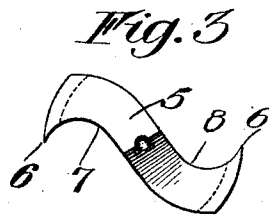
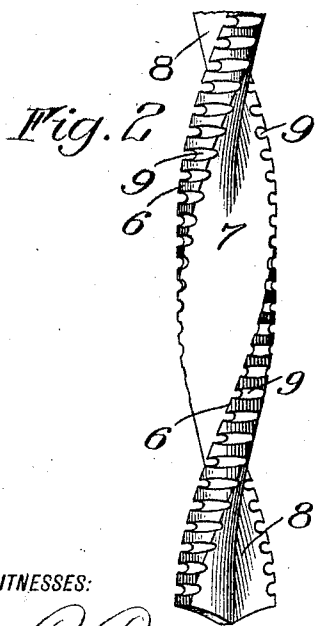
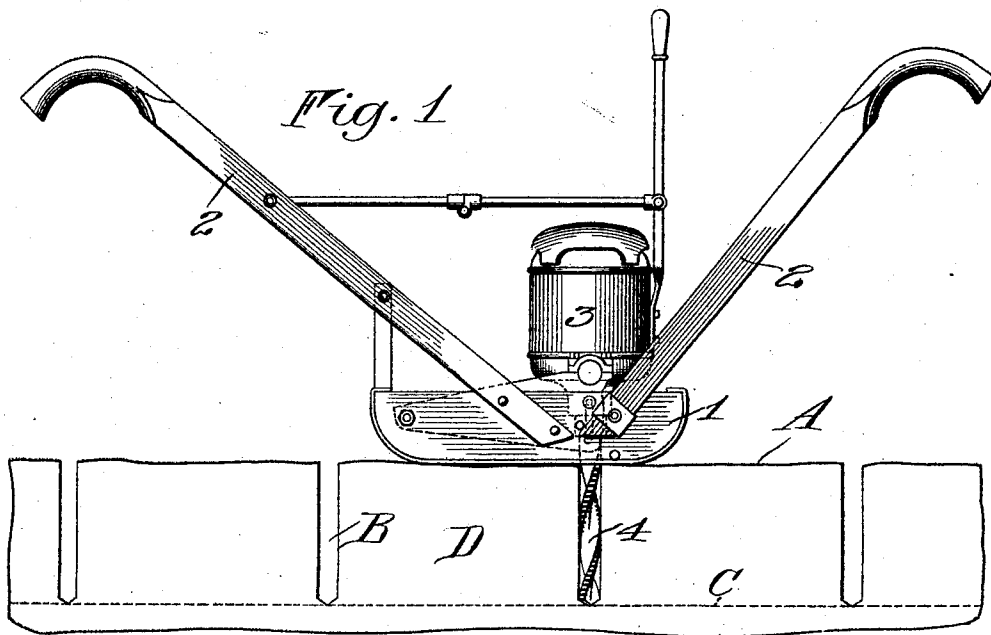


H. L. F. TREBERT.  
ICE CUTTING TOOL.  
APPLICATION FILED FEB. 28, 1917.

1,307,525.

Patented June 24, 1919.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

HENRY L. F. TREBERT, OF ROCHESTER, NEW YORK.

## ICE-CUTTING TOOL.

1,307,525.

Specification of Letters Patent. Patented June 24, 1919.

Application filed February 28, 1917. Serial No. 151,404.

*To all whom it may concern:*

Be it known that I, HENRY L. F. TREBERT, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Ice-Cutting Tools; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference-numerals marked thereon.

My present invention relates to cutting tools and more particularly to rotary cutters and it has for its object to provide a cutter of this nature particularly adapted for cutting ice into blocks and which will effectively meet the problems peculiar to work on this particular kind of material. The improvements are directed in part toward making provision for rapid work at high speed and the effective elimination of chips under such circumstances. To these and other ends the invention resides in certain improvements and combinations of parts all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings:

Figure 1 is a side elevation of an ice cutting machine provided with a tool constructed in accordance with and illustrating one embodiment of my invention;

Fig. 2 is an enlarged fragmentary elevation of the tool, and

Fig. 3 is an end view thereof.

