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C. A. MOORE

ATMOSPHERIC CONDITIONER FOR ROOMS

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Fig. 1

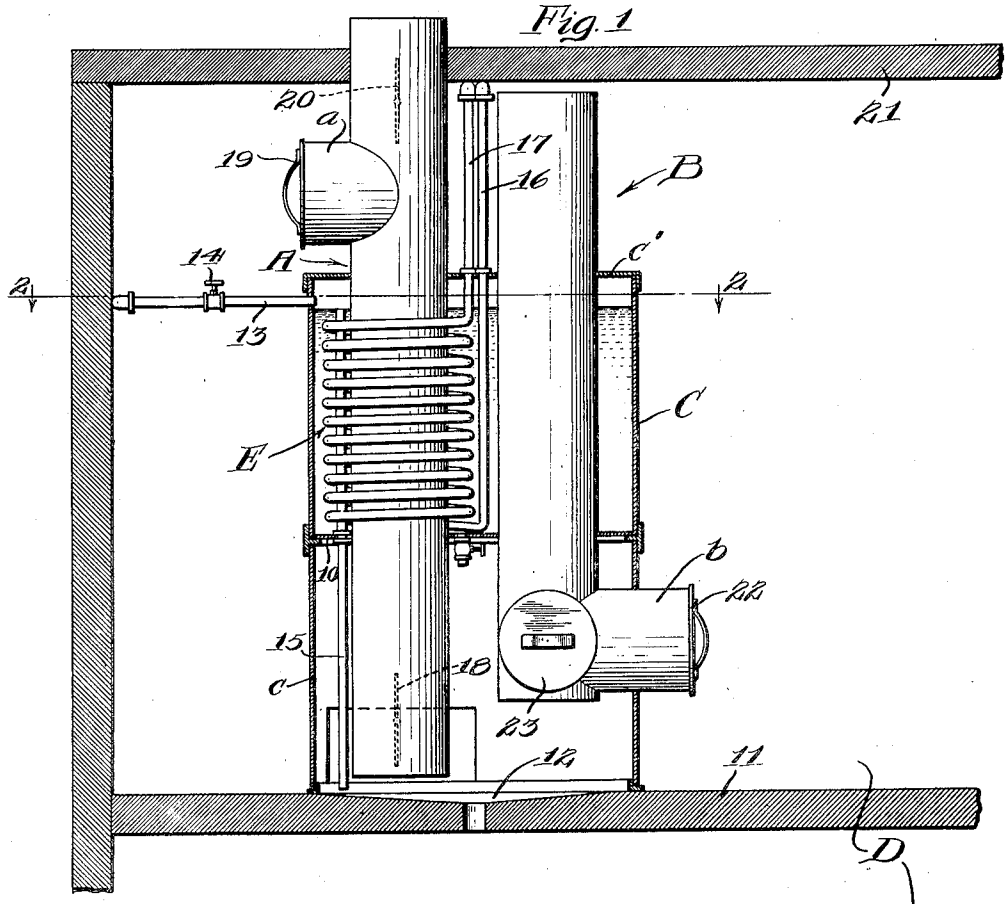
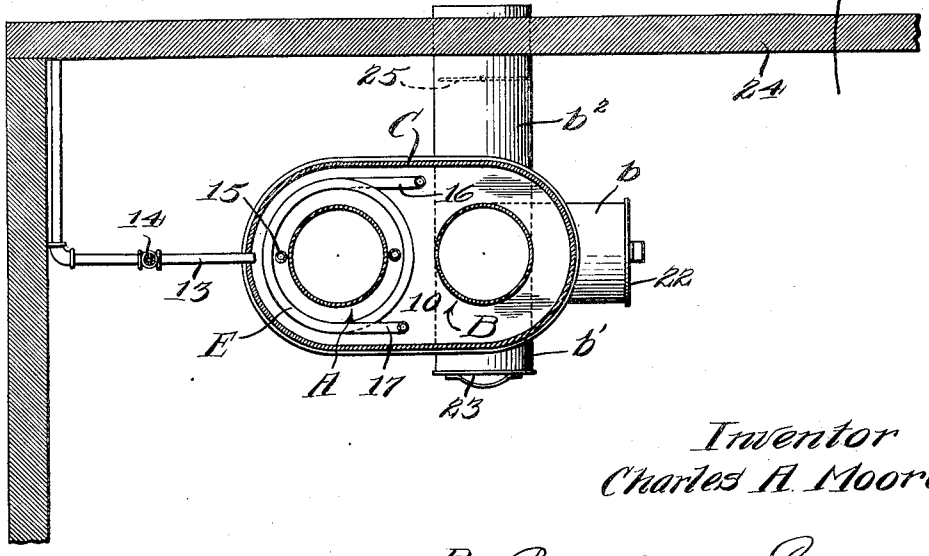


Fig. 2



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ATMOSPHERIC CONDITIONER FOR ROOMS.

Application filed August 15, 1924. Serial No. 732,343.

My invention relates to improvements in atmospheric conditioning means for storage and other rooms.

An object of the invention is to provide means of the present nature for circulating air in and ventilating a room and at the same time effecting that temperature within the room desired for the particular use to which the room is employed, said means being of simple, durable and inexpensive construction and adapted to operate efficiently, not only during the active employment of a temperature affecting medium in connection therewith, but afterwards by reason of holding over capacity inherent in said means.

With the foregoing and other objects in view, which will appear in the following description, the invention resides in the novel combination and arrangement of parts and in the details of construction hereinafter described and claimed.

In the drawings, Fig. 1 is a longitudinal, central, sectional view of an atmospheric conditioner embodying my invention, a room in which the device is installed being represented in said Fig. 1 and Fig. 2 is a horizontal sectional view taken through the upper portion of the device as on the line 2—2 of Fig. 1.

