April 15, 1941. F. X. DOTTERWEICH 2,238,805

ICE CUBE CUTTING MACHINE

Filed Dec. 8, 1938 3 Sheets-Sheet 1

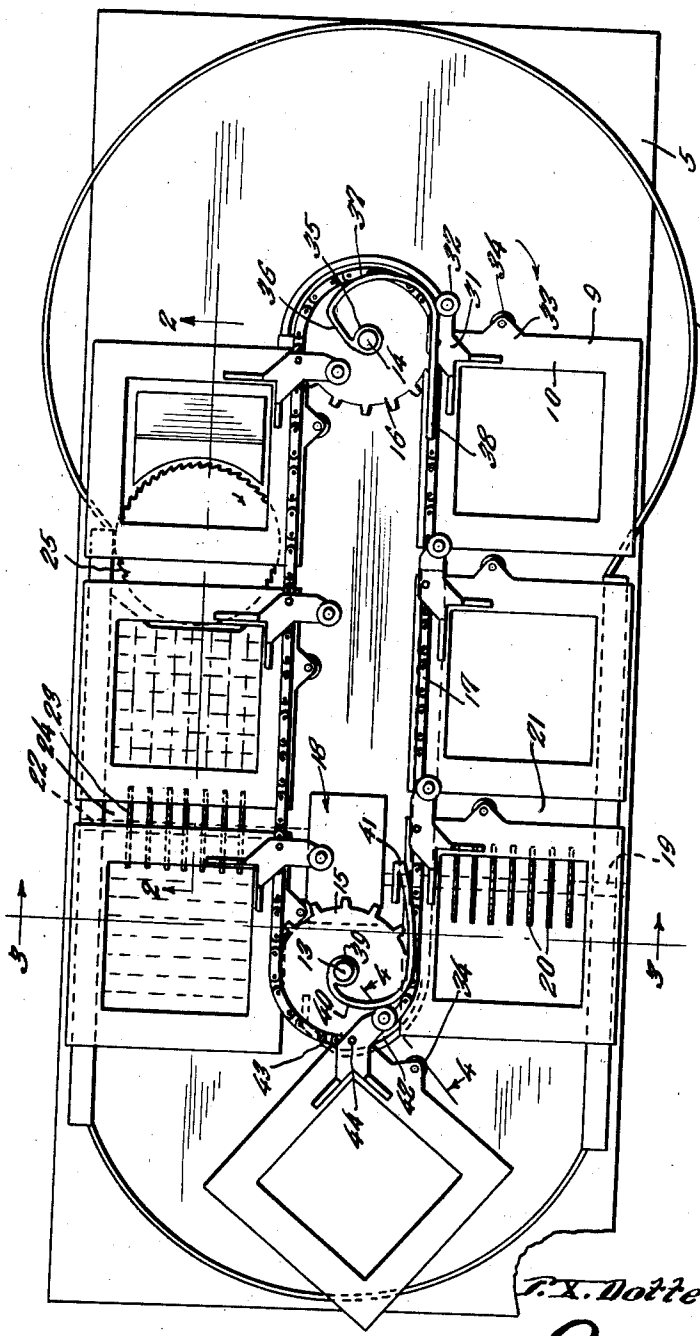


Fig. 1.

