

G. J. GRUENDLER.
COMBINED REFRIGERATOR AND DISPLAY CASE.
APPLICATION FILED FEB. 6, 1911.

998,170.

Patented July 18, 1911.

2 SHEETS—SHEET 1.

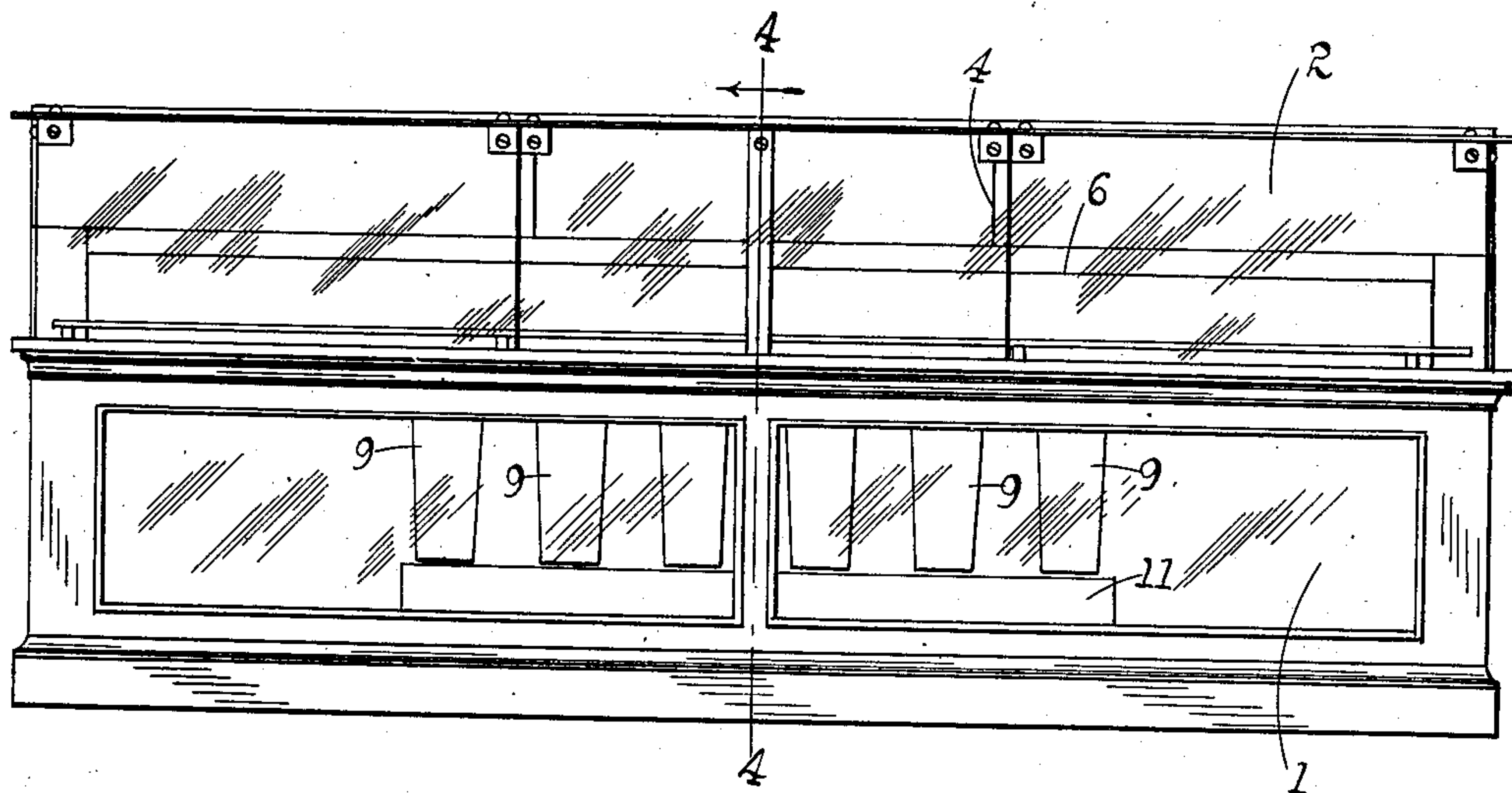


FIG. 1.

