Jan. 14, 1930. E. D. BRODHEAD 1,744,024

ICE DISPENSING APPARATUS

Filed April 10, 1928 3 Sheets-Sheet 1

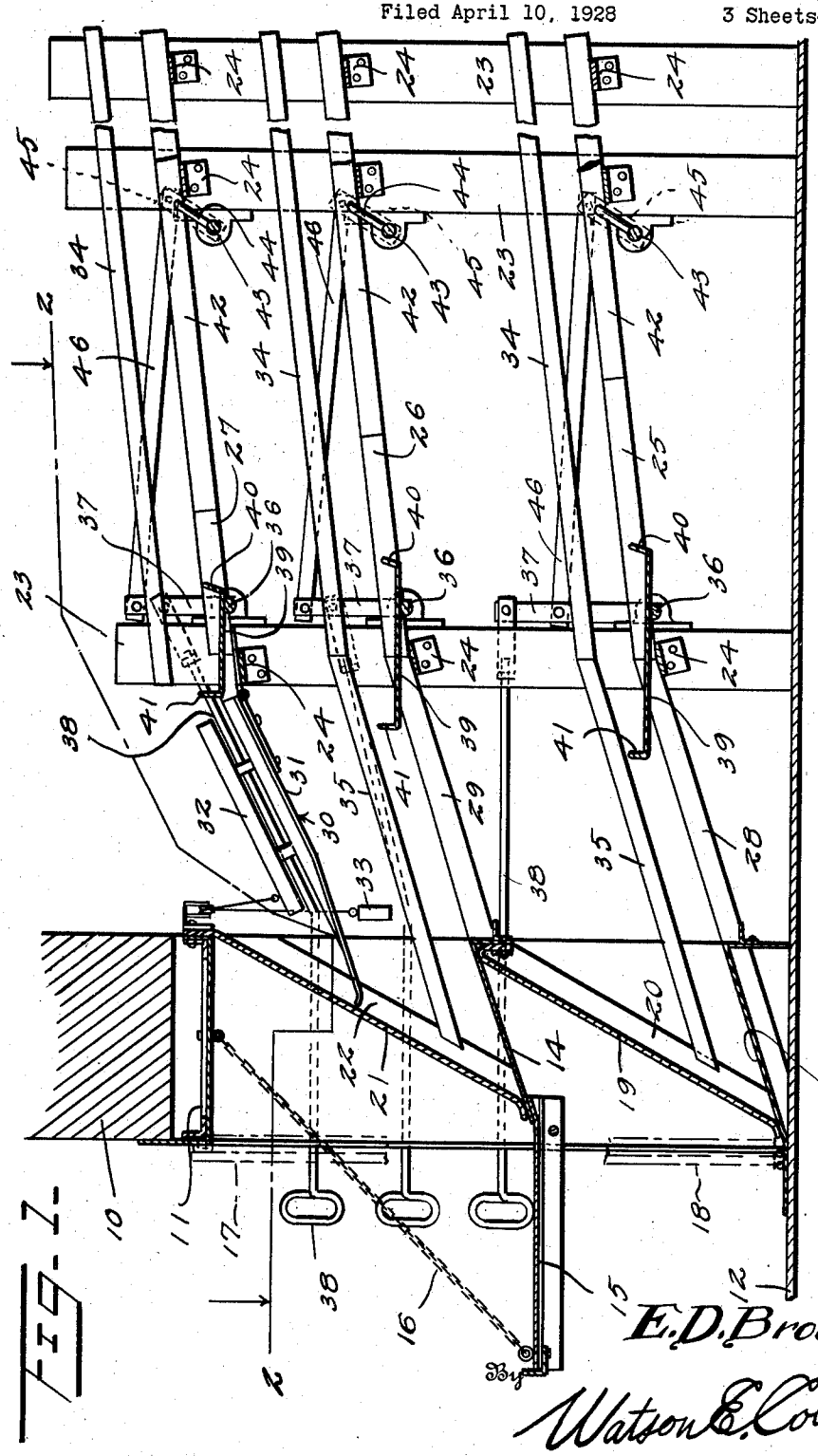


Fig. 1.

