H. P. CROWELL.
ICE ELEVATORS.

No. 195,095. Patented Sept. 11, 1877.

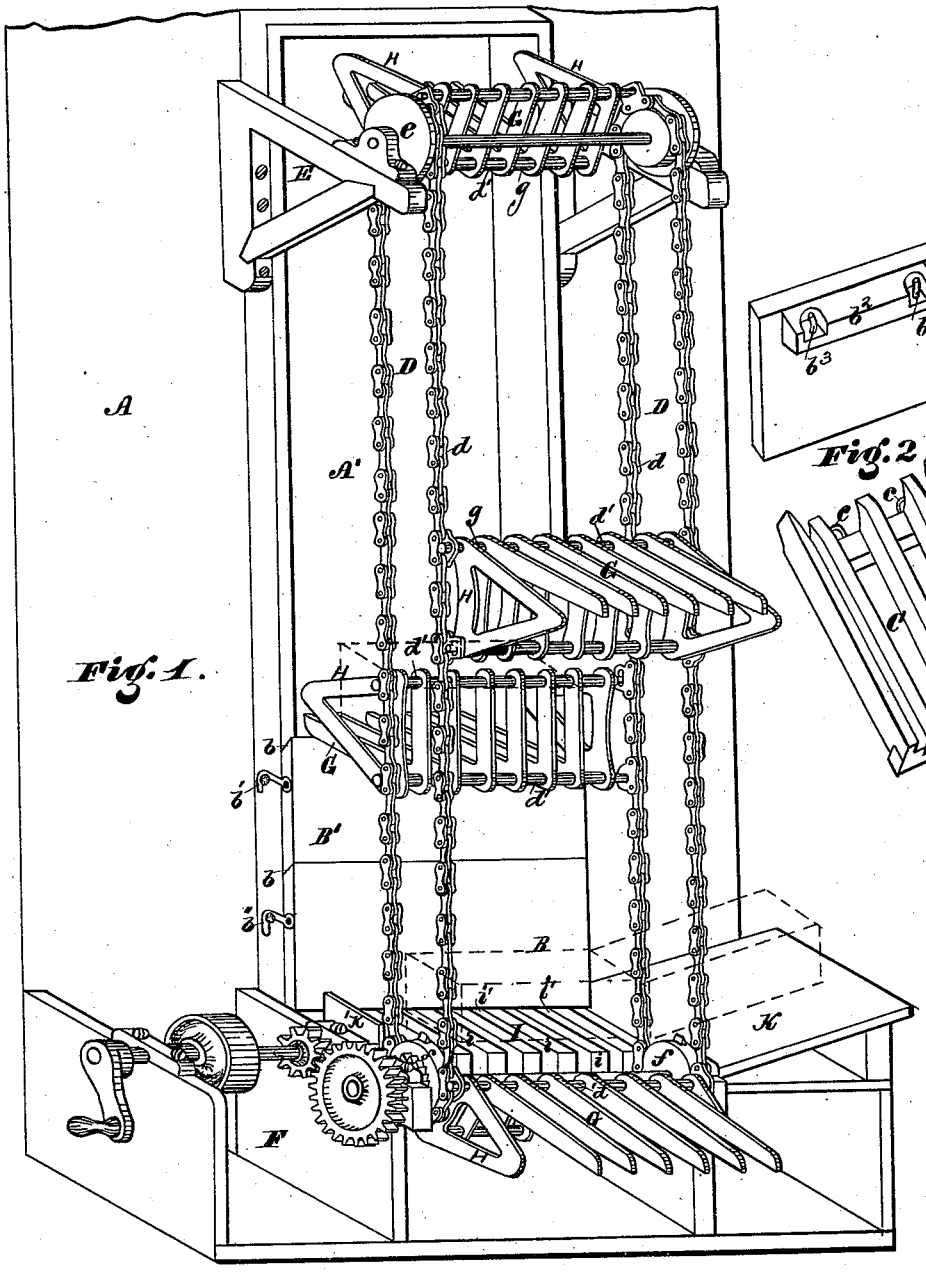


Fig. 1.

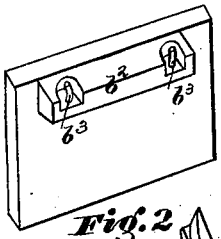
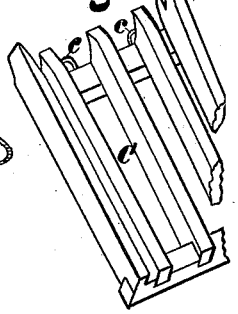


Fig. 2



Witnesses
Saml. J. Van Stavoren
Jos. R. Connolly

Inventor
Harry P. Crowell
By Connolly Bros, Attorneys

UNITED STATES PATENT OFFICE.

