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W. L. FLEISHER

HEATING SYSTEM

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Fig. 1.

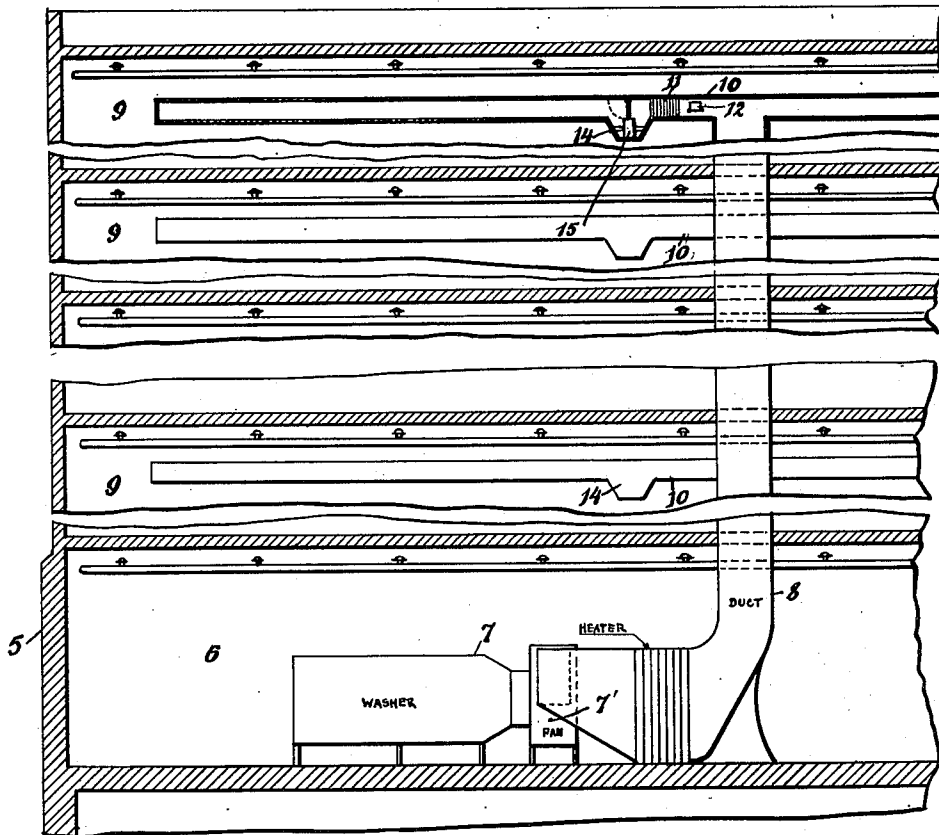


Fig. 2.

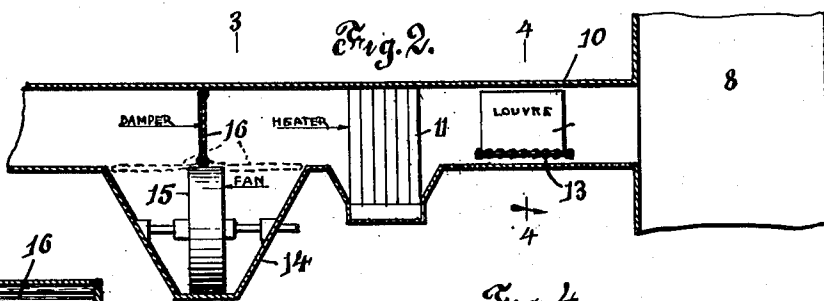


Fig. 3.

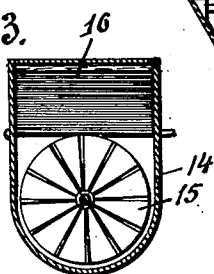
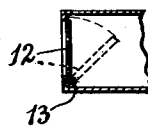


Fig. 4.



INVENTOR
W. L. FLEISHER
BY *Wm. L. Fleisher*
ATTORNEY

UNITED STATES PATENT OFFICE.

WALTER L. FLEISHER, OF NEW YORK, N. Y., ASSIGNOR TO W. L. FLEISHER & CO. INC.,
OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

HEATING SYSTEM.

Application filed October 27, 1922. Serial No. 597,432.

To all whom it may concern:

Be it known that I, WALTER L. FLEISHER, a citizen of the United States, and a resident of the borough of Manhattan, county of New York, city and State of New York, have invented a new and Improved Heating System, of which the following is a full, clear, and exact description.

My invention relates to a heating system used in conjunction with a central air conditioning system or blast system of heating having a central unit, usually placed in the basement or on the roof of the building, with reheaters on the various floors for tempering the floors, in addition to the one central heater stack.

Where the air conditioning system or blast system of heating is installed, and the building is protected by an automatic sprinkler equipment or where perishable goods are stored liable to be affected by excessive cold, it has been necessary to install direct heating systems, stoves or other means of keeping the floors above the freezing point in the winter time during Sundays, holidays and nights, or, it becomes necessary to run the main blower, heater, and washer in connection with the humidifying system when there is no real use for that amount of air change or conditioning which is incidental to the operation of the system, thus entailing a good bit of night and Sunday service and much expense of operation.

To overcome these conditions, I have invented an attachment to a complete blast or humidifying system.

In practically all of these systems of heating, there is a stack of heaters or coils installed in the main duct system at each floor, which source of heat is controlled usually by a thermostat in the room. The air from the main system is blown through this heater and from that point distributes itself under pressure through the duct work on the floor to various portions of the floor for the heating and conditioning of that floor.

