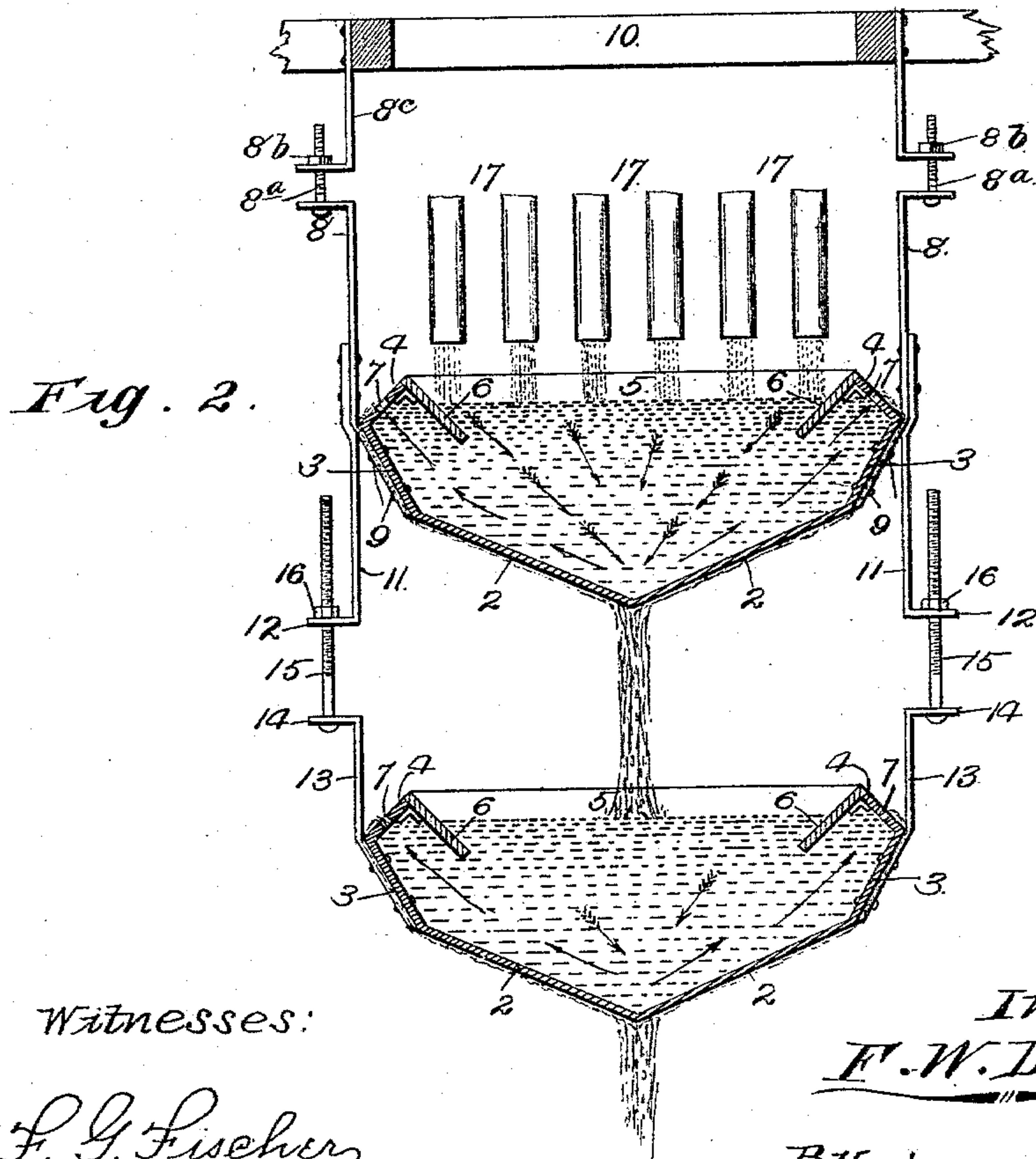
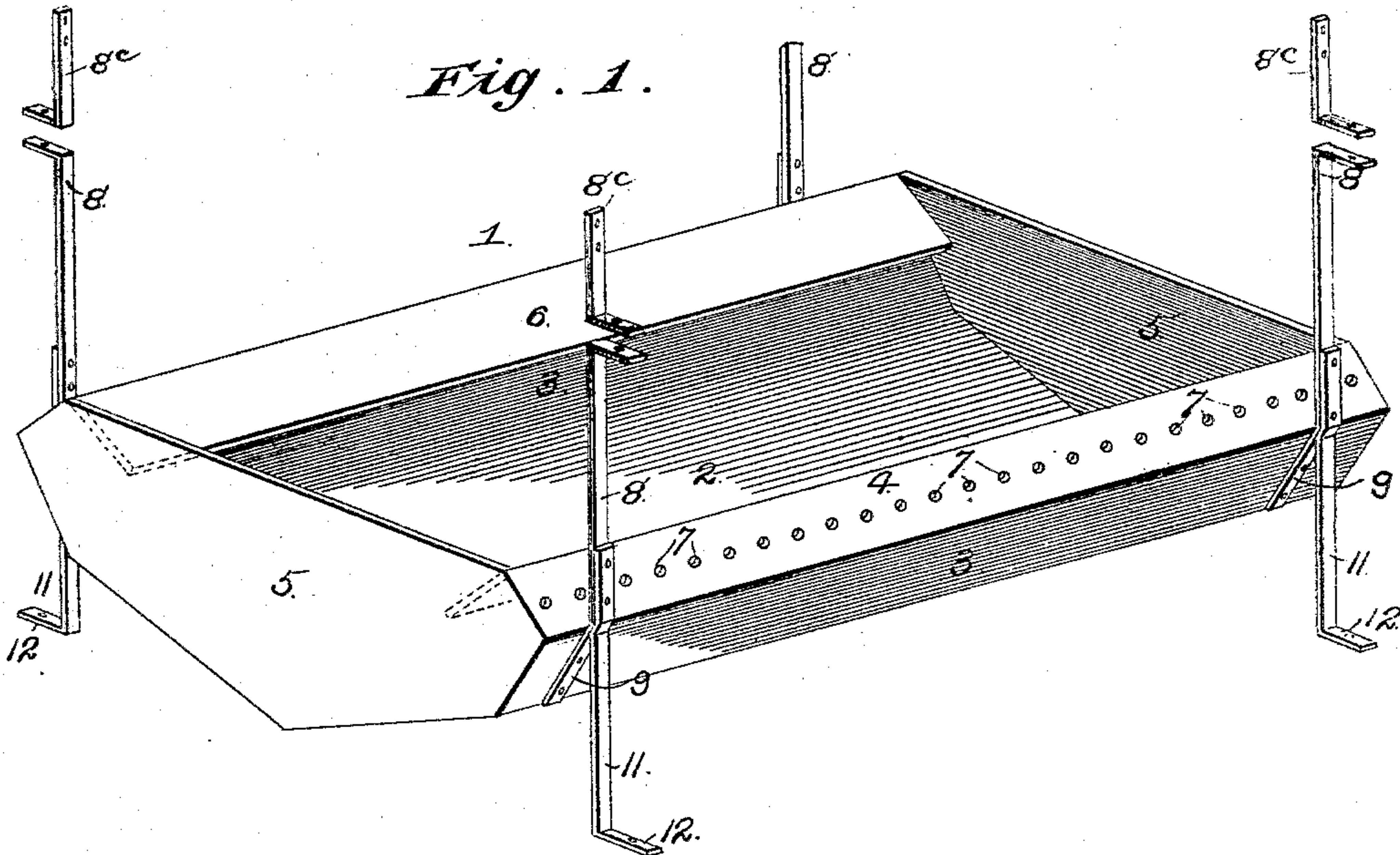


