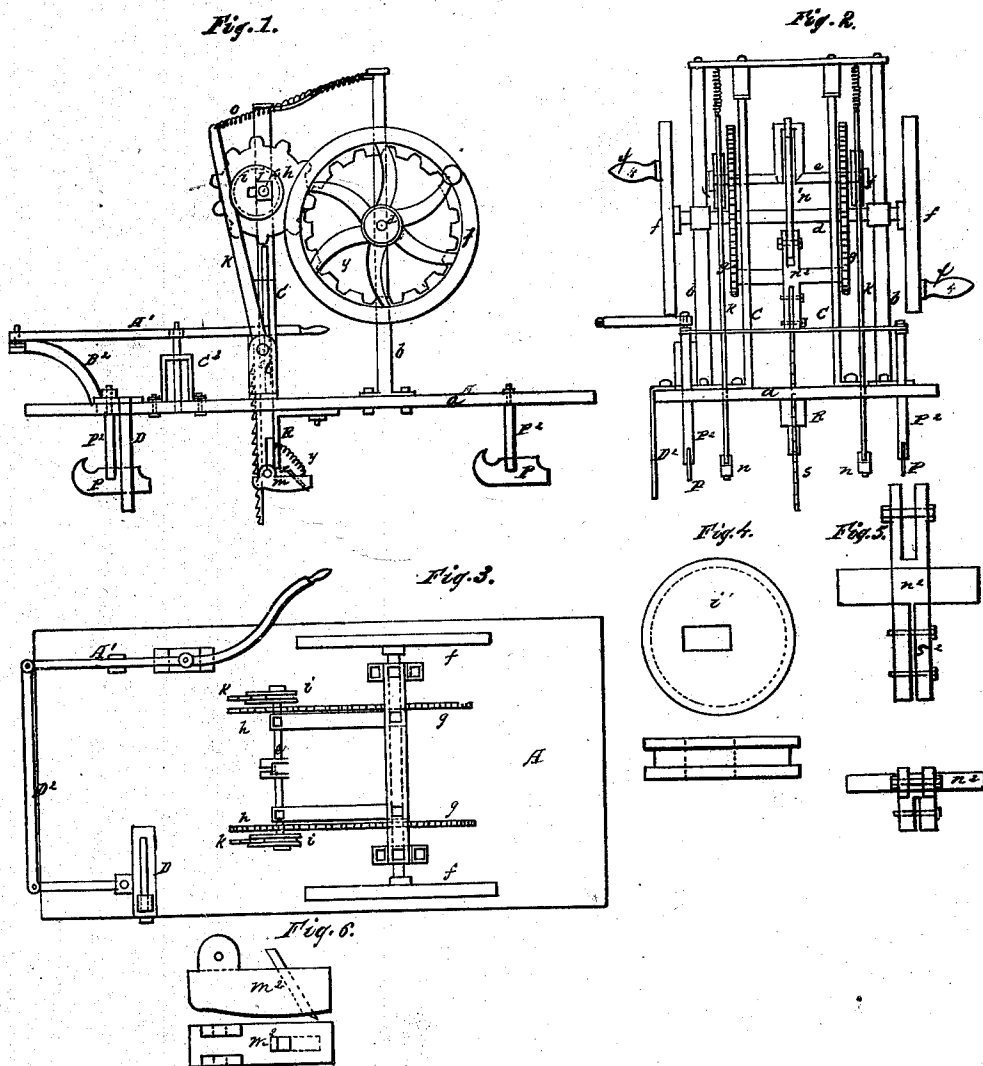


L. Barnum,
Ice Cutting Machine.
No. 112,408. Patented Mar. 7. 1871.



Witnesses:
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LAFAYETT BARNUM, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO HIMSELF AND A. R. HALE, OF SAME PLACE.

Letters Patent No. 112,408, dated March 7, 1871.

IMPROVEMENT IN ICE-CUTTING MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

I, LAFAYETT BARNUM, of Bridgeport, county of Fairfield, State of Connecticut, have invented certain new and useful Improvements in Machines for Sawing Ice, of which the following is a specification.

My invention relates to that class of machinery used for sawing or cutting ice from the lake into sizes suitable for storing, and consists of a combination of a saw, and suitable appliances for operating same, with frame and runners, in such a manner that the machine will be self-feeding and easily set to any desired gauge; also, to facilitate turning corners or changing direction.

Description of the Accompanying Drawing.

Figure 1 is a side elevation of machine.

