

J. M. McINTOSH.
VENTILATING CHIMNEY.
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940,348.

Patented Nov. 16, 1909.

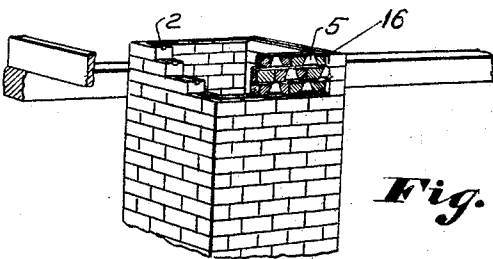
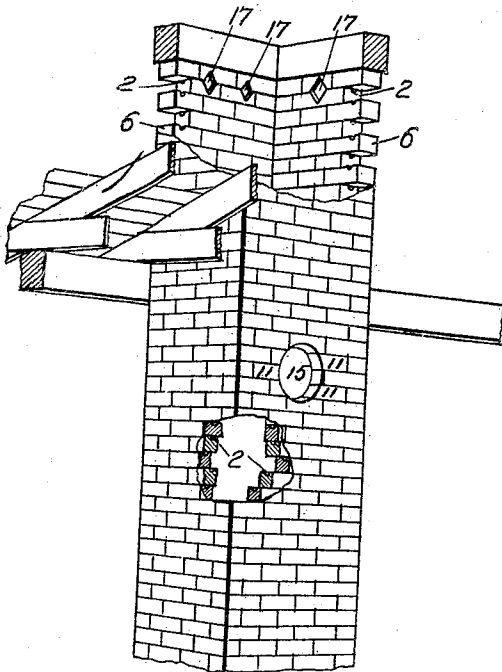
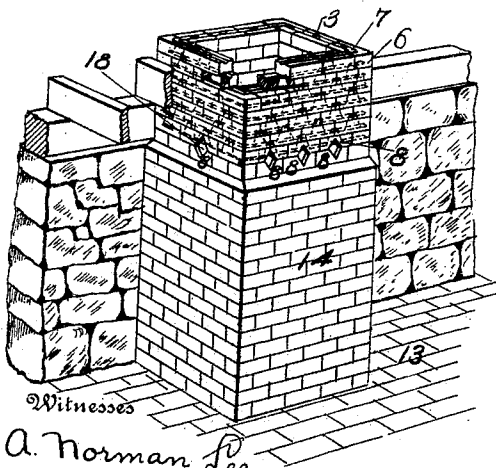


Fig. 1



Witnesses
A. Norman Lee.
Sybria Brown.

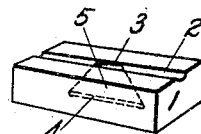


Fig. 2.

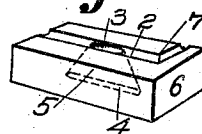


Fig. 3.

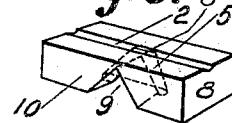


Fig. 4.

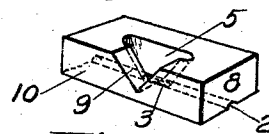


Fig. 5

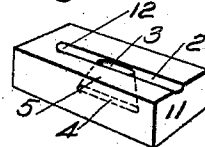


Fig. 6.

Inventor
Jacob M. McIntosh

Bond + Miller

Attorney

UNITED STATES PATENT OFFICE.

JACOB M. McINTOSH, OF WARREN, OHIO.

VENTILATING-CHIMNEY.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JACOB M. McINTOSH, a citizen of the United States, residing at Warren, in the county of Trumbull and State of Ohio, have invented a new and useful Ventilating-Chimney, of which the following is a specification.

My invention relates to improvements in ventilating chimneys in which air chambers and passage-ways and openings into said air chambers and passage-ways are provided in the walls; and the objects of my improvement are, first, to provide a chimney which will withstand very high degrees of temperature; second, to provide means in a chimney for ventilating the basement or cellar or other parts of a building; third, to provide means for increasing the draft in the chimney, and thereby to increase its efficiency in connection with furnaces and stoves; and fourth, to provide means for preventing the leakage of sparks or flame through the walls of the chimney and thus reduce the danger of fire from that cause. I attain these objects by the construction illustrated in the accompanying drawing, in which the bricks also illustrated are used.

In the drawing—Figure 1 is a perspective view of the ventilating chimney said view showing portions of the chimney broken away, portions in section and portions with dotted lines illustrating the air chambers and passage-ways within the walls, and also certain detached portions of the building in which the chimney is erected to illustrate its relation thereto. Fig. 2 is a perspective view of a common brick such as used in the chimney. Fig. 3 is a perspective view of one of the corner bricks. Fig. 4 is a perspective view of one of the upper vent bricks. Fig. 5 is a perspective view of one of the lower vent bricks. Fig. 6 is a perspective view of a modified corner brick.