(No Model.)

F. W. DOLD.  
AIR COOLING APPARATUS.

No. 556,811.

Patented Mar. 24, 1896.



Witnesses:

*F. G. Fischer*  
*G. P. Hooper*

Inventor  
*F. W. Dold*

By *Higson & Higson*  
Attys.



# UNITED STATES PATENT OFFICE.

FREDERICK W. DOLD, OF KANSAS CITY, MISSOURI.

## AIR-COOLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 556,811, dated March 24, 1896.

Application filed July 15, 1895. Serial No. 556,019. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK W. DOLD, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improvements in Refrigerating Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to refrigerating apparatus, and has for its object to produce brine-receptacles having a comparatively extended cooling-surface and of such peculiar configuration that the accumulation of frost upon the bottom and sides of the receptacles is prevented.

A further object is to provide a receptacle from which, after circulating properly, the warmer brine may readily escape, being forced out of the receptacle by the continuous supply of brine at a lower temperature.

A still further object is to provide means whereby superimposed brine-receptacles may be easily and quickly adjusted toward or from each other.

With these objects in view the invention consists in certain novel and peculiar features of construction and combinations of parts, as will be hereinafter described and claimed.

In order that the invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 represents in perspective a brine-receptacle embodying my invention. Fig. 2 represents a pair of said receptacles superimposed with relation to each other and adjustably connected.

In the said drawings, 1 designates a brine-receptacle, which consists of the approximately V-shaped bottom 2, the sides 3 flaring upwardly from the upper or side margins of the bottom, the upwardly-converging flanges 4, which connect at their lower ends with the upper ends of the sides 3, and the ends 5, which in contour correspond, preferably, to the cross-section of the pan.

