

Sept. 22, 1925.

1,554,432

W. HORNER

ICE SCORING MACHINE

Filed Jan. 28, 1924

3 Sheets-Sheet 1

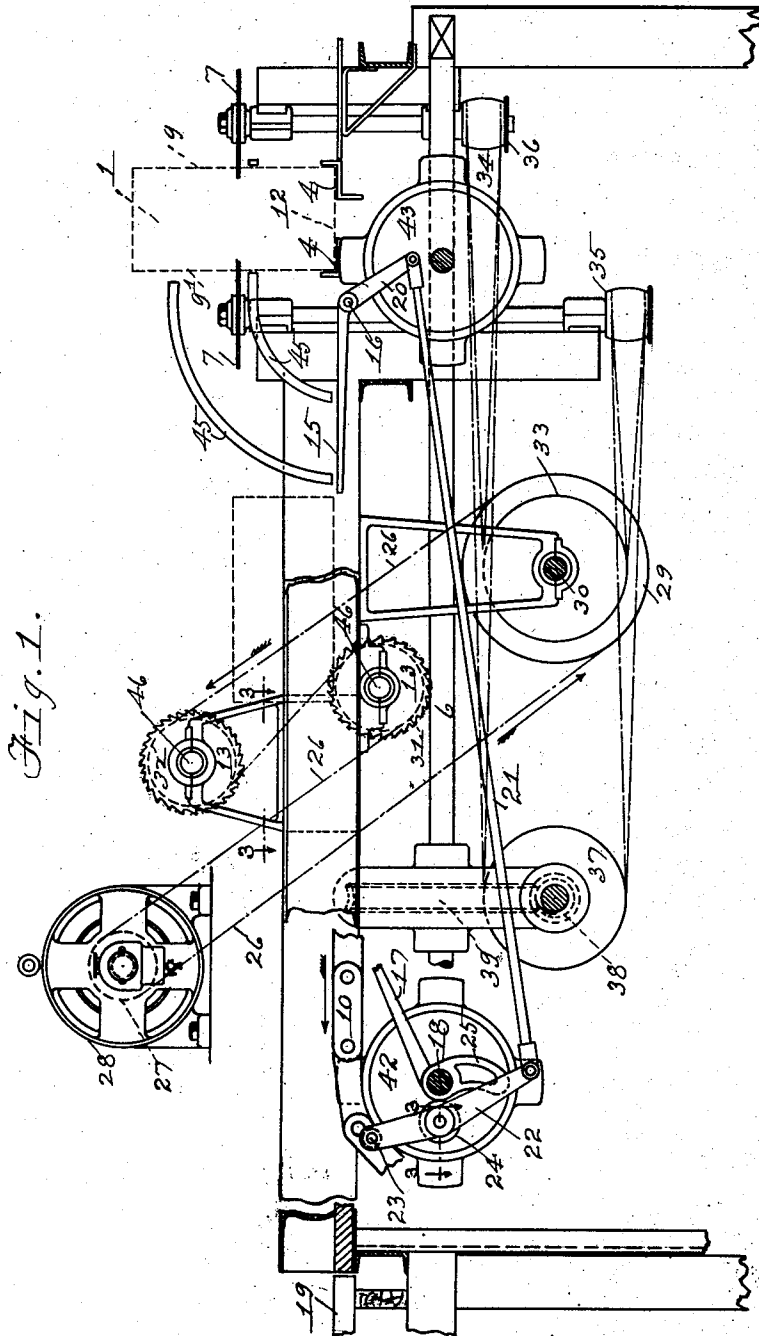


Fig. 1.