Similar numerals refer to similar parts throughout the several views.

In Fig. 2, 1 is a rectangular block of any suitable heat resisting material having in one of its larger sides a longitudinal groove 2. Communicating with the groove is an elongated opening 3, which extends through the body of the block 1 in a broadening slot-like form and extends through the opposite side of the block in a similar opening 4 of greater length. The opening extending from 3 to 4 will hereafter be usually termed the air chamber 5.

In Fig. 3, an air chamber similar to that in Fig. 2 is provided, but the groove in the block 6 does not extend throughout the length of the said side, but makes a rectangular turn as shown at 7.

In Fig. 4 is illustrated a block 8 similar to that shown in Fig. 2, but having a V-shaped opening 9 from one edge 10 to the air chamber 5.

Fig. 5 shows a block exactly similar to that shown in Fig. 4, but the side which is turned down in Fig. 4 is turned up in Fig. 5.

In Fig. 6 the block, 11 does not have the groove extending throughout the length of its side, the said groove ending at the point 12 at a short distance from one end of the block.

In the construction of the chimney the blocks just described are used in the place of the usual bricks, and by means of a novel arrangement and combination of the said blocks in the construction of the said chimney, the air chambers communicate with each other by means of passage-ways formed by the grooves in the blocks in the manner to be described.

In Fig. 1, 13 is the cellar bottom upon which is erected a suitable chimney foundation 14. This chimney foundation may be built of any suitable and well known material, such as brick, stone or concrete. Upon the said foundation a course of lower vent bricks 8 is laid, and in this course are placed a number of the bricks such as shown in Fig. 5, with the larger opening of the air chamber turned upward. The second course consists of upper vent bricks 8, as illustrated in Fig. 4, the larger opening of the air chamber being turned downward and the V-shaped openings in the edges of the bricks registering with the V-shaped openings of the lower vent bricks in the first course. It should be stated that the number of openings produced by the registering of the upper and lower vent bricks may be somewhat varied to adjust the vent capacity to the size of the chimney, the number of flues therein, and the general use to which it is to be put. If it is so desired certain of the vents may be placed in that side of the chimney at the side wall of the house and communication arranged so that air from the outside as well as from the cellar may enter the vents. It is not necessary that all of the bricks in the first and second courses should be vent bricks, but only a

sufficient number to provide the vent capacity needed and if such capacity cannot be obtained by the use of two courses, a third and fourth course of vent bricks may be used. Upon the course of upper vent bricks is laid a course of common ventilating bricks 1, and in the position shown with the large opening of the air chamber downward and the groove upward. At the corners of the chimney, corner bricks 6, such as shown in Fig. 3 and Fig. 6 are used. If it is desirable to have the passage-way for the air lead around the corner, the common corner brick 6 is used and the groove 2, in all the bricks of that course will then form a continuous passage-way entirely around the chimney. At other places in the chimney, such as at corners, and also at flue openings, such as 15, the modified corner bricks 11 are used in which case the air passage-way will be interrupted at the point 12.

All subsequent courses consist of appropriate combinations of bricks 1, 6 and 11, except at such places as it is desired to have vents either for the intake or the exhaust of the air. All the bricks being placed with the larger opening downward and the groove communicating with the smaller opening upward it will be seen that air will be permitted to pass vertically through the air chambers into the grooves forming the horizontal passage-ways, around the wall of the chimney. In placing one course upon the other the joints are broken in the manner well known in the art of brick laying, and this produces an arrangement of the air chambers such that in all the courses, except vent courses the air chambers do not open vertically from one to another in a direct manner, but communication is only possible by a turn of the air current for a short distance in a horizontal direction. The elongated opening 4 is so arranged that it will communicate with the groove forming the passage way in the course below, and the opening is sufficiently long so that in placing a course of the bricks 1 on top of a course containing bricks 11 the opening 4 will extend past the interruption of the groove at 12. It should be stated that in laying the bricks in the chimney care should be taken to prevent the mortar or cement used from clogging the passage-way or groove 2, however at the joints between the ends of adjacent bricks in the same course it may sometimes happen that the said passage-way will be clogged for a short distance and in this event the elongated opening 4 will extend past the obstruction and provide communication so as to make a continuous passage-way around the chimney along the same course and also to provide a passage-way upward into the groove above.

The dotted lines in the lower portion of the chimney shown in Fig. 1 indicate the relative location of the air chambers and passage-ways and the portion of the wall broken away at the point 16 likewise reveals the relative arrangement. This arrangement is continuous throughout the chimney to the top.