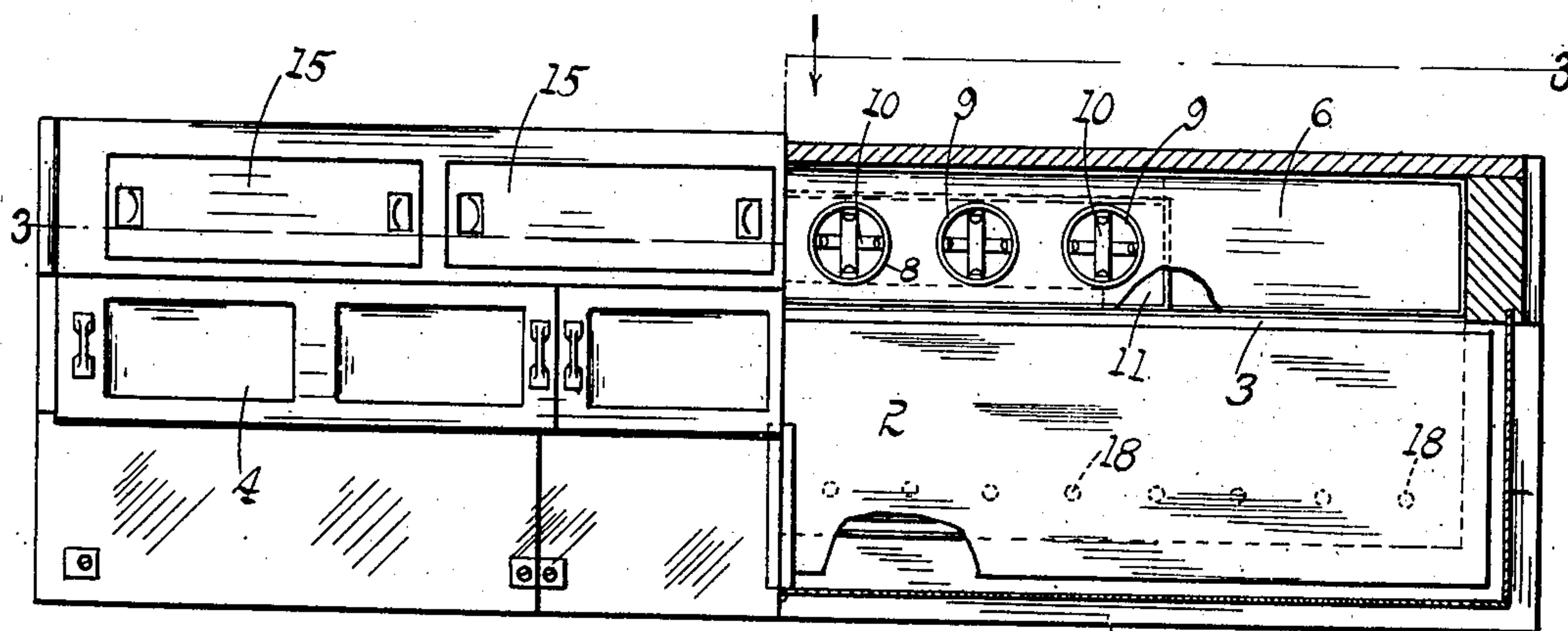


FIG. 2.

WITNESSES:

