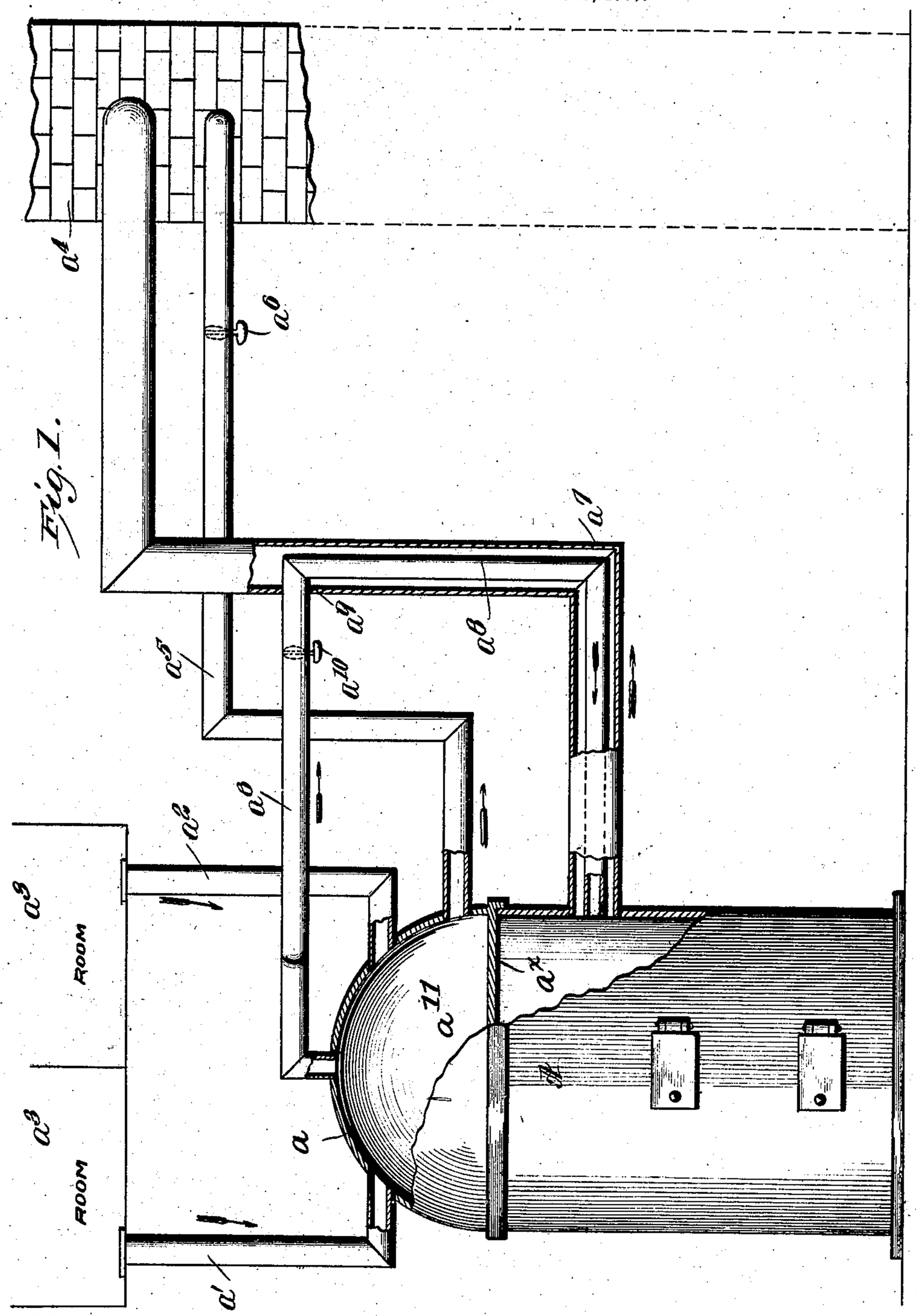
No. 894,655. PATENTED JULY 28, 1908.

T. JAAP.

HEATING AND VENTILATING DEVICE.

APPLICATION FILED APR. 16, 1907.

Fig. 1.



