

(No Model.)

2 Sheets—Sheet 1.

J. C. ROBERTSON.
SLED.

No. 419,562.

Patented Jan. 14, 1890.

Fig. 1.

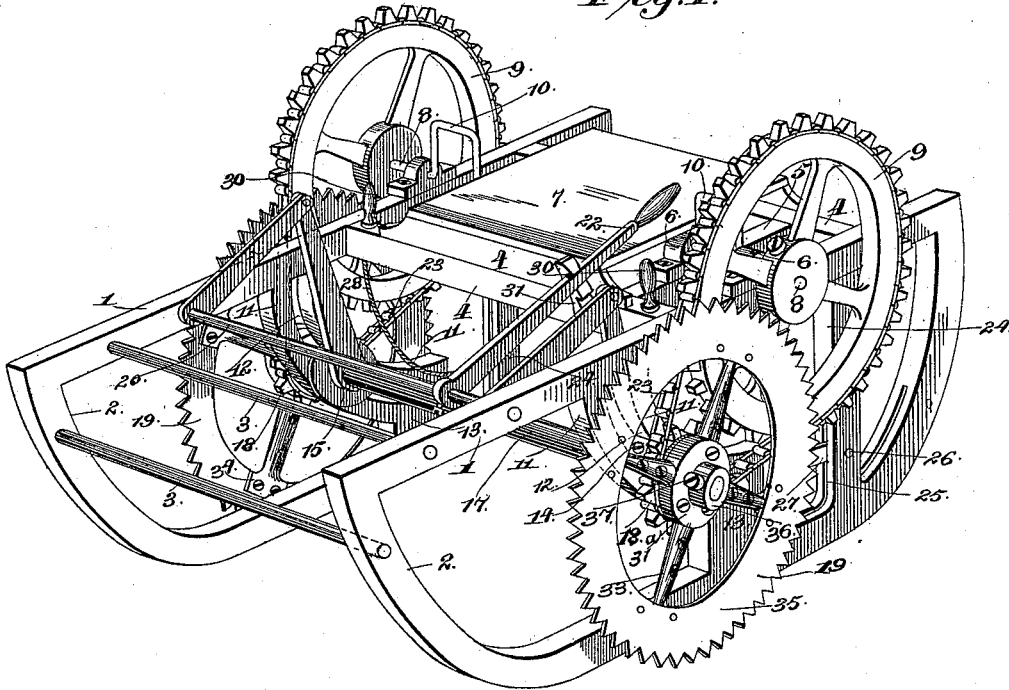
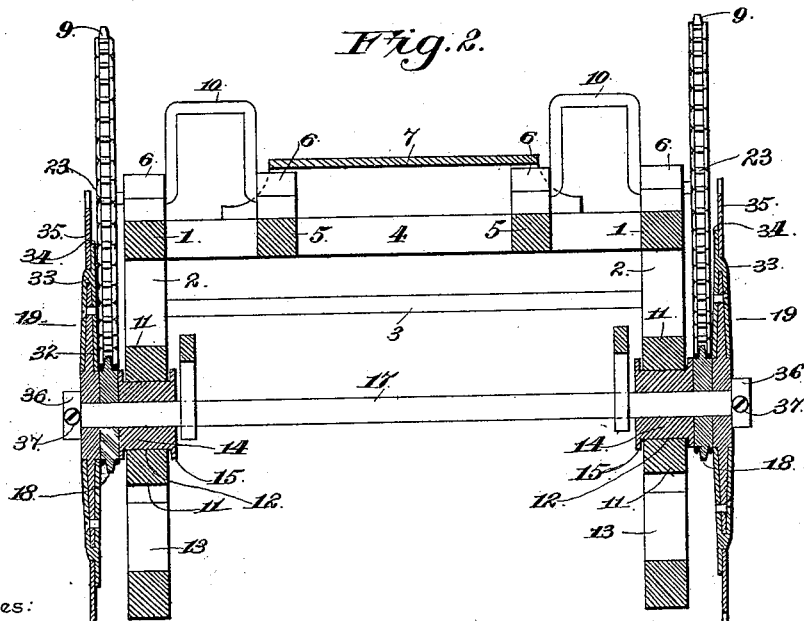


Fig. 2.