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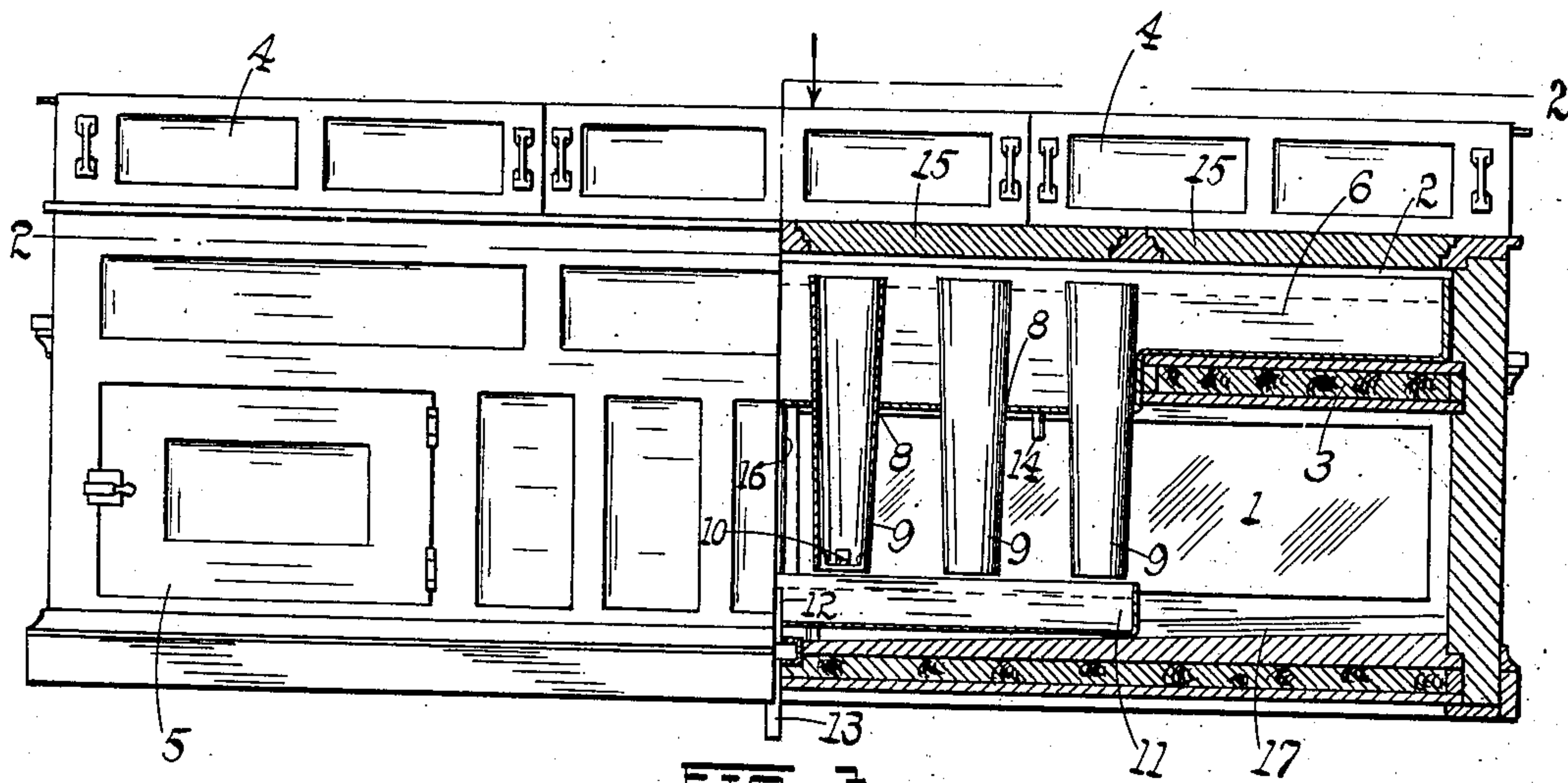


FIG. 3.

