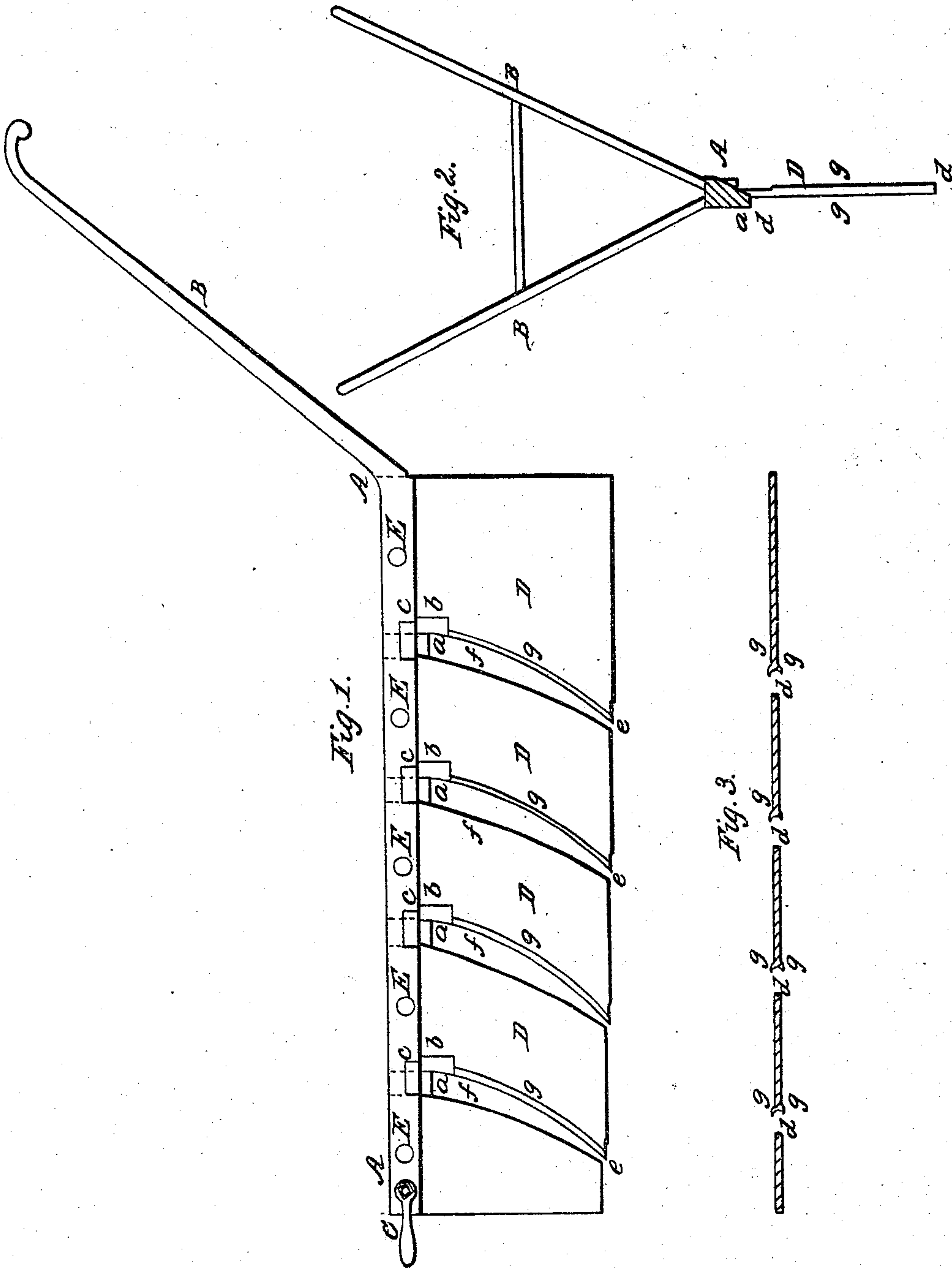


N. J. WYETH.

Ice Cutter.

No. 1,877.

Patented Dec. 1, 1840.



UNITED STATES PATENT OFFICE.

NATHANIEL J. WYETH, OF CAMBRIDGE, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR CUTTING ICE.

Specification forming part of Letters Patent No. 1,877, 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 Ice-Cutters for Cutting Ice of any Thickness or to any Required Depth, of which the following is a specification.

These improvements, the principles thereof, the application of said principles, by which the same may be distinguished from other inventions, together with such parts or improvements as I claim to be my invention, I have herein set forth in the following description and accompanying drawings, herein referred to, which, taken in connection, form my specification.