Inventor

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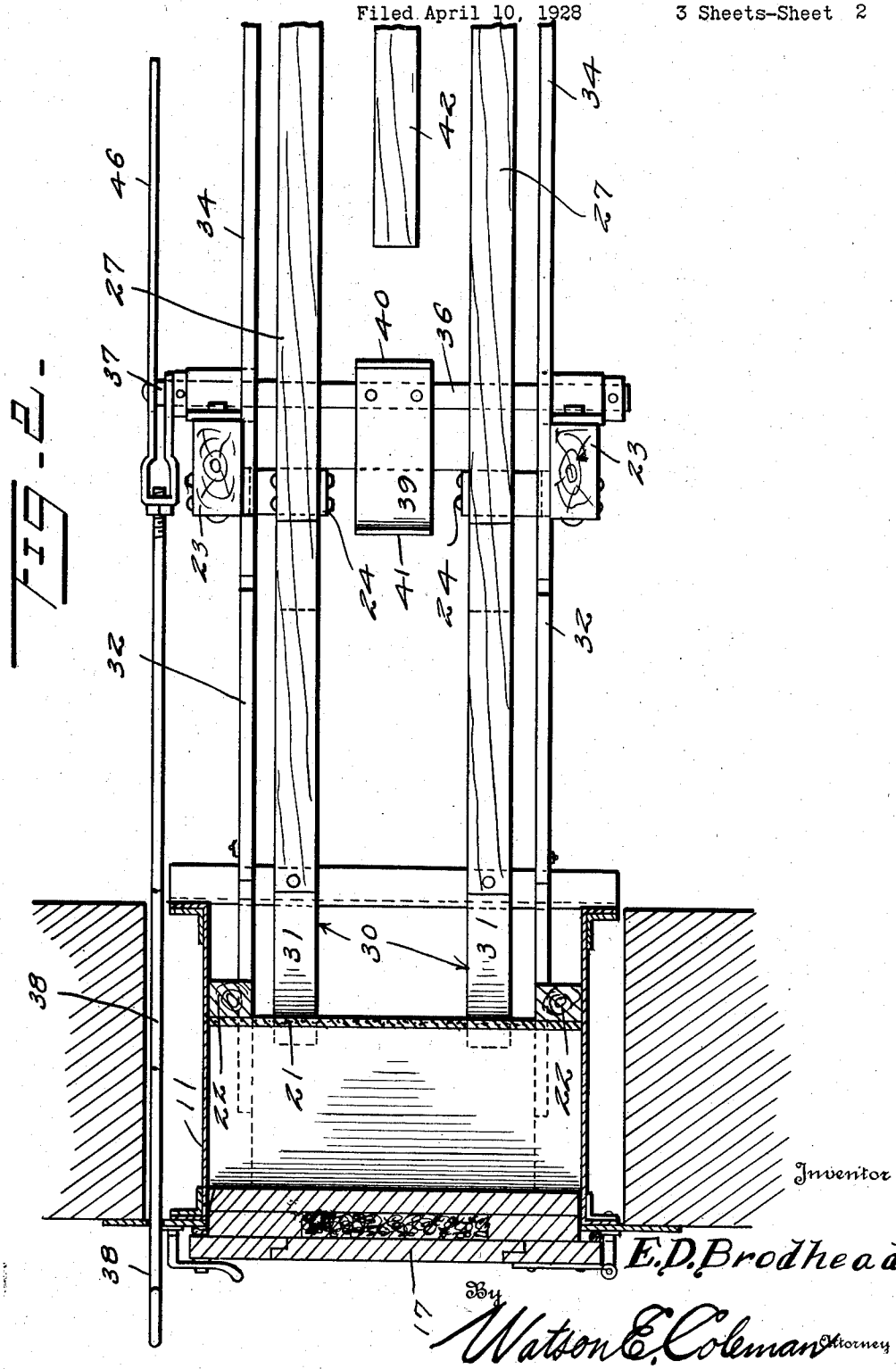
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ICE DISPENSING APPARATUS

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FIG. 2.

