(No Model.)

A. McARTHUR.

VENTILATING HEATER.

No. 366,855. Patented July 19, 1887.

Fig. 1.

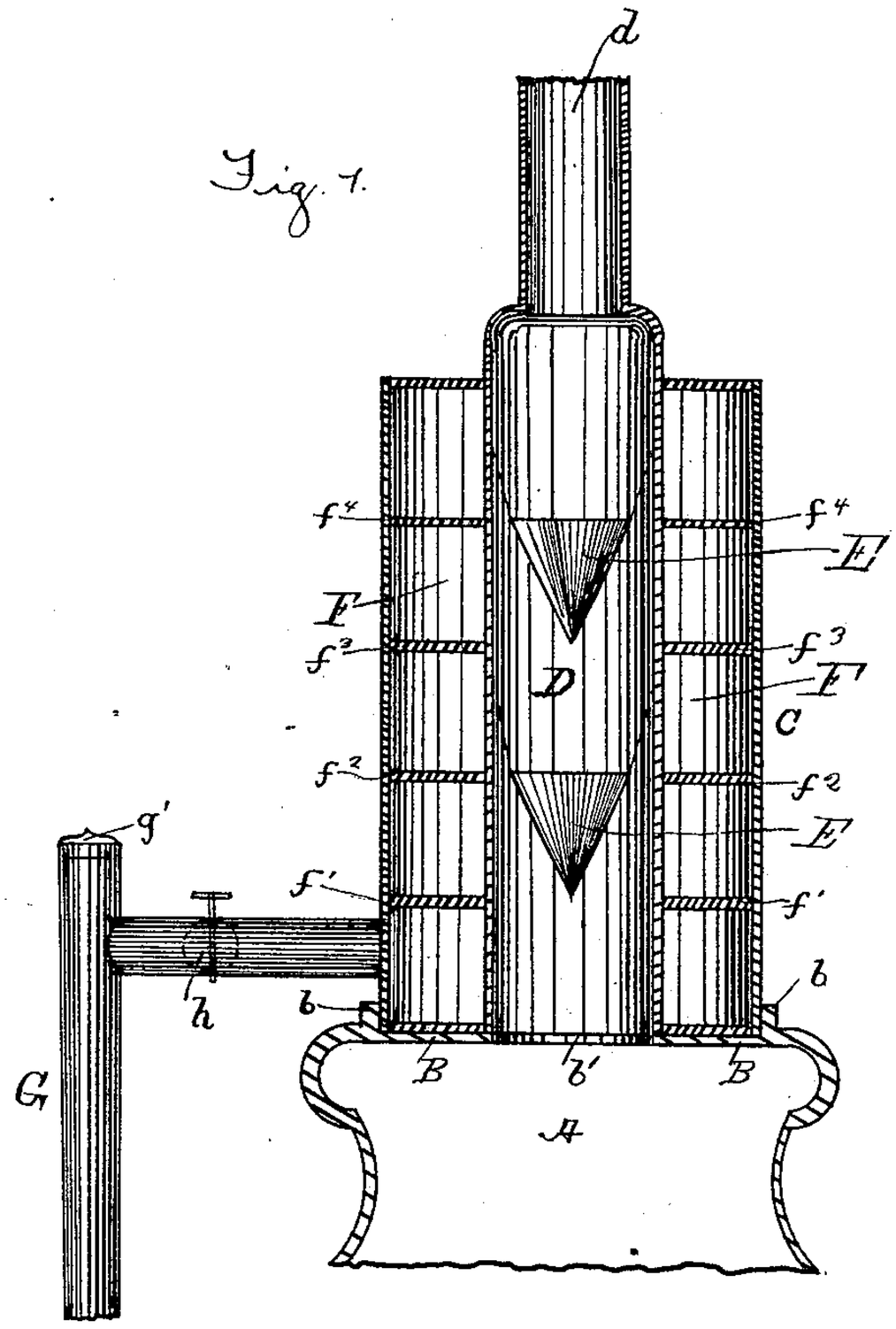


Fig. 3.