HARRY P. CROWELL, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN ICE-ELEVATORS.

Specification forming part of Letters Patent No. **195,095**, dated September 11, 1877; application filed March 15, 1877.

To all whom it may concern:

Be it known that I, HARRY P. CROWELL, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Ice-Elevators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a perspective of my invention. Fig. 2 is a detail view.

My invention has for its object to provide an apparatus for elevating and lowering ice, said apparatus consisting, essentially, of the following parts: First, a traveling band or apron composed of two chains, connected by cross-bars provided with projecting arms or grates, on which the blocks of ice to be raised or lowered rest while in transit, said band being arranged in a vertical position; second, a slotted or skeleton platform, through which the arms or grates of the traveling band pass, raising the blocks of ice from said platform in elevating, or depositing the same on the latter in lowering; third, a series of gates or shutters, by means of which, as hereinafter more fully described, the altitude of the dumping or receiving slide may be varied or adjusted; fourth, an incline or chute, by means of which the ice blocks are fed to the slotted platform, and a frame and suitable mechanism for giving motion to the traveling band.

Referring to the accompanying drawing, A designates an ice-house, to which my improved elevator is applied. A′ is a vertical opening in one of the walls of said house, extending from the lower floor or basement to the roof or ceiling of the upper story. B B are shutters or gates, having beveled ends *b b*, so as to cause them to lap and hold more securely together, and hooks b^1, by means of which they are fastened against the wall, so as to cover, wholly or in part, according to the number of them employed, the opening A′. Each of said gates is also formed with a transverse cleat, b^2, and the uppermost one has pins b^3 for engaging with eyes or hooks *c* in an incline or slide, C. D represents a traveling band or apron, arranged in an upright or vertical position, so as to hug the wall of the ice-house, against which it is set, and not extend any farther away from the bottom of said wall than from its top. Said band is composed of endless chains *d d*, which pass over driving-pulleys *e* and *f*, located respectively on the projecting beams E and on the windlass F. The chains *d d* are connected by transverse rods *d′ d′*, which pass through and sustain the L-shaped arms or grates G, collars *g* being placed on said rods between the arms G. H H are triangular frames or guards on either side of each of the steps or buckets, formed by the projecting arms G.

I represents a platform, composed of bars or slats *i*, between which are slots or interstices *i′*, through which the projecting part of the arms G freely passes when the band is in motion. K is an incline on one side of the platform I, and K′ is a stop on the other side of said platform.

The operation is as follows: Blocks of ice to be stored in the house A are slid down the incline K to the platform I, being prevented from passing off the latter by the stop K′. The band D being set in motion, the arms G pass through the interstices in the platform I, lifting the blocks of ice from the latter and carrying said blocks up to the opening above the gates B B′. Reaching said opening, the blocks are taken off by hand and caused to travel down the slide C. As the store of ice within the house increases in height the altitude of the slide C is correspondingly adjusted by slipping in fresh gates B under the gate B′. To lower ice, the motion of the band is simply reversed, the blocks then placed on the arms G being deposited on the platform I, through the interstices of which the said arms pass downwardly.

The advantages of an elevator of this character are briefly as follows: Simplicity and cheapness of construction, economy of space, (the band not projecting away from the wall of the house, as do bands set on an incline,) and efficiency of operation. The elevator may

also be used for lowering ice, as described—work which cannot be performed with ice-elevators of ordinary construction.

Where the ice is floating in water, the slotted platform may be dispensed with.

So, too, this elevator is not restricted to raising and lowering ice, but may be advantageously employed for freight generally, including barrels, boxes, and other like packages.

What I claim as my invention is—

1. The L-shaped arms or grates G, secured at their angles and at one of their ends to the transverse rods *d d*, uniting the chains *d' d'*, substantially as shown and described.

2. In combination with the traveling band D, having projecting arms G, the slotted or skeleton platform I, substantially as shown and described.

3. The gates or shutters B, having beveled ends *b* and hooks *b'*, substantially as shown and described.

4. The combination of the gate B', having hooks b^1 and pins b^3, with the slide C, having hooks or eyes *c*.

5. The combination of house A, gates B B', slide C, traveling band D, beams E, windlass F, guards H, slotted platform I, incline K, and stop K', the parts being constructed and arranged for operation substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 10th day of March, 1877.

HARRY P. CROWELL.

Witnesses:

SAML. J. VAN STAVOREN,

CHAS. F. VAN HORN.