

July 31, 1934.

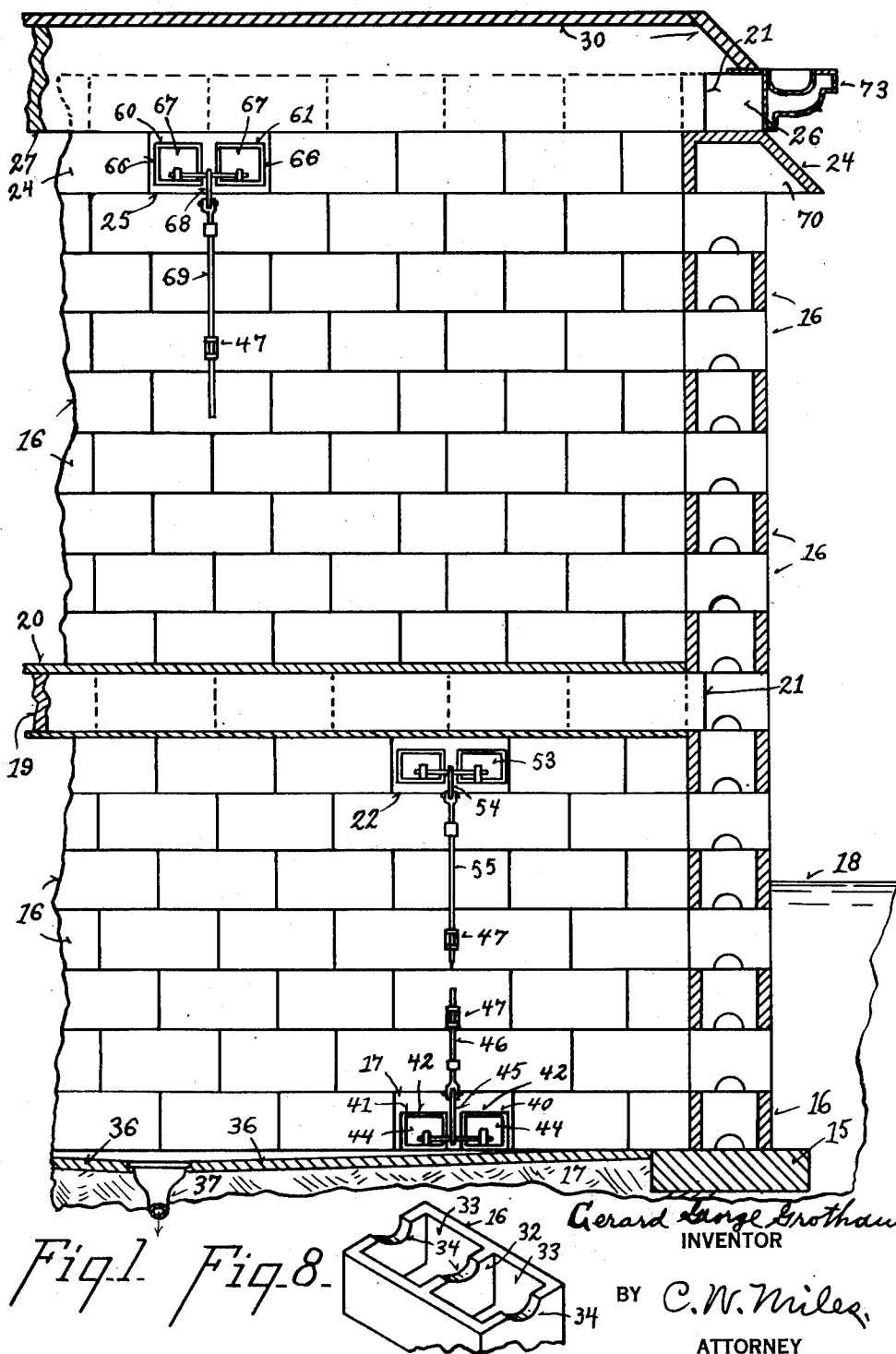
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1,968,680

