T. R. BRIEN.

HAND SLEIGH AND SLED.

APPLICATION FILED JUNE 21,

1,303,632. Patented May 13, 1919.

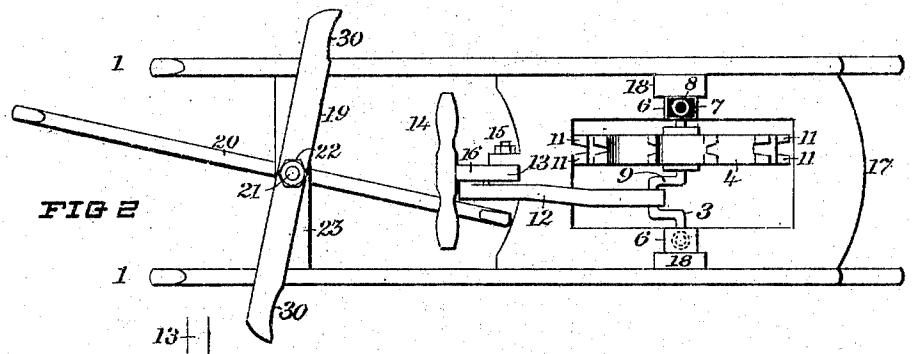

FIG 2

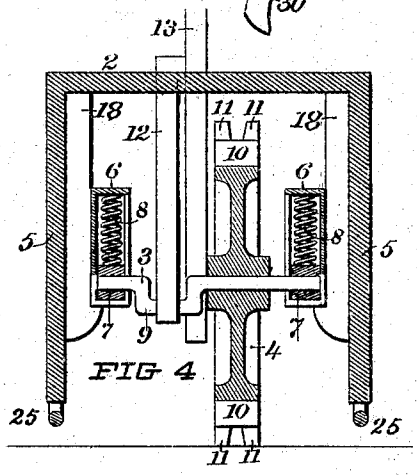

FIG 4

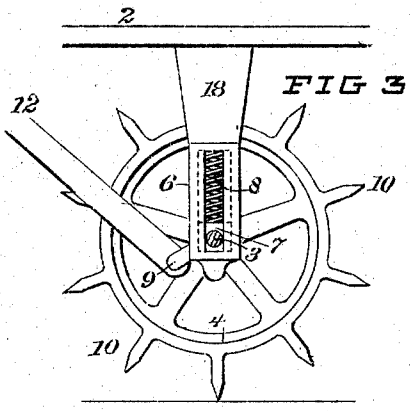

FIG 3

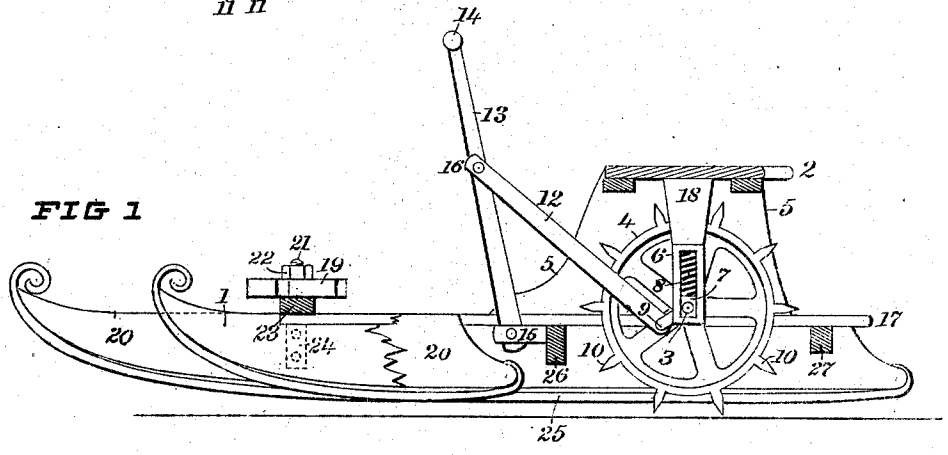

FIG 1

WITNESSES

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HAND SLEIGH AND SLED.

1,303,632. Specification of Letters Patent. Patented May 13, 1919.

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To all whom it may concern:

Be it known that I, THEODORE R. BRIEN, a citizen of the United States, residing at the town of Westfield, in the county of Hampden and Commonwealth of Massachusetts, have invented certain Improvements in Hand Sleighs and Sleds, which improvements I have designated Sled-Propelling Devices, for the special reason that they are specially adapted to propel sleds or sleighs over ice surfaces and snow-paths; and I hereby declare that the following description, in connection with the accompanying drawing, constitutes such a specification thereof as will enable others skilled in the art to which it relates to make and use the same.

The invention relates to hand sleds or sleighs, and has for its main object to furnish such sleds with means whereby the same may be propelled and guided by the operator over level ice and unobstructed snow-paths by manual or foot power or both.

