

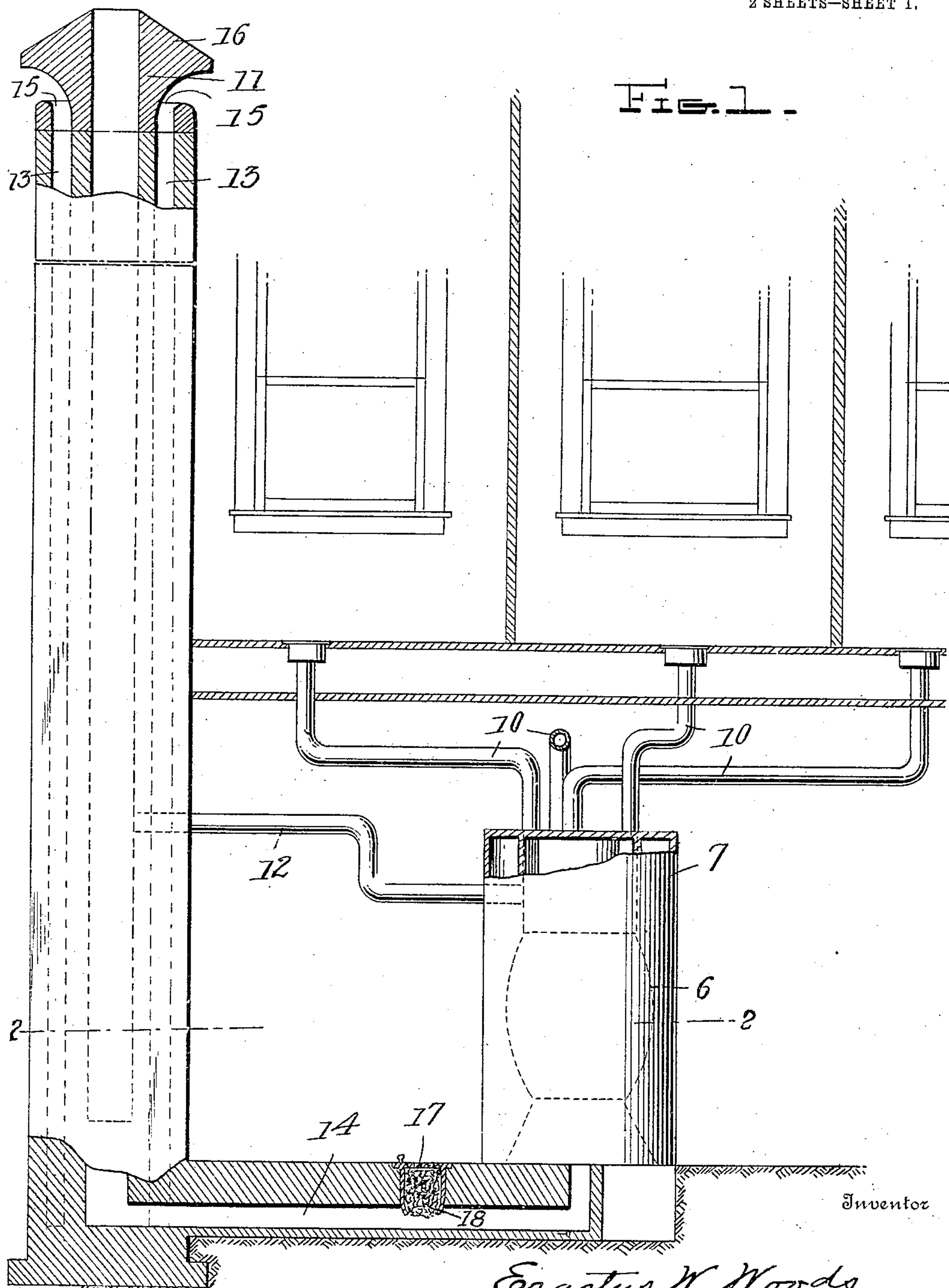
No. 875,400.

PATENTED DEC. 31, 1907.

E. W. WOODS.
HEATING AND VENTILATING SYSTEM.

APPLICATION FILED MAR. 6, 1907.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

FIG. 2.

