

Feb. 16, 1932.

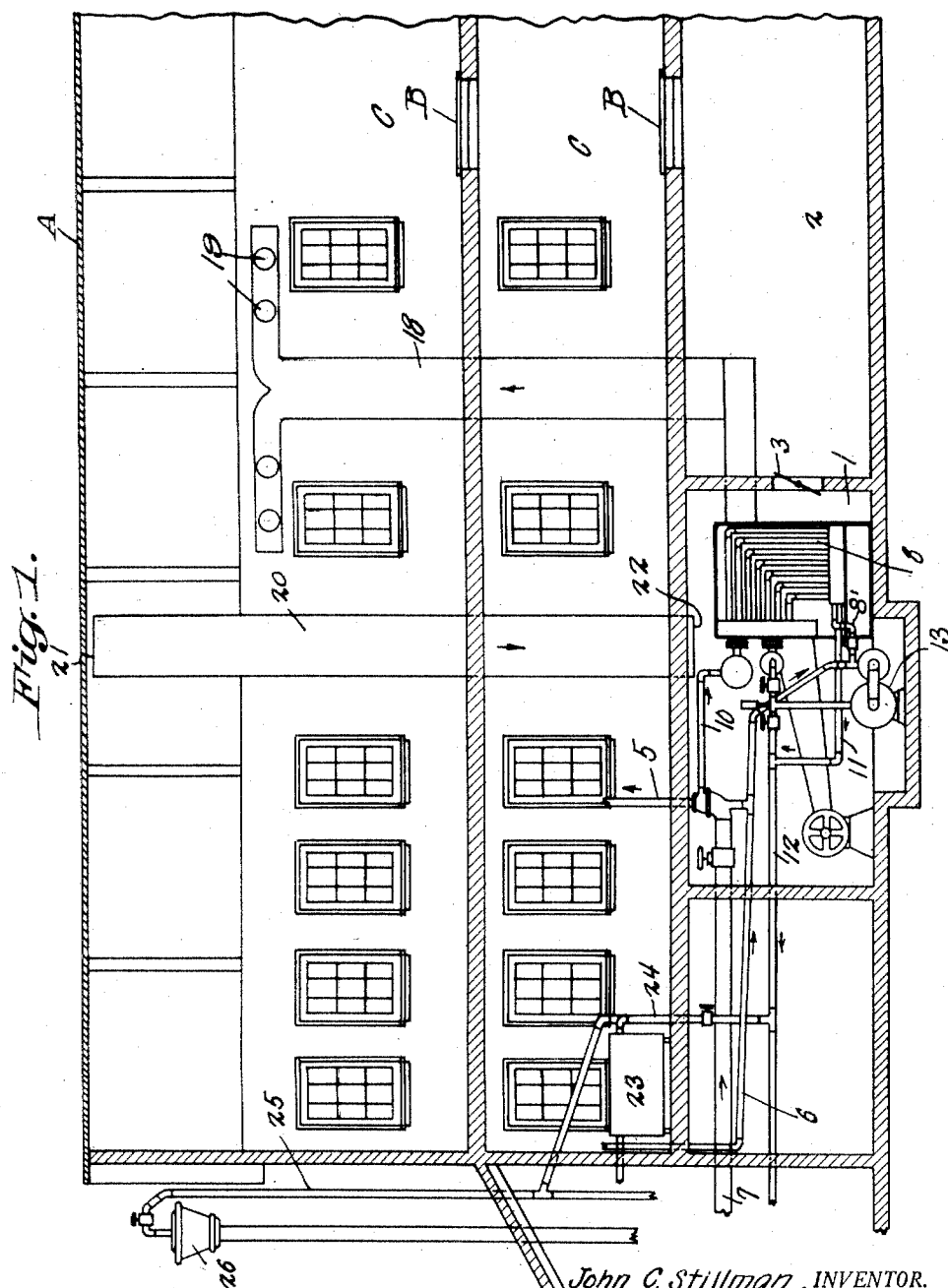
J. C. STILLMAN

1,845,942

HEATING, DRYING, AND VENTILATING SYSTEM

Filed July 13, 1927

3 Sheets-Sheet 1



Witnesses
C. C. Churchman

John C. Stillman, INVENTOR.

BY Richard B. Owen
ATTORNEYS.

Feb. 16, 1932.