Witness:  
Geo. L. Chapel

Inventor:  
Walter Horner  
by Cyrus W. Rice  
Attorney

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3 Sheets-Sheet 2

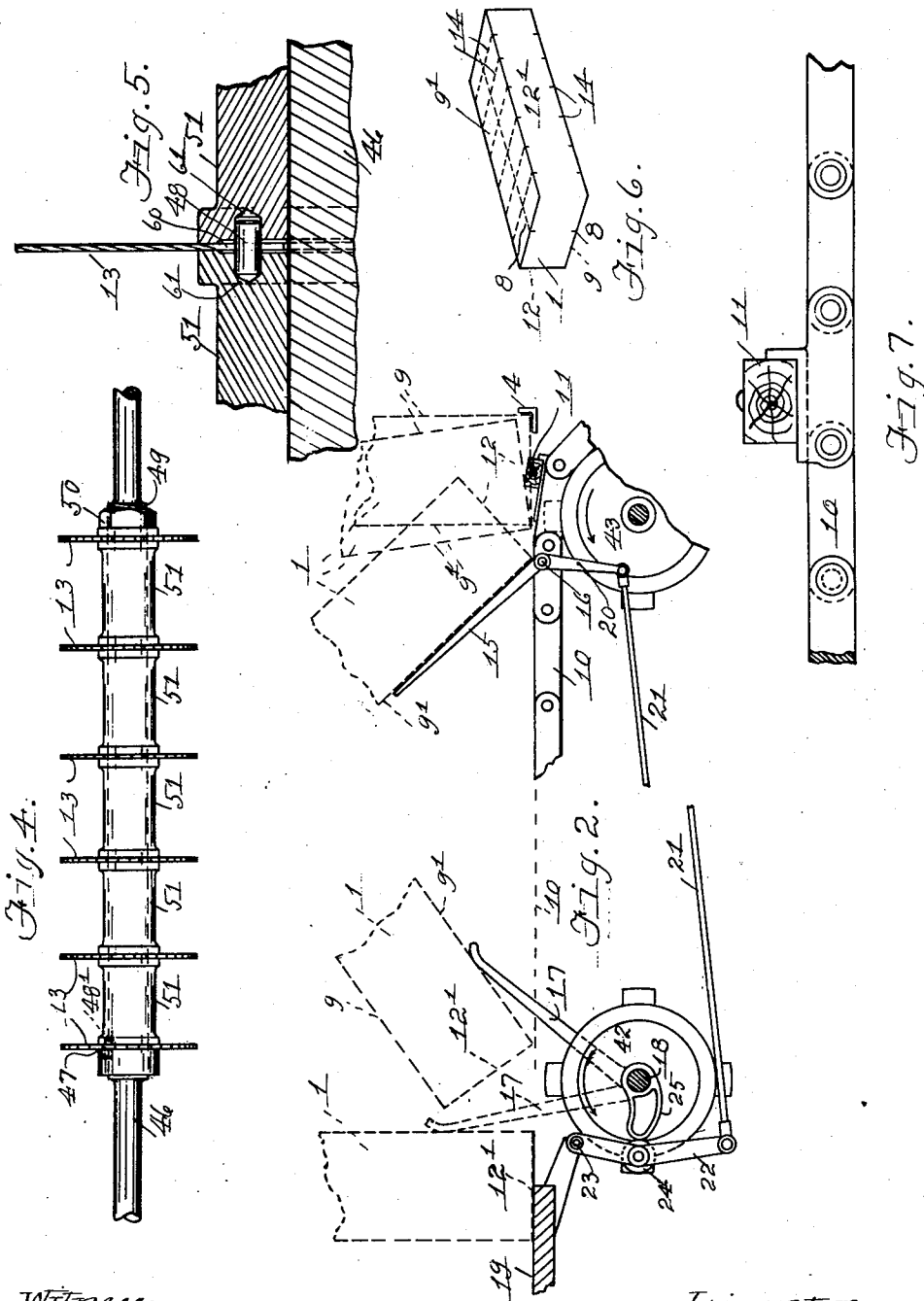


Fig. 1.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 2.

Witness:  
Geo. L. Chapel

Inventor:  
Walter Horner  
by Cyrus W. Rice  
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3 Sheets-Sheet 3

