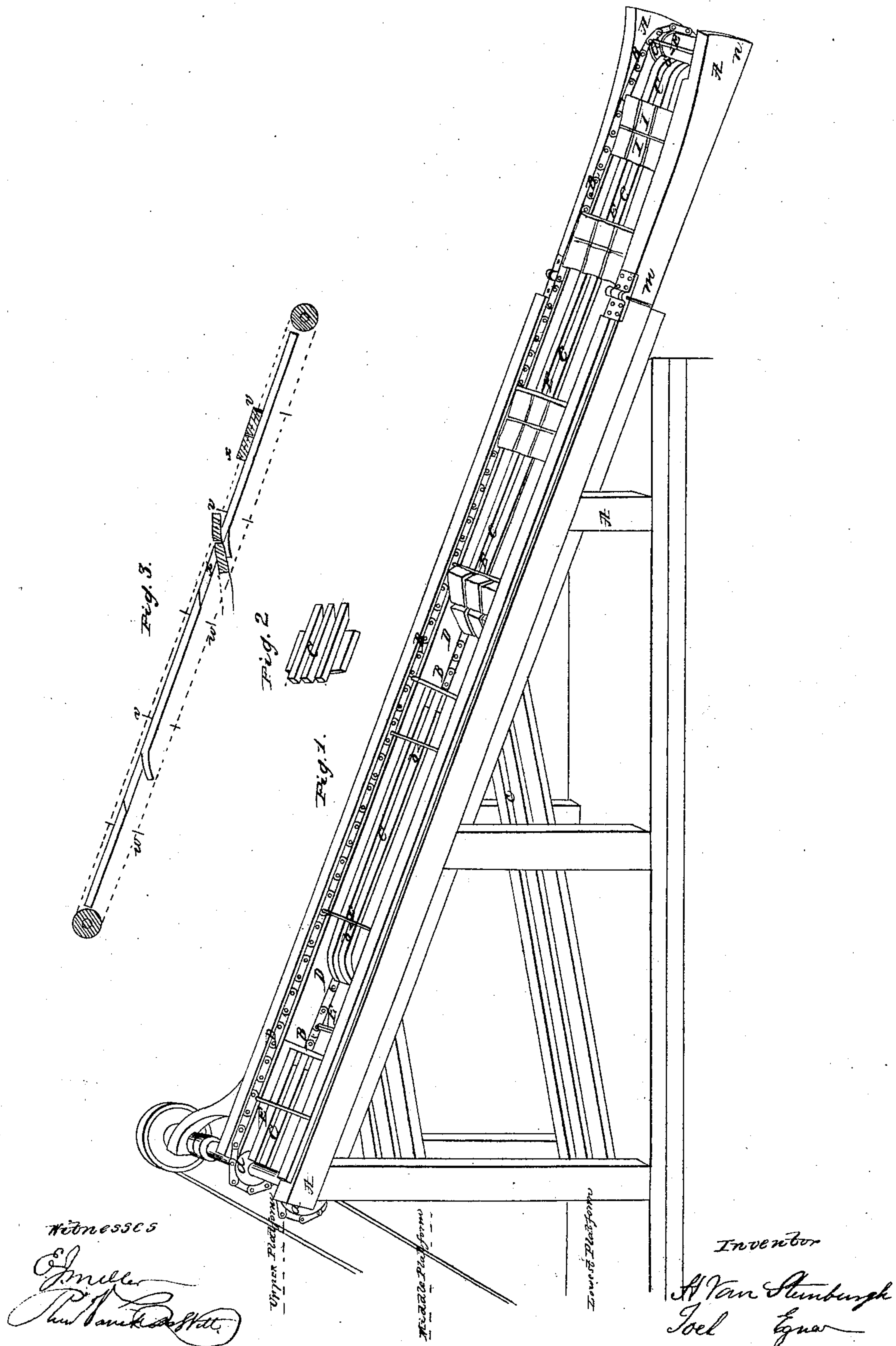


Van Steenburgh & Egnor,

Ice Elevator.

N<sup>o</sup> 22210.

Patented Nov. 30, 1858.





# UNITED STATES PATENT OFFICE.

HIRAM VAN STEENBURGH AND JOEL EGNOR, OF CATSKILL, NEW YORK.

## APPARATUS FOR HOISTING AND STORING ICE.

Specification forming part of Letters Patent No. 22,210, dated November 30, 1858; Reissued October 23, 1860, No. 1,069.