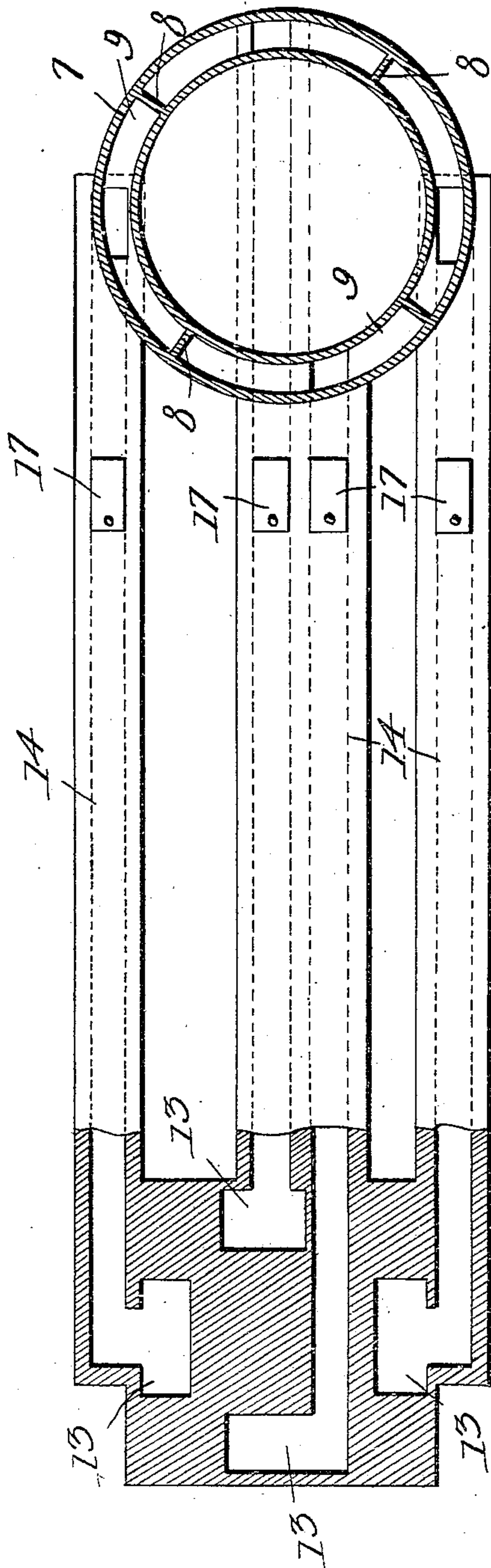
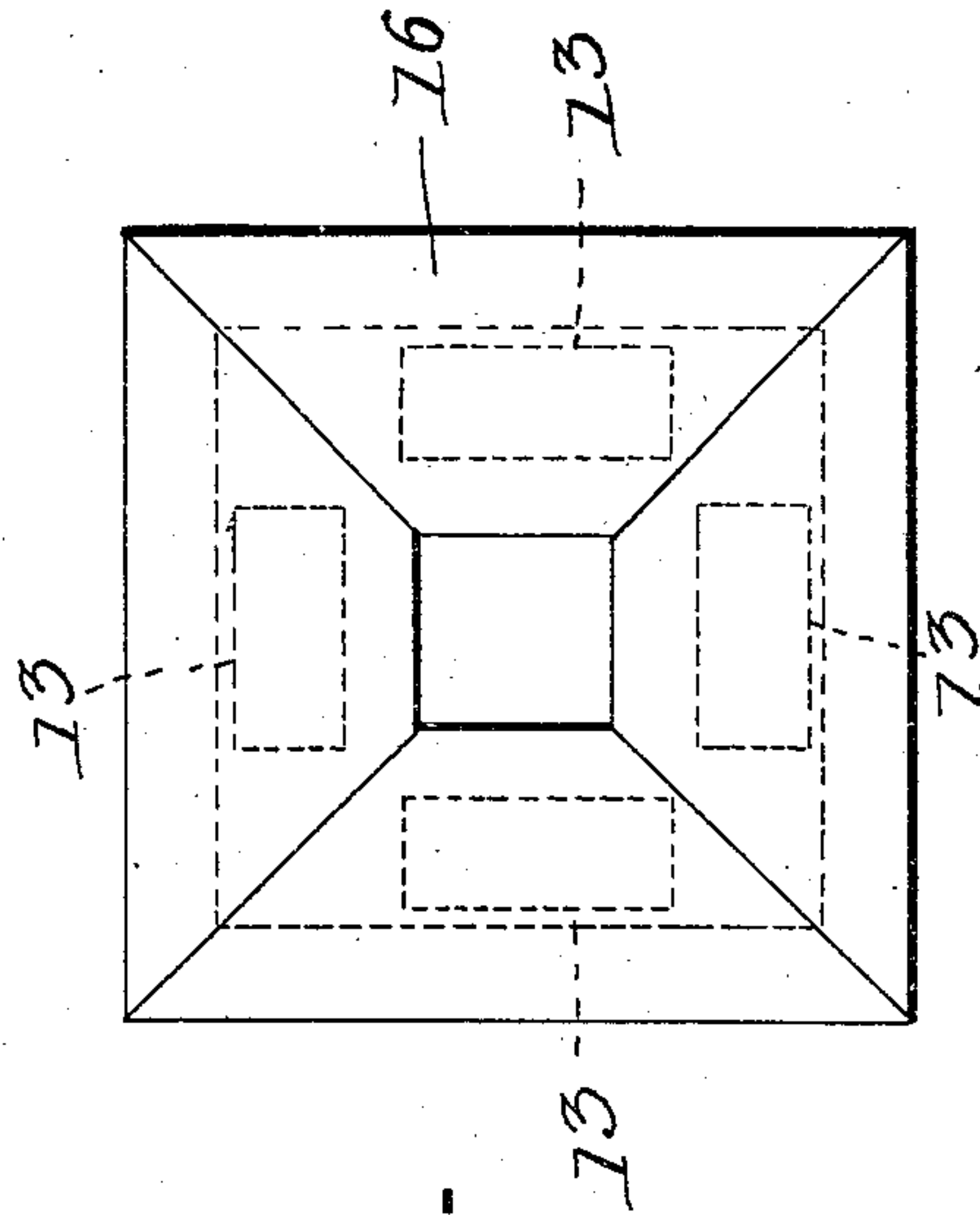


