J. C. HASS & F. E. MEFFORD.

REFRIGERATOR.

APPLICATION FILED SEPT. 4, 1908.

948,880. Patented Feb. 8, 1910.

2 SHEETS—SHEET 1.

Fig 1

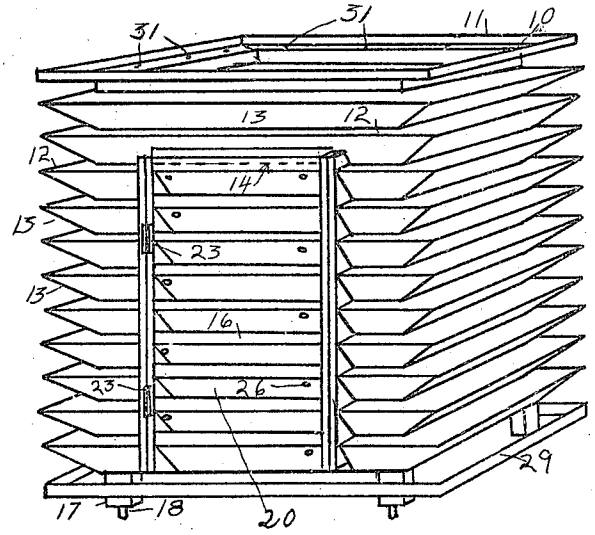
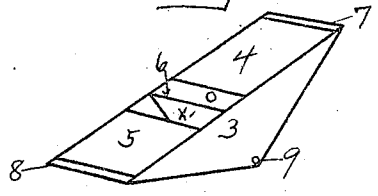


Fig 7



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2 SHEETS—SHEET 2.

