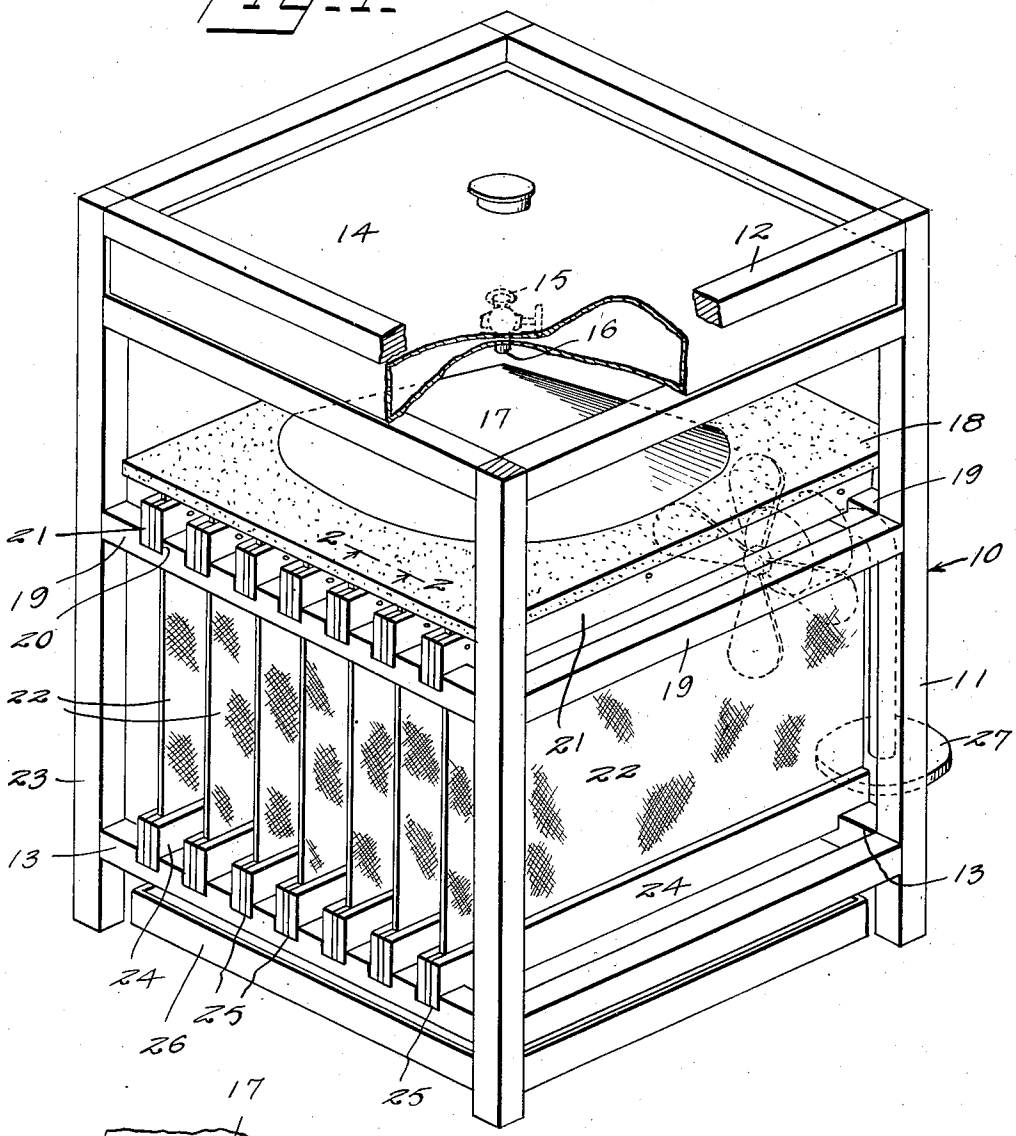
March 9, 1937. S. V. KIVETT 2,073,556

AIR COOLER

Filed Aug. 20, 1936

Fig. 1.



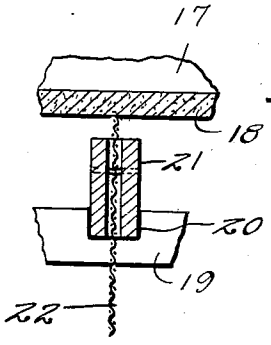


Fig. 2.

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AIR COOLER

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4 Claims. (Cl. 261—103)

This invention relates to air cooling or conditioning devices and more particularly to an air cooling or conditioning device operating on the evaporation principle.

An object of this invention is to provide an air conditioning means which is exceedingly simple in construction and by means of which air in a room may be readily cooled through the evaporation of water which is discharged onto a plurality of absorbent sheets and then the water evaporated by means of a fan or blower.

A further object of this invention is to provide a device of this kind which is exceedingly simple in construction and which will not occupy an unduly large space so that it may be placed at any convenient point in a room in order to cool the air within the room.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claims appended hereto.

In the drawing, wherein like symbols refer to like or corresponding parts throughout the several views,

Figure 1 is a perspective view partly broken away and in section of an air conditioning means constructed according to an embodiment of this invention.

Figure 2 is a fragmentary sectional view taken on the line 2—2 of Figure 1.

Referring to the drawing, the numeral 10 designates generally a base frame structure including a plurality of uprights or posts 11 secured together adjacent the lower portion thereof by horizontal bars or stiles 13. The frame 10 has a top portion 12 which may be enclosed and which is provided with a tank or liquid reservoir 14. This reservoir 14 is provided with a discharge pipe 15 in the bottom thereof and a valve 16 is connected to the discharge pipe 15 and is so constructed that the water or the liquid in the tank or reservoir 14 may be discharged in drops through the valve 16.

