

Feb. 20, 1934.

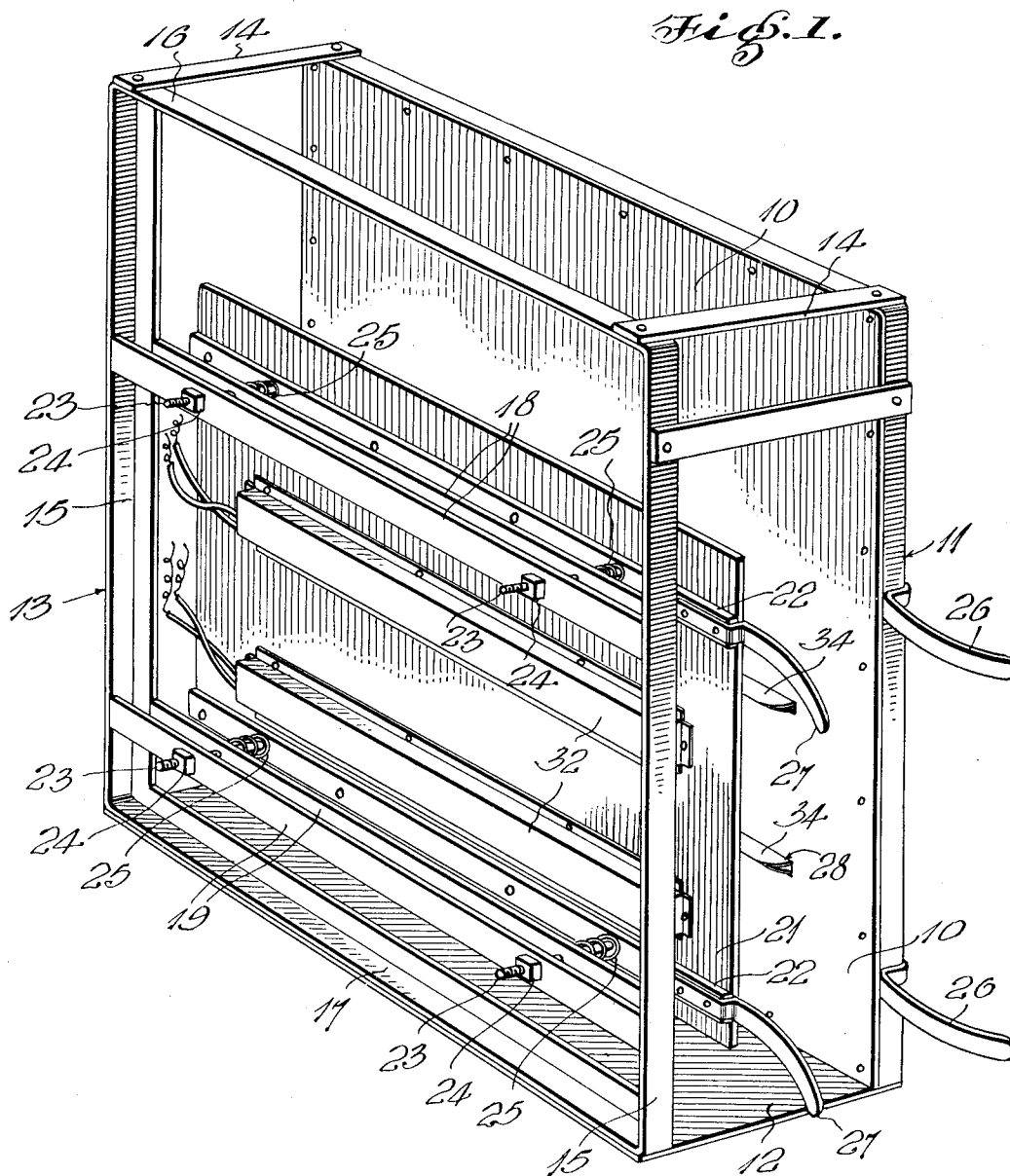
E. O. ROBINSON

1,947,740

ICE SCORING MACHINE

Filed Dec. 22, 1932

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 2.

