(No Model.)

W. S. MARBLE.

SLEIGH.

No. 383,401. Patented May 22, 1888.

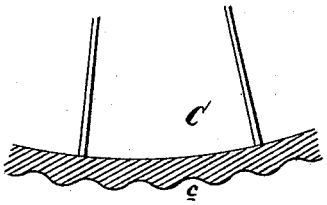

FIG. 4

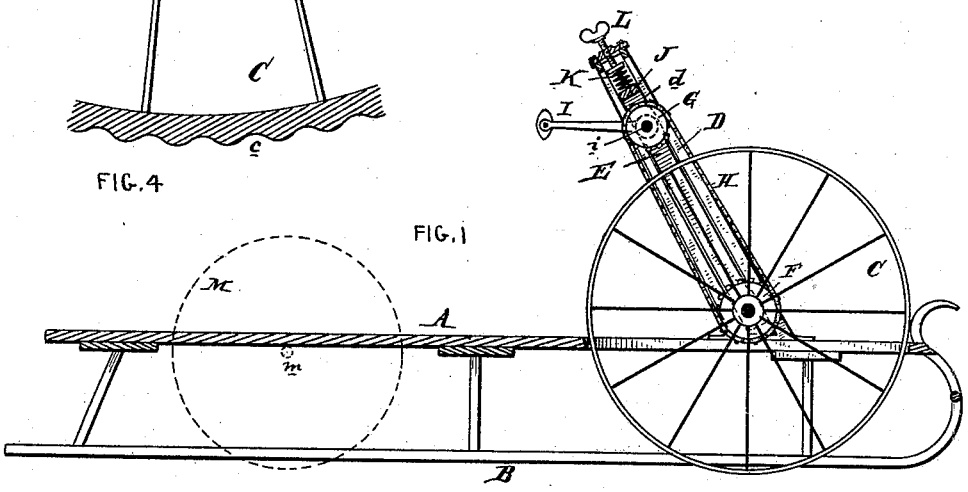

FIG. 1

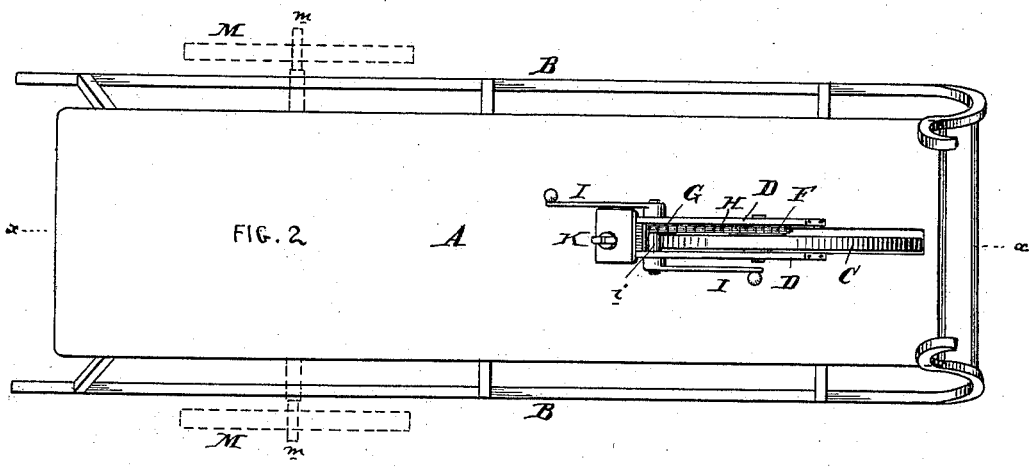

FIG. 2

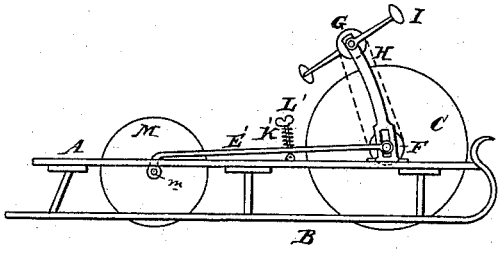

FIG. 3

Attest:
Henry Drury
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Inventor:
Wm. S. Marble,
By his Atty.
W. W. Thomas

UNITED STATES PATENT OFFICE.

WILLIAM S. MARBLE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO CHARLES J. SPIELBERGER, OF SAME PLACE.

SLEIGH.

SPECIFICATION forming part of Letters Patent No. 383,401, dated May 22, 1888.

Application filed December 30, 1887. Serial No. 259,370. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. MARBLE, of the city and county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Sleighs, of which the following is a specification.

My invention relates to sleighs; and it consists of certain improvements which are fully set forth in the following specification and shown in the accompanying drawings, which form a part thereof.

The object of my invention is to provide a sleigh with means of propulsion, so that the person seated upon it may propel it, thus doing away with the necessity of external means of drawing or pushing, as are now required. To accomplish this end I combine with my sled a wheel or wheels and means to rotate one of said wheels by which the motion is imparted to the sleigh, as will appear more clearly by a reference to the drawings, in which—

Figure 1 is a sectional elevation of my improved sleigh through the line *x x* of Fig. 2. Fig. 2 is a plan view of sleigh embodying my invention. Fig. 3 is a side elevation of a sleigh showing a modification of my invention, and Fig. 4 is a section view of a small portion of the motive wheel.

