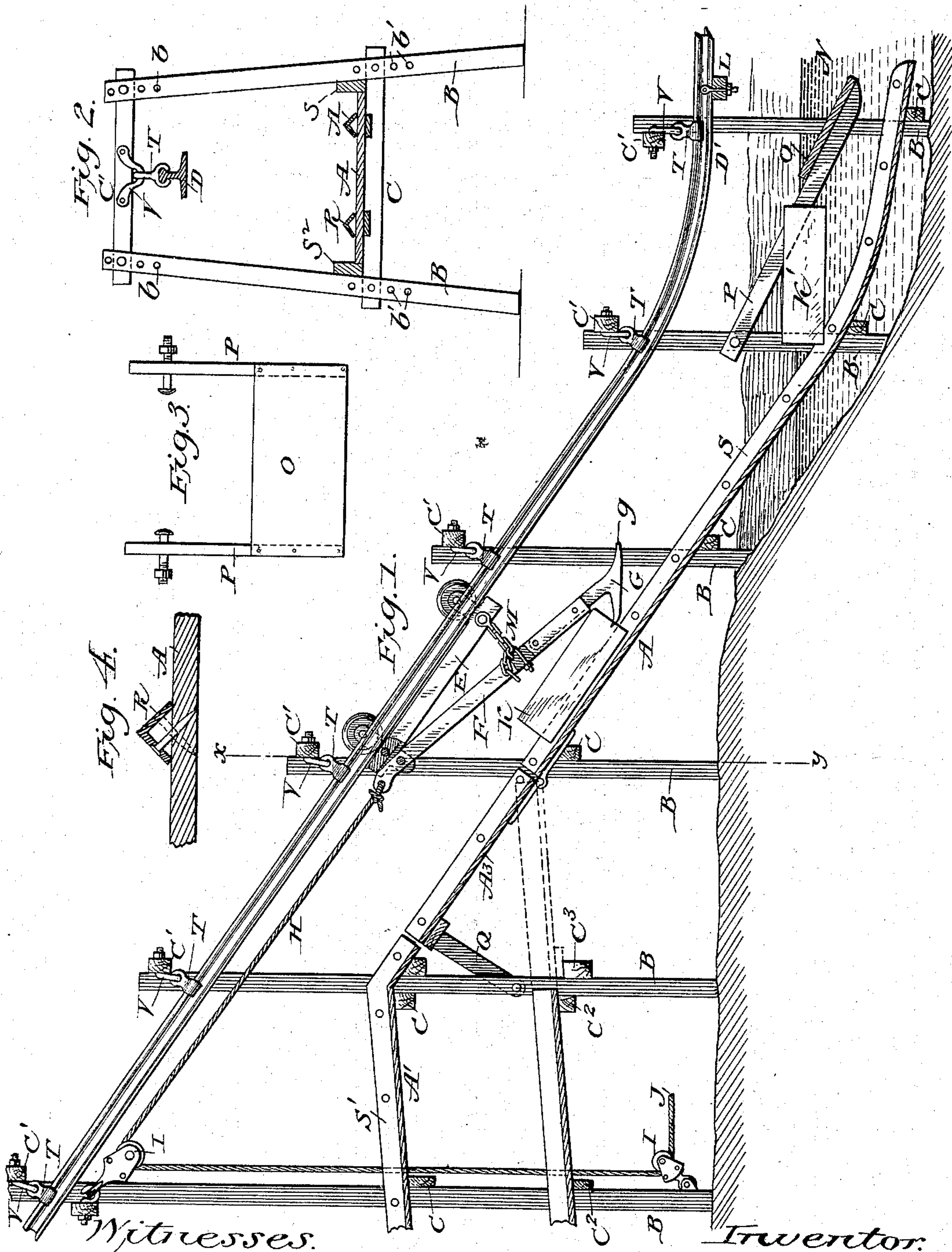


(No Model.)

W. LOUDEN.
ICE ELEVATOR.

No. 565,762.

Patented Aug. 11, 1896.



Witnesses.
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ICE-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 565,762, dated August 11, 1896.

Application filed February 4, 1896. Serial No. 578,056. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM LOUDEN, a citizen of the United States, residing at Fairfield, in the county of Jefferson and State of Iowa, have invented a new and useful Improvement in Ice-Elevators, of which the following is a specification.