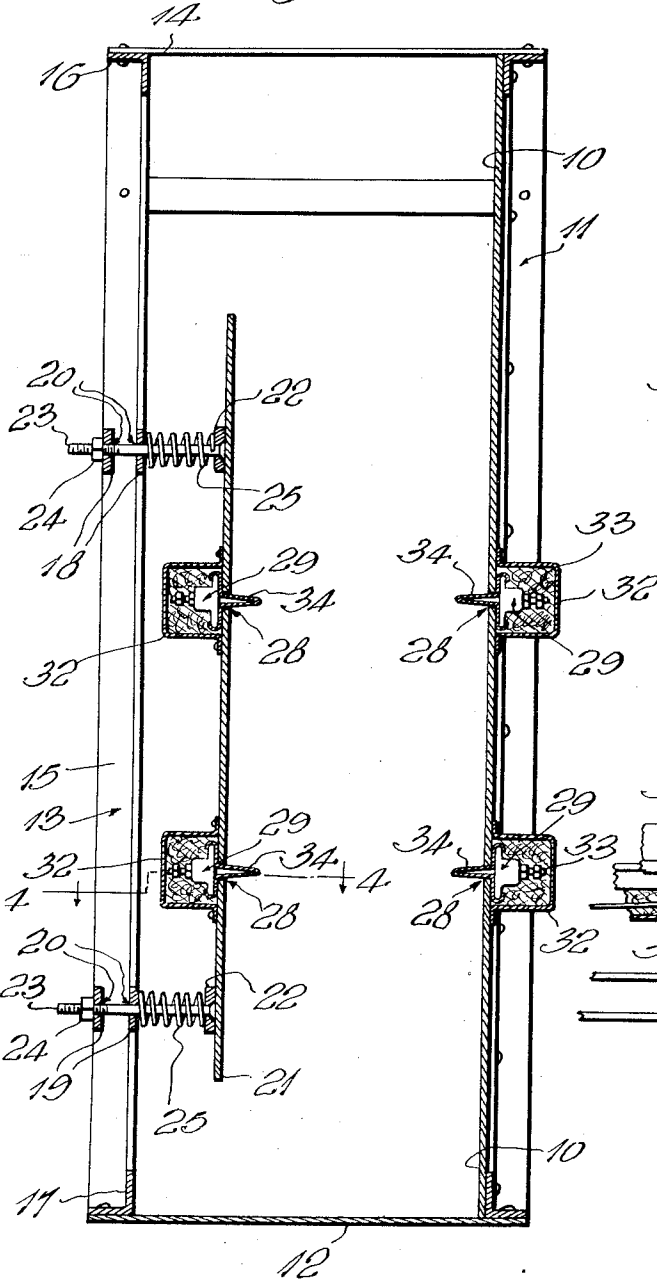


Fig. 3.

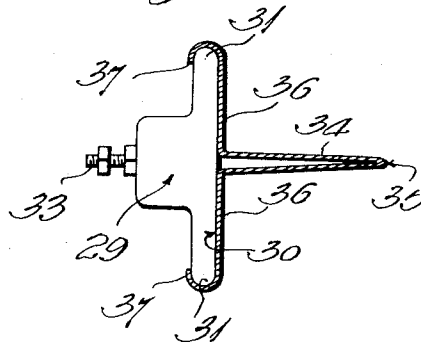
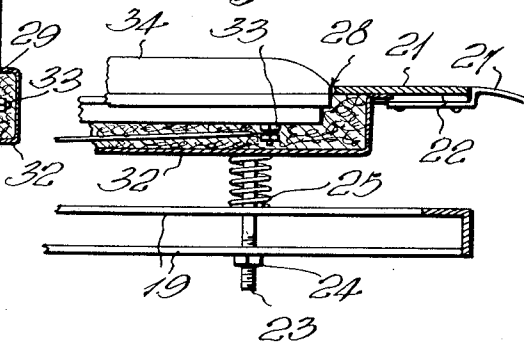


Fig. 4.



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UNITED STATES PATENT OFFICE

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ICE SCORING MACHINE

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5 Claims. (Cl. 62—112)

The invention relates to machines for scoring large blocks of ice in such manner as to permit them to be readily broken into smaller blocks, for instance, to so score a three-hundred pound block as to allow even breaking thereof into three one-hundred pound blocks.