WITNESSES

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HEATING AND VENTILATING DEVICE.

No. 894,655. Specification of Letters Patent. Patented July 28, 1908.

Application filed April 16, 1907. Serial No. 368,523.

To all whom it may concern:

Be it known that I, THOMAS JAAP, a citizen of the United States, and a resident of Belt, in the county of Cascade and State of Montana, have invented an Improvement in Heating and Ventilating Devices, of which the following is a specification.

My invention is an improvement in heating and ventilating devices, and consists in certain novel constructions and combinations of parts hereinafter described and claimed.

Referring to the drawings forming a part hereof, Figure 1 is a diagrammatic view of my improvement as applied to a furnace, parts thereof being broken away.

In the present embodiment of my invention, the furnace A is of any desired construction, and is provided on its top with a cap a, the cap forming with the furnace top $a^{\times}$ a closed chamber a^{11}, with which chamber communicate the pipes a', a^2, leading from the various rooms a^3 to be ventilated. It will be understood that the air heated by the furnace, is supplied to the rooms in the ordinary manner. The chamber a^{11} communicates also with the chimney a^4, by means of a pipe a^5 provided with a damper a^6, for a purpose to be hereafter described. A smoke pipe a^7 of relatively large diameter, leads from the combustion chamber of the furnace to the chimney, and a pipe a^8 of relatively small diameter is arranged within the pipe a^7 and concentric therewith, the said pipe a^8 communicating with the combustion chamber of the furnace and extending within the pipe a^7 to a point a^9, where it leaves the said pipe and communicates with the chamber a^{11} before mentioned. A damper a^{10} is arranged within the pipe a^8, for a purpose to be hereafter described.

In the operation of the embodiment above described, when fire is started in the furnace, a draft is created through the pipe a^7 from the combustion chamber of the furnace to the chimney, in the direction shown by the arrow below the said pipe, and the foul heavy air from the rooms a^3 passes downward by gravity through pipes a', a^2, to the chamber a^{11}, and from the chamber a^{11} through the pipe a^5 to the chimney, the damper a^6 being at this time open. After the fire has commenced to burn well, the damper a^6 is closed, and the damper a^{10} in the pipe a^8 is opened. The heated air from the furnace entering the rooms a^3, assists in driving out the foul air through the pipes a', a^2, to the chamber a^{11}, and since the damper a^6 in the pipe a^5 is closed, the foul air passes from the chamber a^{11} through the pipe a^8 to the combustion chamber of the furnace in the direction of the arrows. The foul air becomes strongly heated in the combustion chamber, bringing the fuel therein to incandescence and causing the furnace to throw out an immense amount of heat.

My improvement is especially adapted for school rooms, or for other places where a large number of people congregate. It is well known that warm air rises to the ceiling, while the cold air settles to the floor, and it is a well known fact that carbonic acid gas is heavier than the air and settles toward the lowest part of the room. This principle is made use of to obtain a circulation in the manner described, the heated air passing from the furnace to the room in the forms shown in Fig. 1 in the ordinary manner, and the foul air passing from the rooms to the furnace.

I claim:

1. In a device of the class described, the combination with a furnace provided with a closed chamber at the top thereof, and a flue, of a pipe leading from the furnace to the flue, a pipe leading from the chamber to the furnace, a damper in said pipe, whereby to close communication between the chamber and the furnace during the preliminary heating of said furnace, pipes leading from the rooms to be heated to the chamber, a pipe leading from said chamber to the flue, and a damper in the said pipe, whereby to close the communication between the chamber and the flue after the preliminary heating of the furnace.

2. In a device of the class described, the combination with a flue, and a furnace provided with a closed chamber at the top thereof, of pipes leading from the rooms to be heated to said chamber, a pipe leading from said chamber to the flue, a damper in the said pipe, a pipe leading from said chamber to the furnace, and a damper in the said pipe.

3. In a device of the class described, the

combination with a flue, and a furnace having a closed chamber at the top thereof, of means for conducting foul air from the rooms to be heated to the chamber, means for leading said foul air from the chamber to the flue, means for closing said leading means, and means for leading said foul air from the chamber to the furnace after the closing of said last named means.

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