Inventor

F. X. Dotterweich

By Clarence A. O'Brien and Hyman Berman

Attorneys

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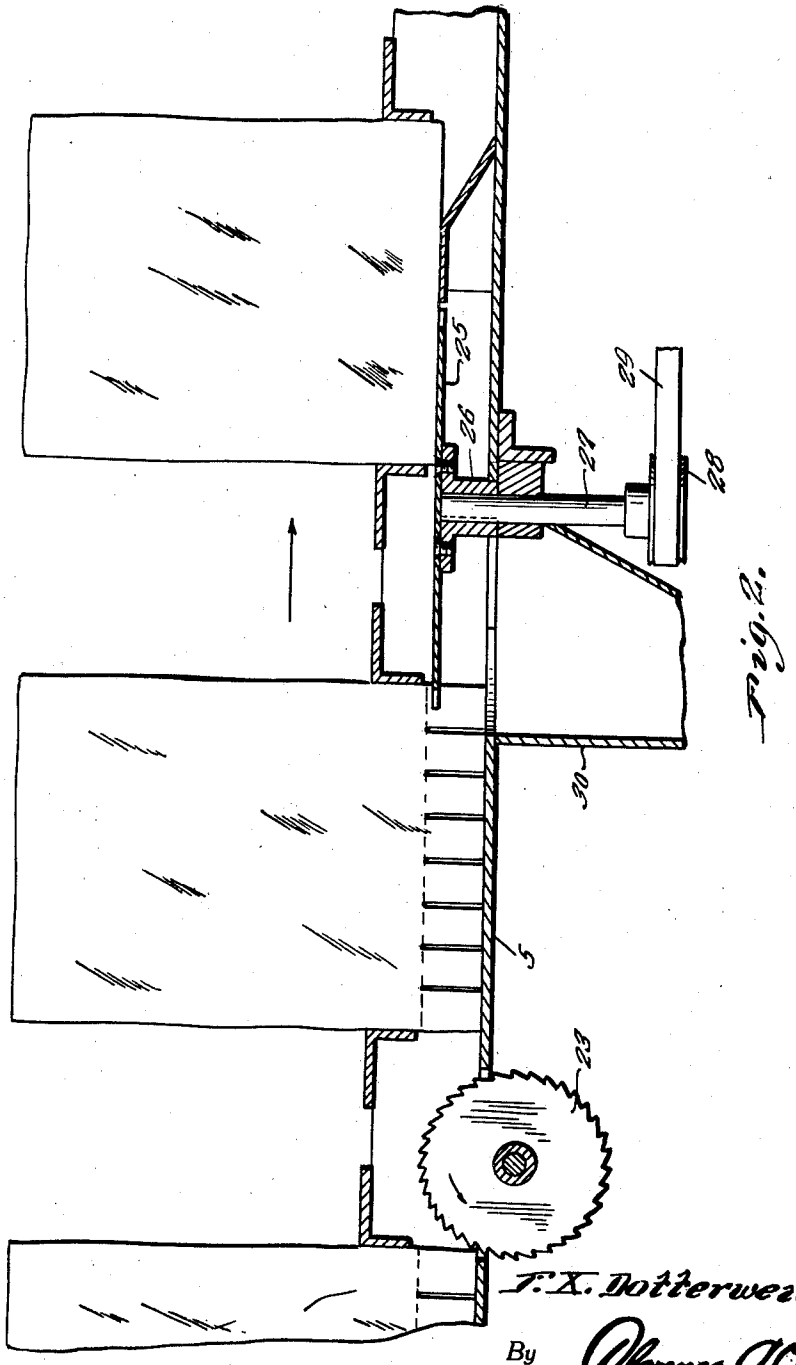


Fig. 2.

Inventor

F. X. Dotterweich

By Clarence A. O'Brien and Hyman Berman

Attorneys

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Fig. 3.