FIG. 2

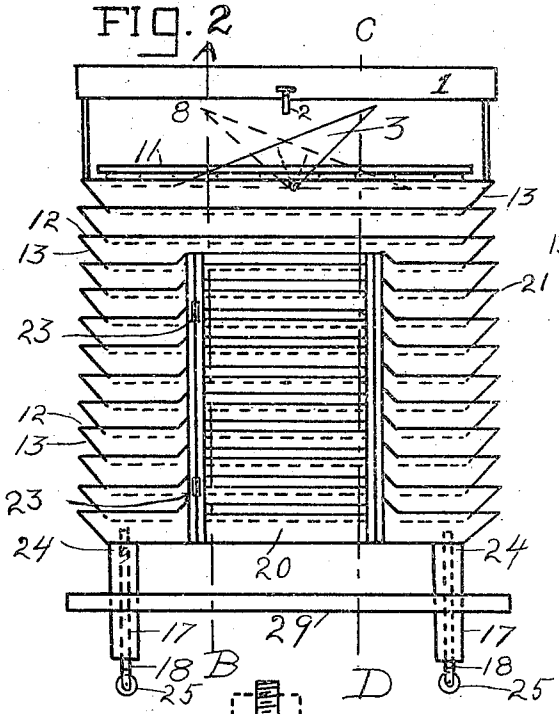


FIG. 3

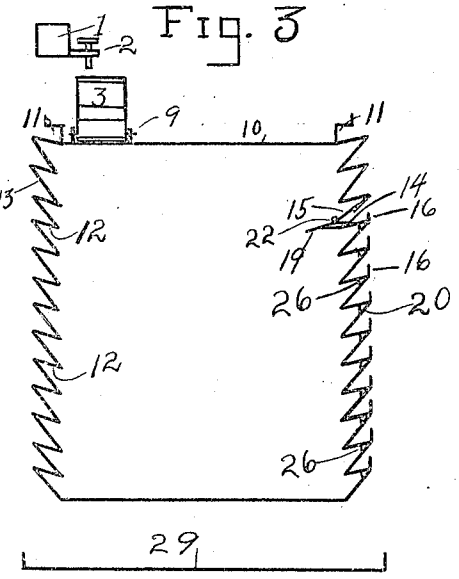


FIG. 4

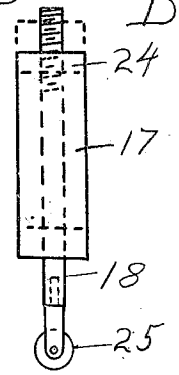


FIG. 5

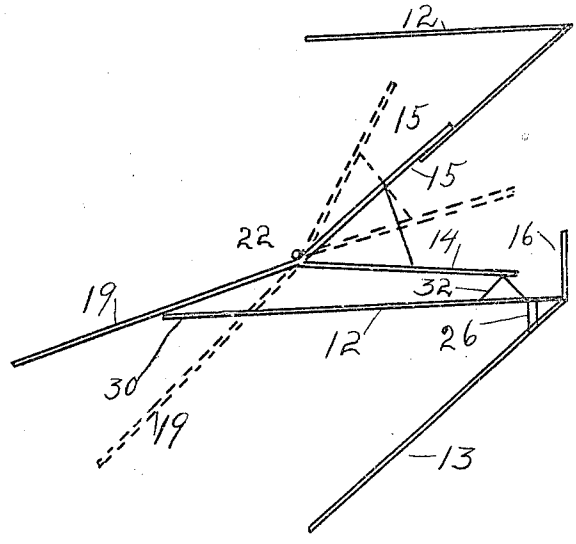
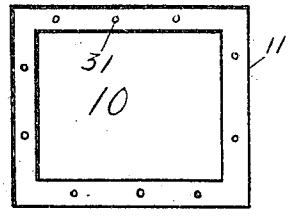


FIG. 6



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UNITED STATES PATENT OFFICE.

JOHN C. HASS AND FRED E. MEFFORD, OF COLORADO SPRINGS, COLORADO.

REFRIGERATOR.

948,880. Specification of Letters Patent. Patented Feb. 8, 1910.

Application filed September 4, 1908. Serial No. 451,705.

To all whom it may concern:

Be it known that we, JOHN C. HASS, a citizen of the United States, residing at 746 East Cimarron street, Colorado Springs, Colorado, and FRED E. MEFFORD, a citizen of the United States, residing at 724 North Spruce street, Colorado Springs, Colorado, and both in the county of El Paso, have invented a new and useful Refrigerator, of which the following is a specification.

Our invention relates to improvements in refrigerators, in which water is made—to flow in thin shallow streams over the outer surface of a receptacle and its contents; and also relates to improvements in the adjustment of the said receptacle, and means for the regulation and control of the water for said refrigerator; and the objects of our invention are to provide means for the holding to the proper places and in the proper conditions, the water for cooling said receptacle by means of evaporation and to provide means for adjusting the receptacle so as to be level; to be convenient; to control the supply of water, and to prevent it from entering the said receptacle. We attain these objects by means of the device illustrated in the accompanying drawings, in which—

Figure 1, is a perspective view of the device, showing the top, and front and left sides: Fig. 2, is a front view, on a smaller scale than Fig. 1: Fig. 3, is a vertical sectional view of the receptacle of the refrigerator dissected through vertically on the line A—B in Fig. 2: Fig. 4, is a vertical side view of one of the adjustable legs of the refrigerator, drawn on a larger scale than in the views of the receptacle: Fig. 5, is a vertical edge view of the sheet metal parts of water arrester and top part of door 20, dissected through on line A—B; Fig. 6, is a top view of Fig. 1, and Fig. 7, is a perspective view of the oscillating water dump.

Similar letters and similar figures refer to similar parts throughout the several views.

Our device consists principally of a large receptacle, for containing the articles to be kept cool in the refrigerator, which said receptacle is constructed of sheet metal corrugated on its four rectangular sides, having a door 20, to its interior, and having legs adjustable in length so as to adjust it to unlevel floors, and having means for supply, in a flow of water over the surface of the receptacle, for the purpose of cooling it by the evaporation of the water.

