T. Chapin.
Ice Boat.

No. 919. Patented Sept. 14, 1838.

Fig. 1.

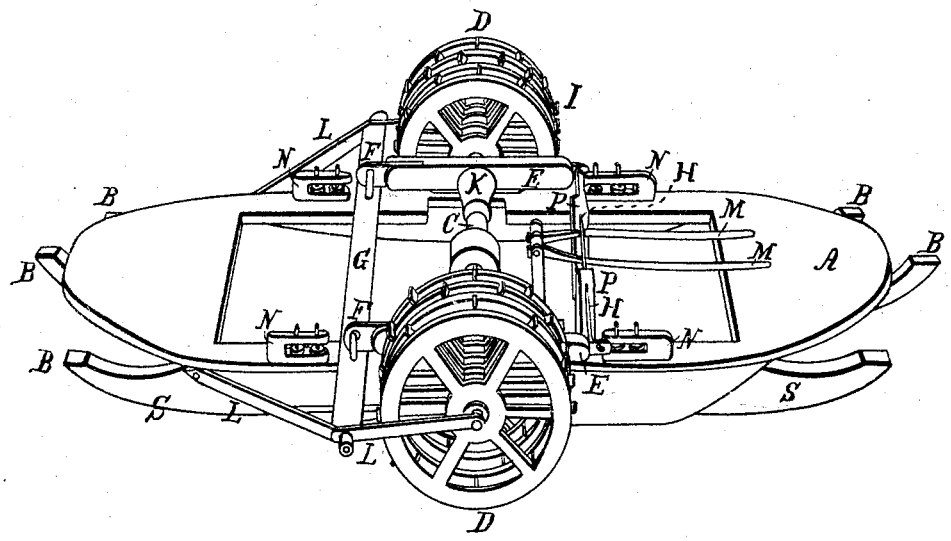


Fig. 2.

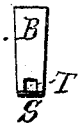


Fig. 3.

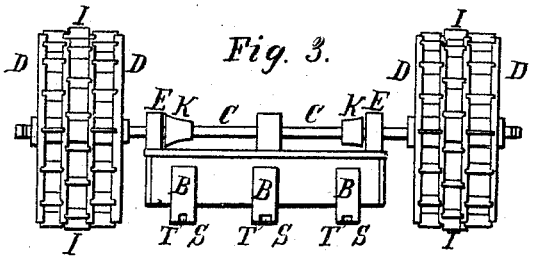
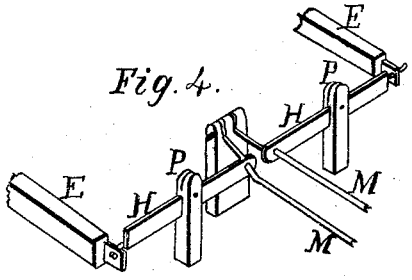


Fig. 4.



UNITED STATES PATENT OFFICE.

THADDEUS CHAPIN, OF CANANDAIGUA, NEW YORK.

BOAT FOR TRAVELING ON ICE.

Specification of Letters Patent No. 919, dated September 14, 1838.

To all whom it may concern:

Be it known that I, THADDEUS CHAPIN, of Canandaigua, Ontario county, State of New York, have invented a new and useful Machine for Traveling Over Ice by Steam or other Power, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 perspective view. Fig. 2 section of runner. Fig. 3 transverse section. Fig. 4 perspective view of levers.

The nature of this invention consists in placing a shaft across a boat or body supported by runners and fixing two wheels on said shaft in the manner of steam boat wheels which are to act on the ice by steam or other power applied as in propelling boats, through the agency of cranks, pulleys, bands, &c., which wheels are roughened on their traveling surfaces or treads in any suitable manner by points or depressions or otherwise to prevent their slipping around on the ice and to cause them to lay hold of it and propel the boat and are made wide to avoid the danger of breaking through the ice, or narrow in order to cut through deep snow to reach the ice and are so arranged as not to raise the whole sleigh with the boat or body and its load from the ice but just so as to take sufficient hold of it by means of their roughened treads, the crank shaft being so arranged in movable boxes that by means of levers one or the other wheel may be alternately raised from the ice for the purpose of steering—or the whole shaft with both wheels may be raised. And on the crank shaft is a windlass, around which may be wound a strong rope fastened to a fixed object on the ice or on land for drawing the boat from the water upon the ice or for other purposes—the rope passing through suitable guide blocks. And in having channels in the runners between them and the shoes for the purpose of receiving steam from the engine for the purpose of thawing the ice under the shoes when about to start. Likewise in applying the machine for various purposes such as drawing trains of sleighs with boat shaped or water tight bodies. But in this as well as the foregoing application the propelling wheels do not support the whole boat as on rail-roads, but are principally designed as propellers and are not prevented from slipping around by weight and friction, but by having their treads roughened in such a manner as to take hold of the ice by their own weight—aided, however, by springs, or levers, or weight if necessary.

Further to illustrate this invention reference may be had to the annexed drawings of the same, making part of this specification, in which—

A′ represents the boat or body to contain the load which is constructed after the best models for the purpose intended and of the requisite capacity to contain the propelling engine, steam boiler, cabin, &c. On the under side of this boat or body are fastened two, three, or more parallel runners B upon which the boat is sledded for sliding over the ice, or this boat may be made separate and secured upon the sleigh by suitable fastenings.

The bottom of the runners are shod with iron shoes S and where the shoes unite with the runners there are formed channels T Fig. 2 in the runners to admit steam from the boiler, or the waste steam conveyed by suitable pipes for heating the shoes and consequently thawing the ice about them when about to start.

C, represents the shaft containing the propelling wheels for propelling the machine.

D, D, represents the propelling wheels constructed in the manner represented in the drawing with parallel circular ribs placed at a suitable distance apart to form a wheel of extended surface to lessen the danger of breaking through the ice and having their plates placed and secured between said ribs projecting a little beyond the peripheries of the wheel for taking hold of the ice when traveling over it and for acting as paddles in the manner of steam boat wheels should the machine break through the ice. But in case the ice should be covered with snow thin wheels may be used with their treads roughened in any suitable manner. E, E, movable timbers containing the boxes in which the crank shaft turns—one end of each piece of timber moving on the loose joint F supported on a cross timber G secured transversely on the top of the boat in front of the wheels—the other ends of the said timbers E being attached to the ends of two levers H, H, lying crosswise of the vessel whose fulcra are posts P, P,—the other end of said levers being attached to two levers M, M, lying at right angles to them for raising or lowering the levers H,

H, with the movable timbers E and the crank shaft and wheels. K, K, bell shaped blocks or windlasses fastened on the crank shaft around which may be wound a line extending from some fixed object on the ice or on shore around guide pulleys N for drawing the boat from the water upon the ice when required.

Suitable braces L extend from the extremities of the shaft to the ends of a cross beam and from thence obliquely to the stern of the boat.

From the foregoing it is seen that the crank shaft being put in motion by the steam engine, or other power, turns the wheels, which take hold of the ice and propel the boat, the steering being performed by simply bearing down or raising lever M which raises or lowers lever H and with it the movable timber E, and of crank shaft and wheel D, or the steering may be performed by a common rudder or wheel and rudder or in any convenient mode.

The invention claimed and desired to be secured by Letters Patent consists—

In the combination of a boat, or other water tight body, supported on sleigh runners, with a shaft, and wheels roughened on their treads, turned by steam, or other power, for propelling the same over ice, as before described; or constructed in any other mode embracing the same principles.

THADS. CHAPIN.

Witnesses:

JACOB S. KELLER,

OLIVER PHELPS.