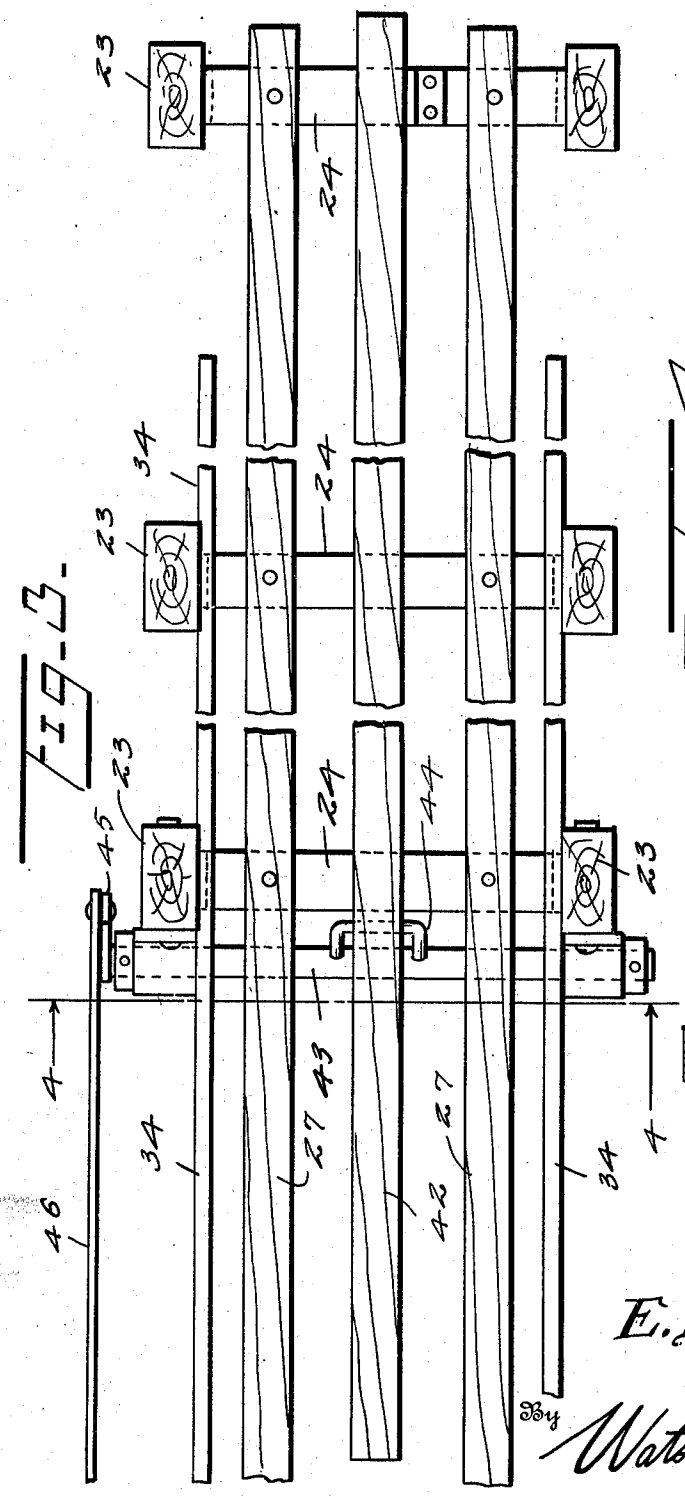


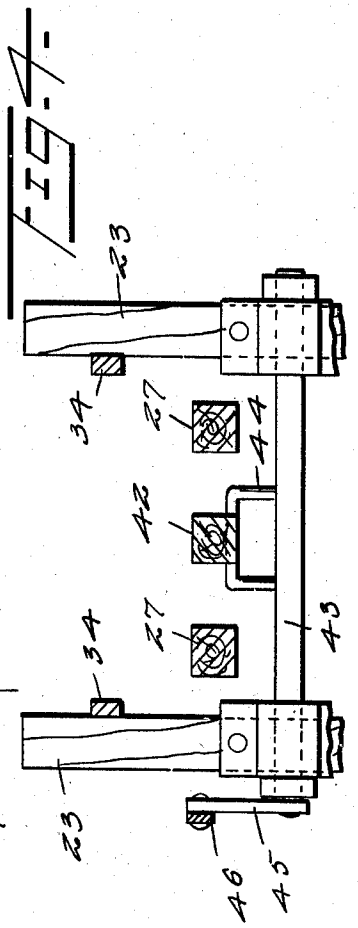
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ICE DISPENSING APPARATUS

Filed April 10, 1928 3 Sheets-Sheet 3





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UNITED STATES PATENT OFFICE

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ICE-DISPENSING APPARATUS

Application filed April 10, 1928. Serial No. 268,856.

This invention relates to ice dispensing apparatus and more particularly to a device for delivering cakes of ice of various sizes to a platform from which they may be dispensed by an operator.

An important object of the invention is to provide an apparatus such that a plurality of cakes of ice may be stored upon delivery chutes or racks within a refrigerating compartment and be delivered therefrom one at a time upon operation of mechanism controlled from the exterior of the building and at a platform upon which the operator stands.

A further object of the invention is to produce a device of this character such that a plurality of different sizes of cakes may be selectively delivered through an opening in the wall of the building and this opening kept at such size that the losses resulting from circulation of air therethrough are materially reduced.

A further object of the invention is to provide a construction such that sticking of the ice cakes to one another or to the rails is prevented from interfering with the operation of the apparatus.

A still further object of the invention is to produce a device of this character which may be cheaply and economically produced, which will be durable and efficient in service and a general improvement in the art.

These and other objects I attain by the construction shown in the accompanying drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention and wherein:—

Figure 1 is a longitudinal sectional view through ice dispensing apparatus constructed in accordance with my invention;

Figure 2 is a section on the line 2—2 of Figure 1;

Figure 3 is a plan view of the rear end of the apparatus;

Figure 4 is a section on the line 4—4 of Figure 3.