The supply tank 1, is located above the refrigerator proper, and contains the supply of water to be spilled onto the roof of the refrigerator at 10. The water is let out from 1, through the faucet 2, in a stream to be regulated by the person operating the refrigerator, and drops down into the cavity *o*, as shown in Fig. 7, until said cavity *o*, has received enough water to cause the oscillating water dump 3, to tip down at its end 7, working on its pivot 9; this will allow the water received in cavity *o*, under cover 4, to flow out at 7, and will then spread over the top of the roof 10, 10. This tipping of the oscillating water-dump to the right, as shown in dotted lines in Fig. 2, will allow the water to drop from faucet 2, into cavity X, in Fig. 7, which will then be up as shown at 8, in Fig. 2. So the water under cover 4, will flow out at 7, and the water from faucet 2, will run into cavity X, to the left of the partition 6, until the oscillating water-dump 3, will be forced down, and caused to tip to the left, into the position shown in Fig. 7. This tipping of the oscillating water dump 3, causes a greater circulation and movement of the water on the top of the refrigerator, first from one side and then from the other and also causes a greater agitation and circulation of the water in the corrugation troughs, this causes an acceleration of evaporation and a corresponding acceleration in the cooling of the refrigerator surface. There are other reasons why the oscillating water dump assists in the cooling, as proven by actual experiment with it and without it, but we are unable to explain them at this time. When the water covering the roof 10, gets high enough it will flow through the holes 31, 31, and down into the depressed troughs 12, 12. These troughs 12, 12, recede toward the receptacle, and depress as they recede so as to form a shallow trough. As these troughs 12, 12, fill with water it rises and flows over the outer edge of each trough 12, and spills down over 21, which is the outer edge of 12, and the upper edge of the upright part 13, which are joined rigidly at 21. The water then spills down into the next trough 12, below, by following the outer surface of the upright part 13, thus keeping the whole of the outer surface of the receptacle moist with the water, so as to have the greatest possible surface evaporating

the water. As the trough 12, next below, fills the water continues to overflow down to the next in succession until it reaches the bottom trough 12, or evaporates during its tortuous descent. Should there be too great a flow of water to evaporate before filling the lowest trough 12, the excess overflow will be caught by the under tray 29. It is the purpose of the inventors to so regulate the flow of the water by adjusting it at the faucet 2, so that there will be no water overflow into the under tray 29, but so that there will be as much flow as will evaporate before reaching the under tray 29.

The door 20, has a special contrivance for its troughs, 12, 12. On the outer edge of trough 12, on the door, there is supplied a high vertical flange 16 to prevent the water in each of the troughs 12, 12, when the door is swung back and forth, from being slopped out of the trough 12. And to provide means for the water in an upper trough 12, to get down to the next trough 12, below, we have inserted tubes 26, 26, Fig. 5, which pass from the floors of troughs 12, 12, down through upright part 13, 13, being a conductor for the excess water from one of the troughs 12, to the next trough 12, below it. When the door 20, is opened the water from the first trough 12, above the door will still continue to overflow its excess of water, and we have arranged to catch this excess of water, while the door is opened and hold it till the door is again closed, by the contrivance shown in Fig. 5, in which 14, is the under prong of the water arrester, and 15, is the upper prong of the water arrester, and 19, is the rear prong or weight arm of the water arrester. These are rigidly attached to each other and are hinged at the pivot 22. When the door 20, is opened it allows the weight arm 19, to drop downwardly, thus raising the swing end of the floor prong 14, as shown in Fig. 5, till it forms a deeper trough than 12, and thus preventing the water from passing into the orifice 27, into the top of tube 26. When the door is again closed, the inner edge, 30, of the top of the door 20, Fig. 5, engages the under side of the weight arm 19, forcing it inwardly, and thus forcing the floor prong 14, containing the water down against the top of the door. The tube 26, is rigidly attached in the floor of 12, and passes loosely through part 13, of the door 20, Fig. 5. The water then flows through tube 26, to the next trough below, and so on to the bottom trough 12.