Witnesses:

M. Fowler
W. Howard

By *His Attorneys,*

C. Snow & Co.

Inventor

James C. Robertson

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Fig. 3.

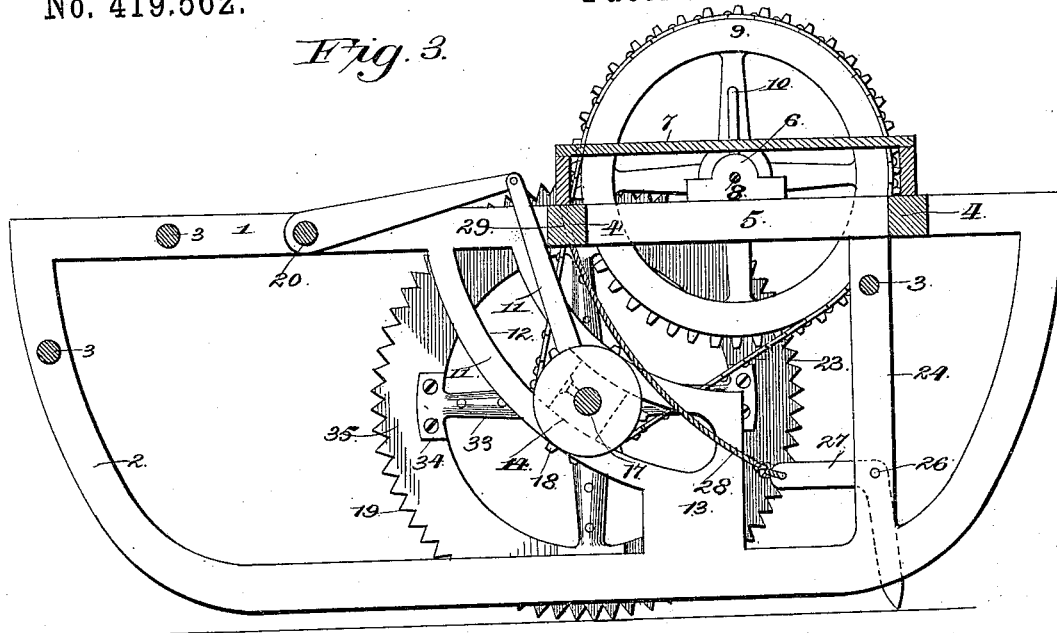
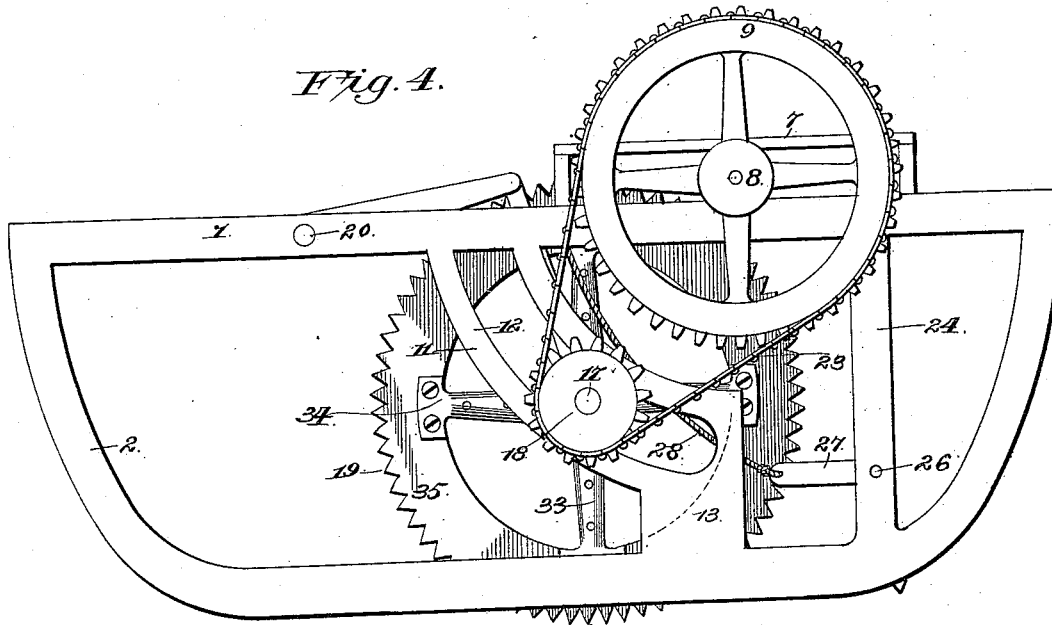


Fig. 4.