Figure 2 is a front elevation of machine.

Figure 3 is a plan of same.

Figure 4 is a detail of feed-cam.

Figure 5, a detail of cross-head and saw-holder.

Figure 6 is a detail of feed-shoe.

General Description.

a is a frame or platform.

b b, uprights, with bearings for shaft.

c c, uprights, containing guides for cross-head and bearings for shaft *e*.

d, main driving-shaft.

e, crank-shaft.

f f, balance-wheels.

g g, toothed wheel, communicating power to toothed pinions, *h h*.

i i, feed-cams.

k k, feed-lever.

l l, fulcrums for feed-levers.

m m, feed-shoes.

n, cross-head or springs.

P P, runners.

P², runner-posts.

R, guide for saw.

B², lever connecting runner-post with link-bar *D²*.

O², the stand.

A, the lever to operate runners.

S, saw.

D is an adjustable gauge.

Mode of Construction.

The frame or platform *a* can be constructed of either wood or metal. To this is attached the runners *P*, by the posts *P²*, the rear posts rigidly bolted to the frame.

The front or guiding runner-posts are arranged to oscillate the frame, bearing on a shoulder formed on the posts.

These runners are connected together, for unison of

operation, by the sub-lever *B²* and link *D²*, the combination controlled by the lever *A*, having its fulcrum sustained by the stand *O²*, which is bolted to frame.

I then bolt the uprights *b b* to the frame at foot and connect the tops together with a cross-tie. In these uprights the bearings are formed for the main shaft *d*. On this shaft are keyed the balance-wheels *f f* and toothed wheels *g g*. On the rim of the balance-wheels are secured the handles *x x*.

In front of the uprights *b b* the uprights *c c* are set, their base bolted to the platform and tops secured by ties running from the rear uprights. In these uprights the guides for the cross-head *n* are formed; also, the bearings for the crank-shaft *e*.

The toothed pinions *h h* and cams *i i* are keyed in proper positions to receive and transmit the power.

The cross-head *n²* is nicely fitted to the guides in uprights, and is also provided with a wrist for the connecting-rod *n¹*, constructed in the usual manner, by which the cross-head *n* is united to the crank-shaft *e*, from which it receives its motion. On this cross-head the jaws or saw-holders are cast, in which the end of saw *S* is bolted.

To give greater security to the working of the saw the guide *R* is bolted underneath the frame, and so arranged that a flange or guide sits each side of the saw that keeps its action vertical, while the guide also bears against the back of saw and keeps it to its work.

To feed the saw up to the ice the shoe *m* is attached to the lever *k* by a hinge-joint. In this shoe a steel toe is set at a desired angle. To insure its working the spring *y* is added.

The lever *k* receives its motion from the adjusting-cam *i* on crank-shaft *e*, and is held against the cam by the spring *o*.

The cam *i* is slotted to change the throw of cam to suit circumstances.

To give uniform width to the cut the gauge *D* is set to follow in finished cut made by the saw through the ice. This gauge can be adjusted to give any width of ice desired.

Manner of Operation.

First, there is a suitable opening cut through the ice and the saw set down through and bolted in jaws of cross-head. The power is applied to the wheels *f* by the handles *x x*, thence to the saw *S* by the wheels *g*, pinions *h*, or shaft *e*, giving a reciprocating motion to the saw *S*. The cams *i i*, operating the levers *k* connected with feed-shoe *m*, force the toe into the ice and carry the machine forward. The direction of the machine is changed by the lever *A¹*. By setting the gauge *P* the machine will cut an even width of ice.

The advantages of my invention are:

First, it cuts completely through the ice at one operation.

Second, it is self-feeding, and can be easily adjusted to give a large or short cut, according to the thickness of the ice.

Third, the facility with which it can be turned to saw back and forth on the ice.

Fourth, I can apply either animal, manual, or steam-power to operate my machine.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The driving-shaft *d*, crank and cam-shaft *e*, in combination with frame *a*, feed-foot *n*, and saw *S*, ar-

ranged and operating, as specified, to actuate the saw and at the same time propel the machine.

2. The feed-shoe *m* with adjustable steel toe, in combination with lever *k*, hinge-joint, and spring *y*, arranged as described, to compensate for curved motion of lever *k*, for the purpose specified.

3. The adjustable propelling-cam *i*, in combination with shaft *e*, lever *k*, feed-shoe *m*, and saw *S*, arranged as shown, to vary the length of cut.

LAFAYETT BARNUM.

Witnesses:

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