O. B. EMERSON.

ICE MAKING APPLIANCE.

APPLICATION FILED MAY 29, 1919.

1,335,319.

Patented Mar. 30, 1920.

2 SHEETS—SHEET 1.

Fig. 2.

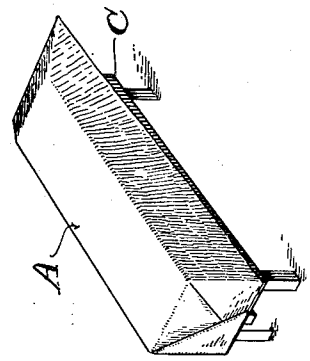


Fig. 1.

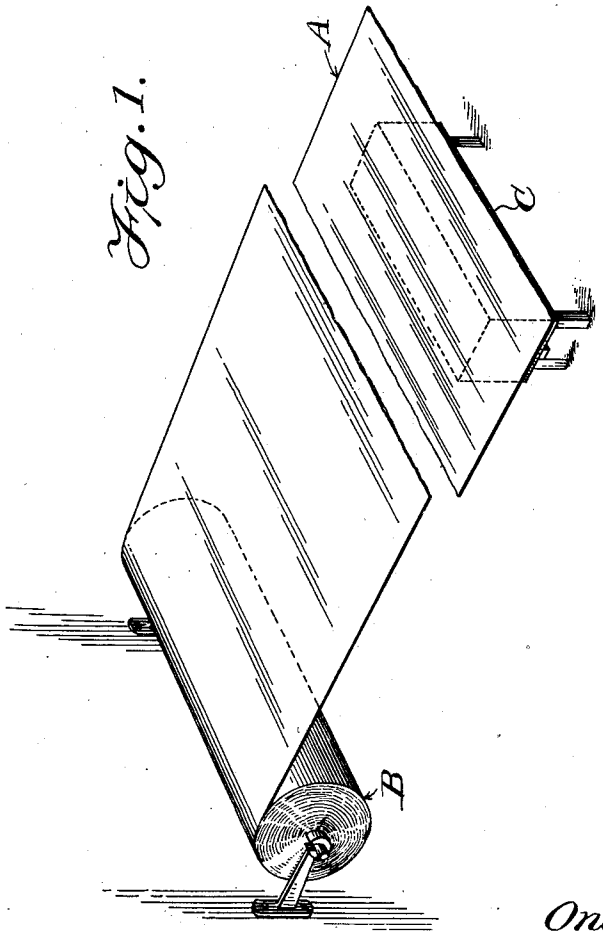
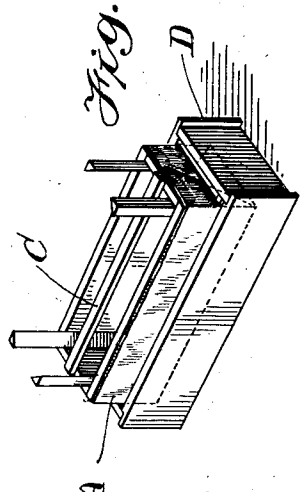


Fig. 3.



Inventor

Ono B. Emerson

By his Attorneys

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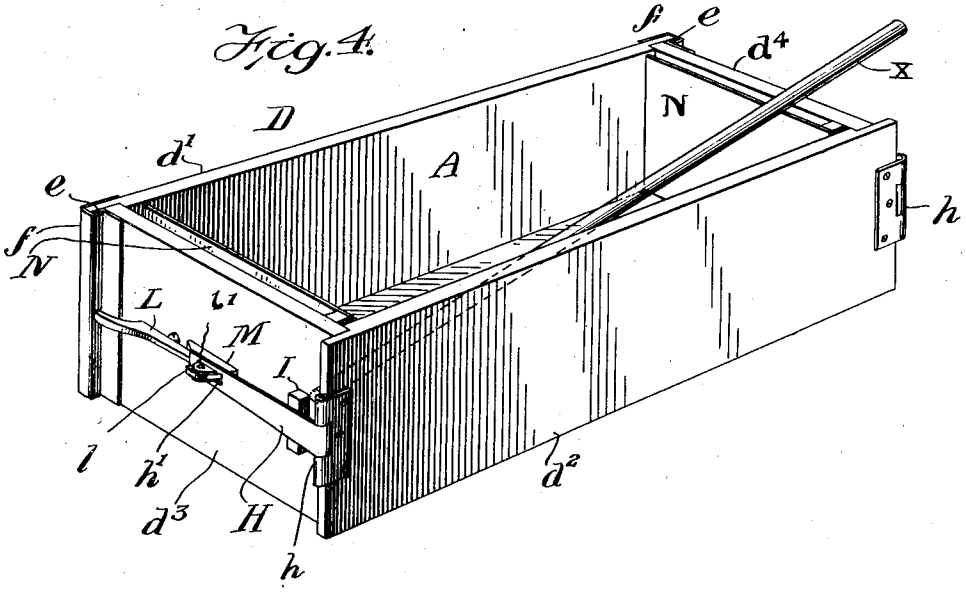
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2 SHEETS—SHEET 2.