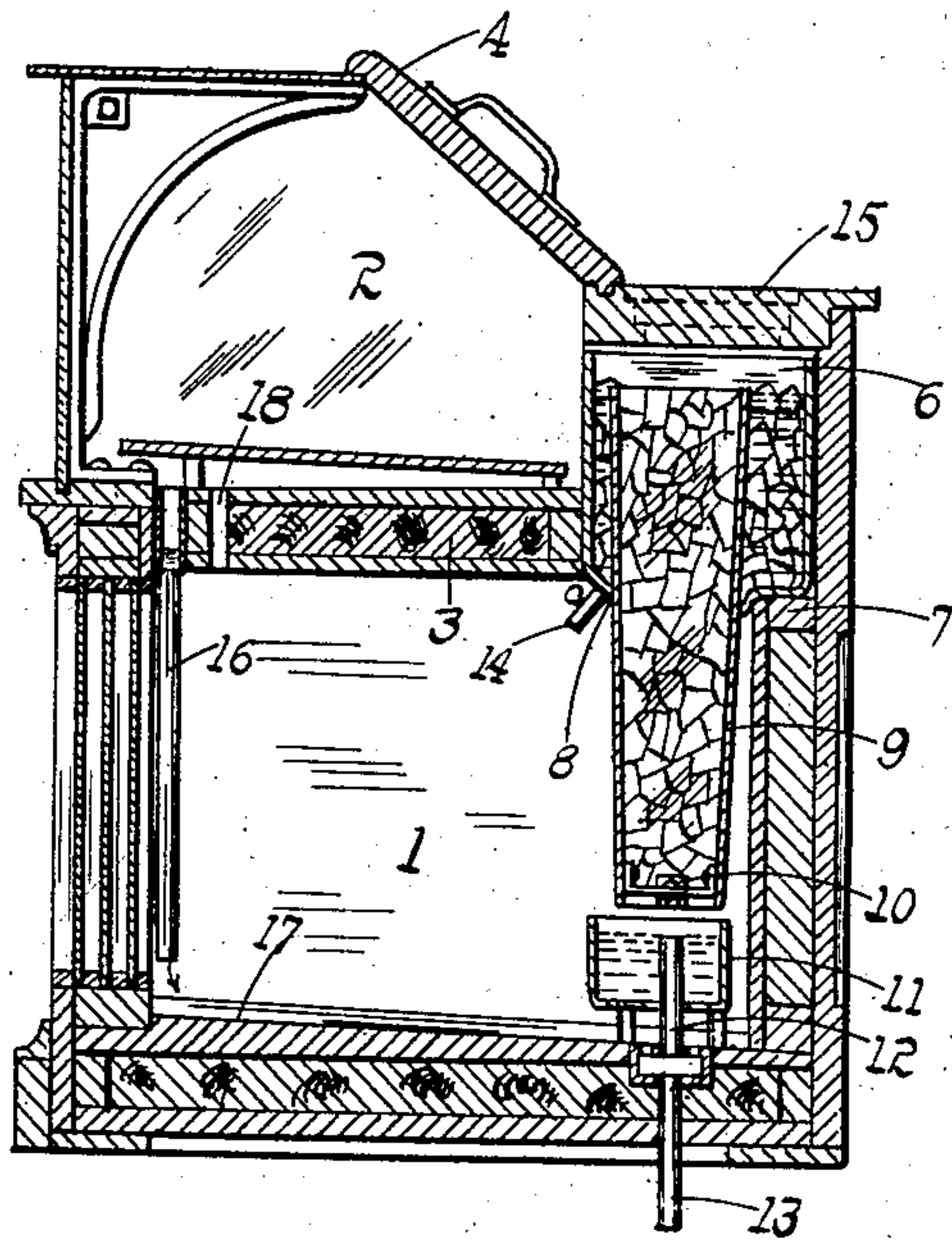


FIG. 4.

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UNITED STATES PATENT OFFICE.

GUSTAV J. GRUENDLER, OF ST. LOUIS, MISSOURI.

COMBINED REFRIGERATOR AND DISPLAY-CASE.

998,170.

Specification of Letters Patent. Patented July 18, 1911.

Application filed February 6, 1911. Serial No. 606,738.

To all whom it may concern:

Be it known that I, GUSTAV J. GRUENDLER, a citizen of the United States, and resident of St. Louis, Missouri, have invented certain new and useful Improvements in Combined Refrigerators and Display-Cases, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in combined refrigerators and display cases, the object of my invention being to construct a two-compartment structure and to place an ice container so that a part of it will be exposed in each compartment of the case, the ice receptacle being arranged to have a greater radiating surface in one of the compartments than in the other.

A further object of my invention is to construct an ice receptacle having a number of open-ended, tubular members in which ice is placed for refrigerating purposes, and a portion only of the tubes being embraced by a separate, auxiliary ice container, one wall of which is exposed to one of the compartments to be refrigerated and the receptacles being exposed in the remaining compartments to be refrigerated, whereby there is an increased refrigeration from a given amount of ice supplied to the container and receptacle.

With the above purposes in view my invention consists in certain novel features of construction and arrangement of parts as will be hereinafter more fully described, pointed out in the claims and illustrated by the accompanying drawings, in which—

Figure 1 is a front elevation of the complete combined refrigerator and display case; Fig. 2 is a plan partly in section taken on the line 2—2 of Fig. 3; Fig. 3 is a rear end elevation, partly in section, taken on the line 3—3 of Fig. 2; and Fig. 4 is an enlarged, transverse, sectional view taken on the line 4—4 of Fig. 1.

Referring by numerals to the accompanying drawings: 1 designates the refrigerating or storage compartment and 2 the cooling compartment.

3 designates a partition between the two compartments.

4 designates a series of removable covers providing access to the compartment 2, and

5 designates doors for providing access to the refrigerating compartment.

In the construction of the refrigerator and case it is essential that the compartment 1 be inclosed with walls including the partition 3, which walls are insulated against heat from the outside and to retain the cold air in the refrigerator.

The rear and end walls just referred to are preferably constructed of wood having spaces which are filled with cork, mineral wool or other like insulating material. The front wall of the lower compartment is preferably glazed so that a full view of the interior of the compartment 1 may be had from the front of the case. The front and end walls of the compartment 2 are preferably glazed and of a single thickness, it not being essential that the temperature within the compartment 2 be as low as the temperature in the compartment 1.

