R. SCHLÜTER.
Propeller-Sleigh.

No. 209,083. Patented Oct. 15, 1878.

Fig. 1.

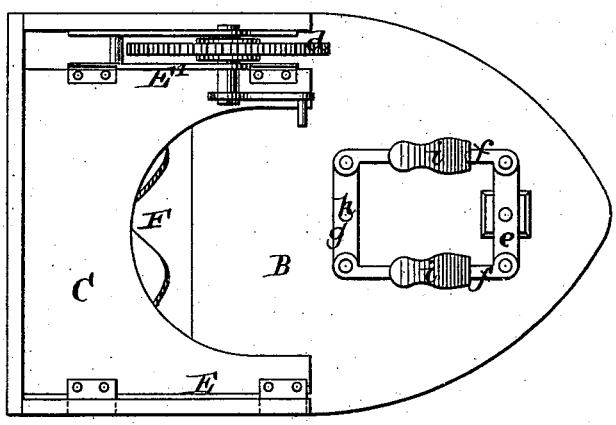
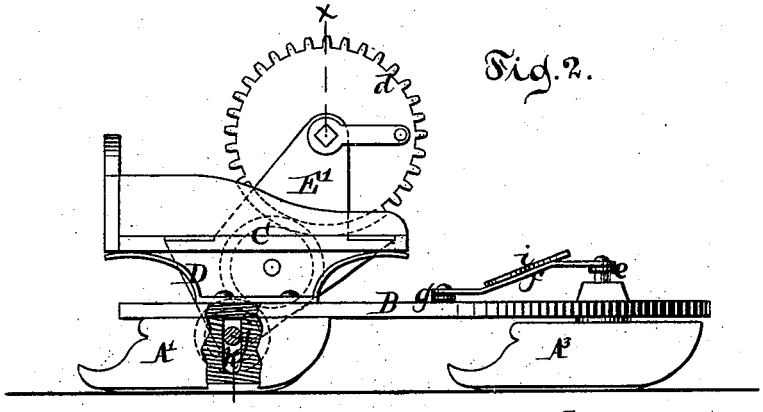
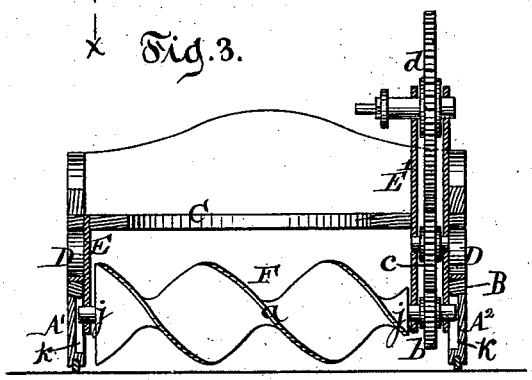


Fig. 2.



x Fig. 3.



Witnesses.
Chas. Wahlers.
W. C. Hauff

Inventor.
Rudolph Schlüter
by his Attys.
Van Santvoord & Hauff

UNITED STATES PATENT OFFICE.

RUDOLPH SCHLÜTER, OF NEW YORK, N. Y.

IMPROVEMENT IN PROPELLER-SLEIGHS.

Specification forming part of Letters Patent No. **209,083**, dated October 15, 1878; application filed September 18, 1878.

To all whom it may concern:

Be it known that I, RUDOLPH SCHLÜTER, of the city, county, and State of New York, have invented a new and useful Improvement in Propeller-Sleighs, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a plan or top view. Fig. 2 is a side elevation, partly in section. Fig. 3 is a transverse section in the plane *x x*, Fig. 2.

Similar letters indicate corresponding parts.

The invention consists in an improved combination of devices for driving and steering propeller-sleighs, as will be hereinafter particularly set forth.

In the drawing, the letters A^1 A^2 A^3 designate the runners of my sleigh, two of which are situated on the rear part thereof and one in front. On these runners rests a platform, B, to which the rear runners are secured, while the front runner is pivoted thereto.

C is the seat, and D D are its supporting-springs, which are secured to the opposite edges of the platform B, and in the example shown are composed of flat strips of metal.

To the seat C are secured two brackets, E E′, which extend downward within the rear runners, A^1 A^2, and form the bearings for the propelling-roller F, which is arranged transversely with respect to the platform B. This roller is formed of or provided with a spiral ridge or blade, *a*, to penetrate the ice on which my sleigh is used, and on its shaft is secured a cog-wheel, *b*, which is geared with a driving-wheel, *d*, through an intermediate wheel, *c*. The wheels *c d* have their bearings in the bracket E′. The shaft *j* of the roller F is guided in slots *k* formed in the runners A^1 A^2.

When the seat C is unoccupied the propelling-roller F is held a short distance above the ice or other surface supporting the sleigh by the action of the seat-supporting springs D; but when it is occupied the weight of the person or persons seated thereon causes the seat to sink down, and by this means the propelling-roller is brought in contact with the ice. If the driving-wheel *c* is then turned, the sleigh is moved forward or backward, as the case may be.

I have found that the propelling effect of a spiral blade or ridge simply in contact with or very slightly penetrating the surface of the ice is in the direction of its diameter, instead of in an axial direction, as when the said blade is submerged.

The pivot of the front runner, A^3, extends up through the platform B, and to its upper end is secured a double-armed lever, *e*, which is connected by means of link-bars *f f* to a second double-armed lever, *g*, pivoted to the platform, as at *h*.

The link-bars *f f* are provided with pedals *i*, to receive the feet of the occupant of the seat C. By moving the link-bars *f f* to and fro the levers *e g* and the front runner, A^3, partake of their movement, and hence the front runner can thereby be readily adjusted to steer the sleigh in the desired direction.

The driving mechanism herein described may be changed, and such mechanism may, moreover, be arranged on both of the brackets E E′ without departure from my invention.

I am aware that propelling-rollers having spurs or teeth have been used in sleighs; but the spurs or teeth of such rollers are liable to wear or become broken after short use—a disadvantage which is overcome by the construction of my propelling-roller.

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

1. The combination, with a sleigh having ordinary runners, of a driving-roller provided with a spiral ridge or blade, and arranged transversely with respect to the course of the runners, and suitable mechanism for rotating said roller, substantially as described.

2. The combination, with the pivoted front runner, of two double-armed levers, one of which is secured to the pivot of the runner and the other to a pivot fastened in the platform of the sleigh, and two link-bars, which are pivoted to the ends of the double-armed levers, and to which are secured suitable pedals, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I hereunto set my hand and seal this 14th day of September, 1878.

RUDOLPH SCHLÜTER. [L. S.]

Witnesses:

RICHD. KOCH,

W. HAUFF.