May 6, 1930. E. A. BURROWS 1,757,764

DISPLAY APPARATUS

Filed Oct. 13, 1926 2 Sheets-Sheet 1

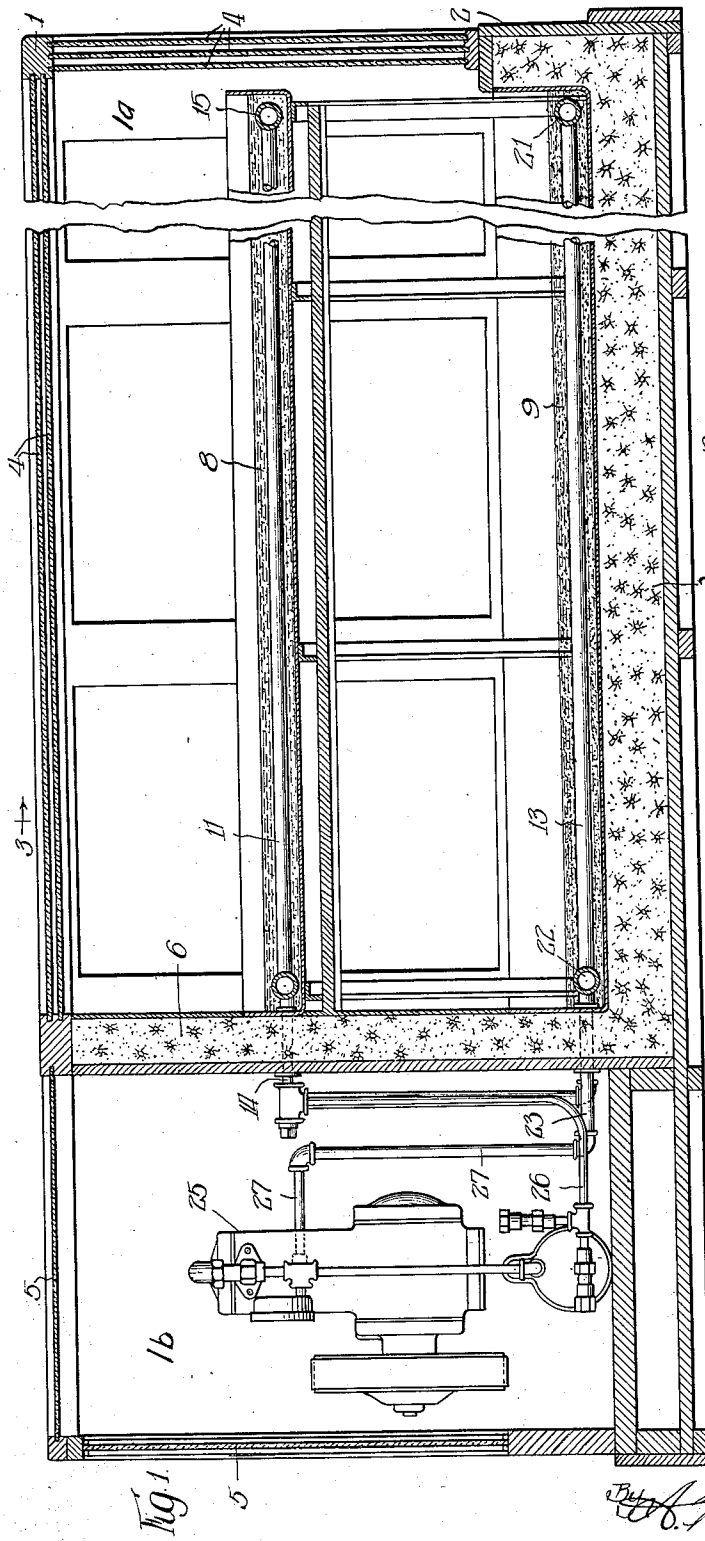


Fig. 1

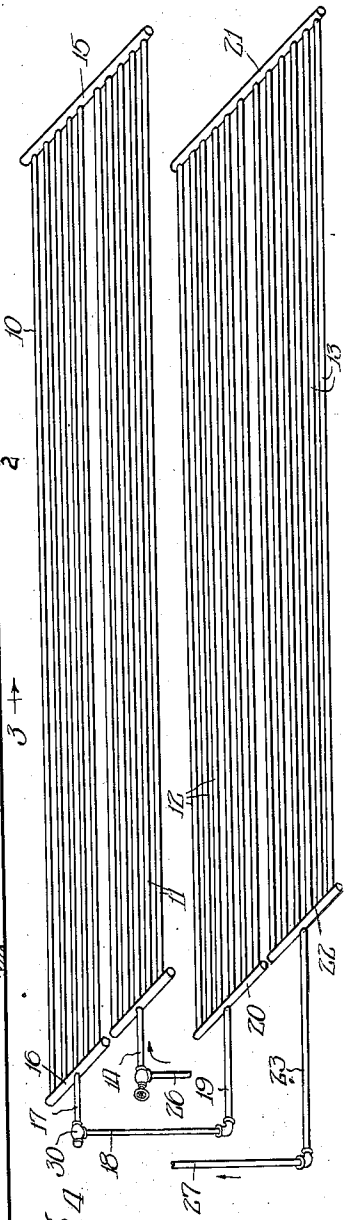


