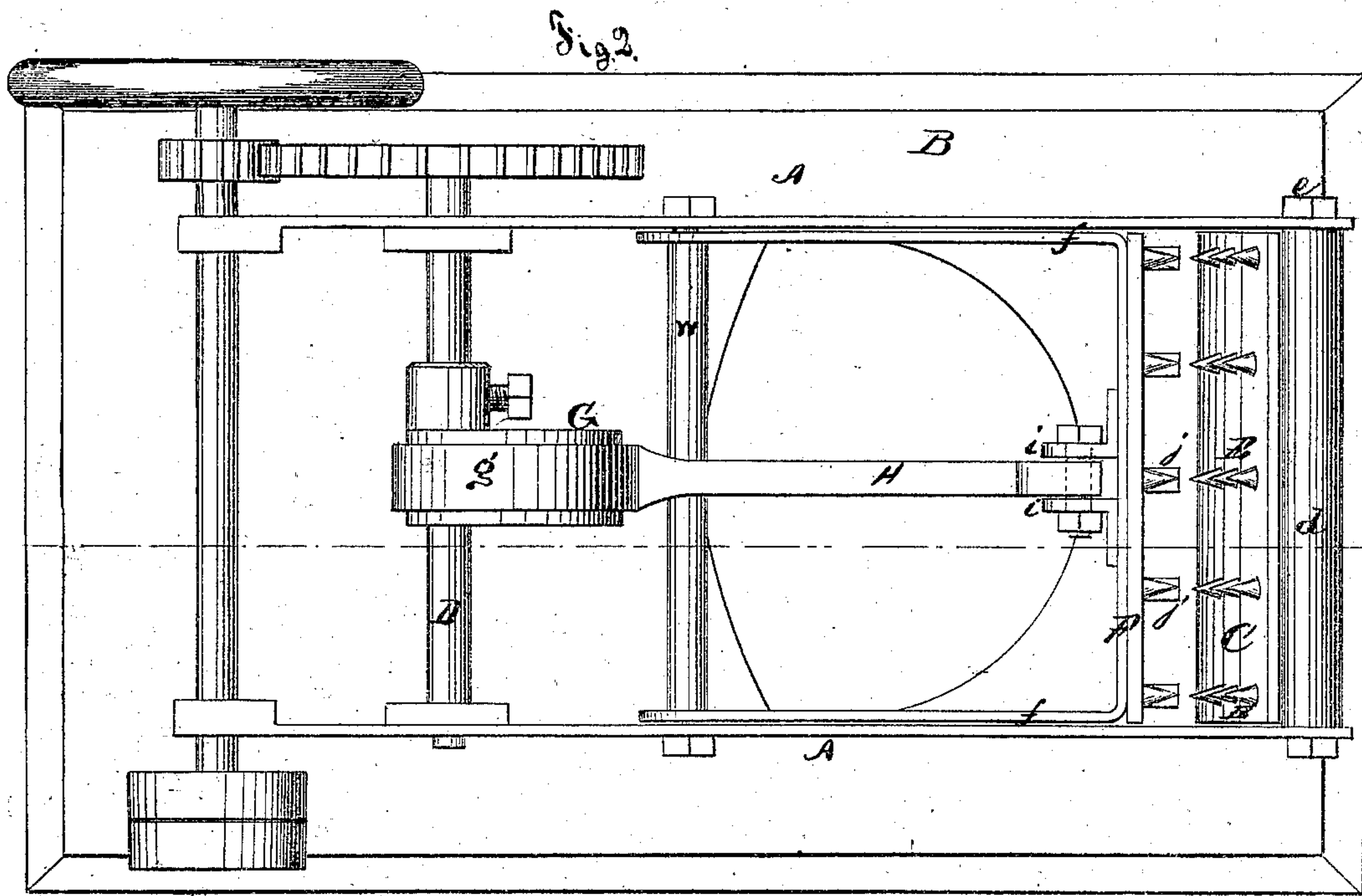