Referring now more particularly to the drawings, the numeral 10 generally designates a building wall and 11 a suitably framed door opening formed therein. At the exterior of the building is disposed a platform 12 and the bottom of the opening is formed as an incline 13 merging at its outer edge with the platform.

Intermediate its ends, the opening is provided with a transversely extending partition 14 which inclines toward the outer edge of the opening and discharges at its outer end upon a platform 15 supported above the main platform 12. The platform 15 is preferably pivoted at its inner end to the side walls of the opening and is supported at its outer end by a flexible connection 16 between this outer end and the upper wall of the opening. This platform may be swung to a vertical position and when in this position permits closure of upper and lower doors 17 and 18 for sealing the opening.

The upper edge of the partition 14 has a depending flange to which is secured the upper end of a relatively heavy flexible shield 19, the lower end of which engages the outer edge of the inclined bottom 13 of the opening. The side edges of this shield are supported by inclined braces 20 secured to the side faces of the opening. From the upper inner edge of the door opening a similar shield 21 extends downwardly and with its lower end engaged against the partition 14 adjacent the outer edge thereof. This shield is supported by inclined braces 22 similar to the braces 20 just described.

Arranged within the building is a chute structure comprising vertically extending supports 23. The supports of each pair are connected by horizontally extending braces 24, each pair of supports being connected by a plurality of braces and the braces of each of the pairs of supports being uniformly spaced from one another but differently spaced from the floor. Corresponding braces 24 form supports for inclined runners 25, 26 and 27, the lower ends of which are positioned adjacent to and in spaced relation to the inner end of the opening 11. These runners are in pairs, each runner of the pair being arranged upon its support 24 adjacent the ends thereof.