Fig. 4

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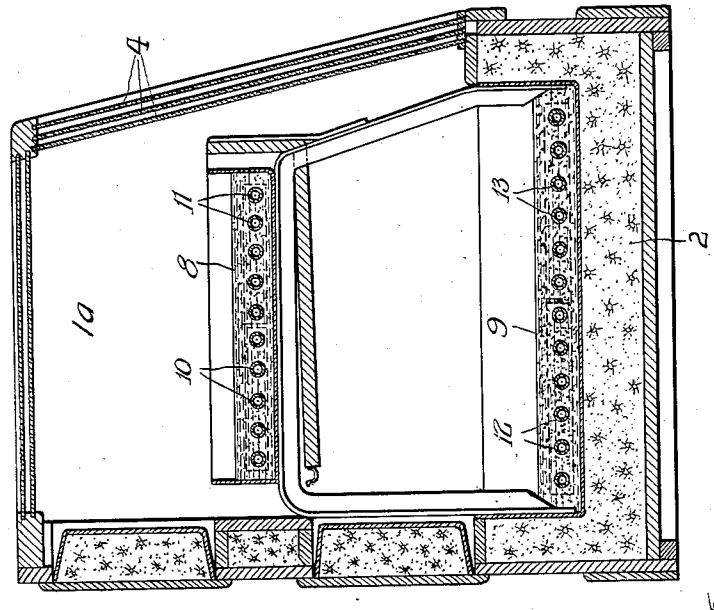


Fig. 3.

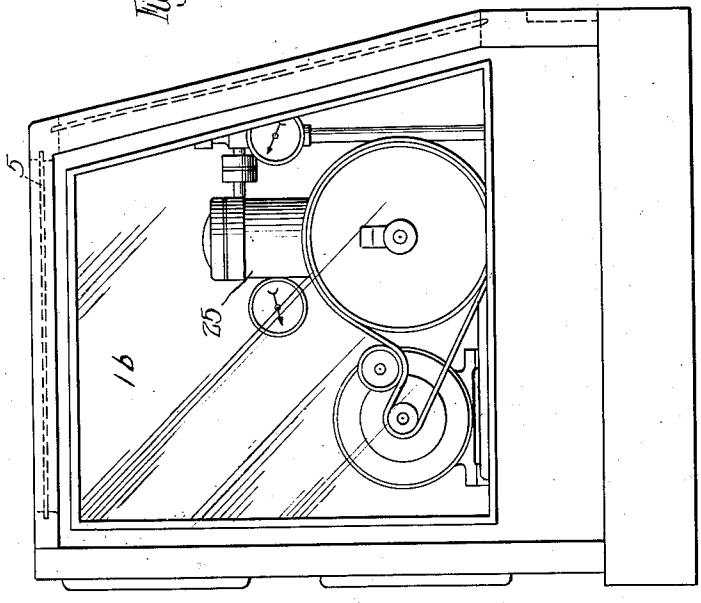


Fig. 2.