FIG. 3.



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UNITED STATES PATENT OFFICE.

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HEATING AND VENTILATING SYSTEM.

No. 875,400.

Specification of Letters Patent.

Patented Dec. 31, 1907.

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To all whom it may concern:

Be it known that I, ERASTUS WADDELL WOODS, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Heating and Ventilating Systems, of which the following is a specification.

This invention is a heating and ventilating system particularly adapted for houses, and has for its main object to effect an economical distribution of heat over all parts of the house.

In existing hot air systems, it is a well-known fact that it is difficult to force the heated air to the windward side of the house, the result being that the rooms on the side of the house toward which the wind comes are more or less cold, while the rooms on the lee or opposite side receive more than their share of the heat.

The object of this invention is to remedy this defect, and also to provide a full supply of pure heated air to all the rooms of the house. This is done by the use of air ducts which lead from the top of the stack downwardly to the furnace, or below the lowest point of the heat zone, and return upwardly through the furnace and to the rooms or chambers to be heated. And the casing of the furnace is partitioned into separate chambers corresponding to the separate rooms or sides of the house, and each chamber has its individual air duct leading thereto, the entrances to said air ducts being disposed around the chimney or stack on the same side or direction as the rooms which are supplied thereby. Thus, the stack has north, south, east and west ducts which are separate from each other and which lead to the corresponding north, south, east and west chambers in the furnace, and thence to the corresponding hot air pipes leading to the corresponding north, south, east and west rooms of the house. When the wind is blowing from the north, say, the air will enter the north duct in great force and pass down the same and through the north air chamber in the furnace and thence to the north room or rooms in the house. Accordingly, the larger quantity of heated air is supplied to said rooms, and, furthermore, the pressure is thereby substantially equalized between the inside and outside of the house, on the exposed side thereof, which will prevent cold air blowing in through the crevices around

the windows and the like. In other words, the wind pressure on the outside is conducted to the inside where it reacts against the exposed side of the house to prevent the entrance of cold air or drafts. This insures equalized heating throughout the whole house, and not only keeps out cold drafts on the weather side of the house, but will also keep out dirt and dust that is forced into rooms through the doors and windows as in other heating systems.

The effects of a cold wind from any point of the compass are thereby automatically and effectively counteracted, and the inlet ducts, being located near the chimney, are further subjected to the heating action thereof which is communicated to the cold air as it passes down the same.