The principal object of the invention is to provide an unusually simple and inexpensive, yet an efficient, reliable and durable machine of the class set forth.

Another object is to provide a machine which may be quickly and easily adjusted to score blocks of somewhat different thicknesses.

Parallel vertical plates carrying thermo-scoring blades, are mounted for relative inward and outward movement and any block of ice to be scored, is received between said plates. It is a further aim of the invention to provide a structure in which these plates are normally held in their relative inward positions by spring means and limited in their relative inward movement by stop means, and to provide the plates with diverging guides which are engaged by a block of ice entering between the plates, so that said plates will be sufficiently spread to receive the ice block and will then be yieldably forced by the spring means toward said ice block, causing the thermo-blades to melt their way into the latter.

Yet another object is to provide a novel assembly of electric heating unit and scoring blade in which said unit and said blade are connected with each other in a unique and advantageous manner.

With the foregoing and minor objects in view, the invention resides in the novel subject matter hereinafter described and claimed, description being accomplished by reference to the accompanying drawings.

Fig. 1 is a perspective view.

Fig. 2 is a vertical transverse sectional view.

Fig. 3 is a detail vertical sectional view partly in elevation showing the assemblage of heating unit and scoring blade.

Fig. 4 is a detail horizontal sectional view on line 4—4 of Fig. 2.

In the drawings above briefly described, the numeral 10 denotes a vertical plate for disposition at one side of a block of ice to be scored, said plate being riveted or otherwise fastened to a vertical side frame 11 which is preferably formed from angle iron. The frame 11 is fixed at its lower end to a bottom plate 12, and the lower end of another vertical side frame 13, is also secured to this plate 12, the two frames 11 and 13 being in parallel relation and being held at their upper

ends in rigidly spaced relation by a plurality of transverse bars 14.

The frame 13, in the construction herein disclosed, includes two vertical side bars 15, a top bar 16 and a bottom bar 17, all preferably formed from angle iron. Two flat horizontal bars 18 having their flat sides spaced apart and disposed in vertical planes, extend between and are welded or otherwise secured to the bars 15, near the upper ends of the latter, and two similar bars 19 related with each other in the same manner, extend between and are secured to the lower end portions of the bars 15. The bars 18 and 19 are provided with transversely aligned openings 20 for a purpose to appear.

Disposed at the inner side of the side frame 13 and parallel with the plate 10, is a second vertical plate 21 which is reinforced by horizontal bars 22 secured to its outer side, and projecting laterally outward from these bars, are a number of studs 23 which pass slidably through the openings 20 and so support the plate 21 that it may move toward and from the plate 10. The outer ends of the studs 23 are provided with adjustable nuts 24 adapted to strike the outermost of the bars 18 and 19, to limit the inward movement of the plate 21, and coiled compression springs 25 surround said studs to normally force the plate 21 inwardly to the extent allowed by said nuts 24. The springs 23 bear at their outer ends against the innermost of the bars 18 and 19 and bear at their inner ends against the reinforcing bars 22.

The inlet end of the machine is provided with ice guides 26 and 27, the former projecting from and being substantially flush with the inner side of the plate 10, while the guides 27 project from and are substantially flush with the inner side of the plate 21. The guides 26 and 27 diverge horizontally and may thus not only serve to guide a block of ice into position between the plates 10 and 21, but the guides 27 also serve to outwardly force plate 21 against the action of the springs 25, so that the ice block may readily be received between the two plates and inward pressure may then be exerted on plate 21 during the ice scoring operation. By adjusting the nuts 24, the distance between the plates 10 and 21 effected by the inward movement of plate 21, may be varied according to the thickness of the ice blocks to be scored, and it will be observed that the guides 27 will be properly adjusted by the mere adjustment of the aforesaid nuts 24, for said guides move bodily with the plate 21.

Each plate 10 and 21, is formed with a plurality

of longitudinal slots 28, and elongated electric heating units 29 of known construction, extend longitudinally of said slots at the outer sides of said plate, each of said heating units having a flat side 30 disposed toward the plate, and parallel longitudinal edges 31, one spaced upwardly from the slot 28 and the other spaced downwardly from said slot. The heating units 29 are appropriately mounted in casings 32 secured to the outer sides of the plates 10 and 21, and current may be conducted by any appropriate wiring to the binding posts 33 of said units. Preferably, heat-insulating material is contained in the casings 32.

