C. R. Wortendyke,

Ice Elevator.

No. 13,809. Patented Nov. 13, 1855.

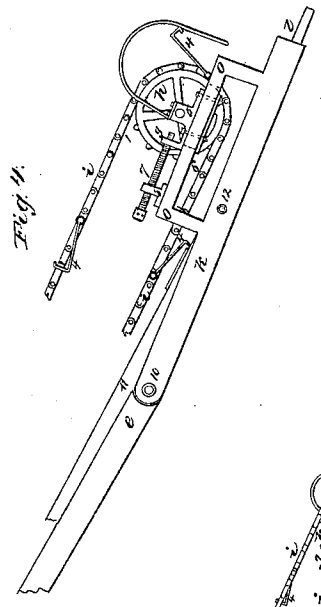

Fig. 4.

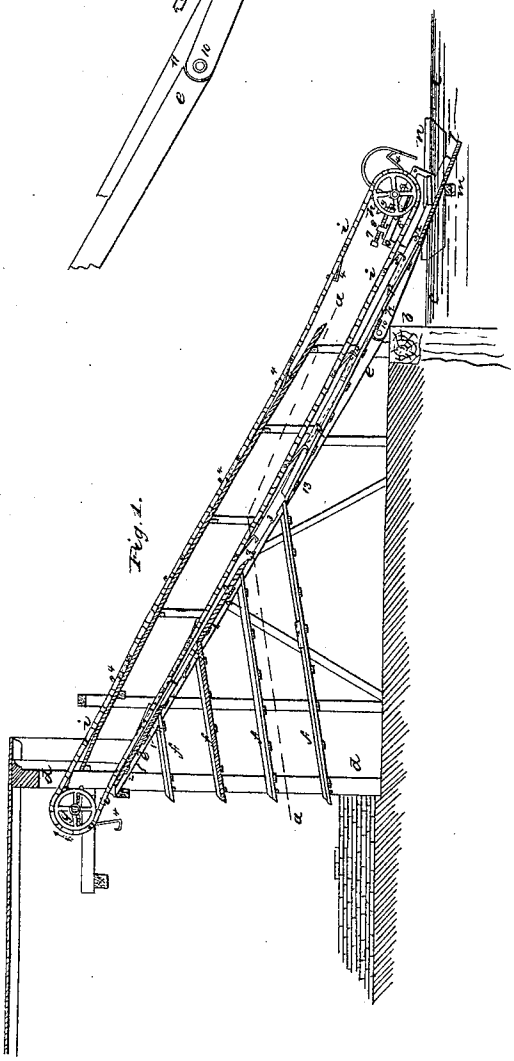

Fig. 1.

Fig. 3.

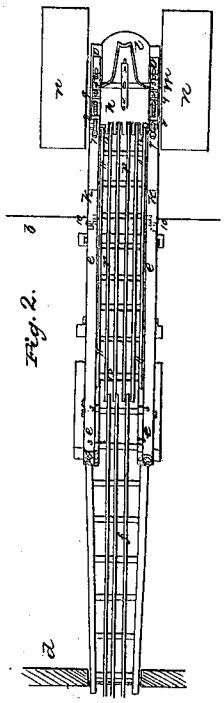

Fig. 2.

Witnesses
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AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS)

UNITED STATES PATENT OFFICE.

C. R. WORTENDYKE, OF NEW YORK, N. Y.

MACHINERY FOR RAISING ICE FROM RIVERS, &c.

Specification of Letters Patent No. 13,809, dated November 13, 1855.

To all whom it may concern:

Be it known that I, CORNELIUS R. WORTENDYKE, of the city, county, and State of New York, have invented, made, and applied to use a certain new and useful improvement in elevators for drawing up ice out of rivers and similar places subject to a rise and fall of tide or level of the water; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1, is a vertical section of the elevating apparatus. Fig. 2, is a plan of the same below the dotted red lines *a*, *a*, of Fig. 1; and Fig. 3, is a plan of a part of the elevating chain and drag hooks made use of in elevating the cakes of ice.

The same marks of reference denote corresponding parts.