Similar reference numerals throughout the several views indicate the same parts.

The particular machine with which I prefer to use this tool is shown and described in my co-pending application, Serial No. 151,403 filed of even date herewith, and it need not be set forth in detail here but it is shown in Fig. 1 and comprises, generally, a sled or vehicle 1 pushed or drawn over the surface of the ice by means of handles 2 and carrying a vertically disposed motor 3 that hangs between the runners. Connected to and driven by the motor to turn on a vertical axis is the cutter 4 which projects downwardly between and below the runners and below the surface A of the ice a sufficient distance to cut kerfs B of the desired depth indicated at C and divide the ice into

blocks D. The machine is pushed about on the ice to carry the cutter 4 laterally against the body of ice in any direction desired.

The cutter must travel at high speed to cut rapidly and ice being an extremely brittle though soft substance, the chips that are formed are apt to powder up and cake and foul the cutter if the least opportunity is given them to do so. In order to effect this rapid cutting and also a free discharge of the chips, I have designed the details of the tool as shown more particularly in Figs. 2 and 3. It has the general form of an ordinary twist drill generated by the twisting of a flat body 5 of substantially uniform thickness and cross sectional area. The edge faces of the bar that then constitute the periphery of the twisted tool are each cut to form a series of teeth 6 having flat cutting edges and disposed in spiral rows longitudinally of the tool. Between these series and alternating with them are longitudinal spiral chip-clearing channels 7 and 8. It is important that these channels be curved in cross section, as best shown in Fig. 3 to give a pronounced undercut clearance to the cutting edges of the teeth 6 so that they may bite effectively and cleanly into the ice wall against which they are pressed, and also to improve the chip discharging properties of the channels themselves. Adjacent tooth units of each series or row are separated at and in rear of their cutting edges by transverse throats 9 that lead into the channels 7 and 8.

I have experimented with a number of cutters approaching more or less closely the present one in form, but none other has worked successfully or approached in efficiency the perfection of this one which, as before indicated, cuts rapidly and easily without clogging. It is useful in separating the ice into blocks both when harvesting and when cutting the blocks that have frozen together out of the ice house. Furthermore, this cutter and its method of use has this distinct advantage in harvesting ice out doors over the usual methods. Where a circular ice cutting saw is used, as heretofore, rotating on a horizontal axis in a vertical plane, a sharp kerf is made but the chips are scattered and thrown quite a distance so that the kerf is clear and the water

wells up clear into the opening. If a cold night intervenes, for instance, between the cutting and the floating of the blocks, this clear water freezes quickly and closes the cut, uniting the blocks solidly together again. That is, the blocks are so solidly united that they cannot be broken apart readily and yet they may not be sufficient to support a horse, man and machine for re-cutting.

With my device, the chips clear the tool as it progresses along the cut but are left churned up in the kerf so that the water wells up with difficulty through and around them. Therefore, if ice forms at all, it is soft snow ice that can readily be dislodged and broken up with a pole so that the cut blocks may be floated away without difficulty after quite an interval and the labor of the previous day not lost.

I claim as my invention:

1. A rotary ice cutting tool formed by the twisting of a flat body of substantially uni-

form thickness and cross sectional area, the periphery of the tool presenting the form of alternating longitudinal spiral rows of teeth and chip-clearing channels, the channels being curved in cross section to give a pronounced undercut clearance to the teeth and facilitate the discharge of the chips.

2. A rotary ice cutting tool formed by twisting a flat body of substantially uniform thickness and cross sectional area, the periphery of the tool having the form of alternating longitudinal spiral rows of teeth and chip-clearing channels, the teeth having flat cutting edges and the channels being curved in cross section to give a pronounced undercut clearance to the teeth, the curvature being abrupt at the cutting edge and proceeding thence from a gentle into a reverse curve.

HENRY L. F. TREBERT.

Witnesses:

RUSSELL B. GRIFFITH,  
AGNES NESBITT BISSELL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."