Fig. 4.



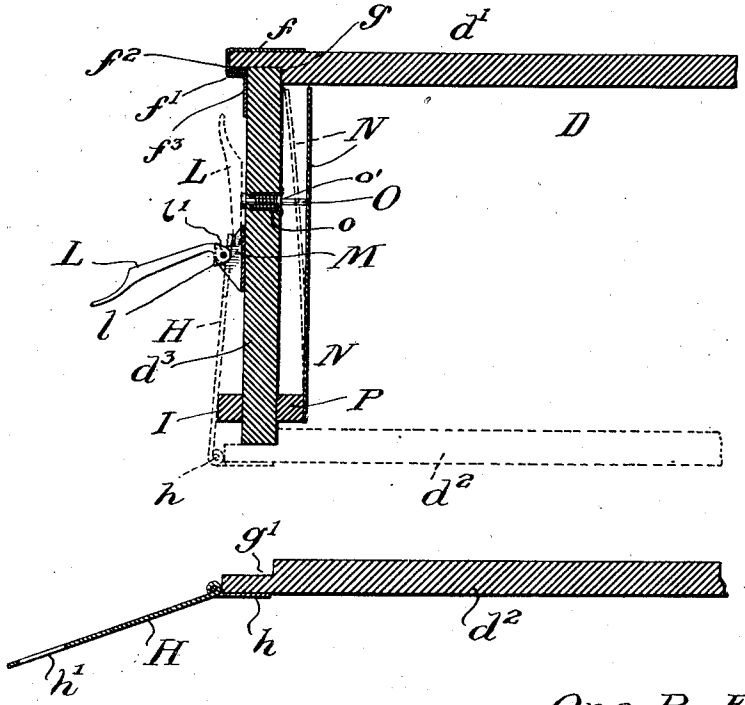


Fig. 5.

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UNITED STATES PATENT OFFICE.

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ICE-MAKING APPLIANCE.

1,335,319. Specification of Letters Patent. Patented Mar. 30, 1920.

Application filed May 29, 1919. Serial No. 300,582.

To all whom it may concern:

Be it known that I, ONO BURR EMERSON, a citizen of the United States, residing at Allison, in the county of Butler and State of Iowa, have invented certain new and useful Improvements in Ice-Making Appliances, of which the following is a specification.

This invention relates to appliances for making ice, and the object of the invention is to provide simple and inexpensive devices for this purpose which may be employed to make ice in block form and with a protecting covering of a simple and inexpensive kind.

In carrying out my invention I provide a mold frame having four parts, which are connected with each other and are held in place by locking devices of a novel kind. Within the mold frame plates are located which are adapted to move toward and from the ends of the frame and which engage plungers that operate on the locking devices to release them in order that parts of the frame may be loosened and released from the ice. The mold frame is adapted to receive a container or receptacle for the liquid to be frozen and the arrangement is such that the expanded ice operates on the plates to actuate the plungers to loosen the locking devices and thus allow parts of the mold frame to separate in order that they may be removed from the ice block.

The freezing operation may be performed in any freezing atmosphere, either natural or artificial.

In the accompanying drawings:—

Figure 1 is a perspective view indicating how the paper to form the container is drawn from a roll, cut to size, and placed on the former.

Fig. 2 shows the paper partly bent over the former.

Fig. 3 illustrates how the former and container are inserted in the mold frame.

Fig. 4 is a perspective view of the mold frame.

Fig. 5 is a sectional view of portions of the mold frame, one of the sides of the frame being separated therefrom.

Figs. 1, 2 and 3 indicate how the container is made. Preferably the paper or other suitable material is taken from the roll B, cut to size as indicated at A, and placed over a former C. It is then bent over the former in the manner indicated in Fig. 2. After this the former with the container is inserted in the mold frame D as shown in Fig. 3. As soon as the container is properly placed, the former is withdrawn and the liquid to be frozen is poured into the container and left in a freezing atmosphere, either natural or artificial. After the block of ice is formed the mold frame is released from the container and the ice with its protecting covering may be shipped or placed in storage.

Figs. 4 and 5 show more in detail the preferred construction of the mold frame. It preferably consists of four main parts d', d^2, d^3, d^4, which may be made of metal, wood, or any other suitable material. The two sides d', d^2 are of the same size, shape, and construction, and the two ends d^3, d^4 are similar to each other.

Each end piece d^3 or d^4 is connected with one of the side pieces at e. Preferably this connection is made in the manner shown, especially when the frame pieces are made of wood. In such case a sheet metal piece f is applied to each end of one of the side pieces, such as d', and bent so as to form a groove f', adapted to receive a flange f^2 formed on a sheet metal strip f^3, applied to the adjacent end of an end piece. The connection is sufficiently loose to allow the end piece to swing to a slight extent or the side piece and end piece may be separated by sliding the flange out of the groove. While this manner of connecting the end pieces to one of the side pieces is preferred, it may be done in other ways. The end of the end piece where the connection is located is preferably made to enter a recess g in the adjacent end of the side piece in order to provide a tight and solid connection. The opposite end of each end piece is preferably made to extend into a recess g' in the adjacent side piece. Each end piece is preferably connected to the side pieces in substantially the same way.

