

J. GOODMAN.
ICE CRUSHER.
APPLICATION FILED JAN. 27, 1911.

1,043,418.

Patented Nov. 5, 1912.

2 SHEETS-SHEET 1.

Fig. 1.

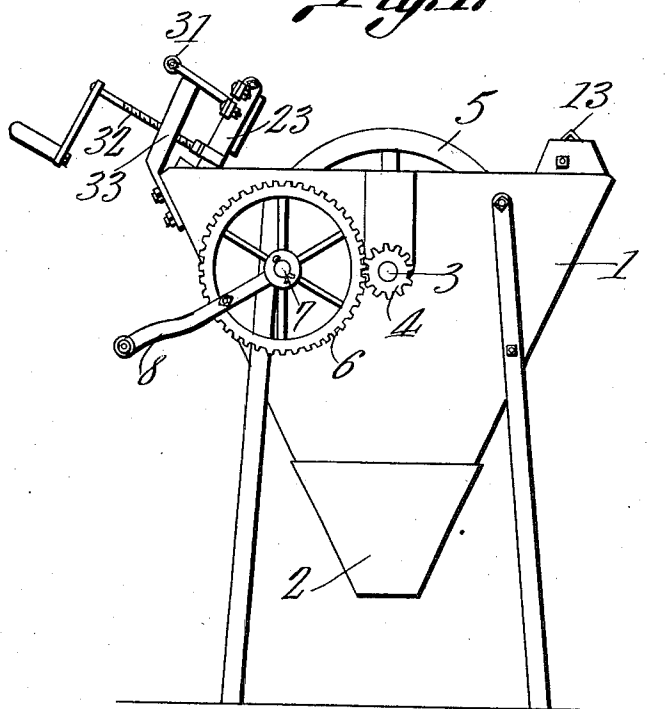
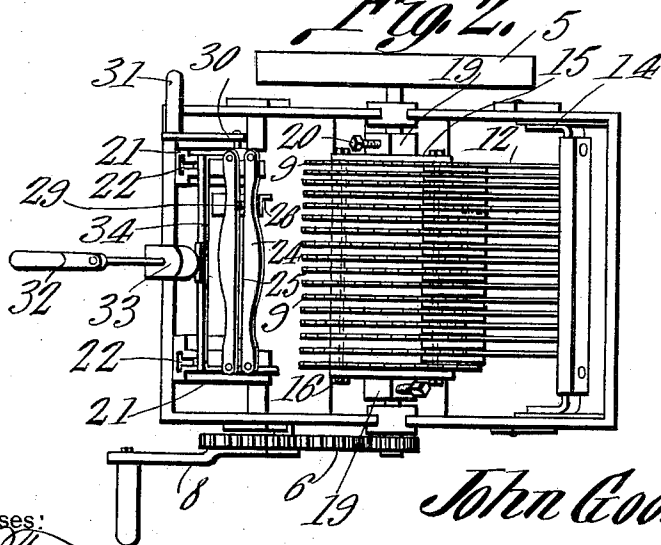


Fig. 2.



Witnesses:

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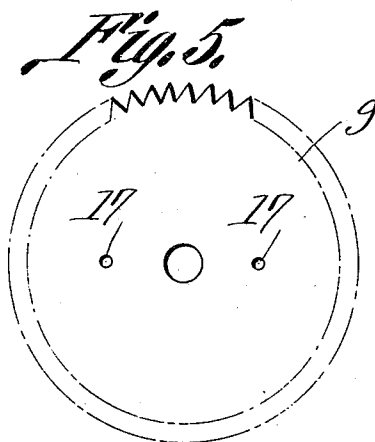
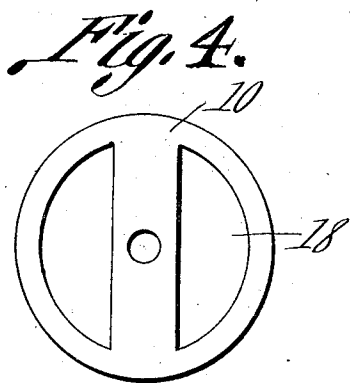
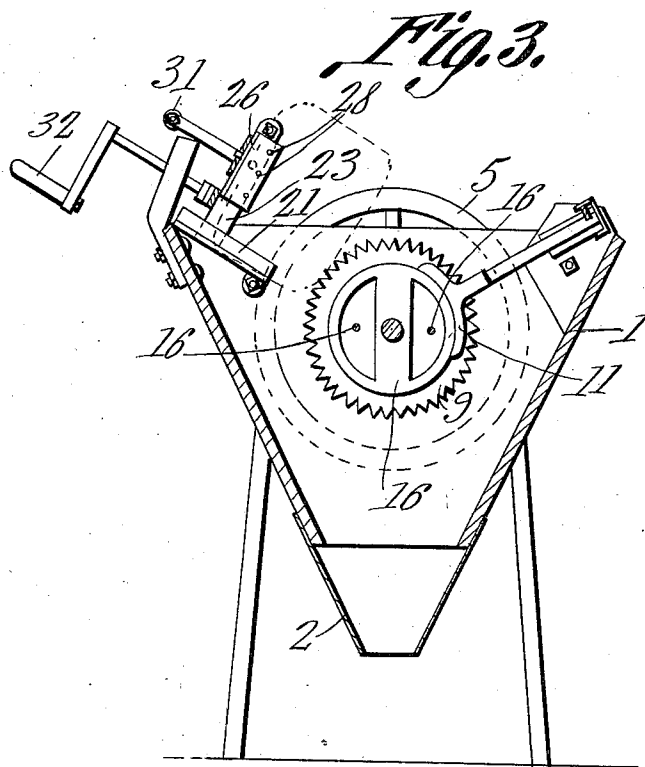
John Goodman Inventor,
by *C. A. Snow & Co.* Attorneys.

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UNITED STATES PATENT OFFICE.

JOHN GOODMAN, OF HASTINGS, MINNESOTA.

ICE-CRUSHER.

1,043,418.

Specification of Letters Patent.

Patented Nov. 5, 1912.

Application filed January 27, 1911. Serial No. 605,114.

To all whom it may concern:

Be it known that I, JOHN GOODMAN, a citizen of the United States, residing at Hastings, in the county of Dakota and State of Minnesota, have invented a new and useful Ice-Crusher, of which the following is a specification.

This invention relates to ice crushers.

The object of the invention is to provide an apparatus of this character which shall be simple in construction, efficient and durable in use, and in which the reduction of a large lump of ice to small pieces may be accomplished in a ready, easy, and practical manner.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of an ice crusher as will hereinafter be fully described and claimed.

In the accompanying drawings forming a part of the specification and in which like characters of reference indicate corresponding parts: Figure 1 is a view in side elevation of an ice crusher constructed in accordance with the present invention. Fig. 2 is a top plan view. Fig. 3 is a vertical transverse sectional view. Fig. 4 is a detail view of one of the washers for holding the saws properly spaced. Fig. 5 is a detail view of one of the saws.

Referring to the drawing, 1 designates a hopper shaped receptacle, which is constructed preferably of wood and has its lower end open and provided with a metallic hopper shaped funnel 2, through which the crushed ice is directed into a suitable receptacle.

Journalled in suitable bearings in the sides of the receptacle is a shaft 3 carrying at one end a pinion 4 and at its other end a fly wheel 5. This shaft is driven from a gear wheel 6 mounted upon a stub shaft 7, the gear having connected with it a suitable handle 8 by which to drive the shaft 3.

Mounted upon the shaft is a series of circular saws 9, of which there may be any preferred number, and which are held at the proper distance apart by annular spacers 10 of smaller diameter than the saws, which may be of the character shown in Fig. 4 or be otherwise constructed.