*To all whom it may concern:*

Be it known that we, HIRAM VAN STEENBURGH and JOEL EGNOR, of the town of Catskill, county of Greene, State of New York, have invented certain improvements in the construction of a machine for hoisting cakes of ice from the surface of the water and elevating them to the stories of ice-houses; and we declare the following specification, with the drawings hereto attached as part of the same, to be a full and perfect description of our invention.

Inclined planes to raise cakes of ice from the surface of the water to elevated places of storage, have been long in use. Also the employment of endless chains, passing around sheaves at each end of the planes to transport the ice along the planes is not new; but in such cases the cakes of ice have been laid upon the chains, and so carried up to the top of the planes, and there delivered upon one of the platforms of the houses. But in the use of such apparatus it is necessary to shift the upper end of the plane from story to story of the platform, as they are filled in succession, a matter occupying time and labor when every minute is of value in hurrying in the ice crop, and the incurring of a considerable expense at each change of elevation.

Our improvement has for its purpose the construction of a permanent elevator or plane of a height to deliver over the upper end of its endless chain, ice upon the highest platform or story of the ice house, and adapted without disarranging machinery, and with a very short delay in the working of the machine, to transfer the delivery of the cakes of ice to or from any of the stories of the house.

The machine is represented, by Figure 1, in perspective. It is a timber frame A, A, A, A, having between its upper side timbers at each end a pair of shafts carrying sheaves or pulleys *a, a, a*, around which the endless chains B, B, revolve. The lower part of these upper timbers from *m* to *n* are formed, as is customary, into an apron (so called), hinged to the upper part, so as to adapt it to various heights of water to make the deposit of ice upon it convenient. Between the upper and lower reaches of the chain, extending across between the said timbers is a platform (of slats) C, C, having at intervals, openings D, D, corresponding with the

platforms attached to the different stories of the ice-house to which the machine belongs. Horizontally between the chains and pivoted thereto, bars E, E, extend at suitable intervals, whose office it is to propel the ice cakes before them sliding them up along the slats C, C. For the purpose of holding the bars firmly against the ice, iron points *b b* project from these bars.

The operation of the machine is thus. The cakes I, I, of ice being floated over the lower end of the frame so as to lie in range between the chains, and the machine being started they are caught by the lowest bar E, as it comes around with the chains from beneath the lower sheave, and are carried up sliding along the slats C, C, until they reach the lower opening D when they drop through upon an inclined plane G leading to the lowest platform and story of the ice-house. When it becomes desirable to carry the ice higher, a hatch shown at Fig. 2 corresponding with the slat deck C, is placed over the opening and secured there. Then the cakes of ice pass over it and are carried up to the next opening above and are delivered to the next upper platform of the house, which opening is closed when needed in a similar way, and any others in succession till the ice is delivered over the upper end of the chain into the upper story of the ice house.

Care must be taken in arranging the position of the bars E that in their passing, one on the lower reach of the chain in passing downward, shall not obstruct the ice in its way through the openings in the slat deck, which would not only stop the ice, but cause a break in the chain. Diagram Fig. 3 shows the way of arranging this part of the machinery. It represents a vertical section of the machine.

It having been determined what extent along the plane, the ice to be carried up by any one bar *w* shall occupy, as from *x* to *y* it can easily be determined where the lower bar *w* shall be placed to avoid interruption. This being settled, the chain must be divided into equal parts corresponding with the distance from *v* to a point opposite *w* on the upper chain, or when that cannot be exactly done, then into the nearest series of equal distances that can be made by exceeding the distance between *v* and *w*. Thus if the space between *v* and *w* must be 8 feet and the chain be 192 feet long, it could be divided



into 24 parts of 8 feet exactly, but if the chain should be 189 feet 9 inches long, it should be divided into 23 parts of 8 feet 3 inches each.

5 We do not claim the use of inclined planes with endless chains to carry the ice up in the direction of the plane: but,

We claim—

10 1. The method of transporting ice upon inclined planes, by carrying the ice up between parallel endless chains, having bars extended between said chains to hold the ice and propel the same; the planes being  
15 pierced with openings for the passage of the ice to the successive stories of the ice

houses, and the propelling bars being so arranged that the descending bars, shall not interfere with the free passage of the ice through the openings in the plane.

20 2. We further claim the use of the hatches described to close the openings in the plane in order to permit the ice to pass beyond a lower to an upper story of the ice house the whole apparatus substantially as described and set forth in the above specification.

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Witnesses:

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[FIRST PRINTED 1911.]