Extending the length of the case there is a container 6 which is preferably made of sheet metal and the bottom of which preferably rests against an abutting shoulder 7 of the rear wall of the case, the front wall of the container being exposed to the compartment 2.

The container 6 is provided at intervals with openings 8 in which are supported the tubular, open-ended ice receptacles 9.

In practice the receptacles 9 and the container 6 are filled with ice, the ice being held in the receptacles 9 by cross bars 10.

As shown in the illustrations, the major portion of the receptacles 9 project into the compartment 1 and by reason of their cylindrical form present a considerable cold radiating surface in the compartment 1.

Located in the compartment 1 and in a position to catch the drip from the receptacles 9 is a tank 11 in which there is a discharge pipe 12, the inlet of which is considerably above the bottom of the tank 11 so that the tank 11 will hold a volume of water at a uniform height, the pipe 12 being in communication with a connection 13 with any suitable drain.

The receptacles 9 are each preferably tapering from end to end or at least of such construction as to be supported in the openings 8 of the container 6 in such manner that they may be readily withdrawn for cleaning purposes. The entire container 6 may also, if desired, be removed for cleaning purposes.

14 designates a drain cock located in the bottom of the container 6 for the purpose

of drawing off the water from the container 6.

To provide access to the container 6 and receptacles 9 for the purpose of filling same with ice I have provided the removable covers 15.

The upper face of the partition 3 preferably inclines forwardly and downwardly so that the moisture from the forward wall of the container 6 may drain over the compartment 1 and not subject the goods in the compartment 1 to the moisture. The moisture referred to is carried downwardly through the compartment 1, through a tube 16 which discharges on the floor 17 which is inclined and leads to and discharges into the connection 13.

The partition 3 is provided with a number of openings 18 for the circulation of air between the compartments 1 and 2.

By the construction of the ice receptacles, as shown and their peculiar arrangement relative the compartments of the refrigerator, assuming the receptacles be filled with ice, preferably in a cracked form, the compartment 1 being the compartment in which is stored a considerable quantity of goods, the temperature in the compartment is kept at a degree sufficient for refrigerating purposes by reason of the exposure therein of the major portions of the receptacles 9 and the entire lower face of the container 6.

In the compartment 2, in which are stored articles the demand for which makes it necessary that the compartment 2 be opened a number of times during the day, the temperature may be considerably higher than in the compartment 1. This condition is brought about by the inconsiderable surface of the container 6 exposed to the compartment 2.

It is to be observed that the ice contained in the upper portions of the receptacles 9 is completely surrounded by ice in the container 6, which condition brings about a great economy in ice consumed in the receptacles 9.

In practice I have found that the temperature in the upper portions of the receptacles 9 reaches a freezing point which is maintained for a considerable length of time. Assuming even that the ice is all melted and

reduced to water in the container 6, the ice in the receptacles 9 keeps the water cool for a considerable length of time so that, as long as there is ice in the receptacles 9, the proper temperatures are maintained in the compartments 1 and 2.

I claim:

1. In a combined refrigerator and display case, an ice container removably positioned in the refrigerator and display case, a number of open-ended, tubular ice receptacles, portions of which project through the ice container, and a tank arranged to catch the drip from the ice receptacles, substantially as shown.

2. In a combined refrigerator and display case, an ice container removably positioned in the refrigerator and display case, a number of open-ended, tubular ice receptacles, portions of which project through the ice container, a tank arranged to catch the drip from the ice receptacles, a drain cock for the ice container, and a detachable connection between said tank and the drain, substantially as shown.

3. In combination with a two-compartment refrigerator and display case, an ice container having one of its walls exposed to one of the compartments, a number of open-ended, tubular receptacles, portions of which are surrounded by the container and the remaining portions project into the other compartment, a tank for catching the drip from the said receptacles, and an over-flow device for maintaining a predetermined level of water in the tank.

4. In combination with a two compartment refrigerator and display case, an ice container having one of its walls exposed to one of the compartments, a number of open-ended tubular receptacles, portions of which are surrounded by the container and the remaining portions project into the other compartment, substantially as shown and for the purposes stated.

In testimony whereof, I have signed my name to this specification, in presence of two subscribing witnesses.

GUSTAV J. GRUENDLER.

Witnesses:

E. L. WALLACE,
N. G. BUTLER.