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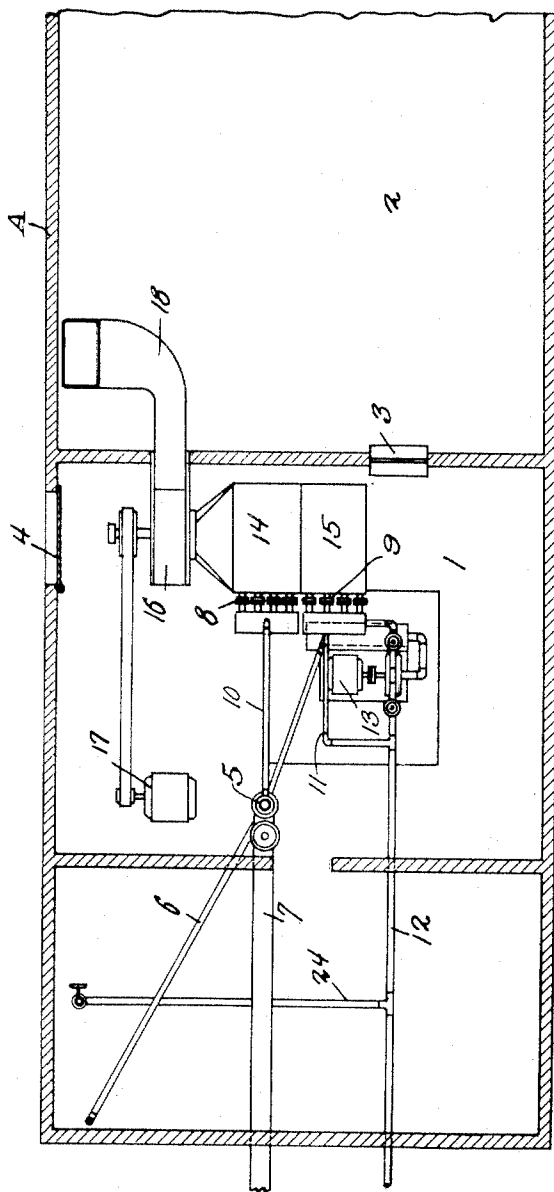
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Fig. 2.



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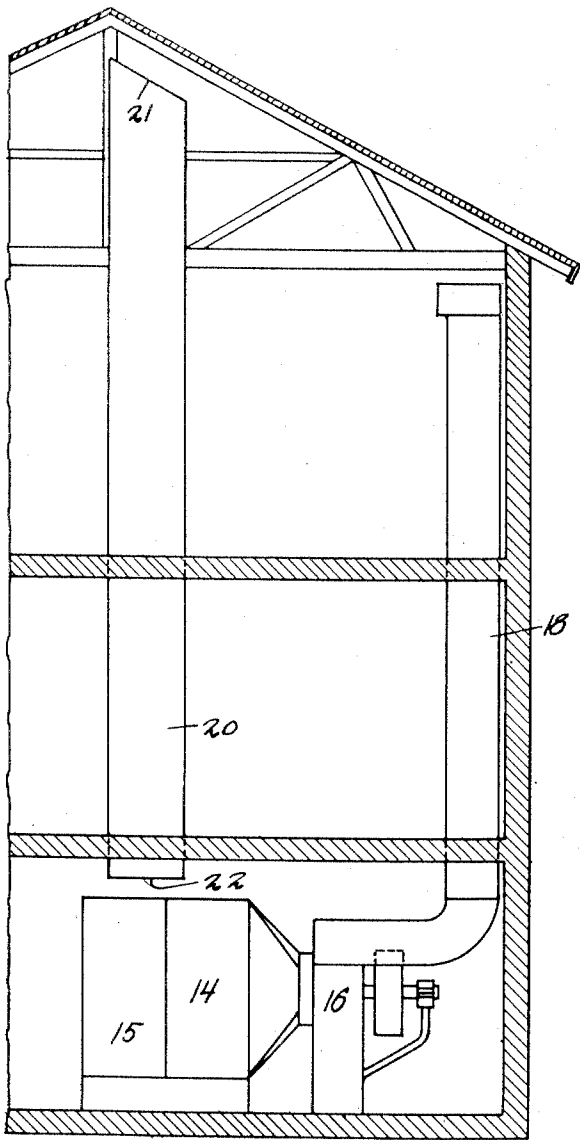
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Fig. 3.



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UNITED STATES PATENT OFFICE

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HEATING, DRYING AND VENTILATING SYSTEM

Application filed July 13, 1927. Serial No. 205,520.

