, and the connecting cross-bars 4.

At a point forward of the center of the sled and on top thereof is secured a U-shaped frame 5, bolted or otherwise secured to the bars 3, and upon a central vertical shaft 6, mounted in the frame 5 and a bar 7, is the main driving sprocket-wheel 8, the same being provided above the frame 5 with an actuating handle or crank 9, by means of which

the occupant of the sled may impart motion to the propelling mechanism. From the sprocket-wheel 8 a drive-chain 10 runs forward and passes around a sprocket-pinion 11 on a counter-shaft 12, journaled in a U-shaped frame 13, mounted on the front cross-bar 4 of the sled. Loose upon the counter-shaft 12 is a friction bevel-gear 13^a, which engages and drives a friction bevel-pinion 14 on a horizontal and longitudinally-disposed shaft 15, upon the extremity of which is mounted the propeller 16.

The frame 13 is provided with a depending offset or extension 17, which forms a bearing for the inner end of the shaft 15, and the latter is provided with a fixed collar 18 and a removable collar 19, whereby it is securely held in place and the wheels 13^a and 14 maintained in frictional engagement, and at the same time the shaft 15 is capable of being removed.

The propeller 16 consists of a hub 20 and a series of radiating blades 21, having at their inner ends reduced shanks 22, which are removably fitted into sockets in the periphery of the hub and held by means of set-screws 23. This construction provides for using any number of blades and at the same time allows the blades to be adjusted as to their angles for obtaining the necessary frictional hold upon the air.

The propeller may be secured to the shaft 15 by means of a nut 24 or in other convenient manner.

The frame 13 is itself journaled on the spindle or counter-shaft 12, so that it may swing horizontally, and is provided at or near its base with sprocket-teeth 25, which are engaged by the central portion of a chain 26, the ends of which extend back and attach pivotally to the opposite ends of a transverse bar 27, fulcrumed near the shaft 6 of the main sprocket-wheel and having a right-angular extension 28, forming a handle by means of which the sled may be guided. By vibrating the handle 28 to one side or the other the bar 27 will be correspondingly rocked, thereby moving the chain 26 and turning the frame 13 and changing the angle of the shaft 15, journaled therein. The propeller 16 will thus be moved to one side or the other of the cen-

ter and its angle changed, and this, as will be readily understood, will effect and correspondingly change the direction in which the sled is moving.

5 29 designates a brake-lever provided with a depending pointed extension 30, which may be projected below the plane of the runner for engaging the ice or snow and arresting the forward movement of the sled. Two of
10 these levers are employed, one on each side of the sled, and they are preferably fulcrumed on one of the knees 2. Each of said levers is provided with a lateral foot-rest or treadle 31 for depressing it, and the brake is held nor-
15 mally out of operation by means of a spring 32, interposed between the free end of the brake-lever and a fixed point on the sled, as shown.

33 designates a stationary foot-rest, one of
20 which is arranged at each side of the sled, said rest 33 being attached to one of the knees and located in position to act as a stop for limiting the upward movement of the lever 29.

The occupant straddles the sled and rests
25 his feet upon the foot-rests 33, except when he wishes to guide or stop the sled, when he transfers his feet to the rests 31, whereupon he is enabled to operate both brake-levers simultaneously or independently. This method
30 of steering the sled may be used in conjunction with the handle 28 for changing the angle of the propeller, the latter, however, being depended upon principally for guiding the sled.

35 It will be understood that the propeller may be arranged either at the front or rear of the sled, so as to operate with either a pulling or pushing force.

The propelling mechanism is especially
40 adapted for light sleds and will be found effective owing to the minimum amount of resistance which is created by the drawing of the sled over an icy surface.

It will also be understood that changes in
45 the form, proportion, and minor details of

construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new is—

1. The combination with a sled, of an actuating propeller-wheel mounted on a longitudinal shaft, a frame mounted on a vertical axis on said sled and adapted to swing in a horizontal plane, and having the propeller-shaft journaled therein, mechanism for actuating said propeller, and means for rocking said frame and changing the angle of the propeller, substantially as and for the purpose described.

2. The combination with a sled, of a frame journaled on a substantially vertical axis thereon, a screw-propeller mounted on a shaft journaled in said frame, a hand-power wheel operatively connected to said propeller-shaft for imparting rotary motion thereto, a steering bar or handle arranged within reach of the operator, and connections between the same and said bearing-frame whereby the latter may be swung about its axis, substantially as and for the purpose described.

3. The combination with a sled, of a propeller, mechanism for actuating the same, brake-levers arranged on opposite sides of the sled and having pointed extensions adapted to be projected below the plane of the runners, foot-rests on said brake-levers whereby they may be depressed, springs for uplifting said levers, and stationary foot-rests located at each side of the sled and acting as stops for the brake-levers, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JAMES C. ROBERTSON.

Witnesses:

THOMAS PRICE,
JAMES RICHARDSON.