Witnesses

M. C. Fowler

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W. S. Lowell

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Inventor

James C. Robertson

UNITED STATES PATENT OFFICE.

JAMES C. ROBERTSON, OF PHILIPSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO ROBERT KERR AND ROBERT E. KERR, OF SAME PLACE.

SLED.

SPECIFICATION forming part of Letters Patent No. 419,562, dated January 14, 1890.

Application filed October 10, 1889. Serial No. 326,552. (No model.)

To all whom it may concern:

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

This invention has relation to sleds of that class adapted to be propelled by hand; and the objects and advantages of the invention will hereinafter appear, and the novel features thereof be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a perspective of a sled constructed in accordance with my invention. Fig. 2 is a transverse section. Fig. 3 is a longitudinal section; Fig. 4, a side elevation, the drive-wheel removed.

Like numerals of reference indicate like parts in all the figures of the drawings.

1 1 represent the opposite parallel side rails, to each of which is secured the runner 2, the runners and side rails being bolted together by means of tie-bars 3, arranged at suitable distances apart.

4 represents parallel transverse bars located near the rear end of the sleigh, and which are connected by means of short longitudinal bars 5. Bearing-boxes 6 are mounted upon the short longitudinal bars 5 and align with similar boxes 6, mounted upon the side bars 1, thus forming a pair of bearing-boxes at each side of the seat 7, which is mounted upon the transverse bars 4. In each pair of bearing-boxes 6 there is journaled a shaft 8, the outer ends of which are extended outside of the side rails or bars 1 and there provided with a sprocket-wheel 9, the intermediate portions of said shafts—that is to say, those portions occurring between their bearings—being cranked to form driving-handles 10. From the rails 1 in front of the sprocket 9 depend a pair of curved bars 11, said bars being parallel and forming an intermediate quadrant-shaped slot 12, terminating above the runners in a standard 13. In each of the slots 12, which are concentric with the centers of the sprockets 9, there is mounted a box 14, the opposite ends of which are flanged, as at 15, so as to embrace the opposite sides of the bars 11. A

bearing 16 is formed in each of the boxes, and the two boxes are connected by a shaft 17, upon the ends of which which project beyond the boxes are mounted small sprockets 18 and drive-wheels 19, the small sprockets and drive-wheels being bolted together and adapted to move in unison, and both being loosely mounted upon the shaft 17. Near the front of the sleigh there is located a rock-shaft 20, which by opposite pairs of toggle-levers is connected with the shaft 17, and from the shaft 20 there projects a hand-lever 22, the free end of which is within easy grasp of the occupant of the seat. A sprocket-chain 23 connects the large gears 9 with the small pinions 20, so that by operating the cranks the pinions 9 are rotated and impart motion to the small pinion, and they being rigid with the propelling-wheel, the peripheries of which are toothed and in contact with the ice, said propelling-wheels are also rotated, and thus propel the sleigh at a greatly-increased speed over the movement of the sprockets 9. By raising and lowering the lever 22 the boxes 14 are raised and lowered, and likewise the propelling-wheels, and thus the latter are thrown into and out of operation.

A rear standard 24 is located between each of the rails 1 and its runners, and the latter—that is, the runner at each side of the sleigh—is in this instance curved at its rear end, as shown. A slot 25 is formed in the curved portion of the runner, and also in the standard 24, and in the slots there are pivoted, as at 26, bell-crank brakes 27, the brake ends of which terminate in points and extend outside of the slots 25. The inner ends of each of the runners are connected with operating cords or wires 28, which extend up through openings 29, formed in the front 1 of the cross-bars 4 and at each side of the seat 7, and terminate in handles 30.