This invention relates to elevators for taking cakes of ice from a pond or lake or from where said ice is to be elevated into the house or place where it is to be stored; and it consists of an elevated track or way suspended above the run or chute over which the cakes of ice are to be drawn, a carrier adapted to run on said track, and a drag-hook connected to the carrier so that it will be carried clear of the chute or run over which the ice is to pass and at the same time be adapted to pass over, drop behind, and drag the cakes of ice up the chute without disturbing the position of the carrier on the track; also of other features in the details, which will be set forth in this specification, and pointed out in the claims.

Prior to my invention the drag-hook, as its name implies, was dragged up and down the elevator-chute by means of a rope and pulleys, which made it liable to catch on the timbers and damage the chute as well as the hoisting-rope and pulleys and to break or bend the hook. When a cake of ice was elevated, the drag-hook had to be pulled back by the operator, and it had to be placed by hand upon each cake of ice. My invention overcomes all of these difficulties. The drag-hook is carried clear of the chute and is returned with the carrier by its own gravity down the incline of the track as soon as the hoisting-rope is released from the elevating power, and the hook catches automatically over the cake of ice, thereby saving time and labor and doing the work more satisfactorily than with the old style of chutes and drag-hooks, and at only a small additional cost of construction.

Figure 1 is a vertical section of my invention, the front side of the carrier-frame being broken away. Fig. 2 is a vertical cross-section on the line xy of Fig. 1. Figs. 3 and 4 are detail views.

A represents the elevator-chute, and B posts, which are set in the ground and have cross-

timbers C secured to them to hold the chute in position. The posts B are extended up above the chute, and other cross-timbers C' are secured to their upper ends, and to these upper timbers a track D is suspended, and upon this track a carrier E is mounted. A drag-bar F, having a hook G, is connected to the carrier E so as to be carried clear of the chute and be held substantially parallel with the track. To the upper end of the bar F a hoisting-rope H is connected, and is passed through one or more guiding-pulleys I. The power to elevate the ice is secured to the end of the rope J, and may be either a horse, a winding-drum operated by steam, or any other suitable power for the purpose.

Fig. 1 shows the elevator in the act of sliding a cake of ice K up the chute A. When the cake is drawn onto the downward portion of the chute A' it will of its own gravity slide into the house or other place where it is to be stored. The hoisting-rope being released from the elevating power, the carrier, with drag-hook attached, will run down the incline of the track until arrested by the stop L, which may be secured to any desired part of the lower end D' of the track. In running down the track the hook G will slide over and drop behind the cake of ice K', and power being again applied, it will be drawn up the chute A as before. The operation may be repeated as often as necessary to complete the work on hand.

The advantage of having the track suspended above the chute instead of being built in it is in part as follows: First, the carrier is not likely to be submerged in the water nor get frozen over with ice; second, it is not impeded by ice getting on the track; third, it affords sufficient room to let the drag-hook slide over large cakes of ice without lifting the carrier off the track, and fourth, the track can readily be raised or lowered with respect to the chute, as may be required for thick or thin ice.

It is preferable to make the carrier E two or three feet long, and to hinge the drag-bar F to its front end and connect its rear end to the drag-bar by a chain M, or some other flexible fastening, so that the drag-bar will be held substantially parallel with the track and its rear end be free to rise and fall as

much as may be necessary to let the hook G slide over and catch behind the ice. It is also preferable to have the chain M connected adjustably to the bar F, so that the latter, with its hook G, can be readily set higher or lower to suit the thickness of the ice or the height of the water N. This adjustment may be further facilitated by boring numerous holes *b* in the lower posts, as shown in Fig. 2, so that the upper cross-timbers C' may be raised or lowered and thus adjust up or down the lower end of the track. It is further preferable to bend the lower end D' of the track so that it may stand substantially horizontal, as shown in Fig. 1, and thus bring the carrier substantially parallel to the cake of ice K' floating in the water.

The cakes of ice are floated into the mouth of the chute, and to keep them from floating out or being pushed out by the hook G a guard O may be used, having arms P hinged to a set of the lower posts so as to also float in the water. It should be hinged so that its outer edge will sink deeper in the water than its inner edge. In this way the cakes of ice can be readily floated over it into the mouth of the chute, but cannot float out or be pushed out over it.