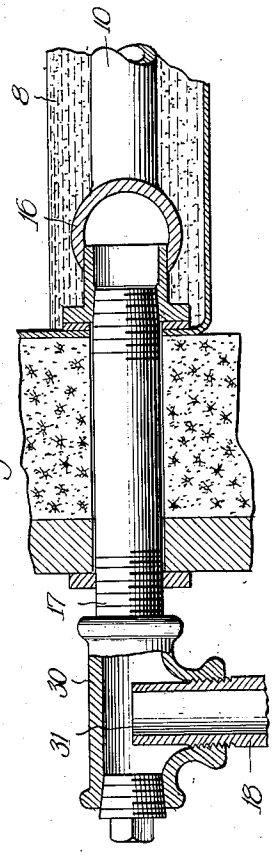


Fig. 5.

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Patented May 6, 1930

1,757,764

UNITED STATES PATENT OFFICE

EASTMAN A. BURROWS, OF CHICAGO, ILLINOIS, ASSIGNOR TO THOMAS D. HUFF, OF CHICAGO, ILLINOIS

DISPLAY APPARATUS

Application filed October 13, 1926. Serial No. 141,407.

My invention relates to apparatus for displaying various articles, and particularly to apparatus of this sort wherein it is desired to keep the articles in a cool condition, such display apparatus as would be used, for example, for fish, oysters and other articles particularly likely to be injured by a warm temperature. Apparatus of this general type, is shown in my United States Patent No. 1,514,128 issued November 4th, 1924.

One of the objects of the invention is to provide a simple, practical and advantageous type or form of display apparatus of the class specified.

Another object of the invention is to provide a simple and efficient arrangement for maintaining a low temperature to keep the articles in the apparatus at the desired low temperature.

Another object of the invention is to arrange for the support of articles to be displayed at different localities in the apparatus, as, for example, the display of such articles in areas or positions one above the other.

Another object of the invention is to arrange for the ready and effective maintenance of the articles at the proper temperature in such various or different locations.

Another object of the invention is to arrange for the advantageous location and connection of suitable means, such as a refrigerating machine and circulatory pipes capable of securing and maintaining the desired degrees of temperature.

Other objects of the invention will be pointed out and appear hereinafter.

Referring to the drawings:

Fig. 1 is a longitudinal section of a display apparatus embodying the invention.

Fig. 2 is an end view of the same looking at the left hand end of Fig. 1.

Fig. 3 is a cross section taken on the line 3—3 of Fig. 1.

Fig. 4 is a diagrammatical view of a piping arrangement employed in the apparatus.

Fig. 5 is a sectional view of a detail of construction.

Referring to the drawing I show a display apparatus embodying a case 1 mounted on a base 2, the case 1 being preferably made in two parts, 1^a and 1^b, the part 1^a preferably having its walls formed of a plurality of thicknesses 4—4 of glass and the part 1^b having its walls formed of single layers or thicknesses 5 of glass. The nonconducting partition 6 made of some suitable nonconducting material such as corkboard is preferably arranged between the portions 1^a and 1^b of the case. The base 2 is also preferably made of nonconducting or insulating material and may if desired be formed integral with the partition 6 as shown in Figs. 1 and 3.

The case portion 1^a is particularly adapted for displaying various articles such as fish, oysters, or the like and to allow the arrangement of these articles in different areas or positions, two supporting members 8 and 9 are provided, one above the other. These supporting members 8 and 9 are preferably made in the form of an ice mat structure and as such may be composed of sand or other material well adapted for conducting heat and water filling the interstices of the granular heat conducting material and frozen to form a substantially hard and strong supporting device. For freezing this ice mat or structure and maintaining the same in a frozen condition I show pipes 10—10 and 11—11 in the upper supporting member 8, and pipes 12—12 and 13—13 in the lower supporting member 9. These various pipes are intended for the circulation of a cooling or refrigerating medium such as ammonia or brine or salt water or something of the sort.