At the top of the chimney vent bricks are again employed for the purpose of providing communication for the air from the air chambers and passage-ways to the outside air. These vents may be arranged either upon the inside or outside of the chimney wall but preferably upon the inside as shown at 17 in Fig. 1.

By arranging the vents on the inside of the chimney at the top the upward current of gases and heated air through the flue will aid in exhausting the air from the vents, and in turn any warm air which may arise through the passage ways of the bricks and exhaust through the inwardly turned vents will aid in producing a desirable draft in the flue. It will thus be seen that the exhaust from the vents and the exhaust from the flue will reciprocally and jointly aid in an improvement in the operation of the chimney.

A chimney of this description having been completed the air in the air chambers and passage-ways will be warmed when a fire is built in the furnace or stove used in connection with the chimney and the air in said passage-ways and air chambers will gradually rise and exhaust through the vents 17. To take the place of the air thus exhausted a new supply of air will be drawn through the vents 18 at the bottom of the chimney, will be heated, rise, exhaust and give place to other air and thus a continuous current in an upward direction will be maintained so long as the chimney is sufficiently warm to cause the movement of the air as described.

The air passing through the walls of the chimney will carry with it some of the heat and will thus reduce the temperature of the said walls and enable them to withstand higher degrees of temperature than would otherwise be possible. The supply of air being taken into the chimney through the vents 18 in the cellar or basement will serve to withdraw the foul or contaminated air in said basement, thereby ventilating and making more healthful that portion of the building. It should be stated that if it is desired, intake vents such as those at the bottom of the chimney may be placed at other points throughout its length to ventilate other portions of the building. The current of air passing out through the exhaust vents 17 and from thence out of the top of the chimney serve to increase the draft in the flue and the arrangement is thus of great advantage in increasing the draft in the chimney. However

if it is not desirable to have a strong draft, the said vents 17 may be placed upon the outside of the walls and will thus not affect the draft in the flue. An important function of the current of air through the air chambers and passage-ways is the prevention of leakage of sparks or flame through the walls of the chimney. It will be clearly seen that if from any cause either of imperfect construction or later cracking or disintegration openings should be made, which would permit sparks or flame to enter between the courses of brick, the said sparks or flame will be drawn up through the air chambers and passage-ways by reason of the current of air therethrough, and thus prevent the communication of fire to such wooden portions of the building as may be adjacent to the walls of the chimney. It will be seen that this will greatly reduce the danger of fire so commonly caused by imperfect chimneys.

Various changes in the details of proportion, form and combination may be made without affecting the general spirit of my invention.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is—

1. A ventilating chimney comprising lower vent bricks, each of said vent bricks provided with a lateral, externally open vent communicating with a vertically disposed air chamber extending through the body of the brick said air chamber communicating with a horizontally disposed groove in the upper surface of the said brick, courses of ventilating bricks laid on said vent bricks, each of said ventilating bricks provided with a vertically disposed air chamber extending through the body of the brick and communicating with a horizontally disposed groove in the upper surface of the brick, all of the grooves in the bricks of each course being in serial communication around the chimney and each vertically disposed air chamber being in

communication with the grooves in the upper surface of two of the bricks in the course below, and vent bricks at the top of the chimney, each provided with a lateral vent communicating with the interior of the flue and with the grooves in the ventilating bricks below, whereby the air may enter through the lower vents, ascend through the vertical air chambers in the ventilating bricks, circulate horizontally through the grooves in the top surface of the ventilating bricks, and exhaust through the top vents into the flue of the chimney.

2. A ventilating chimney of the class described, comprising courses of upper and lower vent bricks, said vent bricks provided with V-shaped openings, air chambers and grooves, the V-shaped openings of said vent bricks registering with each other, courses of ventilating bricks provided with air chambers and grooves arranged above the grooves of said vent bricks, the air-chambers and passage-ways in said ventilating bricks and vent bricks in inter-communication with each other and courses of upper and lower vent bricks provided with air chambers, passage-ways and V-shaped openings arranged at the top of the chimney, and above the last course of ventilating bricks, the V-shaped openings in said vent bricks at the top of the chimney registering with each other, and the air chambers of said vent bricks communicating with the air chambers and passage-ways of the ventilating bricks below the vent bricks, said opening in said vent bricks at the top of the chimney opening into the flue of the same, substantially as described.

In testimony that I claim the above, I have hereunto subscribed my name in the presence of two witnesses.

JACOB M. McINTOSH.

Witnesses:

WASHINGTON HYDE,
S. W. PARK.