When it is desired to fill the lower part of the ice-house without dragging the ice to the top of the chute, a lower downgrade chute A² may be made to rest on the cross-timbers C², secured to the upper posts B. In this case a section A³ of the chute is hinged to the lower adjoining section, and when it is desired to take the ice up to the upper downgrade chute A' this section is supported in position by the hinged brace Q, which furnishes a convenient support for the purpose. To take the ice in by the lower chute A² this brace Q is swung back so that the hinged sections A³ will drop, as shown by the dotted lines, and be supported by the cross-timber C³, and will then let the ice pass down the chute A². As many additional lower chutes as desired may be constructed on the same plan.

In order that the ice may slide easily up and along the chute, it is desirable to have metallic ways secured to it, as at R. (Shown in Fig. 2.) A preferable manner of constructing said ways is shown in Fig. 4, which is an enlarged cross-section of a portion of the chute A. Metallic angle-bars having nail-holes on both sides are laid with both edges on the face of the chute, and nails are driven at right angles to each other through said holes into the boards of the chute, as shown. These metallic ways are cheaply made and greatly assist in the movement of the ice. The chute should also have side pieces S, S', and S² secured to the posts to strengthen it and to keep the ice from sliding off. The hook G is preferably made of two prongs, one bolted on each side of the drag-bar F, and if necessary an extended point *g* may be formed on the hook to assist it in sliding over the cakes of ice. Be-

sides ice, any other similar shaped material, boxes, and the like, may be handled in a similar way by my invention.

Any kind of track suitable for an elevated carrier may be used, but an inverted T-rail of metal suspended by the hangers T and brackets V is preferred. In case the carrier with drag-hook attached should not be heavy enough to run down the incline of the track and draw the hoisting-rope with it, it may be weighted in any suitable way known to the art in operating elevated carriers so as to accomplish this result.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is--

1. The combination of an inclined chute, a track centrally suspended above said chute and substantially parallel with it, a carrier mounted on said track, and a drag-hook connected to the carrier, said drag-hook being extended from the carrier in a direction substantially parallel with the track and adapted to move vertically in passing over a cake of ice without lifting the carrier off the track, substantially as described.

2. The combination of an inclined chute, a track centrally suspended above said chute and substantially parallel with it, a carrier mounted on said track, and a drag-hook pivoted to the carrier, said drag-hook being extended from the carrier in a direction substantially parallel with the track and adapted to move vertically in passing over a cake of ice without lifting the carrier off the track, substantially as described.

3. The combination of an inclined chute, a track suspended above said chute and substantially parallel with it, a carrier mounted on said track and a drag-hook pivoted to one end of the carrier and flexibly connected to it at the other end, substantially as described.

4. The combination of an inclined chute, a track suspended above said chute and substantially parallel with it, a carrier mounted on said track and a drag-hook pivoted to one end of the carrier and adjustably connected to it by a chain at the other end, substantially as shown and described.

5. The combination of an inclined chute, a track centrally suspended above said chute and substantially parallel with it, a carrier mounted on said track, and a drag-bar connected to the carrier at its front end so as to extend substantially parallel with the track and having a hook on its extended end, said hooked end of the drag-bar being adapted to move vertically in passing over a cake of ice, without disturbing the carrier on the track, substantially as described.

6. The combination of an inclined chute, a track suspended above said chute, a carrier mounted on said track, a drag-bar connected to the carrier and a hook having an extended point *g*, substantially as described.

7. The combination of an inclined chute, a track suspended above said chute, a carrier

mounted on said track, the suspending means at the lower end of the track being adjustable so as to raise or lower the end of the track, substantially as set forth.

5 8. The combination of an inclined chute, supported on posts, the ends of said posts being extended up above the chute, cross-timbers connected to the upper ends of the posts, a track suspended to said cross-tim-
10 bers, a carrier mounted on the track and a drag-hook connected to the carrier, substantially as shown and described.

9. The combination of an upwardly-in-
15 clined chute, a track suspended above it, a carrier mounted on the track, a drag-hook connected to the carrier, two or more down-

wardly-inclined chutes, one below the other, and a hinged section in the upward chute to connect with either of the downward chutes, substantially as described.

10. In ice-elevator chutes, extended into the water, a guard hinged at its upper end to the chute connections, and its lower end adapted to float in the water, substantially as
25 and for the purpose stated.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIAM LOUDEN.

Witnesses:

E. WILSON,

JAS. W. GRAHAM.