In order to prevent the accumulation of ice between the saws, which would detract from their cutting qualities inasmuch as

they could not make a deep cut, there is disposed between each pair of saws an arcuate cleaner or cleaning head 11, which, as shown in Fig. 3, is an arcuate head that fits snugly the exterior or periphery of the spacer between the saws and within the saw teeth. These cleaners are carried by arms 12 that are secured at one end to shanks projecting from an intermediate portion of the cleaners beyond the saw teeth and at the other end to a bar 13, the ends of which have secured to it angle irons 14 that are securely bolted to the interior of the end walls of the receptacle thus forcing the cleaners radially against the spacers. The arms 12 are of a thickness approximately equal to the thickness of the saws and are secured to the sides of the shanks of the cleaning heads so as to extend close to the saws and contact with the adjoining shanks in order to close the spaces between the said shanks, thus preventing particles of ice from passing between the shanks of the cleaning heads (see Fig. 2).

To hold the saws and cleaners rigidly upon the shaft 3, head plates 15 are provided through which extend bolts 16, the latter passing through openings 17 in the saws and arcuate openings 18 in the spacers. These head plates and all-through bolts will, of course, merely clamp the cutting elements and spacers together, but will not prevent longitudinal movement upon the shaft, and to obviate this collars 19 are combined with the shaft which bear against the head plates and are held against movement on the shaft by jam bolts 20.

The means for feeding ice to the saws and holding it against retrograde movement comprises a frame embodying two channeled base members 21 which are securely bolted to the interior of one end wall of the receptacle as shown in Fig. 3 and which are declined from the upper edge of the end wall radially toward the shaft 3. The channels 22 of the base members are T-shaped, and are engaged by the lower ends by a pair of uprights 23, the terminals of which are formed properly to engage the channel. The uprights are connected and rendered rigid by a pair of bars 24 as shown in Fig. 2, these bars being spaced apart to furnish a guideway 25 for a movable clamping jaw 26, a stationary clamping jaw being secured to the adjacent upright as shown in Fig. 2, and the opposed faces of

each of these clamping jaws are armed with spurs 28 that are provided for the purpose of biting into the outer end of a block of ice and thus hold it firmly. The jaw 26 is provided with a stud or pin 29 that works in the guideway 25 and thus causes it to co-act properly with the jaw 27. In order to operate the movable jaw there is a screw shaft 30 provided, the outer end of which is provided with a suitable crank 31. This shaft is connected for rotary movements with the jaw 26, and is threaded into an opening in the adjacent standard 23, so that upon the crank being turned the jaw will be caused to approach or recede from the jaw 27 as may be necessary.

In order to force the ice firmly against the saws, there is a crank shaft 32 provided which is threaded into an arm 33 firmly bolted to the front wall of the receptacle. The inner end of the shaft is connected for rotary movements with a bar 34 that has its ends bent around and secured to the uprights 23. It will be seen from this arrangement that the ice can be fed firmly against the saws, at the same time be held against working loose from the clamp, so that certainty of operation of the device is secured.

While the apparatus herein shown has been found thoroughly efficient for the purposes designed, it is to be understood that the invention is not to be limited to the precise details shown, as various changes may be made in the proportions and arrangement of the different parts without departing from the spirit of the invention.

I claim:

1. In an ice crusher, a receptacle, a shaft journaled therein, a plurality of circular

saws on the shaft, annular spacers of smaller diameter than the saws arranged between the saws, arcuate cleaning heads fitting snugly between the saws and within the teeth and bearing snugly against the peripheries of the spacers and having shanks projecting from an intermediate portion thereof beyond the saw teeth, bars secured to the sides of the shanks and extending to the saws and contacting with the adjacent shanks, and a bar to which said bars are secured and having its ends secured to the receptacle so as to force the cleaning heads against the spacers.

2. In an ice crusher, a receptacle, a rotary shaft journaled through the sides thereof, a plurality of saws carried by the shaft, two base members secured to the interior of one end of the receptacle and declining from the upper edge of the end radially toward the shaft, each base member having a T-shaped channel, a pair of uprights having their lower ends engaging in the said channels, a pair of spaced bars radially connecting the uprights and forming a guideway, a movable jaw having a lug working in the guideway, a stationary jaw carried by one upright, a screw shaft rotatably connected to the movable jaw and screw-threaded through the other upright, and means for sliding the uprights along the base members.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOHN GOODMAN.

Witnesses:

JOHN RARTZ.

F. M. CROSBY.