This invention relates to system for controlling the temperature, ventilation, and humidity, in a factory or the like where it is essential that definite temperature and humidity conditions be maintained in different rooms or different portions of the same room both to meet manufacturing or production requirements, and to afford comfort and sanitary air conditions for those employed in the factory.

An object of the invention is the development of a system that will keep the air of the various rooms in the proper condition and at the proper temperature, while at the same time assuring proper ventilation thereof.

Another object of this invention is the construction of a system capable of utilizing exhaust steam for the purpose of heating buildings.

With these and other objects in view, my invention will be better understood from a description of the same when taken in connection with the accompanying drawings, wherein:—

Figure 1 is a diagrammatic view of the complete system;

Figure 2 is a plan view of a portion of the system;

Figure 3 is a detail elevation of the hot air conduit and associated devices.

Again referring to the drawings illustrating one of the many constructions of my invention, the letter A designates in a diagrammatic manner a factory or other type of building sub-divided into the various floors C and having its ground or basement floor partitioned to provide a fan room 1 and an auxiliary room 2. Circulation of air through the rooms is controlled by the damper 3 and the fan room 1 can be placed in communication with the exterior atmosphere by a door 4. It will be appreciated that the humidity of the air in the rooms can be regulated to the best advantage by opening the door 4 to admit fresh air. Thus I am able to accurately control the condition of the air in the fan room so as to obtain the best advantages possible. To provide for the circulation of air from one floor to the other, covered openings B are provided which may be opened and closed ac-

cording to the desire of the occupant of the building. Any suitable construction of fluid heating apparatus may be used with my system and, therefore, I have not illustrated any of the well known types of apparatus for such purpose, although I have shown the usual riser 5 and return 6 of a power plant. The riser 5 communicates with the steam line 7 which may be arranged in communication with the exhaust from a power plant. Arranged within the main chamber are a plurality of heat coils, shown in this particular instance as two in number and designated by the numerals 8 and 9, the former communicating directly with the feed line 7 by the pipe 10, while the latter communicates by the by-pipe 11 with the discharge pipe 12 of the system. Of course, it is to be understood that the coils 8 and 9 are arranged in communication with each other. A vacuum pump 13 is arranged to draw water of condensation and air from the coil 8 by way of a pipe 8' and force the same through coil 9 on its way through pipe 11 to pipe 12 and then through pipe 24 to the tank 23. At this point the air separates and passes up through the pipe 25 to the exhaust head 26. Thus it will be appreciated that the coil 9 is capable of initially heating the incoming air whereas coil 8 is utilized to increase the temperature of the incoming air.

Surrounding the coils 8 and 9 are the hoods 14 and 15 discharging into the blower 16 that is driven by the motor 17 and in turn discharges into the hot air conduit 18. This hot air conduit may be provided with any required number of discharge ports 19 for discharging hot air into the various rooms of the factory.

From the foregoing description of the invention it will be apparent that in carrying out the same I am enabled to properly regulate the humidity in the air in the rooms of the factory and the circulation of the air there-through. This assures the proper conditioning of the air so that the same may be properly heated by the various heating devices within the main chamber and more particularly by the heat coils 8 and 9. This heated air is forced by the fan up through the hot

air conduit for proper distribution. Under certain factory conditions, it is not only necessary to prevent communication with the exterior of the factory but it is also necessary
5 to provide the proper ventilation and this is accomplished by the novel arrangements of the conduit 20 that performs the dual function of properly ventilating the various rooms and returns to the conditioning room,
10 air at a favorable temperature.

Of course, it is to be understood that the various apparatuses and devices may be constructed and assembled in other relations than illustrated and may be designed in
15 various other manners and, therefore, I do not desire to be limited in any manner except as set forth in the appended claim.

I claim:—

In a system for controlling the temperature, ventilation, and humidity in a building
20 structure having upper and lower stories, partitions dividing the lower story into a fan room and an auxiliary room, a heating unit in the fan room of the lower story, a feed line
25 communicating with said unit, an outlet line leading from said unit, a hot air conduit for conducting hot air from the unit to the upper story of the structure leading through the auxiliary room and having branches provided
30 with outlets in the upper story, the floors between the stories being provided with covered openings and permitting communication between the auxiliary room and the adjacent upper story when desired, means
35 whereby atmospheric air may be admitted into the fan room of the lower story adjacent to said heating unit, and a return air pipe leading through the stories terminating at its upper end in close proximity to the ceiling
40 of the upper story and at its lower end in close proximity to the heating unit in said fan room.

In testimony whereof I affix my signature.
JOHN C. STILLMAN.

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