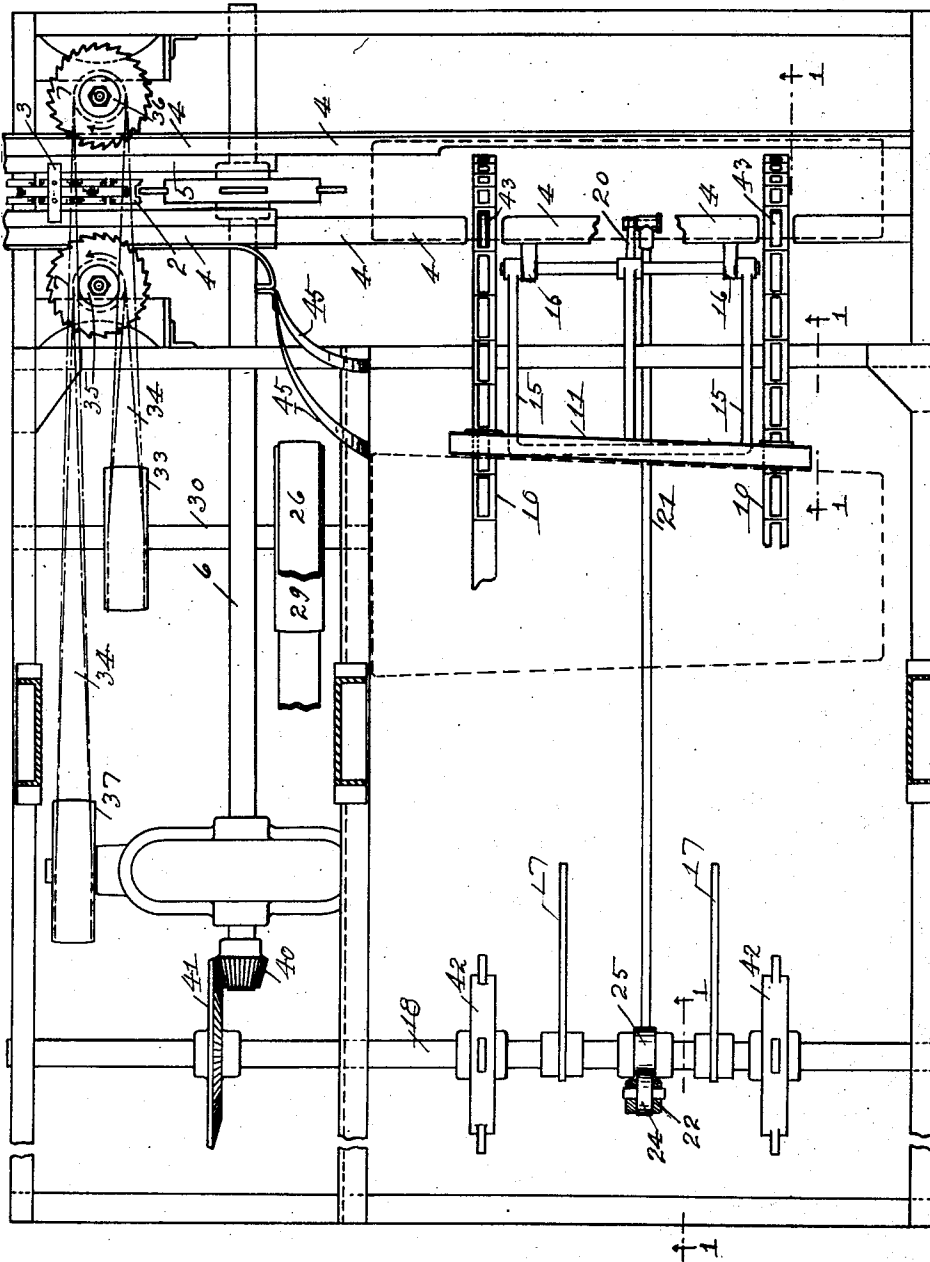


Fig. 3.

Witness:

Geo. L. Charles

Inventor:

Walter Horner  
by Cyrus W. Rice  
Attorney

# UNITED STATES PATENT OFFICE.

WALTER HORNER, OF GRAND RAPIDS, MICHIGAN.

## ICE-SCORING MACHINE.

Application filed January 28, 1924. Serial No. 688,976.

*To all whom it may concern:*

Be it known that I, WALTER HORNER, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented new and useful Improvements in Ice-Scoring Machines, of which the following is a specification.

The present invention relates to ice-scoring machines; and its object is, generally, to provide a machine of that character improved in various respects hereinafter appearing; and, more particularly, to provide such a machine whereby the sides of blocks of ice may be scored in transverse directions; and further, to provide in such a machine means for oversetting these blocks so that the sides thereof may be thus scored; and further, to provide in such a machine, means for oversetting these blocks, after being thus scored, to a position in which they may be readily handled; and further to provide improved means whereby a plurality of scoring elements may be removably mounted on their rotatable shaft.

These and any other objects hereinafter appearing are attained by, and the invention finds preferable embodiment in, the machine hereinafter particularly described in the body of this specification and illustrated by the accompanying drawings, in which:—

Figure 1 is a side view of an ice-scoring machine certain parts being sectioned vertically on line 1—1 of Figure 3;

Figure 2 is a side view of certain parts thereof, shown in another position;

Figure 3 is a top plan view of said machine, certain parts being sectioned horizontally on lines 3—3 of Figure 1;

Figure 4 is a side view of a rotatable shaft with scoring elements mounted thereon;

Figure 5 is an axial section of a portion of the same;

Figure 6 is a view in perspective of a block of ice scored by said machine; and

Figure 7 is a side view of a portion of a sprocket-wheel chain.

In order that a block of ice may be readily split into portions of equal weight, it is desirable that the block be scored along lines defining such portions.

In the embodiment of the invention chosen for illustration by the drawings and for detailed description in the body of this specification, approximately-rectangular blocks of ice are successively delivered from the

storage place thereof, by a belt conveyor, in the form of the sprocket wheel chain 2, having cross bars 3 for engaging and feeding the blocks along the horizontal way 4, this chain being carried by the sprocket wheel 5 on the shaft 6 and by a similar wheel (not shown). As the blocks are being thus fed through the operative field between the rotatable scoring elements, the circular saws 7, the same are scored at 8 on their opposite sides 9, 9<sup>1</sup>. When the block has been pushed along the way 4 to a position over the right hand bight of the conveyor, the sprocket wheel chain 10, it is engaged by a cross bar 11 carried by said chain, and is by the circuitous travel of this chain tilted from resting on its bottom side or edge 12 and overset, so as to rest on its side 9<sup>1</sup> on the chain, whereby it is fed through the operative field between other rotatable scoring elements, the circular saws 13, whereby the sides 9, 9<sup>1</sup> of the block are scored at 14, transversely to the scorings 8.