Referring to the drawings, wherein like reference characters are used to designate similar parts, it will be observed that my improvement includes two upright ducts A, B arranged side by side. These ducts A, B pass through the bottom 10 of a tank C and are carried by said tank, which, in turn, is supported on a shell-like base *c*. The tank and duct assembly, above described, is installed in a room D, the base *c* resting on the floor 11 over a drain 12 therein. A feed pipe 13 fitted with a valve 14, is led into the tank C and supplies the same with water or other temperature transmitting and holding fluid. A drain pipe 15 leading from the upper portion of the tank C downwardly through the bottom 10 thereof and into the drain 12 limits the high level of the water within the tank C. Reaching through the tank C as shown, substantial portions of the ducts A, B, medially thereof, are submerged in the water. Coiled about the duct A is a pipe E for a temperature affecting medium, the turns of the pipe being spaced apart from each other and from said duct A, said coiled pipe E having a feed branch 16 and a return branch 17, as shown. Capping the tank C is a cover *c'* through which the ducts A, B and pipe branches 16, 17 extend.

The lower end of the duct A opens into the room D near the floor 11 thereof and is fitted with a damper 18. The upper end of said duct A opens into the outer air above the room, the upper portion of said duct being supplied with a branch-duct *a* fitted with a removable plug 19 and also with a damper 20, both within the room. The upper end of the duct B opens into the room near the ceiling 21 thereof, the lower end of said duct being supplied near the floor of the room with two branch ducts *b*, *b'* fitted respectively with removable plugs 22, 23 and also with a branch-duct b^2 reaching through the wall 24 of the room into the outer air, said branch-duct b^2 being fitted with a damper 25.

In use, the device may be employed in providing refrigerated ventilation within a room or refrigerated circulation of air therein or a combination of the two. In either event, a suitable refrigerating medium is conducted into and through the turns of the coiled pipe E with the result that the water within the tank C is cooled to a low degree and the air within the ducts A, B refrigerated through the medium of the chilled water. With the dampers 18, 20 and 25 open and the plugs 19, 22 and 23 in place, fresh air settles from without into the duct A where it is refrigerated and from whence it flows into the lower portion of the room. Rising adjacent the walls of the room said air reaches the upper stratum therein from whence it is drawn downwardly through the duct B and expelled to the outer air through the branch duct b^2. Such down drafts in the ducts A, B are brought about by reason of the effect of the cold water about said ducts, which, as above stated is chilled by the refrigerant in the coiled pipe E. Closing the three dampers 18, 20 and 25 and removing either of the plugs 22 and 23, or both, and the plug 19, results in refrigerated circulation of air within the room, while the opening of all of said dampers accompanied with the removal of either of said plugs 22, 23, or both and the removal of the plug 19, results in mixed refrigerated ventilation and internal circulation of air within the room. With a heating medium flowing through the coiled pipe E ventilation and internal cir-

culation, of air in the room may be had, the same being attended with heating instead of refrigeration. Under heating the air moves upwardly through the ducts A, B, the same entering duct B from the room or from without, or both, and having egress from duct A into the room or to the outside thereof, or both, according to the use that is made of the dampers 18, 20 and 25 and the plugs 19, 22 and 23.

Greater efficiency under heating is obtained by placing the coiled pipe E about the duct B, and, where the principal need is for heating, I so place said pipe E. In this connection, I wish it to be understood that where the need for both heating and for refrigeration obtains and where the expense of the temperature affecting medium employed must be considered, I employ a coiled pipe about each of the ducts A, E, the pipe about the duct A being used as a conduit for a refrigerant and the pipe about the duct B for a heating medium. Whether refrigerating or heating, the air within the ducts A, B is affected, through the medium of the water or other fluid in the tank C, and said fluid being of substantial quantity, holds over or carries on the action of the device for a considerable period after cessation of the flow of temperature affecting medium in the pipe E. This feature is advantageous in that it prevents rapid changes of temperature or stagnation of the atmosphere within a room, when the normal operation of the device has been interrupted.

Changes in the specific form of my invention, as herein disclosed, may be made within the scope of what is claimed without departing from the spirit of my invention.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:

1. An atmospheric conditioner for a room comprising two adjacent upright ducts, the lower end of one duct communicating with the room at its lower portion and the corresponding end of the other duct communicating with the outer air at said lower portion of the room, the upper ends of said ducts communicating respectively with the outer air and with the interior of the room at its upper portion, a tank for a temperature holding and transmitting fluid through which said ducts pass, and a conduit for a temperature affecting medium, said conduit being immersed in said fluid and closely encircling one of said ducts.

2. An atmospheric conditioner for a room comprising two adjacent upright ducts, one duct opening at the lower end thereof into the interior of the room near the floor and the second duct opening at its upper end into the interior of the room near the ceiling, said first duct having valved communication at its upper end with the outer air and with the interior of the room near the ceiling and the second duct having similar communication at its lower end with the outer air and with the interior of the room near the floor, a tank for a temperature holding and transmitting fluid through which said ducts pass and a conduit for a temperature affecting medium immersed in the fluid in said tank and coiled about one of said ducts, the turns of the coils of said conduit being spaced apart from each other and from the duct encircled thereby.

3. In an atmospheric conditioner for a room, two adjacent upright ducts, one for taking in fresh air from above and delivering it into the room near the floor, the other for taking off air from the room near the ceiling and exhausting it into the outer air from below, a tank for a temperature transmitting fluid, said ducts passing through said tank and the fluid therein, and a conduit for a refrigerating medium immersed in the fluid in said tank and arranged in near proximity to said first duct.

In testimony whereof, I have signed my name to this specification.

CHARLES A. MOORE.