

V. H. Hallock,

Ice Cutter.

No. 10,1613.

Patented Apr. 5, 1870.

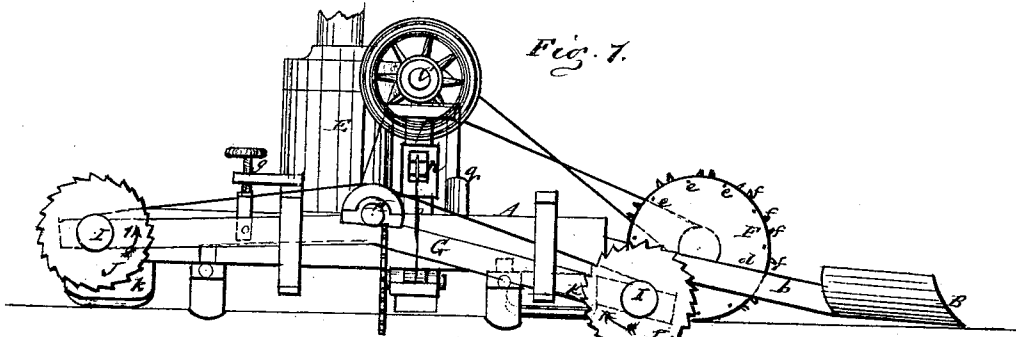
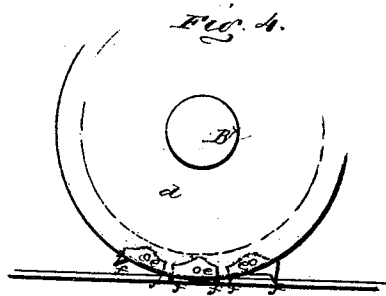
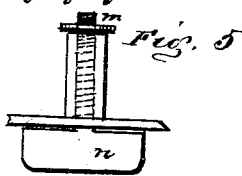
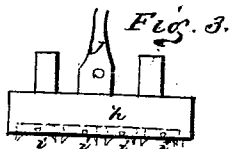
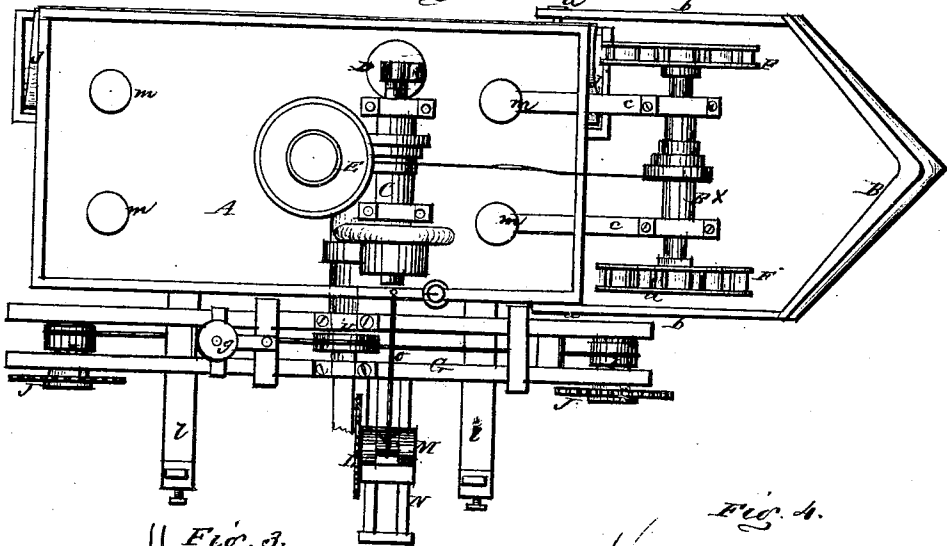


Fig. 2.



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VALENTINE H. HALLOCK, OF QUEENS, NEW YORK, ASSIGNOR TO HIMSELF,
CURTIS STANTON, AND JAMES R. DIXON, OF NEW YORK CITY.

Letters Patent No. 101,613, dated April 5, 1870.

IMPROVEMENT IN ICE-CUTTING MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, VALENTINE H. HALLOCK, of Queens, in the county of Queens and State of New York, have invented a new and improved Machine for Cutting Ice for storage and other purposes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

This invention relates to a new and improved machine for cutting ice on ponds, rivers, and lakes, for filling ice-houses, and is designed to supersede the ordinary ice-cutting machines or "plows" now in general use for such purposes.

The invention consists in the employment or use of rotary saws or cutters, so arranged as to be driven by the same motor that propels the machine along on the ice, whereby the speed of the rotation of the saws or cutters may at all times be commensurate with that of the propelling movement of the machine, and the latter made to travel only as fast as the ice is cut, thereby economizing in power, and avoiding much wear and tear in the operation of the machine.

In the accompanying sheet of drawing—

Figure 1 is a side view of my invention.

Figure 2, a plan or top view of the same.

Figure 3, a detached view of a part pertaining to the same.

Figure 4, a detached and enlarged side view of one of the propelling devices.

Figure 5, a detached view of one of the elevating devices.

Similar letters of reference indicate corresponding parts in the several figures.

A represents the frame or body of the machine, which may be of rectangular form, and constructed in any suitable way to support the working parts.