To prevent the block from being broken by a too-rapid oversetting movement and to relieve the machine from jars and strains otherwise resulting therefrom, a lever arm 15 pivotally mounted at 16 on the frame of the machine receives the side 9<sup>1</sup> of the block and by its slow turning sustains the block in this oversetting movement thereof. When the scoring of the block is completed, it is again overset to rest on another side or edge 12<sup>1</sup> in the position seen in Figure 2, so that the block may be slid about on the platform 19 and split along the lines of the scoring. This second oversetting is accomplished by the arms 17 carried by the shaft 18 and adapted to engage the under side 9<sup>1</sup> of the block as it is carried by the chain 10 after passing between the scoring elements 13. The lever 15 is swung by its short arm 20 connected by the link 21 to the lever 22 fulcrumed at 23 on the frame of the machine and having a friction roll 24 traveling on a cam 25 carried by the shaft 18.

In the construction illustrated, the moving parts of the machine are driven by the following means: a belt 26 is carried by the pulley 27 of the motor 28 and by the pulley 29 on shaft 30, and the pulleys 31, 32 on the shafts of the saws 13; the belt 34 is carried by the pulley 33 on shaft 30, the pulleys 35, 36 on the shafts of the saws 7 and the pulley 37 on the shaft of the worm indicated at 38 which meshes with the worm

wheel indicated at 39 on the shaft 6 carrying the bevel gear 40 meshing with the bevel gear 41 on the shaft 18. As shown, the chain 10 is carried by the wheels 42 on shaft 18 and by the wheels 43. Only one saw 7 and only one saw 13 may be provided, in which case the block is scored on only one side 9 or 9'. Curved guides 45 are desirably provided to guide the block to proper position on the chain 10 under the action of the lever 15. The saws 13 are desirably mounted removably on their carrying shaft 46, and in the following manner: This shaft has a shoulder 47 adjacent one end and a threaded portion 49 adjacent its opposite end carrying a nut 50. Spacing sleeves 51 and the saws 13 are assembled alternately on the shaft 46, all being removably held in such assembled position by turning down the nut 50, thus clamping the saws and sleeves between this nut and the shoulder 47. Pins 48 passing through orifices 60 in the saws and into sockets 61 in adjacent sleeves, serve to lock the sleeves and saws against interrelative turning movement, a similar pin indicated at 48', similarly seated, serving to thus lock the shoulder 47 and the adjacent saw together. The length of these successive spacing sleeves may increasingly diminish toward one end of the shaft, so that a block thicker at one end than at the other may be scored by the saws 13 to define portions of the same weight.

The invention being intended to be pointed out in the claims, is not to be limited to or by details of construction of the particular embodiment thereof illustrated by the drawings or hereinbefore described.

I claim:

1. A machine of the character described comprising, in combination: a scoring element; means for feeding approximately-rectangular blocks of work through said element's operative field; a second scoring element; means for receiving the work from the first-mentioned means and feeding the

same, transversely to the first-mentioned means' feeding direction, through the second-mentioned element's operative field; means intermediate said elements for oversetting the work to a resting position on another side thereof.

2. A machine of the character described comprising, in combination: rotatable scoring elements; means for feeding approximately-rectangular blocks of work through the operative field between said elements to score opposite sides of the work; other rotatable scoring elements; means intermediate said first and second mentioned elements for oversetting the work to resting position on another side thereof; means for receiving the work from the first-mentioned feeding means and feeding the same, transversely to the first-mentioned feeding means' feeding direction, through the operative field between the second-mentioned elements, to transversely score the work.

3. A machine of the character described comprising, in combination: rotatable scoring elements; means for feeding approximately-rectangular blocks of work through the operative field between said elements to score opposite sides of the work; other rotatable scoring elements; rotatable members disposed parallelly-axially; a conveyor carried thereby for feeding the work through the operative field between said second-mentioned elements in a direction transverse to the feeding direction of the first-mentioned means, said conveyor being adapted to engage the work fed thereto by the first-mentioned means and to overset the work to a resting position on another side thereof on the conveyor; a lever arm swingable to sustain the work in its oversetting movement; cam-operated means for governing the movements of the lever.

In testimony whereof I have hereunto set my hand at Grand Rapids, Michigan, this 23rd day of January, 1924.

WALTER HORNER.