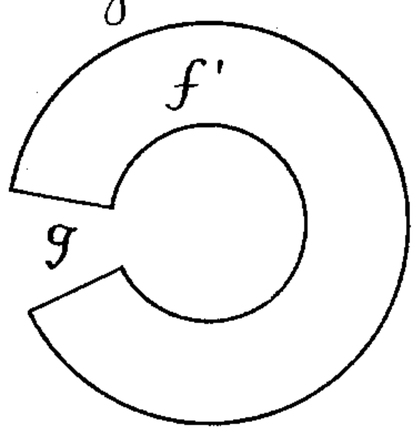
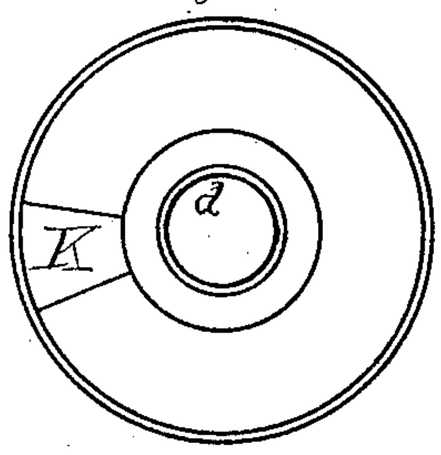


Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

ALEXANDER McARTHUR, OF ALEDO, ILLINOIS.

VENTILATING-HEATER.

SPECIFICATION forming part of Letters Patent No. 366,855, dated July 19, 1887.

Application filed July 22, 1886. Serial No. 208,773. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER McARTHUR, a citizen of the United States, residing at Aledo, Mercer county, Illinois, have invented a new and useful Improvement in Ventilating-Heaters, of which the following is a specification.

My invention relates to improvements in ventilating-heaters in which a ventilating apparatus consisting of an outside drum, a series of ringed partitions, and an interior smoke-passage containing two or more deflectors operates in conjunction with an ordinary heater; and the object of my invention is to furnish a ventilating-heater which shall be thorough in its work and economic in its use. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 represents a full view of my invention, showing a vertical cross-section of the ventilating-heater. Fig. 2 shows a top view of my ventilating-heater. Fig. 3 represents one of the series of ringed partitions.

Similar letters refer to similar parts throughout the several views.

In my drawings, A represents a common heater, which is provided with the top plate, B, having flange *b*, and the flanged opening *b'*, through which the smoke escapes.

C is a drum, which fits over flange *b* upon top plate, B. Inside of drum C is the smoke-passage D, which fits upon the flanged opening *b'*, and passes to the top of the drum C, where it terminates in a narrowed opening or mouth, *d*, of such size as to fit an ordinary stove-pipe joint. Inside of the smoke-passage D are the deflectors E and E, preferably conical in shape, and with their vertex pointing downward, as illustrated in the drawings. These deflectors are fastened to the walls of the smoke-passage, and of such size as to leave sufficient space for the smoke to pass. By means of drum C and the smoke-passage D, passing through the same, there is formed a chamber, F.

G is a fresh-air-supply pipe, entering the room where my heater is to be used from out-of-doors, and passing into chamber F near its base. This fresh-air pipe G is preferably of the shape as illustrated in the drawings, and has the cap *g'*, which is removable, and the damper *h*. The chamber F is partitioned off by a series of ringed partitions, *f'*, *f²*, *f³*, and *f⁴*, as illustrated in the drawings, of which the lowest partition, *f'*, is placed just above where the supply-pipe G enters the chamber. Each of these ringed partitions is partly cut away, so as to leave an opening, *g*, from one division formed by these partitions to the next above. These openings in these ringed partitions are so arranged in respect to each other that should a line be drawn passing through each opening *g* in the partitions it would be in the form of a spiral around the smoke-passage D. Fig. 3 shows one of these ringed partitions. K is an opening in the top of my ventilating-heater, and it corresponds with the openings in the ringed partitions.

The operation of my invention is as follows: From the fire-box of my heater the smoke and heat passes directly up into the smoke-passage D. Here it is deflected by the deflectors E, so as to retard its passage and to bring the heat into more direct contact with the walls of the smoke-passage. From here the smoke passes up into the stove-pipe. The fresh-air current entering from outside through pipe G passes from pipe G into chamber F below the lowest ringed partition, *f'*. From here it passes through the opening in this partition up into the next highest division, and up through the next opening to the one above. By virtue of the spiral arrangement of the opening *g* around the smoke-passage a fresh current of air is led around and brought in constant contact with the heated surface of the smoke-passage, and is thus heated, until it finally arrives at the top of the drum, when it passes out into the room through opening K. Thus a constant current of fresh heated air is supplied to the room. If it is found desirable not to warm this supply of fresh air introduced into the room in the manner described, the damper *h* may be closed and the cap *g* removed. In that case a current of fresh air is introduced directly from the supply-pipe into the room.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination, in a heater provided with

an outer and an inner wall forming a smoke-passage, D, and an air-passage, F, of the ring partitions f', f^2, f^3, and f^4, secured one above the other in the passage F, each of said partitions being cut away to form openings g, and said openings being arranged spirally around the smoke-passage, deflectors E, suspended in the smoke-passage, and an air-pipe entering the air-passage and an opening at the top, substantially as described.

ALEXANDER McARTHUR.

Witnesses:

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