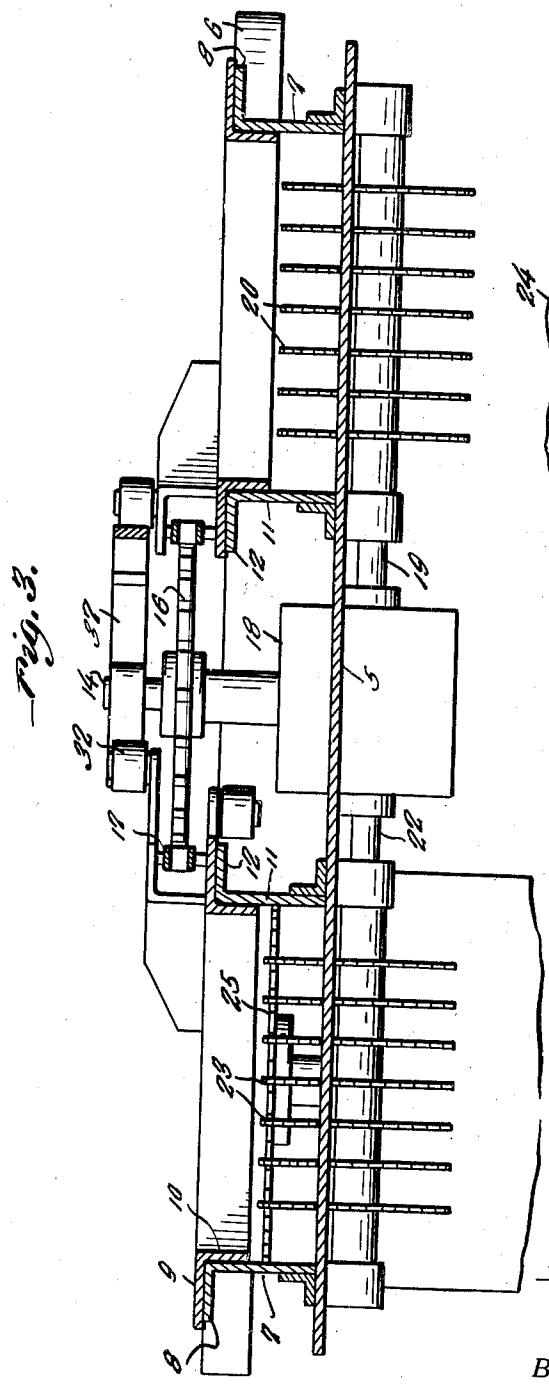


Fig. 5.

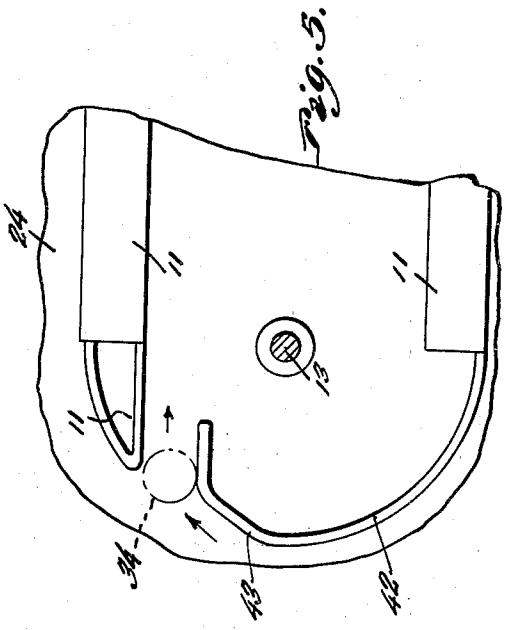
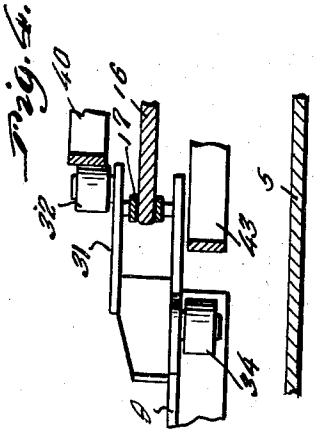


Fig. 4.



Inventor

F. X. Dotterweich

By Clarence A. O'Brien and Hyman Berman

Attorneys

Patented Apr. 15, 1941 2,238,805

UNITED STATES PATENT OFFICE

2,238,805

ICE CUBE CUTTING MACHINE

Francis X. Dotterweich, Dunkirk, N. Y.

Application December 8, 1938, Serial No. 244,693

1 Claim. (Cl. 143—38)

This invention appertains to new and useful improvements in apparatus whereby blocks of ice can be expeditiously cut into small cubes.

The principal object of the present invention is to provide a cubing machine which will automatically cube ice and which will afford means whereby ice can be cubed in large quantities for hotels, restaurants, and other places where large quantities of ice cubes are required.

Other objects and advantages of the invention will become apparent to the reader of the following specification.

In the drawings—

Figure 1 represents a top plan view.

Figure 2 is a sectional view taken substantially on line 2—2 of Figure 1.

Figure 3 is a sectional view taken substantially on line 3—3 of Figure 1.

Figure 4 is a fragmentary detailed sectional view showing the cam means.

Figure 5 is a fragmentary top plan view with certain parts removed and in section through one of the sprocket wheel shafts.