In order to securely fasten the end pieces and side pieces to each other, I provide locking devices preferably of the kind illustrated. As shown, each locking device comprises a hasp H hinged at h to one end of a side piece, and extending therefrom toward the middle portion of the end piece across

a cleat I applied to the end piece. The free end of the hasp is provided with a slot or opening h' which is adapted to engage the hook end l of a lever L, pivoted at l' to a bracket M secured to the end piece. When the hasp engages the hook and the lever is turned to the position shown in Fig. 4, the end piece is securely locked to the side pieces, but when the lever is turned to the position shown in Fig. 5 the locking devices are released and the members of the frame may be separated.

In order to automatically release the locking devices when the block of ice is formed I provide plates N within the mold frame which operate on plungers O adapted to engage the levers L. Each of these plungers extends through a casing o containing a spring o' which normally presses the plunger inward, but which allows the plunger to be moved outward by the plate. Each plate N is suitably supported at one end preferably by means of a cleat P attached to an end piece, and the plate is so held that normally it occupies the position shown by full lines in Figs. 4 and 5, but when the ice is formed it will act by expansion upon the plate to bend it in the manner indicated by dotted lines in such a way as to actuate the plunger O, which in turn operates on the lever L to turn it, thus releasing the hasp H and allowing the frame pieces to separate. It will be understood that the arrangement of locking devices, plates, etc. at opposite ends of the mold frame are preferably of the same construction.

The mold frame is simple in construction, inexpensive to manufacture; its parts may be easily assembled and locked in place and the locking devices are of such character that they will be automatically released as soon as the ice is formed. The block of ice with its covering may be lifted out of the mold frame when it is separated and loosened in the manner before described or the frame may be withdrawn from the block without moving the latter.

In this way pure ice may be obtained in convenient sizes. The cost of the paper container is comparatively small and if left on the ice will form a protection therefor. The mold frame is of substantial and durable construction and may be used for a long time.

In order to prevent bulging of the bottom of the container when the water freezes, a stick or rod X may be inserted in the water allowing one end to touch the bottom of the container and the other to project out of the water.

Another feature of the invention is that inasmuch as the members of the mold frame are separable from each other, they may be placed side by side so as to occupy small space for shipping purposes or the frame with its parts locked together may be placed over the former in the manner indicated in Fig. 3 for shipping or storing purposes.

I claim as my invention:

1. An ice making appliance, comprising side and end members loosely connected at their ends with each other and separable bodily the one from the others, a locking device for holding said members firmly connected, and devices within the appliance operated by the expansion of the liquid therein to release the locking device and thus permit each member to be separated bodily from the others.

2. An ice making appliance, comprising side and end members loosely connected at their ends with each other and separable bodily the one from the others, a locking device for holding said members firmly connected, a plate within the appliance movable by the expansion of the liquid therein, and connections between the plate and the locking device whereby when the plate is moved by the expansion of the liquid the locking device is released, permitting each member of the appliance to be separated from the others.

3. An ice making appliance, comprising side and end members, means for loosely and separately connecting each end of each side member with the ends of the end members, a locking device for holding said members firmly connected, a plate within the appliance movable by the expansion of the liquid therein, and a spring pressed plunger connecting the plate with the locking device whereby when the plate is moved by the expansion of the liquid the locking device is released, permitting each member to be separated bodily from the others.

4. An ice making appliance, comprising a mold frame having separable members loosely connected with each other, a locking hasp mounted on one of said members and engaging another member, a locking lever having a hooked end engaging the hasp, and devices operated by the expansion of the liquid being frozen to release the lever from said locking hasp.

5. An ice making appliance, comprising a mold frame having side members and end members, a hasp applied to one of the side members and engaging one of the end members, a cleat on said end member across which the hasp extends, a locking lever pivotally connected with said end member and having a hooked end engaging the hasp, a plate within the mold frame, and a spring plunger connecting the plate with the locking lever the arrangement being such that when the liquid expands the plate through said plunger acts upon the locking lever to release it and thus allow the frame members to separate.

6. An ice making appliance, comprising a

mold frame having separable members and adapted to receive a liquid container, plates within the frame between which the container is placed and which bear on said container, locking devices connecting the frame members, and plungers operated by the plates when the liquid freezes to release the locking levers and thus allow the frame members to separate.

7. An ice making appliance, comprising four separable frame members, separable connections between the two end members and one of the side members, locking hasps carried by the other side member and engaging the two end members, locking levers carried by the two end members and having hooked ends engaging the hasps, expansible plates within the mold frame, and connections between the plates and the locking levers whereby when the plates are expanded the locking levers are released and the members are allowed to separate.

In testimony whereof, I have hereunto subscribed my name.

ONO BURR EMERSON.