The inner ends of the runners 25 are connected by an inclined skid 28 with the inclined

bottom 13 of the door opening, while the runners 26 are connected by a similar skid 29 with the upper edge of the inclined partition 14. The forward ends of the runners 27 have pivotally connected therewith a skid 30 including bottom runners 31 and side guides 32, this skid being counterbalanced, as indicated at 33, so that its forward end is normally maintained in elevated position. When the weight is imposed on the skid, however, this forward end moves downwardly to engage the inner edge of the inclined partition 14. Each of the tracks or runners 25, 26 or 27 has associated therewith side guides 34 and the skids 28 and 29 are likewise provided with side guides, indicated at 35. The skids are angularly related to the runners and inclined downwardly and forwardly from the upper sides of the front ends of the rollers and each skid embodies a pair of rails.

Mounted upon the forward pair of supports 23 and associated with the trackways 25, 26 and 27 are horizontally extending shafts 36, each having a crank arm 37 connected with a pull rod 38 extending through the wall of the building and accessible from the exterior thereof. Each shaft has secured thereto a trip plate 39, the sizes of these trip plates varying in accordance with the size of the ice cake which is to be delivered by the associated track. Each trip plate has at its inner end an upwardly extending flange 40 and at its outer end an upwardly extending flange 41, the plate being so mounted and the flanges being so constructed that when the operating handle or pull rod is forced inwardly, the plate occupies a horizontal position with its rear end and its rear flange 40 located below the level of the upper surfaces of the associated tracks or runners and skid, and with its front end and front flange 41 located above the skid to form a stop, thus permitting a cake of ice moving on the trackway to assume a position over the trip plate with its front end in contact with the front end and front flange of the plate.

When the pull rod is moved outwardly, the flange 40 projects above the trackway, forming a stop to prevent falling cakes of ice from moving down the trackway while the flange 41 is positioned below the upper surface of the skid 28, 29 or 30 associated therewith, so that the cake of ice may move therefrom and pass downwardly upon the skid to be discharged. Between each pair of runners or tracks 25, 26 and 27 and supported by the horizontal supports 24 is a central runner or breaker bar 42. The second pair of horizontal supports has associated with each of the pairs of runners a horizontally extending rock shaft 43 having a crank 44 which is connected to the breaker bar 42. The outer ends of the shafts 43 are each provided with arms 45 connected by links 46 with the arms 37 of the shafts 36. Accordingly, when a shaft 36 is actuated to cause the delivery of a cake of ice, the breaker bar 42 is caused to rise at its forward end and move forwardly. This action forces the ice cakes upwardly from the runners 25, breaking them from these runners if they are frozen thereto and also causing the ice cakes to separate if they happen to be frozen to one another. The inner or forward end of each breaker bar should be separated from the inner flange of the associated trip plate 39 a distance approximately equal to the length of a cake of ice which is to be acommodated by the trip plate, so that the cake of ice immediately behind this trip plate will be fully separated from adjacent cakes and be free to move upon the trip plate as soon as it is positioned for its reception.

In the use of the apparatus, cakes of the proper size are cut in a sufficient number and placed upon the runners 25, 26 and 27.

Assuming that these runners are designed to accommodate blocks of ice weighing one hundred, fifty and twenty-five pounds respectively, if a customer desires a twenty-five pound block of ice, the operator, who is at the vending platform 12, operates the upper pull rod, thereby discharging the cake of ice held by the trip plate 39 upon the pivoted skid 30. This skid, under the influence of the cake, swings downwardly until its lower end engages against the partition 14 and the cake of ice slides down the skid and over the platform to the pivoted platform 15. In passing from the partition 14 to the pivoted platform, it engages and lifts the shield 21 and passes thereunder, the shield dropping to closed position as soon as the cake has passed. It is only necessary for the operator to lift the cake from the platform 15 and hand it to the purchaser and return the upper pull rod to its normal position. As the upper pull rod returns to its normal position, the flange 40 which, at this time, has held the remaining cakes upon the runners 27 from moving therealong, is withdrawn, so that the foremost cake may move over the trip plate and engage the flange 41. It is pointed out that the flange 40, in addition to acting as a partition element holding back the cakes of ice, also serves to prevent the pull rod from being returned to its normal position under the influence of the weight of ice cakes which are lifted by the breaker bar 42 as the longitudinal thrust of these cakes of ice against the flange will set up considerable friction, counterbalancing this weight. If a heavier cake of ice is desired, the proper rod is operated to release this cake and permit its discharge through the opening 11.