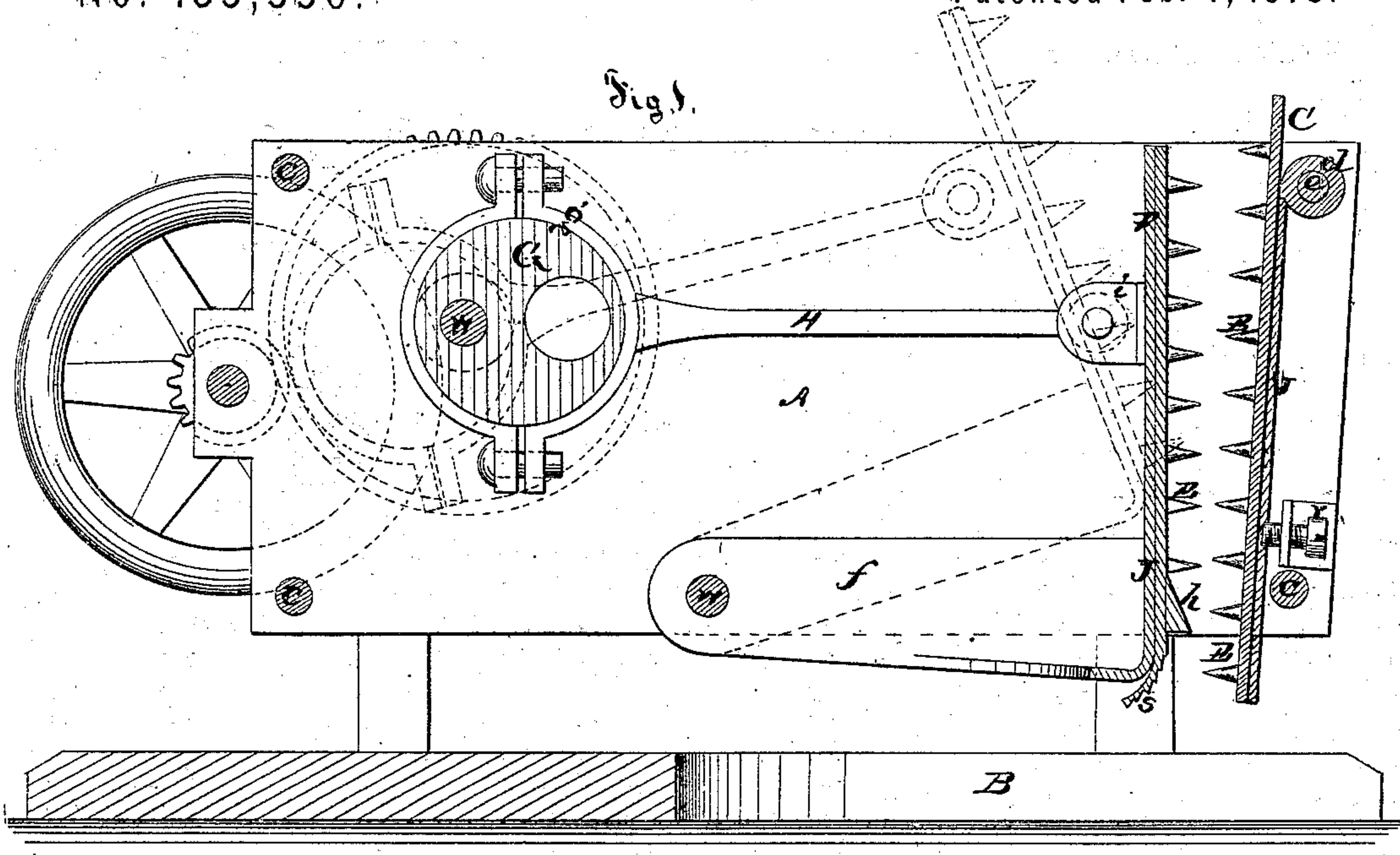