The propelling-wheel governing-lever 22 may be maintained at any desired angle by means of a rack-bar 31, located in this instance on the forward one of the cross-bars 4.

The operation of my invention is as follows: By rotating the cranks either together or alternately, motion as before described

will be imparted to the propelling - wheels, which are maintained in contact with the ice by lowering the lever 22 sufficiently and securing the same in the rack. By operating only one of the cranks it is apparent that the sleigh may be guided in either direction, and by operating one crank in one direction and the other crank in the opposite direction very short turns may be made. In coasting, the lever 22 is elevated so as to raise the propelling - wheels out of contact with the ice, and the brakes are depended upon for guiding and stopping the sleigh, the brakes acting to guide in the same manner as are the wheels, as is well known in this class of sleighs. The propelling-wheels each comprise a hub 31^a, from which radiate spokes 32, each of which is fitted with a metal thimble or socket 33, terminating at its outer end in a flat plate 34, bolted to the serrated or toothed rim 35.

36 represents opposite collars secured to the extremities of the shaft 17 by means of set-screws 37.

Having described my invention, what I claim is—

1. In a sleigh, the combination, with the sides thereof provided with bearings, of opposite cranks mounted in the bearings, sprockets mounted on the cranks, a transverse shaft mounted in the sides of the sleigh, propelling-wheels mounted on the shaft, small sprockets mounted at the sides of the propelling-wheels and rigid therewith, and a sprocket-chain connecting the large and small sprockets, substantially as specified.

2. In a sleigh, the combination, with the sides provided with bearings and inclined ways, of opposite cranks mounted in the bearings, large sprockets mounted on the cranks, movable boxes mounted in the ways, a transverse shaft mounted in the boxes, ground-wheels loosely mounted on the shaft, small sprockets mounted on the shafts and rigid with the wheels, chains connecting the large and small sprockets, a rock-shaft mounted in the sides and connected by toggle-levers to the transverse shaft, and a lever mounted on the rock-shaft for operating the same, substantially as specified.

3. The combination, with the sides having the standards 24 and a slot formed in the standards and runners, of bell-crank brakes pivotally mounted in the slots and having their outer ends adapted to be projected outside of the slots, cords connected to the inner ends of the brakes, and terminating in handles and supported in proximity to the seat, substantially as specified.

dles and supported in proximity to the seat, substantially as specified.

4. The combination, with the sides 1, having the runners 2, the short standards 13, and the depending curved bars 11, forming the quadrant-shaped slot 12, of the boxes 14, having opposite flanges 15, embracing the sides of the bars, and bearings 16, the shaft 17, mounted in the bearings and carrying the propelling-wheels, the shaft 20, mounted in the bars 1, the toggle-levers 21, connecting the two shafts, the lever 22, and the rack-bar for locking the lever, substantially as specified.

5. The combination, with the sides 1, connected by the transverse bars 4 and the short longitudinal bars 5, and the bearings 6, mounted upon the bars 5 and 1 and in line with each other, of the seat 7, the independent shafts 8, having the large gears 9 and cranked intermediate their bearings, as at 10, the propelling-wheels, and means for connecting the same with the large sprockets, substantially as specified.

6. The combination, with the side rails 1, having the forward transverse bar 4, perforated, as at 29, and the runners 2, curved at their rear ends, and the vertical standards 26, said standards and runners having a slot 25 in line with each other, of the bell-crank brakes 27, the free ends of which are adapted to be projected below the base of the runners outside of the slots, and the cords 28, projected through the openings 29 and terminating in handles 30, and connected at their rear ends to the inner ends of the brakes, substantially as specified.

7. The drive-wheel for sleds herein described, consisting of a central hub, radiating arms, sockets mounted on the ends of the arms and terminating in flattened plates, and the toothed rim bolted to the plates, substantially as specified.

8. In a sleigh, the sleigh-frame having the runners, the sleigh-propelling wheels, the driving-shaft 17, the rock-shaft 20, the opposite pairs of toggle-levers connecting the rock-shaft with the driving-shaft, and the operating hand-lever 22, connected to the rock-shaft, as and for the purpose set forth.

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

JAMES C. ROBERTSON.

Witnesses:

ROBERT KERR,
WM. E. IRWIN.