It will be obvious that by the construction hereinbefore set forth, the use of discharge chutes and storage runways may be practically resorted to for the opening required in the building wall is reduced in size and a

construction provided which will not become inoperative because of freezing of the cakes either to one another or to the runways. It will also be obvious that the construction employed will reduce losses in refrigeration which results where separate openings and separate runways are provided for the discharge of the different cakes of ice.

Since this structure is capable of a certain range of change and modification without materially departing from the spirit of the invention, I do not limit myself to such specific structure except as hereinafter claimed.

I claim:—

1. In an article dispensing apparatus, inclined runners, skid rails angularly related to the runners and extending downwardly and forwardly from the upper sides of the front ends of the runners, the entire upper sides of the skid rails being located in a plane below the plane of the upper sides of the runners to permit articles to move by gravity from the runners onto the skid rails, a trip plate located between the runners and skid rails near the juncture of the runners and skid rails, the plate being provided at its front and rear ends with upwardly extending flanges and normally extending forwardly and rearwardly beyond the juncture of the runners and skid rails with its rear end and rear flange below the upper sides of the runners and with its front end and front flange above the skid rails, means pivotally supporting the trip plate, and means for rocking the trip plate to arrange its rear end and rear flange above the runners and its front end and front flange below the skid rails.

2. In an article dispensing apparatus, inclined runners, skid rails angularly related to the runners and extending downwardly and forwardly from the upper sides of the front ends of the runners, the entire upper sides of the skid rails being located in a plane below the plane of the upper sides of the runners to permit articles to move by gravity from the runners onto the skid rails, a trip plate located between the runners and skid rails near the juncture of the runners and skid rails, the plate being provided at its front and rear ends with upwardly extending flanges and normally extending forwardly and rearwardly beyond the juncture of the runners and skid rails with its rear end and rear flange below the upper sides of the runners and with its front end and front flange above the skid rails, means pivotally supporting the trip plate near its rear end at a point adjacent the juncture of the runners and skid rails, and means for rocking the trip plate to arrange its rear end and rear flange above the runners and its front end and front flange below the skid rails.

3. In an article dispensing apparatus, inclined runners, skid rails angularly related to the runners and extending downwardly and forwardly from the upper sides of the front ends of the runners, a trip plate located between the runners and skid rails near the juncture of the runners and skid rails, the plate being provided at its front and rear ends with upwardly extending flanges and normally occupying a position with its rear end and rear flange below the upper sides of the runners and with its front end and front flange above the skid rails, a shaft pivotally supporting the trip plate, a crank arm connected to the shaft, a second shaft located rearwardly of said first shaft and provided with a crank and a crank arm, a link connecting the crank arms, a braker bar arranged between the runners in parallel relation therewith and rearwardly of the trip plate and connected to the crank of said second shaft, means supporting the rear end of the braker bar, and means connected to the crank arm of said first shaft for rocking the trip plate and braker bar to arrange the plate with its rear end and rear flange above the runners and its front end and front flange below the skid rails and to arrange the braker bar in an upwardly and forwardly inclined position with respect to the runners and with its upper end portion extending above the runners.

4. In an ice delivery apparatus for a building provided with a delivery opening, a downwardly and outwardly inclined member arranged within said opening, inclined runners arranged within the building, a skid angularly related to the runners and extending downwardly and forwardly from the front ends of the runners to the upper end of said member, other inclined runners arranged within the building above said first runners, a skid pivoted to the front ends of said second runners to permit it to be lowered to arrange its front ends in contact with said member, means yieldably supporting the pivoted skid in raised position, and manually operable means for controlling the passage of ice from each of said first and second runners to the skid associated therewith.

In testimony whereof I hereunto affix my signature.

EVERETT D. BRODHEAD.