Associated with the heating units 29 are a plurality of ice scoring blades 34 which pass through the slots 28. These blades 34 are constructed in a novel way and connected in a unique and advantageous manner with the heating units 29, and as the constructions in connection with all of said blades and units are the same, a description with reference to one blade and unit will suffice.

The blade 34 is formed from a single horizontally elongated metal strip which is bent upon itself along its longitudinal center line 35 to form the blade 34 of two-ply construction, said plies preferably diverging to some extent away from the center line or bend 35. These two plies of the bent metal strip are bent laterally away from each other to provide flat vertical flanges 36 which lie against the flat side 30 of the heating unit 29, and the free edges of said flanges 36, are given return bends 37 which snugly receive the edges 31 of the units 29, thereby establishing an effective connection between the blade and the heating unit, which will well conduct heat from the latter to the former. The heating units 29 may now be purchased upon the market and the metal strips bent as described, may be quickly and easily applied to said heating units to provide thermo-scoring blades for the ice.

It will be seen from the foregoing that the machine is simple and inexpensive, that it may be adjusted to handle blocks of ice varying somewhat in thickness, that the machine is always in readiness to receive a block of ice without the necessity of operating any cranks, levers or controls, that the block of ice as soon as received will be held in tight engagement with the scoring blades without the operation of any cranks, levers or controls, and that the scoring operation will be performed in short order. When one block of ice is properly scored, if another one is to be immediately received in the machine, this other block may be moved into position between the plates 10 and 21 and caused to push out the scored block, and obviously these operations may be repeated as many times as necessary.

While the details disclosed are preferably followed, variations may be made within the scope of the invention as claimed, and it is not therefore to be understood that the invention is restricted to the exact construction shown.

I claim:—

1. An ice scoring machine comprising two vertical plates for disposition at opposite sides of a

block of ice, means mounting said plates for relative inward and outward movement, thermo-scoring blades carried by said plates, means for limiting the relative inward movement of said plates, spring means for normally relatively moving said plates inwardly to the spacing allowed by said limiting means, and diverging guide means projecting from said plates to be engaged by a block of ice entering the machine for the purpose of spreading said plates against the action of said spring means sufficiently to receive the ice block.

2. An ice scoring machine comprising a vertical plate for disposition at one side of a block of ice, thermo-scoring blades carried by said plate, mounting means for said plate, a second vertical plate for disposition at the opposite side of the block of ice, thermo-scoring blades carried by said second plate, spaced studs projecting laterally outward from said second plate, a side frame at the outer side of said second plate and having guides through which said studs pass slidably, compression spring surrounding said studs between said second plate and said guides for forcing said second plate toward the first named plate, stops on the outer ends of said studs to abut said guides and limit the inward movement of said second plate, and diverging guide means projecting from said plates to be engaged by a block of ice entering the machine for the purpose of outwardly moving said second plate against the action of said springs sufficiently to receive the ice block.

3. A structure as specified in claim 2; said stops being connected with said studs for adjustment longitudinally of the latter to adapt the machine for scoring blocks of ice of different thicknesses.

4. An ice scoring machine comprising a vertical plate for disposition at one side of a block of ice, thermo-scoring blades carried by said plate, a vertical side frame to the inner side of which said plate is secured, a second vertical plate for disposition at the opposite side of the block of ice, thermo-scoring blades carried by said second plate, horizontally spaced upper studs and horizontally spaced lower studs projecting laterally outward from said second plate, a second vertical side frame at the outer side of said second plate and including vertically spaced horizontal bars, said bars having openings through which said studs pass slidably, compression springs surrounding said studs between said bars and said second plate for forcing the latter inwardly toward the first named plate, and stops on the outer ends of said studs adapted to strike said bars to limit the inward movement of said second plate.

5. In an ice scoring machine, an elongated electric heating unit having a flat side and parallel longitudinal edges, and a strip of metal folded upon itself along its longitudinal center line to provide a two-ply blade, the two plies of said blade being bent laterally away from each other and lying against said flat side of said heating unit, the free edges of said laterally bent strip portions having return bends which receive and hold said edges of said heating unit.

EUGENE O. ROBINSON.