In my invention I utilize this heater. It may be necessary to increase the size of same where it would be necessary to have a higher temperature on the floor than the heater itself would produce. I also utilize the duct work system in conjunction with my system of heating so that in reality little change of operation is necessary in the existing system to adapt itself to this system of heating.

In the appended drawing,

Figure 1 represents a diagrammatic view of a building equipped with an air conditioning heating system modified according to my invention.

Figure 2 is an enlarged section of the air duct disclosing my invention,

Figure 3 is a section on line 3—3, Figure 2, and

Figure 4 is a section on line 4—4 Figure 2.

Referring to the drawing 5 is the building, in the cellar 6 of which the air conditioning system of heating 7, is installed. The main duct 8 of the system leads to all the various floors 9 and from which main duct ducts 10 are branched out on each floor. In each of the ducts 10 a heater 11 is located, and, in front of each of the heaters I provide a louvre 12. This louvre 12 is located on the main fan side, that is, the fan 7' installed in the basement 6. This louvre has a spring 13 normally tending to open the said louvre inwardly. The air pressure from the main fan, therefore, would automatically close this louvre.

In other words, the louvre 12 is an automatic louvre opening as soon as the main heating system is stopped and closing automatically as soon as the main heating system is started. The air blast of the main heating system when flowing from the ducts 10 will force the louvre 12 against the opening by overcoming the resistance of the spring 13, normally tending to move the louvre away from the opening. The spring 13 tends to maintain the louvre at an angle substantially less than a right angle with the wall in which the opening is made (see Figure 4) so as to facilitate the air blast of the main heating system in moving the louvre to close the opening.

On the side of the heater opposite that where the louvre is located, I provide a depression 14 in the duct which forms the housing for a fan 15 which may be of any suitable type for the purpose of drawing air from the heaters and sending it further into the duct. Above the fan, I provide a two-leaf damper 16, so arranged that the two leaves come together across the duct over the fan and when the leaves are open they form a cover for the housing of the fan and provide a direct path for the air when the main fan is being used. (This is indicated in dotted lines in Figure 2.) When the

damper is in the position shown in Figure 2, the air may be drawn by the supplementary fan and discharged beyond the damper 16 to the ducts; which ducts are used for the ordinary purpose of distributing the air of the main system. When the auxiliary fan 15 operates, it draws the air through the automatic louvre, taking the air from the floor which is to be heated.

The air drawn by the auxiliary fan 15 passes through the heater 11 and is forced through the duct 10 to be discharged through the various parts of the floor, through the regular duct work. The air that is discharged and partially cooled by radiation is again redrawn through the automatic louvre and again circulated after being reheated by the stack 11.

The important main feature of the invention being the utilization of the heater or tempering stacks on the floor present in the main heating system, the provision of an automatic louvre, of an auxiliary fan and a two-leaf damper.

By means of the above, I am able with a considerably smaller amount of power and expense to obtain substantially the same result on any or all of the floors without the use of the main heating system.

In my arrangement as disclosed, I utilize the existing air duct system and can recirculate the air on the same floor. This auxiliary system of heating permits the maintaining of a lower temperature while I prevent freezing and it will also prevent undue drying in places where textiles are manufactured or are in the process of manufacture and which may be affected by the utilization of the main heating unit, not properly humidified, or where auxiliary furnaces or heaters, or anything of this kind, if used, would disregard the moisture condition of the air in the room.

I claim:

1. In a main heating system, a floor air duct, a heater in the duct, an automatically controlled normally opened air inlet for the duct, located in proximity to the heater, said inlet being adapted to be closed by the air pressure of the main heating system, a fan associated with the air duct and disposed on the side of the heater remote from the automatic inlet, and means associated with the duct and fan for either shutting off the fan from the duct or allowing the fan to draw air through the automatic inlet and heater and send it through the duct, substantially as and for the purposes set forth.

2. In a main heating system, a floor air duct, a heater in the duct, said duct having an opening near the heater, a normally open louvre for said opening, said louvre being adapted to be closed by the air pressure of the main heating system, a fan associated with the air duct and disposed on the side of the heater remote from the opening, and means for either shutting off the fan from the duct or permitting the said fan to draw air through the opening and heater and force the same through the duct, substantially as and for the purposes set forth.

3. In a main heating system, a floor air duct, a heater in the duct, said duct having an opening near the heater, an automatic louvre normally open for said opening and adapted to close under the air pressure of the main heating system, a fan having a housing adapted to be connected to the air duct near the heater, on the side of the heater remote from the opening, and means associated with the housing of the fan whereby the fan may be shut off from the duct or permitted to draw air through the opening and heater and send the air through the duct.

4. In a main heating system, a floor air duct, a heater in the duct, said duct having an opening near the heater, a normally open automatic louvre for said opening, arranged to close said opening by the air pressure of the main heating system, said air duct having a depression in proximity to the heater, on the side of the heater remote from the opening in the duct, a fan in said depression and a damper associated with the depression whereby the said depression may be separated from the duct or connected thereto, said fan being so located in said depression that when the depression is connected to the duct the fan will draw air through the opening and heater and deliver it to the duct.

5. In a main heating system, a floor air duct, a heater in the duct, said duct having an opening, a normally open louvre for said opening arranged to be closed by the air pressure of the main heating system, said duct having a depression in proximity to the heater on the side remote from the opening in the duct, a fan in said depression, and a two-leaf damper mounted in said depression so that the two leaves will come together above the fan in the air duct, said two leaves of the damper being adapted to close the depression in the air duct.

WALTER L. FLEISHER.