To provide for an equal flow and dispersement of the water over the entire refrigerator, we provide leveling screws, which leveling screws are used to adjust the height of any corner of the refrigerator. There are four legs to the refrigerator, and each one has a leveling screw. The leg 17, shown enlarged in Fig. 4, is provided with screw post 18, having at its foot a metal caster 25, so arranged that the screw post will not bore into the floor when turned. This screw post 18, works in a nut 24, in the leg 17, by means of male and female screws. The water may be supplied to the oscillating water-dump 3, by means of the tank 1, in Fig. 2, through faucet 2, or from water supplied from any convenient pipe or vessel. When the oscillating water-dump 3, is forced down, on the intaking side of the division partition 6, the water therein is spilled upon the flat roof 10, and flows down through the holes 31, 31, in raised flange 11, shown in Fig. 1, to the depressed troughs 12, 12, until they are in turn filled and overflow their respective outer edges 21, 21, when the water flows down the outer surface of the upright part of corrugations 13, 13. The flow of the upper trough 12, in the top of the door 20, Fig. 5 is provided with a raised dam 32, which prevents the water, coming from floor prong 14, flowing backwardly toward the receptacle.

We are aware that prior to our invention, so-called iceless refrigerators have been made to provide a cool receptacle by means of evaporating water over its surface. We therefore do not claim such a combination broadly; but

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In a water cooler of the class described, the oscillating water dump 3, having covers 4 and 5, the division partition 6, with orifices 7 and 8, in combination with the flat roof 10, of the receptacle, being provided with raised flange 11, all substantially as set forth and for the purposes specified.

2. In a refrigerator, a receptacle, having a flat top extending about an inch beyond its side walls on all sides and having small holes in said extension for the passage of water downward, and surrounded by a raised flange, and having horizontal corrugations with trough shaped top, surrounding its vertical sides, and having a hinged door with a horizontal swing, and with corrugations similar to the corrugations on the rest of the vertical sides of the receptacle, the trough shaped part of the corrugations on said door being provided with raised flanges suitable to prevent the water in them from spilling, when the door is opened or closed or swung, all substantially as set forth and for the purposes specified.

3. In a refrigerator, a door having corrugated, trough shaped projections for the retention of water, and extending horizontally across its surface, one above the other from top to bottom, and having conducting tubes from near the outer edge of one trough to the next trough below in succession and order, and each trough having at its outer

edge a raised or vertical flange to prevent the water in said troughs from spilling, in combination with a receptacle, and means for supplying water, all substantially as set forth and for the purposes as specified.

4. In a refrigerator, a receptacle, having horizontal troughs extending around its vertical sides, in combination with a door having a horizontal swing, and having similar troughs, and being provided at its top with a Y shaped metal device, with three integral blades 14, 15, and 19, hinged at their intersection, horizontally, the blade 19 projecting horizontally inwardly and downwardly, and being lifted when engaged by the edge 30, of top of the door 20, and being depressed by its own weight when disengaged by said edge 30, of top of door when door is opened, and the outer surface of blade 15, engaging the inner surface of the said receptacle, when door is closed, all substantially as set forth and for the purposes specified.

5. In a water cooling apparatus of the class described, for cooling its contents by means of evaporation of water, a receptacle having its sides surrounded by horizontally arranged trough shaped corrugations suitable to hold shallow bodies of water, in combination with leveling screws underneath said receptacle suitable to adjust said corrugations at a level where the floor or stand upon which receptacle rests is not level, a regulated water supply above said receptacle, all substantially as set forth and for the purposes specified.

In testimony whereof we have each respectively signed our respective names to the foregoing specification and in the presence of the two subscribing witnesses.

JOHN C. HASS.
FRED E. MEFFORD.

Witnesses:
W. L. PHILLIPS,
GEORGE STOUMBAUGH.