In obtaining and housing ice great expedition is often required on account of the shortness of the cold season, hence various means have been devised to draw the same quickly from the pond or lake, where the ice has been cut up in blocks or cakes, up an incline plane, so as to pack the same away in ice houses. In cases of ponds or lakes no difficulty is experienced on this point because the water is of a uniform level, but in rivers and other places subject to a rise and fall of tide considerable difficulty is caused thereby, on account of the chains made use of to draw the ice up the inclines, becoming inoperative in consequence of the water receding from or else covering the same, or the chains running off their pulleys in consequence of becoming slack.

The nature of my invention consists in so constructing and arranging my apparatus that it shall be adapted to act in a uniform manner, notwithstanding the change of level of the water.

In the drawing *b*, is the edge of a pier or bulkhead, *c*, *c*, the water; *d*, the front of a house in which the ice is to be packed.

e, is an inclined plane formed of main string pieces supported by suitable braces and received an open bottom composed of bars 1, attached to cross pieces 2, setting in notches 3, in the string pieces *e*, of the incline. This bottom is formed in sections that can be removed so that as the ice is drawn up said incline plane it shall be delivered at the desired point into chutes *f*, *f*, set on a slight incline the reverse way to the incline *e*, so as to run the ice off into the house *d*, and as the said house becomes gradually filled with ice the sections 1, can be replaced commencing at the bottom, so that the ice will be higher elevated before being run off by the chutes *f* to the house.

The ice is drawn up the inclined plane *e*, by means of hooks 4, 4, attached to an endless chain *i*, that passes around pulleys *g* and *h*, and to the pulley *g*, the required rotary motion is given, as denoted by the arrow, the same being communicated from any competent power by chain gearing or similar connections. The parts thus far are substantially the same as those in common use and therefore do not require further description; but to allow for the rise and fall of water I resort to the following means.

k, *k*, are side beams or sills connected by joints 10 to the ends of the string pieces *e*, at the edge of the dock *b*, carrying at their lower end the bottom board *l*, connecting said ends together. The outer ends of these beams *k k*, rest on a cross piece *m*, between two floats or scows *n*, *n*, and the joints between the beams *k*, *k*, and string pieces *e*, *e*, are such as to allow the said outer end of the incline to rise and fall the required extent.

o o, are frames on the side beams *k*, *k*, carrying the journal boxes 5, 5, of the wheel *h*, see Fig. 4. These journal boxes are attached by means of screws passing through a long slot or mortise in the frames *o o*, and into a plate 6, beneath.

7, 7, are screws passing through fixed nuts 8, 8, and through small holes at 9 in the journal boxes where they are secured by a pin so that said journal boxes can be adjusted to tighten the chain as the water rises, or slackens the same as it falls.

If the bars or strips forming the bottom on which the ice is drawn up were formed with the side pieces *k*, *k*, and string pieces *e*, *e*, the angle formed between the two opposite the joints 10, 10, would be such that the chains would not hold onto the ice but the same would slip away from the hooks. I therefore make use of a movable bottom formed of side pieces 11, 11, and cross bars carrying strips *p*, and said movable bottom is attached at its lower end to the beams *k*, by joints 12, 12, and rests at its upper end on a cross bar 13, near the first chute *f*.

It will now be seen that the bottom (*p*) nearly coincides in its inclination with the chain *i*, whatever the height of water may be, and consequently the hooks 4, will always have a firm hold on the ice to draw it up the incline; and the men who stand on the scows or floats *n*, feeding in the ice, adjust the screws 7, and journals 5, to keep the chain *i*, at the required tension as the water rises or falls; thus causing my apparatus to work reliably and efficiently notwithstanding the change of position of the end of the incline in consequence of the change in the level of the water.

What I claim and desire to secure by Letters Patent is—

1. The method herein set forth of adapting the ice elevating chain to work under changes in the level of the water, by jointing the framework carrying the lower wheel of said elevating chain, to the lower end of the fixed incline, and sustaining the said frame work wheel and chain on scows or floats substantially as specified.

2. I also claim the movable bottom (*p*) fitted and arranged as specified, to pass the ice from the movable to the stationary part of the incline in the manner specified.

3. And I also claim in combination with the framework, jointed to the lower end of the fixed incline carrying the lower wheel of the elevating chain, the adjustable slide journal boxes and screws for regulating the tension of said elevating chain as the water rises or falls as specified.

In witness whereof I have hereunto set my signature this eleventh day of October 1855.

C. R. WORTENDYKE.

Witnesses:

LEMUEL W. SERRELL,

THOMAS G. HAROLD.