

No. 739,718.

PATENTED SEPT. 22, 1903.

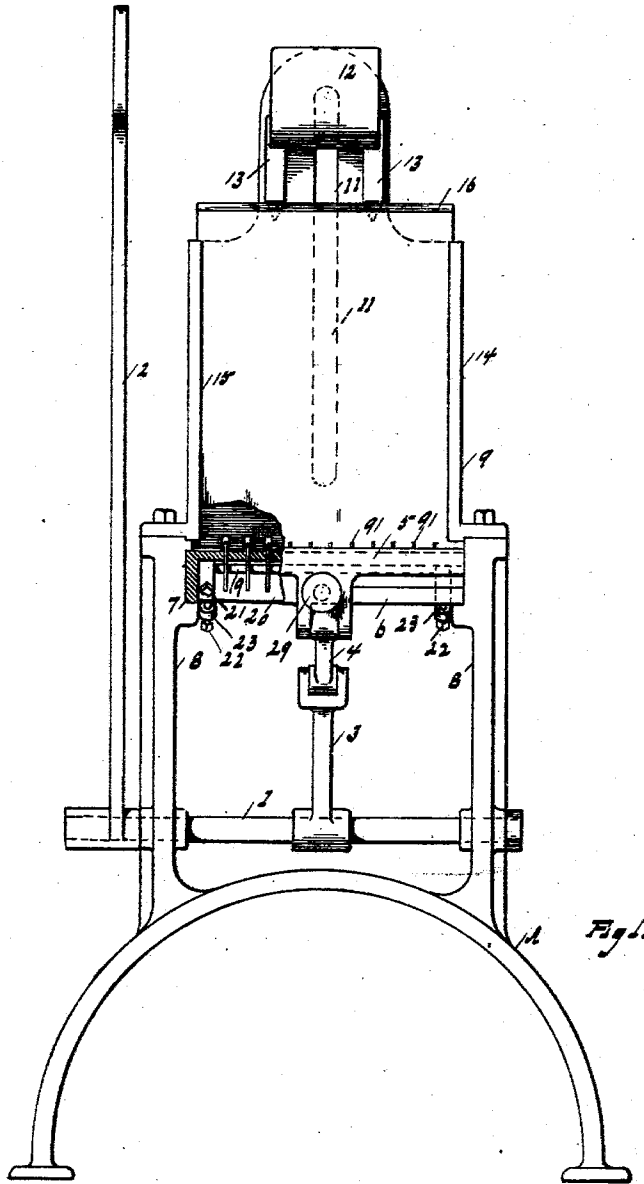
F. J. & A. H. REINHOLD.

ICE CUTTING MACHINE.

APPLICATION FILED JAN. 27, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES

T. J. Mason
May E. Kott

INVENTORS:

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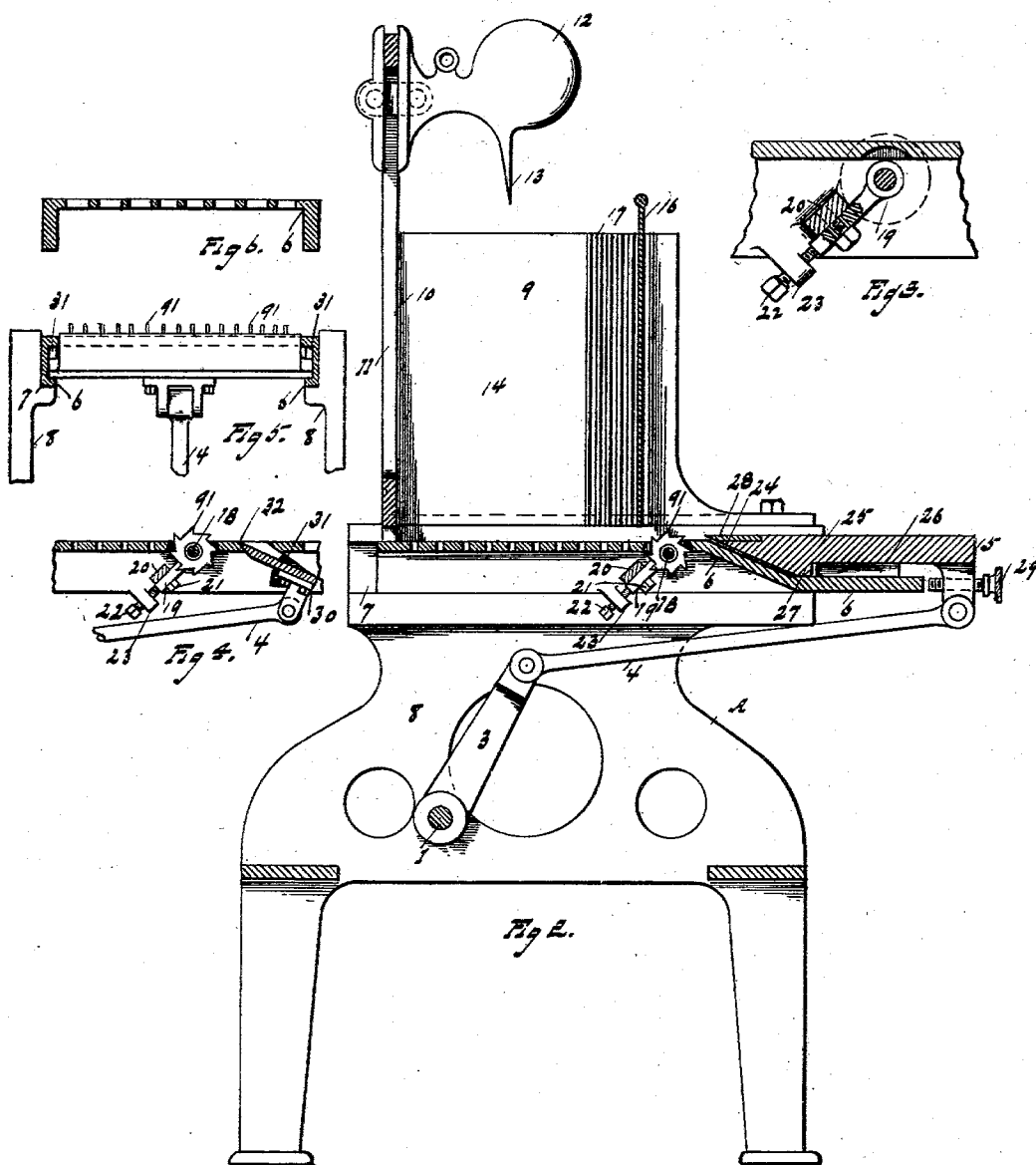
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J. T. Massey
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UNITED STATES PATENT OFFICE.

FRANK J. REINHOLD AND ALEXANDER H. REINHOLD, OF DETROIT, MICHIGAN, ASSIGNORS TO LINA REINHOLD, OF DETROIT, MICHIGAN.

ICE-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 739,718, dated September 22, 1903.

Application filed January 27, 1902. Serial No. 91,324. (No model.)

To all whom it may concern:

Be it known that we, FRANK J. REINHOLD and ALEXANDER H. REINHOLD, citizens of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Ice-Cutting Machines; and we declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to ice cutting and shaving machines, and has for its object an improvement in those machines which are intended to cut blocks of ice into small pieces by a process analogous to a shaving process.

In the drawings, Figure 1 is an end elevation, a small part of the figure being shown in section. Fig. 2 is a sectional side view. Fig. 3 is an enlarged detail of the slitter which precedes the shaving-knife. Fig. 4 is a detail showing a modified form of shaving-knife. Fig. 5 is a detail end view indicating the position of the slitter. Fig. 6 is a section showing the grating on which the ice-block rests.

The machine rests on a base A, which supports a crank-shaft 1, actuated by a hand-lever 2 and having secured to it a rock-arm 3, to the end of which is pivoted a link 4, that reaches to a knife-bearer 5. The knife-bearer is connected to a sliding table 6, which may or may not be provided with a grating, as is desired.

The table 6 slides on ways 7 in the side bars 8 of the frame, and above the table is secured a box or hopper 9, in which the block of ice to be treated is contained. The box or hopper 9 comprises a bearing-plate 10, which bearing-plate is provided with a vertical slot 11, in which engages a vertically-movable steady-weight 12, with the steady points or forks 13. The box or hopper has two side pieces 14 and 15 and an adjustable sliding back 16, which may be placed to engage in any pair of a number of grooves 17, that are formed in the two plates 14 and 15, the selection in the particular pair of grooves being

made to correspond with the size of the ice block to be treated.

The slide 6 carries a shaft 18, which is journaled at the end of adjustable studs 19, that are held to a cross-bar 20 of the frame by bolts 21. The bolts pass through slots in the studs 19, and the studs themselves are adjustable by means of adjusting-screws 22, that are threaded through lugs 23. On the shaft 18 are a number of slitting saw-like knives arranged to produce longitudinal slits in the block of ice as the slide passes under it, as hereinafter described. The depth to which these slitting-saws cut is regulated by the adjusting-screw 22.

