

N. J. WYETH.

MACHINE FOR RAISING BLOCKS OF ICE.

No. 1,878.

Patented Dec. 1, 1840.

Fig. 1.

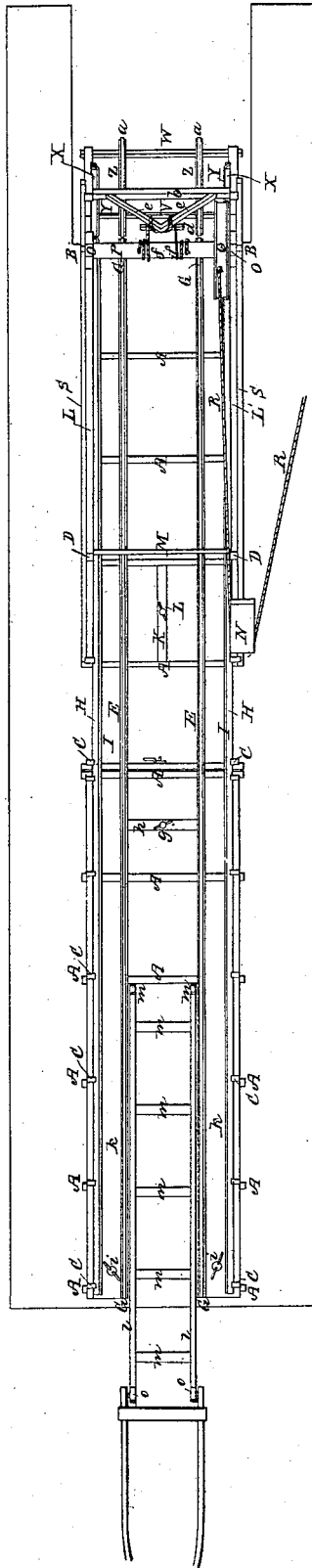
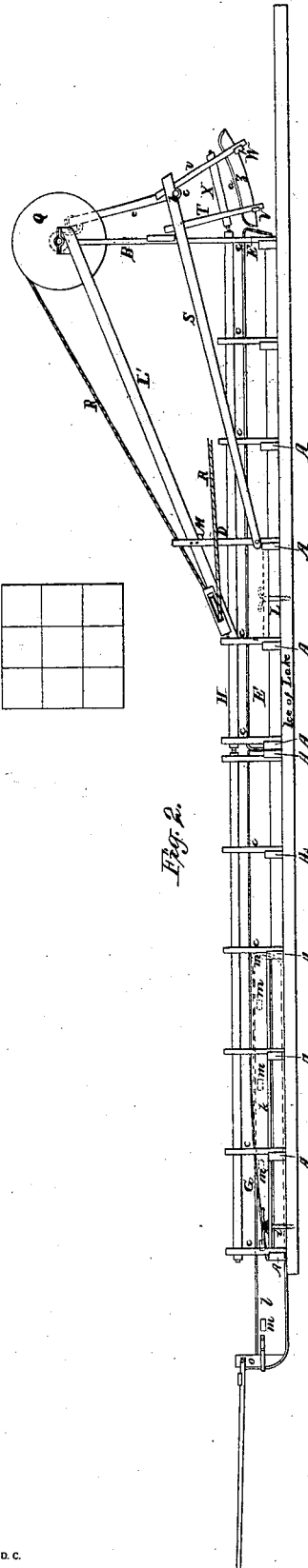


Fig. 3.



Fig. 2.



UNITED STATES PATENT OFFICE.

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MACHINE FOR RAISING BLOCKS OF ICE FROM THE WATER AND DEPOSITING THE SAME ONTO SLEDS.

Specification of Letters Patent No. 1,878, dated December 1, 1840.

To all whom it may concern:

Be it known that I, NATHANIEL J. WYETH, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented new and useful improvements in machinery for raising blocks of ice from the water of a pond, lake, or other frozen surface of water and depositing the same on a sled on which they are removed to the storing houses, &c.

The said improvements, the principles thereof and mode in which I have contemplated the application of the same, by which they may be distinguished from other mechanism of a like character, together with such parts or combinations therein as I claim to be my invention and desire to secure by Letters Patent, I have set forth in the following description and accompanying drawings, herein referred to, which taken in connection form my specification.

Figure 1, represents a top view of my machinery. Fig. 2, is a side elevation of the same.

Previous to the application and use of my apparatus the surface of the frozen lake, or ice is scored or grooved in the usual manner into squares. Supposing the side of each of these divisions or squares to equal twenty one inches, nine of the same form together a square block whose sides are each sixty three inches in length, and whose depth is equal to the thickness of the ice. Such a block is represented in Fig. 3. After the same are thus properly prepared it becomes necessary to carefully raise them from the water and deposit them in the house, there to remain until removed for shipping.