Referring to the drawings wherein like numerals designate like parts, it can be seen that the machine includes an elongated rectangular-shaped table 5 which at one end is provided with the semi-circular-shaped wall 6 which merges at its ends with the parallel side walls 7—7 the upper ends of which are flanged outwardly to provide tracks 8 which support the outstanding flanges 9 of the ice block-holding frames 10. Closely spaced inner walls 11—11 in parallel relation to each other and to the side walls 7 also have outstanding flanges defining tracks 12 for supporting the flanges of the ice block holders.

At the ends of the inner walls 11 are located the upstanding shafts 13 and 14 on which are the sprocket wheels 15 and 16. Around these sprocket wheels are trained the sprocket chains 17. Numeral 18 generally refers to a transmission for driving the shaft 19 carrying the vertical disk saws 20 in the trough 21 and for also driving the shaft 22 carrying the vertical disk saws 23 in the trough 24.

Also located in the trough 24 is the horizontal disk saw 25 mounted on the hub 26 which is secured to the shaft 27, the latter preferably having the pulley 28 over which the power belt 29 is trained.

Numeral 30 represents a chute which extends downwardly from the table 5 at a point under the horizontal saw 25.

As can be seen in Figure 1, each ice block holding frame 10 has an arm 31 projecting from one corner thereof in alignment with one side of the frame and this carries the rollers 32. Adjacent this arm 31, the frame flange 9 has an ear 33 which supports a roller 34.

Again referring to Figure 1, it can be seen that extending from the collar 35 on the shaft 14 a cam extends tangentially as at 36 and then sweeps around as at 37 to merge with the short wall structure 38 overlying one of the inner walls 11.

Extending from the collar 39 on the shaft 13 is the arcuate-shaped cam 40 which has the tail portion 41 sweeping backwardly over the adjacent end portion of the same wall 11 and against this rides the rollers 32. Below the level of the sprocket 15 is a second cam 42 against which the complementary roller 34 of each holder can strike as the chains 17 starts to pull the holder to complete a 180° turn, but instead of making the 180° turn, only a 90° movement of the frame is accomplished when the roller 34 strikes the inturned portion 43 of the cam 42 and causes the frame to move inwardly of the trough 24 at a position at right angles to what it was while in the trough 21. At this point it will be observed that each of the frames is connected by its arm 31 to the sprocket chain 17 as at 44.

It can be seen that the ice is supported by the table 5 as shown in Figure 2 and moves along the trough 21 first being cut by the saws 20. The ice block is then swung around by the rollers and cams 40 and 42 to move into the trough 24 at right angles to the position it was in moving through the trough 21. In the trough 24 it is cut again by the saws 23, the saws 23 making cuts intersecting the cuts made by the saws 20. Subsequently the horizontal saw 25 cuts off the intersecting cut portions of the block and the thus formed cubes drop through the chute 30 into a suitable container.

The frames are then swung by engagement of the rollers 32 with the portions 36 and 37 of the cam at the opposite end of the apparatus through a 270° turn to be reinserted into the trough 21 for a repeat of the cycle.

As can be seen in Figure 5, the rollers 34 serve to guide the holders into the trough 24 by passing between the wall structure 11 and the straight terminal portion of the cam 42.

As can be seen in Figure 1, the ice block carrying frames are pulled by the travel of the chain 17, while at the opposite side of the table the carrying frames are pushed by the chain. This action is obtained through the camming action at the ends of the trough.

While the foregoing specification sets forth the invention in specific terms, it is to be understood that numerous changes in the shape, size and materials may be resorted to without departing from the spirit and scope of the invention as claimed hereinafter.

Having described the invention what is claimed as new is:

An ice cube machine comprising a table having a pair of spaced troughs connected at their opposite ends, a gang of rotating saws in each of the troughs cutting on planes extending longitudinally of the troughs, driven sprockets mounted between said troughs and at the ends thereof, an endless chain connecting said sprockets, cams mounted on the sprockets, ice carriers pivotally supported by the endless chain movable over said saws, roller means on said ice carriers for engagement with said sprockets, arms carrying rollers mounted on said ice carriers for cooperating engagement with the cams for rotating the ice carriers approximately ninety degrees as they pass from one trough to the other, and means for cutting off that portion of the ice sawed by the gangs of saws.

FRANCIS X. DOTTERWEICH.