Back of the slitting-saws 91 the slide 6 is provided with an oblique surface 24, on which rests a knife-carrier 25, and back of the oblique surface is a cross plate or bar 26, in front of which engages or can engage a hook 27 on the knife-carrier 25. The knife-carrier has secured to it on its forward end a knife 28. At the rear end the knife-carrier is provided with a part which hangs below the lower surface of the slide 6 and is provided with a screw 29, which adjusts the travel of the knife-carrier in a forward direction before the slide comes into action. The slide 26 is held from rising by the overhanging parts of the side plates 14 and 15, which overhang its track, and that part of its upper surface which lies below the ice is as much lower than the lower surface of the overhanging plates 14 and 15 as will furnish sufficient room for the size of ice shaving to be cut. The knife-carrier 25 is free to rise to bring the edge of the knife to the plane of the lower surface of the sides 14 and 15; but it can only rise until its independent motion is stopped by the engaging of the adjusting-screw 29 against the end of the slide 6, and the thickness of the shaving to be cut may thus be regulated within the limits of the space between the upper surface of the slide and the lower surface of the side plates 14 and 15.

The knife rises on its forward stroke under the drawing impulse of the link 4 and immediately falls to its lowermost position on the beginning of the back stroke and before it begins to retreat under the ice.

A similar result is produced by the use of the knife shown in Fig. 4, in which the knife-carrier instead of having a movement that is longitudinal of the slide has an oscillatory movement around the bearing 30. The knife in this case rests in a rectangular-shaped hole 31 in the side flanges of the slide 6 and on the forward stroke oscillates to bring the edge 32 of the knife up to a position above the table. On its back stroke the forward edge of the knife swings down until it is below the surface of the table. The oscillation is produced by the link 4 in the first part of its actuating movement. The space between the slitters 18 and the knife is open, so that the pieces of ice shaved off and broken off drop through this space into a receptacle beneath.

In operation the block of ice is to be treated is placed in the hopper and arranged to be held securely thereto by the slide-gate 15 and the weight 12. Its lower surface rests on the top surface of the slide 6, which together with the knife-carrier in Fig. 2 or with the surface which is over the knife in Fig. 4 reciprocate under the ice, cutting off from the ice at each reciprocation a shaving of ice, which drops in small pieces through the throat in the slide.

Immediately at the close of the forward movement of the knife and at the beginning of the back stroke the knife drops, so that during all the period of the back stroke the ice is resting on the surface of the slide and does not interfere with the knife, nor does the knife retard its dropping until the knife itself has passed out in under it.

What we claim is—

1. In an ice-shaving machine, in combination with a support arranged to hold a block of ice, a sliding plate arranged to reciprocate thereunder, a knife mounted on, and adapted to reciprocate a limited distance relative to, said plate in a direction forming an angle with the direction of motion of said plate, a pitman and crank adapted to reciprocate said plate, one end of the pitman being secured

to the knife and the other end to the crank, substantially as and for the purpose described.

2. In an ice-shaving machine, in combination with a support arranged to hold a block of ice, a sliding plate arranged to reciprocate thereunder, a cutting-knife attached to said plate and arranged to move a limited distance thereon to raise and lower its cutting edge, means for actuating said plate secured to said knife and adapted to actuate said knife relative to said plate, and means for adjusting the limits between which said knife may move relative to said plate.

3. In an ice-shaving machine, in combination with a support arranged to hold a block of ice, a sliding plate arranged to reciprocate thereunder, a cutting-knife attached to said plate and arranged to move a limited distance thereon to raise and lower its cutting edge, and means for actuating said plate secured to said knife so that it shall raise the edge of the knife when actuating said plate in one direction, and depress said cutting edge when actuating said knife in the other direction.

4. In an ice-shaving machine, in combination with a support arranged to hold a block of ice, a sliding plate arranged to reciprocate thereunder, a knife mounted on and adapted to reciprocate a limited distance relative to, said plate in a direction forming an angle with the direction of motion of said plate, a pitman and crank adapted to reciprocate said plate, one end of the pitman being secured to the knife and the other end to said crank, and means for adjusting the limits of travel of said knife, substantially as and for the purpose described.

In testimony whereof we sign this specification in the presence of two witnesses.

FRANK J. REINHOLD.

ALEXANDER H. REINHOLD.

Witnesses:

CHARLES F. BURTON,
MAY E. KOTT.