A A A, &c., Figs. 1 and 2, are pieces of hard wood or bearers each being placed so that its lower edge may rest on the surface of the ice. The opposite corners of these bearers, or each end in contact with the ice, should be rounded off, similar to the front of a common sled runner, so as to facilitate the operation of moving the apparatus from place to place on the surface of the ice. To the front side of the first bearer near its end, two upright joists B B, of suitable dimensions are properly attached and secured, and smaller perpendicular posts C C C are similarly affixed to the front sides of each of the other bearers, each of the fourth posts D D being larger and some-

what greater in their other dimensions than the posts C, C.

E E are rails, placed at about three feet apart, resting on and properly secured to the bearers A A, and running at right angles thereto as represented in the drawings. The upper edges or surfaces of the rails E, E, are somewhat inclined to make an angle with a horizontal line, so that when a block of ice is placed thereon, and left perfectly free its weight, or a slight force applied thereto will cause it to slide down upon the rails or down the inclined plane formed by the same. The front ends of the rails E E, project somewhat beyond the first bearer, and are rounded off or curved from the upper edges down to the bearer, as seen in the drawing at F. From the foot of the curve above mentioned, of the end of each of the rails E E, iron plates G G, or bars, extend upward over the ends and upon the entire upper edges of the rails, and are secured thereto by nails, screws, or in any convenient manner. Guard rails H H are also affixed to the inside of the posts C, C, C, at a convenient height above the bearers A A. A bar or plate of iron I I is also affixed to the inner side of each of the guard rails H H, and extends a sufficient distance around the ends of said rails to protect the same from injury. The distance apart of the rails H H, should be about one inch greater than the width of the block of ice. To the center of the top edges of the fourth and fifth bearers, a plank or cross piece K should be properly secured, and through the center of this plank a screw L passes, which on being screwed into an auger hole bored in the ice serves to confine the whole of this portion of the apparatus to the surface of the ice. From the tops of the first or long posts B B diagonal braces L' L' extend backward and abut against the fifth post and are scarfed into and properly bolted to the fourth posts D D as seen in Figs. 1 and 2. A piece of wood or bar M extends from one of the fourth posts to the opposite and is properly bolted there, in order that both may take the strain arising from the action of a rope passing through a leading block N, attached near the end of one of the diagonal braces, where it abuts against the fifth post. The bar M should be situated a sufficient distance above the rails E E to permit

any cake of ice to pass underneath its lower edge.

On the top of the first posts B B suitable boxes or bearings O, O, of a cross shaft or axis P, are affixed; and on the shaft P, and near as possible to one end of the same is a hoisting wheel Q, around the grooved periphery of which a chain or rope R passes, and thence to and through the leading block N above mentioned, whose shave or grooved pulley is arranged in a proper direction to admit the free operation of the rope. A horse is connected to the other extremity of the chain or rope R, and by traveling out or away from the railway, unwinds the rope from the hoisting wheel, which causing the shaft P to revolve, winds thereon another rope attached to the gig and hoists the same with the block of ice thereon to the level of the rails E E, as will be hereafter described. To each of the fourth posts D D and joists above their junction with the bearer, and from the outer edges of said posts, two gig poles or long bars S S, Figs. 1, and 2, are attached by a proper pin or bolt in such manner that the poles or bars S S may vibrate or turn on said bolt as on a hinge during their perpendicular motions. When the gig is sunk in the water ready to receive a block of ice, the under edges of the bars S S should rest on the tops of those parts of the bearers which project beyond the posts C, C, C, &c. To each of these gig poles S, S, and on their insides, two bars T, U, are bolted, the bars T extending downward at right angles, and the bars U at obtuse angles as represented in the drawing and are connected at their lower extremities by cross beams or ties V, W, suitably secured thereto by bolts or otherwise. To the inner faces of the uprights T U on each side of the apparatus, and between the cross beams V, W, and the gig poles, two other bars X, X, are firmly bolted the inner surfaces and ends of these latter being protected by bars or plates of iron Y, Y, secured to the same by screws or otherwise.

On the top of the cross bars V, W, and at suitable distances from the side pieces T, U, should be bolted two curved parallel slide rails Z, Z, each extending from one cross bar to the other and situated the same distance apart from each other, as the rails E E. The upper corners of their ends, are rounded off, and are protected from injury by bars of iron a, a passing over the upper surface and ends as represented in Figs. 1 and 2. When the gig is down, the block of ice is floated into the space above the slide rails Z, Z, and they serve for it to rest on, when the gig is raised. By the curved form of the rails Z Z, it will be observed that when the gig is raised into the position denoted by Fig. 2, or so that the upper surfaces of

the inner ends of the rails Z Z are brought to a level with the upper surface of the adjacent ends of the rails E E, the outer ends of the cross bars Z Z are raised upward to such a height, that the inclination and curve of the bars causes the ice to slide therefrom on to the rails E E.