The invention is illustrated in the accompanying drawings, in which

Figure 1 is a sectional elevation of a house provided with the invention shown partly broken away. Fig. 2 is a sectional plan on line 2—2 of Fig. 1 showing the air ducts and furnace base and casing. Fig. 3 is a top plan view of the stack or chimney.

Referring specifically to the drawings, 6 indicates the fire box or heating chamber of the furnace, and 7 the casing around the same. The space between the fire box and casing is divided by radial partitions 8 into separate air chambers or compartments indicated at 9. These are conveniently or preferably disposed toward four quarter points of the compass, say, north, south, east and west. From each of the air chambers a pipe or pipes 10 extends to the corresponding north, south, east or west rooms of the house, said pipes discharging into the rooms through the usual registers.

The smoke stack or chimney has a central smoke flue 11 into which the smoke pipe 12 of the furnace extends. Built in the chimney, around the smoke flue, are a series of air ducts 13 which correspond in number and position to the air chambers 9 in the furnace, to which they are connected by horizontal ducts 14 under the floor or below the heat zone of the furnace. The connection from each duct is separate and individual. The entrances or inlets 15 to the air ducts are located below or under the molded top 16 of the chimney, and said inlets are presented toward the points of the compass corresponding to the air chambers in the furnace and the sides of the house. Thus the inlet

to the ducts supplying the north air chamber and the north room or rooms is located on the north side of the chimney, and the others accordingly.

5 The chimney cap or top 16 is inclined or conical, to form a wind deflector, which tends to create a vacuum in the smoke flue and thus to increase the draft and to carry the smoke upwardly from the top of the chimney. At any event owing to the direction of wind, the smoke will be carried away from the mouth of the air duct on the windward side. Accordingly only pure air will enter the active air duct.

10 When the wind is from the north, for instance, it will blow in the mouth 15 of the air duct 13 on the north side of the chimney, and passing down the same will flow through the north air chamber 9 in the furnace and thence up through the service pipe 10 to the north room or rooms in the house. Thereby the pressure on the windward side of the house is substantially equalized, and, furthermore, the greater part of the heated air is supplied to the north room, where it is needed, the rooms on the other sides receiving a moderate flow from the other air chambers. Hence the amount and distribution of air is at all times in proportion to the strength of the wind, and obviously the greater the velocity of the wind from any given quarter the greater the amount of air forced thereby through the corresponding air duct and to the corresponding side of the house. This effectively prevents cold rooms on the windward side of the house. In the absence of any wind, substantially equal amounts will be drawn in through all the air ducts and the distribution will accordingly be substantially equal on all sides. When the wind is off at a quarter, say the northwest, the air ducts both on the north and the west sides will receive a corresponding amount of wind pressure and consequently the rooms on the north and west sides of the house will receive a corresponding increased supply of warm air. The inlet of cold air at the top of the stack serves to give a supply of pure air free from the dirt and dust of the street. Removable covers 17 are provided so that the ducts can be cleaned out, and moistening pads 18 may also be provided to moisten the air and collect any dirt therefrom, if desired.

I claim:

1. In a heating system, the combination with a heating device having separate air chambers connected respectively to rooms on separate sides of the building, of separate air ducts leading to said chambers and having inlets presented in directions corresponding to said sides of the building. 55
2. In a heating system, the combination with means for heating air, of means for supplying the main part of the air to the heater from the windward direction, and means for delivering the major part of the heated air to the room or rooms on the windward side of the building. 65
3. In a hot air heating system, the combination of a furnace having separate air chambers, a smoke stack, separate air supply ducts leading to said chambers and extending down beside the stack and having inlets near the top thereof presented on different sides, and separate service pipes leading from said air chambers to rooms on different sides of the house corresponding respectively to the sides on which said inlets are presented. 70
4. In a hot air heating system, the combination with a furnace having service pipes leading therefrom, a stack or chimney connected to the furnace and having a tapered top with the flue opening at the apex, and air ducts leading to the furnace and extending down beside the smoke flue and having inlets near the top of the stack, under the base of said tapered top, which base overhangs said inlets. 75
5. In a hot air heating system, the combination of a furnace having a jacket and vertical partitions in said jacket forming separate hot air chambers, service pipes leading from said chambers to rooms on different sides of the house respectively, and cold air supply ducts leading to said chambers respectively and having inlets presented in different directions, corresponding to the sides of the house supplied from said chambers, respectively. 80

In testimony whereof I affix my signature, in presence of two witnesses.

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Witnesses:

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