These various pipes are preferably connected together to form one circulatory system and this is shown diagrammatically in Fig. 4. In this arrangement the pipes 11—11 are connected with an inlet pipe 14 through which the cooling medium is supplied. At their other ends pipes 11—11 are connected with a cross connecting pipe 15 to which the corresponding ends of the pipes 10—10 are also connected so that the cooling medium will circulate first in pipes 11—11 and then backwarly in pipes 10—10. The other ends of pipes 10—10 are connected with cross pipes 16 which is in turn connected

with an outlet pipe 17 and the latter is connected with a downwardly extending pipe 18 and connection 19 which latter is in turn connected with a cross pipe 20 to which the ends of the pipes 12 in the lower support 9 are connected. The other ends of these pipes 12 are connected with a cross pipe 21 which is also connected with the other lower pipes 13, the latter being thence connected with a cross pipe 22 which connects with an outlet pipe 23 through which the cooling fluid may pass. Thus the cooling fluid will circulate first through pipes 11 and 10 in the upper support and then in pipes 12 and 13 in the lower support and would then leave these circulatory pipes through outlet pipe 23. Within the casing portion 1^b is a refrigerating machine 25 or similar device or apparatus for producing a circulation or cooling medium in the cooling pipes previously referred to. This machine which may be of any suitable or conventional type has its outlet or discharge pipe 26 connected with the inlet pipe 14 which is connected with the circulatory pipes 11. The machine also has its intake or suction pipe 27 connected with outlet pipe 23 leading from the circulatory pipe 13, in which way circulation is established and maintained through the circulatory pipes by means of this refrigerating machine 25.

As a matter of further and specific improvement means are provided for maintaining the circulatory medium at a safe level,—that is for preventing it from rising too high in the circulatory pipes.

This arrangement is shown in detail in Fig. 5 wherein a T 30 is shown arranged in the outlet pipe 17 and the connecting pipe 18 is shown running into this T 30 but terminated in the same at end 31 which is about the middle of the pipe 17 and pipes 10 and 11 so that as soon as the cooling medium or fluid reaches the level of end 31 it will begin to run down pipe 18 and thus prevent an overflow.

It will be understood that changes and modifications may be made without departing from the spirit of the invention.

What I claim is:

1. A display apparatus comprising a containing case and a plurality of cooling supports therein each comprising an ice mat structure and circulatory pipes.

2. A display apparatus comprising a containing case and a plurality of cooling supports therein each comprising an ice mat structure and circulatory pipes and means for maintaining a circulation of cooling medium in said pipes.

3. A display apparatus comprising a containing case having two compartments one of which contains a plurality of cooling supports comprising ice mat structures and circulatory pipes and the other of which compartments contains apparatus for circulating a cooling medium through said pipes.

4. A display apparatus comprising a containing case having two compartments one of which contains a plurality of cooling supports comprising ice mats or structures and circulatory pipes and the other of which compartments contains apparatus for circulating a cooling medium through said pipes said compartments being separated by a wall of insulating or nonconducting material through which connections between said apparatus and pipes are extended.

5. A display apparatus comprising a containing case having two compartments one of which contains a plurality of cooling supports comprising ice mats and circulatory pipes and the other of which contains a refrigerating machine connected with said circulatory pipes.

6. A display apparatus comprising a plurality of cooling supports each having circulatory pipes and arranged one above another, the pipes in said supports being connected with one another so that the fluids will be circulated through all of the pipes of said supports, the pipe connections being such that the cooling fluid is circulated first through one-half of the pipes of the upper support and return through the other half, then, through one half of the pipes of the lower support, returning through the other half.

7. A display apparatus comprising a plurality of cooling supports each having circulatory pipes and arranged one above another, the pipes in said supports being connected with one another so that the fluid will be circulated through all of the pipes of said supports, the pipe connections being such that the cooling fluid is circulated first through the pipes of the upper support and then through the pipes of the lower support the pipes in each support being grouped in two sets connected together at one end so that the cooling fluid may travel in opposite directions through said pipes.

8. A device of the class specified having an ice mat structure containing circulatory pipes for cooling medium arranged in groups connected together at their ends so that the cooling fluid will circulate in opposite directions through said pipes.

In witness whereof, I have hereunto subscribed my name this 20th day of August, A. D., 1926.

EASTMAN A. BURROWS.