6 designates a pair of guide boards or plates, which converge downwardly from the upper ends of the flanges 4, extending preferably nearly parallel with the sides 3 of the pan and having their lower edges in a plane below the longitudinal series of holes or aper-

tures 7 of the flanges 4. I prefer to construct this pan, with the exception of the guide boards or plates 6, of sheet metal, such as galvanized iron, though it is to be understood, of course, that any material or combinations of materials may be employed without departing from the spirit of the invention. Said receptacle is preferably supported by a number of pendent hangers 8 secured at their lower ends externally to the sides of the receptacle, as shown at 9, and at their upper ends adjustably by bolts 8<sup>a</sup> and nuts 8<sup>b</sup> to the hangers 8<sup>c</sup>, secured to any suitable supporting-framework, as at 10. In practice two or more of these pans will preferably be arranged in vertical alignment, so as to utilize space and receive the full benefit of the flowing brine before it escapes. To secure this relation between said receptacles, I secure pendent to the upper receptacle or to the hangers 8 of the same, in the manner shown, the hangers 11, provided at their lower ends with outwardly-projecting shoulders 12, and secure to the receptacle below the upwardly-projecting hangers 13, provided at their upper ends with outwardly-projecting shoulders 14, similar to the shoulders 12, and extending through aligned apertures in said shoulders, the bolts 15, which may be adjusted longitudinally so as to move the lower receptacle nearer to or farther from the upper receptacle by the nuts 16, which rest upon the shoulders 12. The upper receptacle, of course, is arranged vertically below the brine-supply pipes 17, which may be supported and arranged in any suitable or preferred manner, through which the brine at the required temperature is forced, in the usual or any preferred manner, into the said upper receptacle.

The brine naturally, after it leaves the refrigerating source, begins to rise in temperature, which therefore causes it, due to the constant supply of brine at a lower temperature, to circulate in the receptacle 1, the colder brine seeking the bottom of the receptacle and the brine of a higher temperature being forced to the top. The function of the guide-boards 6 will now be apparent, as they tend to concentrate the entering colder brine toward the bottom and middle of the receptacle and to guide the warmer brine as it



risers upwardly and outwardly in the direction indicated by the featherless arrows under the action of the wedge-like entrance of that at a lower temperature, as indicated by 5 feathered arrows, upwardly to the holes or apertures 7, from which it escapes in constant streams and flows down the sides and V-shaped bottom of the pan until the apex thereof is reached. From the apex of the 10 bottom it descends in a continuous stream or volume into the pan below, wherein the circulation before traced is repeated. The brine also escapes from said receptacle through the aperture 7 in the manner above explained, 15 and may then be disposed of in the usual or customary manner.

Thus it will be seen that a continuous stream of cold brine is supplied to said receptacles and may be retained in the refrigerating-apartment for any length of time desired, 20 this being determined by the number and capacity of the receptacles employed in series, and as said brine approaches an undesirably high temperature it is conveyed away. It 25 will also be apparent owing to the peculiar configuration of the pans in cross-section, that the escaping brine flows over the entire side and bottom surface thereof and, preventing the accumulation of frost on said parts, 30 utilizes the comparatively extended refrigerating-surface on each receptacle, so that the radiation of the cold air from said receptacles is more complete and thorough than could be obtained if frost were permitted to 35 accumulate on the bottoms of said receptacles, which accumulation of frost would tend to raise the temperature in less time than would be required by direct contact of swiftly-moving brine with the sides and bottom of 40 the receptacle. If it be desired to increase

the receptacle capacity of the refrigerating-apartment, or for any other reason, the superimposed receptacles, by properly manipulating the nuts 16, may be brought nearer together, or may be moved farther apart, the 45 adjustment being limited, of course, by the length of the bolts 15.

From the above description it will be apparent that I have produced effective refrigerating apparatus which is extremely simple 50 and inexpensive of manufacture, and strong and durable of construction.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is— 55

1. In a refrigerating apparatus, a brine-receptacle, approximately V-shaped in cross-section and provided at its upper margins with upwardly-projecting perforated flanges, and at the upper margins of said flanges with 60 downwardly-converging guide boards or plates, arranged substantially as and for the purpose set forth.

2. In a refrigerating apparatus, a brine-receptacle, comprising an approximately V- 65 shaped bottom, sides upwardly diverging from the upper or side margins of the bottom, upwardly-converging perforated flanges at the upper ends of the sides, guide boards or plates converging downwardly from the upper 70 ends of said flanges, and ends engaging the opposite ends of the V-shaped bottom, the sides, the perforated flanges, and said guide-boards, substantially as set forth.

In testimony whereof I affix my signature 75 in presence of two witnesses.

FREDERICK W. DOLD.

Witnesses:

H. A. ROGERS,

C. J. DIXON.