The invention is fully illustrated in the drawings wherein Figure 1 shows a side elevation of my ice-cycle with parts broken away to show the construction of the internal parts. Fig. 2 is a plan of my invention with the seat removed to expose the spur-wheel, its bearings and driving attachments. Fig. 3 is a side elevation of the spur-wheel and one of its bearings in position in its bearing case. Fig. 4 is a vertical transverse section of the invention, taken on the axis of shaft 3.

This invention, strictly speaking is a "vehicle" adapted to be propelled by the hands of the rider and to be steered with his feet. It is provided with two ordinary runners 1, 1, and a steering runner 20. This steering runner is pivoted on a cross-beam 23 and can be swiveled or turned thereon either to the right or left by the foot-bar 19 which is provided with a foot-hold 30, at each end thereof. Runner 20 is approximately about one-half the length of the side runners and is pivoted well forward of the middle of the sleigh. This position renders its control and direction by the rider very easy and sensitive. Back of the middle of the sleigh its runners are carried up high enough to furnish a seat 2, for the operator, and the structure thus resulting forms a snug inclosure or housing for the spur-wheel 4, and its appurtenances.

The wheel 4 is of metal and is provided with vanes 10, 10, which are split in the center radially so as to leave two spurs, 11, 11, for each vane. These spurs are each drawn to an edge similar to the edge of a cold chisel and are the devices which engage the ice when the machine is in use. This wheel is rigidly fixed on the axle shaft 3, which is cranked at 9 as shown in Figs. 2 and 4, to take on the pitman 12, as seen in Figs. 1 and 2.

The axle bearings 7, 7, which carry the axle journals, are held in cases 6, 6, which are attached to furrings 18, 18 and project from the insides of the housing 5, Fig. 1. These bearings are rectangular in form and the cases 6, 6, are of similar shape so that the bearings can play up and down freely but their square shape will prevent their turning within the cases. Each case is of sufficient vertical capacity to admit a coiled spring in the space between the bearing and the dome of the case, said springs 8—8 being of an expansive nature impinge, at their upper ends, against the under side of the upper wall of the cases 6—6 and at their lower ends against the axle bearings 7—7. Thus, when the parts are assembled as in Fig. 3, the spurs of the wheel will rest on the surface of the ice and the expansive force of the springs will force the body of the ice-cycle off its base into the position seen in Fig. 1. When the rider takes his seat his weight will press the vehicle down until the shoes 25, 25, rest upon the ice or snow-path, as the case may be, when he can start up the vehicle.

The frame of this vehicle has transverse beams 23, 26 and 27, for supporting the main deck 17, and the steering bar 19. Hounds 15 are attached to the front of beam 26 between which the hand-brake 13 is pivoted. This hand-brake has a handle 14 at its upper end by which the brake 13 can be oscillated by the driver. A pitman 12 connects brake 13 with the axle crank 9 by means of which rotary motion can be imparted to the spur-wheel.

The runners are shod with metallic shoes which are round or half-round in cross-section and are fitted to the runners so that the parts which will be tangential to the ice or snow will be the lowest portions of the shoes. This is clearly seen in Fig. 1. In the construction and adjustment of the steering runner, it is the design that the principal part of the bearing surface of the shoe shall

come a little in rear of the pivot of the steering bar. This position of the steering runner favors its easy turning about its pivot to keep its prescribed course.

When this ice-cycle stands at rest unloaded, the expansive force of the springs 8, 8, lifts the rear part of the vehicle off the track so that it stands in the air, resting on the spurs of the wheel, but when the rider takes his seat his weight compresses and thus contracts the springs and the spur-wheel through the spurs 10, 10, takes a firm bite on the ice. The driver then seizes the handle 14 of the lever 13 and settling his feet in the foot-holds 30, 30, is ready to go ahead. If the pitman 12, or its connections 16, crank-wrist 9 and the crank axle 3, happen to stop on dead center, a slight push by the hand or foot will overcome the inertia after which the brake-lever can be easily worked, as very little power or momentum is necessary to propel a load on ice or a fair snow track.

I therefore declare as my invention and desire to secure by Letters Patent, the following:

1. The combination in a vehicle having a pair of sleigh runners, of a steering member pivoted on the sleigh midway between and to the rear of the forward end of the runners, said steering member having a bearing with the track only to the rear of its pivot.

2. The combination in a vehicle having a pair of sleigh runners, of a single steering runner pivoted on the sleigh midway between and to the rear of the forward end of the sleigh runners, said steering runner being spaced from the track to the front of its pivot.

3. In a vehicle of the class described, the combination of a sled, of a driving wheel and axle, and means for driving them, rectangular bearing blocks in which said axle is journaled, rectangular casings provided with a slotted opening in only one face thereof to permit the passage of the axle, said blocks slidably arranged wholly within the casing to permit only a vertical movement of the axle as an entirety, expansive springs within said casings above said blocks, and means for steering said vehicle substantially as described.

In testimony whereof, I have hereunto subscribed my name in the presence of two witnesses.

THEODORE R. BRIEN.

Witnesses:
EMILY SCOTT,
FRANKLIN SCOTT.