A is the body or top board of the sleigh, having the usual runners, B, secured thereto. This top board need not extend entirely the length of the runners.

C is a motive wheel, preferably located in the front part of the sleigh and extending through a slot or opening in the top board, A.

D are upright guides, preferably on a slight incline, in the slots *d* of which upright shaft-carrying frame E is guided. To this frame are journaled two sprocket-wheels, F and G, at its lower and upper extremities, respectively. The lower sprocket-wheel, F, is concentric with the hub of the motive wheel C and secured to it, so that motion imparted to the sprocket-wheel F will cause the wheel C to rotate accordingly.

H is an endless band or chain passing about the two sprocket-wheels F and G.

I are cranks secured by shaft *l* to the sprocket-wheel G. The upper end, J, of the upright frame E is held within the guides D, and a spring, K, is used to allow the frame E to automatically rise and fall in the guides D, carrying with it the wheel C.

L is an adjusting-screw to regulate tension of the spring K, and hence the action of the wheel C relatively to the runners B and ground.

It is intended that the weight upon the sleigh should be just sufficient to make the circumference or tire of the wheel C even or substantially even with the runners B. When the power is applied through the crank-arms I, the wheel C is rotated, which causes the sleigh to move rapidly, as the friction of the runners upon the snow is slight. The spring J will allow a rising and falling motion of the sleigh or wheel to compensate for the unevenness of the ground. To increase the propelling effect, the circumference of the wheel C may be provided with corrugations or roughnesses *c*— for instance, as shown in Fig. 4.

If desired, additional wheels M, journaled on an axle, *m*, as shown in dotted lines of Figs. 1 and 2, may be used, and the sleigh may then be utilized without the presence of ice or snow upon the ground, as these wheels M would take the place of the runners B, and the wheel C would be so adjusted by the spring J as to preferably raise the runners from the ground in the front of the sleigh also.

The spring K allows for a certain freedom of movement of the wheel C relative to the sleigh-body, and the friction between the wheel C and ground or snow, and also between the runners B, and ground or snow, is regulated by the screw L. In Fig. 3 is shown a modification of my apparatus. In this case the wheel C is hinged to the sleigh-body by arms E′, journaled at *m*, and held down by spring K′, whose tension is adjusted by thumb-nut L′. The wheel C may be driven by sprocket-wheels F G, chain H, and cranks I, as before. These cranks I may be operated by the feet as well as by the hands.

While I prefer the details of construction here shown, they are not to be considered limitations of my invention, as they may manifestly be varied in many ways without departing from it.

Having now described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

1. In a sleigh, the combination of a top board having runners attached thereto, a wheel located in the front part of said sleigh between the runners and extending through said top board, means, substantially as described, to allow said wheel to automatically rise and fall, a crank or handle carried upon the same support as the wheel, but located above it and free to rise and fall with it, to rotate said wheel, and mechanical power-transmitting connections between the crank and wheel, whereby the sleigh may be propelled.

2. In a sleigh, the combination of a top board having runners attached thereto, a wheel located in the front part of said sleigh between the runners and extending through said top board, means, substantially as described, to allow said wheel to automatically rise and fall, a crank or handle carried upon the same support as the wheel, but located above it and free to rise and fall with it, to rotate said wheel, and mechanical power-transmitting connections between the crank and wheel, whereby the sleigh may be propelled, and axles for removable wheels located in the back part of the sleigh.

3. In a sleigh, the combination of the top board, A, having runners B, the wheel C, guides D, upright frame E, guided in said guides D, sprocket-wheel F, journaled to said upright bar E and connected with the wheel C, sprocket-wheel G, journaled to said upright bar, crank-arms I, and endless chain H.

4. In a sleigh, the combination of the top board, A, having runners B, the wheel C, guide D, upright frame E, guided in said guides D, sprocket-wheel F, journaled to said upright bar E and connected with the wheel C, sprocket-wheel G, journaled to said upright bar, crank-arms I and endless chain H, and spring J.

5. In a sleigh, the combination of the top board, A, having runners B, the wheel C, guide D, upright frame E, guided in said guides D, sprocket-wheel F, journaled to said upright bar E and connected with the wheel C, sprocket-wheel G, journaled to said upright bar, crank-arms I and endless chain H, spring J, and adjusting-screw L.

6. A sleigh-body combined with a drive-wheel connected to the forward end thereof with freedom of upward movement, a spring device, substantially as described, to press said wheel down toward the runners, power-transmitting devices, substantially as set out, to rotate said drive-wheel, and free to move upward with said wheel, and adjusting mechanism to adjust the tension of the spring.

7. A sleigh-body combined with a drive-wheel connected to the forward end thereof with freedom of upward movement, a spring device, substantially as described, to press said wheel down toward the runners, extending backward toward the rear of the sleigh, and power-transmitting devices journaled upon the same support as the wheel, but above it, and having freedom of upward movement with it, to rotate said drive-wheel.

In testimony of which invention I hereunto set my hand.

WILLIAM S. MARBLE.

Witnesses:
E. M. BUCKMIELD,
ANDREW ZANE, Jr.