From the under edges of the gig poles S, S, near their outer extremities, and proceeding from one of the gig poles to the opposite a roller bar b should be so secured by staples c, Fig. 2, that it can turn in them, for which purpose, the wood of the lower edge of the gig poles, should be cut away in a semicircular shape of such size as to admit of the cylindrical ends or journals of the roller bar to play therein, which are each secured in said spaces by the staple, c, driven into the gig poles. At about one foot from each end of the roller bar, two diagonal bars e, e are secured, at their feet, to the bar by straps of iron or otherwise, and thence proceed upward and toward each other until they meet at a point about four and a half feet above the center of the roller bar, where they are halved and bolted together or otherwise suitably confined. A small piece of wood or belay bar d should be attached to the diagonals near their point of junction. This bar serves to attach the gig to the shaft P. This is effected by passing the bight or middle of a rope f, when doubled under the belay bar d between the diagonals e, e, and thence passing the loop thus formed over the pointed end or angle of the diagonal. The two ends of the rope f should be secured to the shaft by staples or in any convenient manner each at a point about nine inches or any other suitable distance from the center of the shaft. Thus the rope is prevented from "riding" by its two ends being spread at a considerable distance apart, while, where it is joined to the diagonals e, e, the parts are in contact or approach each other. All that part of the apparatus on which the block of ice is sustained and which has been above described as attached to the gig poles I denominate the gig. The rails E E being continued of sufficient length, either in sections which may be screwed or otherwise fastened together or in one piece at pleasure.

I now proceed to describe the opposite end of the apparatus, or that portion thereof which deposits the block of ice on the sled on which it is removed to the machinery which elevates it or places it in the store houses. The two bearers A A at the opposite extremity of the railway E E have their center parts removed so as to admit a sled, to be hereafter described, to enter a sufficient distance between the rails or so that the rear of the sled may abut against the side of the third bearer from the end of the railway. This portion of the railway may

also be secured to the ice by a screw *g* passing through a plank or board *h* similar to that before mentioned described and represented at L as passing through a plank K, and also by similar screws *i*, *i*, passing through long planks *k*, *k*, bolted to the top of the first, second, third and fourth bearers for the purpose of more effectually strengthening this end of the railway.

From the fourth to the first bearers the rails E E should have a greater inclination or plane downward, so that at their outer ends they may be a few inches below the top surface or edge of the runners of the sled see Fig. 2. The sled somewhat resembles that in common use. The runners *l* *l* are formed of plank connected together by cross ties *m*, *m*, *m*, *m*, *m*. The runners should be formed in the usual way with their ends rounded upward and may or may not be shod with iron at pleasure. The rear part of each of the runners should have a rounded projection *m'* formed thereon over which the iron bars *n*, *n* should pass and be continued upon the upper edges of the runners of the sled and screwed or otherwise properly secured thereon. The projections *m'* above named are for the purpose of preventing the blocks of ice resting on the sled from sliding off backward when the sled is in motion. When the sled is between the rails E E and pushed so far back until its ends abuts against the side of the third bearer A the upper part of the projection *m'* should be somewhat below the upper surface of the rails E, E, in order that the blocks of ice as they run down the inclined rails by the action of gravity or are forced down may pass from the rails to the sled without obstruction. The sled is provided with shafts in which a horse is placed in the usual manner.

Thus from the above mentioned description it will be perceived, that the operation of removing blocks of ice from the water, and

depositing the same on a sled, is very simple, it only requiring that the gig be lowered to a sufficient depth below the surface of the water to float a block of ice upon the same. The horse attached to the rope R raises the gig, and when the rails of the gig on which the block of ice rests are brought even with the inclined rails E E, the ice immediately leaves the gig, by the action of gravity and slides or is pulled down the rails, until it is deposited on the sled before mentioned. Two blocks having reached the sled, the persons who attend upon the railway should place their ice hooks into the third block as it descends, and taking advantage of the momentum generated, push the three together rearward and upon the sled until the first block abuts or comes in contact with the head pieces O, O, Figs. 1 and 2 of the front of the runners of the sled, and the same should be pushed forward with sufficient force to carry the sled forward. At this moment the horse attached to the sled being started, the ice remains on the sled and is thereon kept or prevented from sliding back by the projections *m'* *m'* as above described.

Having thus explained and set forth my invention I shall claim in the same—

Raising blocks of ice from the water and depositing the same on a sled by means of the apparatus denominated the gig, in combination with a railway, the whole being constructed, arranged and operating together substantially in the manner and on the principles hereinabove described.

In testimony that the above is a true description of my said invention and improvement I have hereto set my signature this fourteenth day of October in the year eighteen hundred and forty.

NATHL. J. WYETH.

Witnesses:

R. H. EDDY,
JAMES W. FENNER.