It should be premised that the grooves or cuts in the surface of the ice are partially formed before my invention is intended to be applied to mature the work, or cut nearly through the ice, or to any desired depth, and that the machines for this purpose which have been in use heretofore have some radical defects or objections. In the first place, the chips of ice, not being continuous, like those of wood or matters of like character, are liable to and do escape from between the teeth or chisels of the cutter and fall into the spaces between the sides of the cutter and those of the grooves, instead of passing up and being deposited upon the surface of the ice. These chips adhere and become congealed or otherwise firmly fixed to the sides of the grooves, thereby narrowing that part of the same previously cut and opposing no inconsiderable obstacle to the operation of the cutter, frequently checking the same altogether, particularly when it is wielded or worked by manual labor exclusively. The second objection is that in machinery of this kind intended to cut ice to a considerable depth, if the angles of the chisels or cutting-points of the teeth were sufficiently acute to cut well and were continued to the back bar, (so called,) to which they are attached, the connection would be exceedingly weak or frail, and the resistance to the operation of the cutter would act on the teeth (the front edges of which serve as levers) and tend to separate or break them from the back bar, thus requiring the teeth to be made of considerable width, at the same

time rendering the machine proportionally unwieldy. These objections are effectually remedied by my improvements, which are represented in Figures 1 and 2 of the accompanying plate of drawings, Fig. 1 being a side elevation of the same, Fig. 2 being a vertical transverse section, and Fig. 3 a longitudinal section.

A A, Figs. 1 and 2, is the back bar, to which the teeth of the cutter are secured. To the rear end of this back bar two handles, B B, are properly affixed, similar to those of a common plow, by which the machinery is guided or wielded. To the front end of the back bar a common shackle, C, is attached, to which any suitable kind of animal-power may be connected. The separate teeth or chisels D D D, &c., are passed through mortises in the bar A A and are firmly riveted thereto, as shown at E E E, Fig. 1.

The fronts of the chisels are curved, as seen in Fig. 1, from the angle of their edges at *e* to the point where they meet the under side of the back bar, and the rear of each is so shaped with a curve that the space between it and the front of the succeeding chisel in the rear shall be somewhat wider at the top than at the bottom of each. The lines of these curves at the top are nearly at right angles to the line of the back bar, A A, and the curvature at the bottom is sufficient to give the requisite acuteness to the angle of the chisel. The front of each of these chisels D D D, &c., instead of being a plane surface, is formed either with a circular or angular groove, as shown at *d d* in Figs. 2 and 3, the groove commencing at a point about one-half of an inch from the angle or sharp part *e* of the chisel.

The front *e f*, Fig. 1, or curved edge of the chisel, is somewhat wider than the remainder in rear of the same, as shown in the drawings, Fig. 3 at *d* in section, which arrangement renders it practicable to have a sharp or acute edge, *g*, Figs. 1 and 3, at each side of the cutting-face or groove of the chisels, thus leaving a space between each side of the groove cut in the ice and the adjacent side of that part of the chisel in rear of the front. This prevents the sides of the chisels freezing to the ice, while the lateral cutting-edges of the front serve to disengage anything which may adhere to the sides of the grooves in the

ice and keep chips or other extraneous matters from falling into the spaces between the sides of the chisels and those of the groove. The part *a*, projecting from the top of the back of each of the chisels, is beveled or chamfered down, as is likewise a portion, *b*, of the top of the front of the chisels. The front side of the back bar, *A A*; is also beveled at the spaces *c c c*, &c., immediately over the openings between the chisels.

From the peculiar formation of the chisels above described it will be perceived that the chips of ice which are cut from the bottom of the groove by the sharp or lower edges, *e e*, of the chisels are pressed or will pass in a continuous body up the circular or angular grooves in the fronts of the chisels and will be discharged at the mouths formed by the beveled surfaces *a b c*, above mentioned, and deposited on the surface of the ice.

By the above construction of an ice cutter a groove in ice may be cut to any desired depth with great ease and dispatch, the chips

of ice removed from the bottom by the points of the chisels being completely thrown out by the curved grooves of the front of the chisels.

Having thus described my improvements, I shall claim as my invention—

Forming the chisels of ice-cutters of the curved shape in front and rear, as hereinabove specified, and likewise grooving the front or curved cutting-faces of the chisels and constructing the same wider than the rear, or with lateral cutting-edges *g g*, for the purpose of effectually removing chips of ice or other extraneous matters from the sides of the grooves, the whole being constructed and operating substantially as hereinabove described.

In testimony that the above is a true description of my said invention and improvements, I have hereto set my signature, this 20th day of October, in the year 1840.

NATHL. J. WYETH.

Witnesses:

R. H. EDDY.

EZRA LINCOLN, Jr.