To each end of the frame or body there are attached by pivot bolts *a*, at each side, parallel bars *b b*, to the outer ends of which V-shaped scrapers B are secured to clean the surface of the ice and free it from obstructions. Only one of these scrapers is shown, that being sufficient, as the two are precisely alike.

As only one of the scrapers is in use at a time, the idle one may be adjusted upward, out of the way.

At one end of the frame two horizontal bars *c c* project, in which the bearings of a horizontal shaft, B^x, are fitted.

This shaft receives its motion from a shaft, C, which is driven by a steam engine, D, on the frame A, the boiler E of said engine also being on the frame.

The shaft B has two propelling devices F F upon it, which are constructed as follows:

In peripheries of the two wheels *d d* there are grooves, in which a series of creepers or calks are secured by pivots *e*, the latter passing through the centers of the creepers or calks.

Each creeper or calk has a projecting spur, *f*, at each end, and these spurs, as the wheels rotate, engage with the ice and propel the machine along.

The operation of these propellers is important, and should be clearly understood, for the efficiency of the machine is mainly dependent upon them. They differ widely from fixed spurs projecting from the peripheries of a wheel, for, in the latter case, the ice is broken or chipped out by a prying action, whereas, in my improvement the creepers or calks press square down upon the ice; and as the spurs of one creeper leave the ice the spurs of the creeper ahead of it enter.

There is no upward prying or chipping out of the ice, a result which is avoided by the pivoting of the creepers or calks in the grooves of the wheels *d d*.

This will be fully understood by referring to fig. 4.

At one side of the frame A a saw or cutter-carrier or frame, G is affixed. This carrier or frame is fitted on the outer part of a shaft, H, and is allowed to work freely or loosely thereon.

The shaft H passes centrally through G, and through the latter, near each end, a shaft, I, passes, having saws J on their outer ends, one or more. These saws, or they may be circular cutters, are driven by belts or gearing from the shaft H, the latter receiving its motion from the shaft C.

The direction of the rotation of these saws is indicated by the arrows 1, and it will be seen that they cut the ice in an upward direction, which is necessary, as a reverse cut would have a tendency to fill or choke up the kerf with particles of ice, and also would have a tendency to raise up the working end of the saw-carrier or frame.

This saw-carrier or frame is adjusted by means of screws *g*, so that the saws may be secured in a proper position for work at either end of the carrier or frame, the saw or saws at one end only being at work at one time; and when the saw at one end of the carrier or frame has completed its cut, it is raised free from the ice, and that at the opposite end adjusted to its work.

The machine is made to travel in a reverse direction to make return cuts, by reversing the direction of the movement of the shaft C.

It will be seen, of course, that the machine requires to be moved laterally at the termination of each cut, in order to cut strips of ice of the requisite width.

This lateral movement is effected by means of slides *h*, at the front and rear ends of the frame A, said slides being provided with creepers or calks *i* pivoted in the slides, like those in the wheels *d* of the propellers.

These slides may be operated by levers *j*. I do not, however, confine myself to this plan, as other means may be devised for the purpose.

The machine is made to travel in a right line by means of guides *k*, which project down from the under side of the machine, and bear upon the ice, and the width of the spaces between the cuts is regulated by gauges *l*, which are slides fitted in guides underneath the frame, the slides having pendent blades at their outer ends. These slides may be graduated into inches to facilitate their adjustment.

In order to move the machine laterally, it will be seen that it must be raised a trifle, in order that the spurs *f* of the propellers may clear the ice, and the blades of the gauges raised from the cut. This is effected by screws *m*, two near each end of the machine, said screws being connected with runners *n* underneath the frame *A*, and which bear upon the surface of the ice. By screwing down the screws *m* the machine will be raised bodily, (see fig. 5.)

It must be borne in mind that I do not confine myself to any particular number of saws or cutters, nor to any particular adaptation of the same, nor to any kind of motor for driving them, as human, horse or steam power may be employed.

I would remark that the strips of ice may be cross-cut by means of a rotary saw or cutter, *L*, fitted in a carriage, *M*, on guides *N*, which project out from the machine. This saw or cutter may be operated by hand, its bolt *o* being kept tight by a slide, *p*, having a weight, *q*, attached.

I wish it to be distinctly understood that I make no claim, broadly, to the use of rotary saws or cutters

for cutting ice for storage, for they have been previously tried, but without success, in a practical point of view, on account of a lack of positive control between the propelling movement of the machine and the speed of the cut made by the saws or cutters, the speed of the latter requiring to be rapid, compared with that of the propelling movement.

I do not claim broadly, therefore, the use of rotary saws or cutters for such purpose; but

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

1. The driving-shaft *C*, shaft *B*, and wheels *F*, in combination with the frame *C*, shafts *I* *I*, and saws *J*, when arranged and operating as specified, to propel the machine at the same time that they actuate the saws.

2. The propelling mechanism employed for moving the machine along on the ice, composed of pivoted creepers or calks fitted in the grooved peripheries of wheels, and arranged to operate as shown and described.

3. The combination of guides, gauges, and elevating screws and runners, when the same are applied to a machine for cutting ice for storage, and all constructed and arranged to operate as set forth.

4. The cross-cut rotary cutter or saw *L*, when arranged as shown, and combined with a machine for cutting ice for storage, substantially as shown and described.

VALENTINE H. HALLOCK.

Witnesses:

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