Ice-Crushers.

No. 135,556.

Patented Feb. 4, 1873.



Witnesses:

H. L. Mattenberg
M. J. Smith

Inventors;

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UNITED STATES PATENT OFFICE.

FRANK HUDNER AND JAMES R. LITTLE, OF NEW YORK, N. Y.

IMPROVEMENT IN ICE-CRUSHERS.

Specification forming part of Letters Patent No. 135,556, dated February 4, 1873.

To all whom it may concern:

Be it known that we, FRANK HUDNER and JAMES R. LITTLE, of the city, county, and State of New York, have invented a new and Improved Ice-Crusher; and that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon, making a part of this specification.

This invention relates to a machine for crushing cakes of ice for freezing cream, and other similar purposes; and the invention consists in a machine having a fixed jaw, and a jaw moving in the arc of a circle, said jaws being armed with steel conical teeth, and the whole being constructed in the manner hereinafter fully described.

In the accompanying sheet of drawing, Figure 1 represents a side view of our invention, and Fig. 2 a plan or top view of same.

Similar letters of reference indicate corresponding parts in the several figures.

A represents the sides of the machine, which may be of wood or any other suitable material, and of any desired size. These sides are affixed to a base, B, and are secured to the proper width by bolts *c*. C is a fixed jaw having secured on its rear side and near its upper end a sleeve, *d*, through which passes a bolt, *e*, in such manner as will admit of the sleeve turning thereon, so that the jaw C will be hung on a hinged joint. To the inner face of the jaw C are firmly affixed steel conical points E, which are arranged in rows in such manner as that one row of points will be over the space between the row of points next below, or their arrangement will be what is commonly known as "staggered." Within the sides A and conveniently near the jaw C is placed a movable jaw, F, having firmly affixed to the face thereof conical steel points in like manner as are affixed the conical steel points on the fixed jaw C. From and near the lower side extending backward from said jaw are two radial arms, *f*, by means of which said jaw is affixed to the sides A by a bolt, *w*, which passes through said sides and radial arms, so that said jaw will have said bolt *w* as a fixed center, from which said jaw will have a curved up-and-down motion. Through the sides A and near their forward ends is passed a shaft, D, rest-

ing on suitable bearings, to which, by set-screws or otherwise, is affixed an eccentric, G. Passing around the eccentric G is a strap, *g*, to which is attached a rod, H, which extends to and is received between lugs *i*, firmly secured to and near the upper end of the movable jaw F.

The construction of our machine being substantially as above described, its operation is as follows: Motion being communicated to the shaft D through gear-wheels or in any desirable manner, the eccentric G is caused to revolve, and the "throw" thereof will alternately raise the jaw F with a curved up-and-down movement, the extent of the curve being governed by the radial length of the radial arms *f* from the pivotal bolt *w*, the radial motion being at right angles to the plane of the face of the jaw F. As said jaw is raised the face thereof presents an angle to the fixed jaw C, making a wedge-shaped opening between both of said jaws for the introduction of a block of ice, which being introduced therein, and a downward motion imparted to the jaw F by the eccentric G, as said jaw assumes a position nearly parallel with the face of the jaw C, the conical steel points E in the faces of both of said jaws are forced into the ice, and splitting and tearing its particles asunder; for, as before stated, the movable jaw F moving in the arc of a circle, tears or rasps as it were the ice, in addition to the shape of the points which split it.

Near the lower side of the jaw F, at that point which comes nearest to the face of the jaw C, is affixed a cleat, *h*, the object of which is to force out the accumulated broken ice from the throat of the jaws, and thus prevent it from becoming clogged; or instead of said cleat *h* the lowermost rows of teeth *j* may be formed with flattened faces, which will effect the same object. Below the cleat *h* the movable jaw is curved slightly backward, as at *s*, and is serrated in the direction of its length, which also tends to keep clear the throat of the jaws and grind to fineness the particles of ice. To the backs of the jaws C and F are affixed by set-screws plates J, so that if any of the conical steel points E shall become loosened or broken by removing said plates the points may be readily removed or tightened.

The size of broken ice fragments may be

regulated to some extent by moving inward the lower part of the fixed jaw, which is accomplished by set-screws *r r*, the necessary yielding of the jaw being accomplished by the sleeve *d* turning on the bolt *e*.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the jaws of removable lock-plates for convenience in removing and tightening the teeth, substantially as described.

2. The stationary jaw, hinged at its upper end, and adjustable at the bottom by means of set-screws, as described, in combination with a movable jaw, operated as set forth.

3. The movable jaw, provided with means for clearing the throat of obstructions, substantially as described.

4. The combination, in an ice-crusher, of the eccentric, pitman-rod, and means for operating them, with the pivoted jaw moving, as described, and the adjustable stationary jaw, all constructed and operating substantially as set forth.

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Witnesses:

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