The drops falling from the valve 16 contact with the apex of a cone-shaped spreader 17 which is disposed on the upper surface of an absorbent sheet 18. The spreader 17 is preferably constructed of metal or other non-absorbent material and the absorbent sheet 18 is constructed of suitable material adapted to absorb the moisture flowing down over the surface of the cone 17 and then spread this moisture about the entire area of the sheet 18.

Horizontal supporting bars 19 extend across the frame 10 upwardly from the bottom thereof and these supporting bars 19 are preferably provided with upwardly opening notches or recesses 20 within which transverse bars 21 are adapted to seat. These bars 21 form part of a frame structure for holding a plurality of vertically disposed evaporation sheets 22 within the frame 10. Vertically disposed parallel bars 23 extend downwardly from the upper bars 20 and are secured at their lower ends to lower horizontal frame bars 24, thereby providing a rectangular frame structure within which the evaporation sheets 22 are loosely disposed. The upper ends of the fabric members 22 preferably extend above the upper bars 20 and may be secured, in any desired manner, to the underside of the spreader sheet 18. Or, if desired, the upper ends of the sheets 22 may be merely disposed in contacting relation with the underside of the spreader sheet 18 so that the moisture from the sheet 18 will be communicated to the vertical sheet 22 and thus flow downwardly along this sheet 22.

The lower horizontal frame bars 24 are adapted to engage in notches 25 in the lower frame members 13 of the frame 10 so that the frames for the vertical absorbent sheets 22 will be firmly held and may also be readily removed from the main or base frame, if desired.

A drip pan or receiving member 26 is disposed below the vertical sheets 22 and is adapted to catch any drops of water which are not evaporated along the surface of the several vertical sheets 22. Preferably, there are a number of these vertical sheets 22 disposed within the frame 10 with the sheets disposed in spaced apart parallel relation so that a fan or blower 27 may be disposed at one side of the frame 10 in a position to force air through the space between each pair of vertical sheets 22. This fan 27 may be disposed on a suitable support carried by the frame 10 or may be disposed at a slight distance away from the frame 10 so that the draft of air from the fan 27 will be blown toward the confronting edges of the vertical fabric members 22 and pass therebetween and in passing evaporate the moisture on the sheets 22.

It is, of course, well known that the rapid evaporation of water will effect a lowering of the air temperature and it is for this reason that the moisture from the reservoir 14 is thoroughly spread out over the surface of a considerable number of moisture holding sheets or blankets.

In the use and operation of this air conditioning means, the water is placed in the reservoir 14 and, if desired, this water may be cooled with ice or the like and the valve 16 opened sufficiently

to maintain the absorbent spreader 18 in a moistened condition. The water dropping from the valve 16 will flow down over the surface of the cone-shaped member 17 onto the blanket or absorbent plate 18 and passing through this plate 18, the moisture will flow down over the surface of the vertically disposed sheets 22. The fan 27 will cause a draft of air to pass horizontally through the sheets 22 thereby effecting an evaporation of the water as it flows downwardly over the sheets 22 and thus cool the air passing out from between these sheets 22. Any excess moisture flowing down the sheets 22 will drop into the receiving pan 26.

While this device has been constructed in the form of a device to be placed within a room it is, of course, understood that this device might also be placed at one end of one or more flues or pipes for carrying the cooled air to different parts of a building or different parts of a room.

It is, of course, understood that various changes and modifications may be made in the details of construction and design of the above specifically described embodiment of this invention without departing from the spirit thereof, such changes and modifications being restricted only by the scope of the following claims.

I claim:—

1. An air conditioning means comprising a frame, a liquid reservoir carried by the frame in the upper portion thereof, a plurality of parallel spaced apart absorbent members disposed below the reservoir within the frame, a valve carried by the reservoir substantially centrally thereof for regulating the flow of liquid therefrom, a moisture spreading means interposed between the valve and the absorbent members to spread the moisture about the surface of said members, said spreading means including an absorbent sheet contacting with the upper ends of said members and a non-absorbent spreading member disposed between said spreading means and said sheet.

2. An air conditioning means comprising a frame, a liquid reservoir in the frame, a plurality of absorbent sheets disposed in spaced apart parallel relation to each other, means for supporting said sheets within the frame in substantially vertical position, an absorbent spreader member engaging the upper edges of said absorbent sheets, a valve carried by the reservoir for regulating the flow of liquid onto the surface of said spreader member and a non-absorbent spreader member interposed between said valve and said absorbent spreader member.

3. An air conditioning means comprising a frame, a liquid reservoir in the frame, a plurality of spaced apart parallel absorbent sheets disposed within the frame, means for supporting said sheets in vertical position within the frame, an absorbent spreader member engaging the upper edges of said absorbent sheets, a valve carried by said reservoir overlying said spreader member and a conical non-absorbent spreader member interposed between the valve and said absorbent spreader member.

4. An air conditioning means comprising a frame, a reservoir in the frame, a plurality of vertically spaced apart absorbent sheets disposed within the frame, means for supporting said sheets in a vertical position within the frame, a fabric member engaging the upper edges of said absorbent sheets and disposed in substantially horizontal position, a cone-shaped spreader engaging the upper surface of said fabric member, a valve carried by the reservoir overlying the apex of said spreader member, and a catch basin disposed below said absorbent sheets.

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