VENTILATING APPARATUS FOR BUILDINGS

Filed Feb. 25, 1931

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

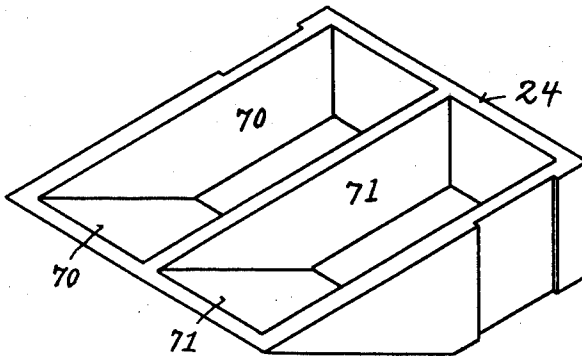


Fig. 2.

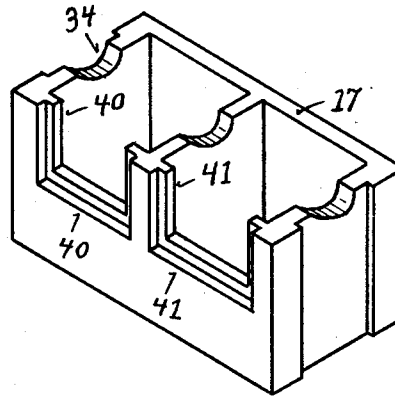


Fig. 3.

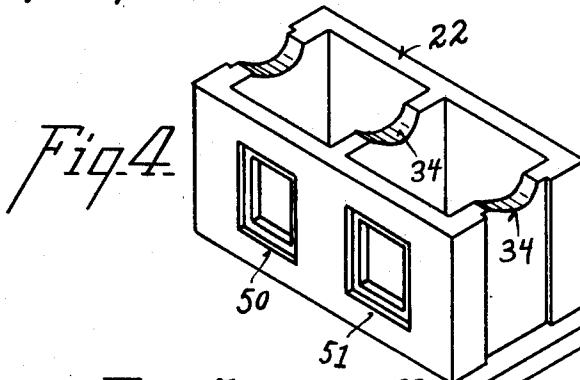


Fig. 4.

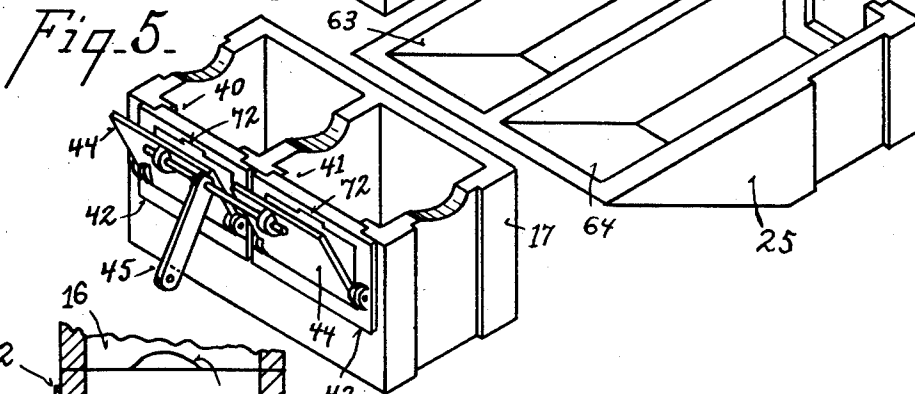


Fig. 5.

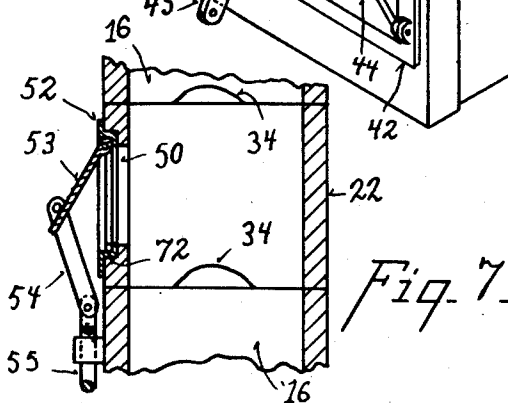


Fig. 6.

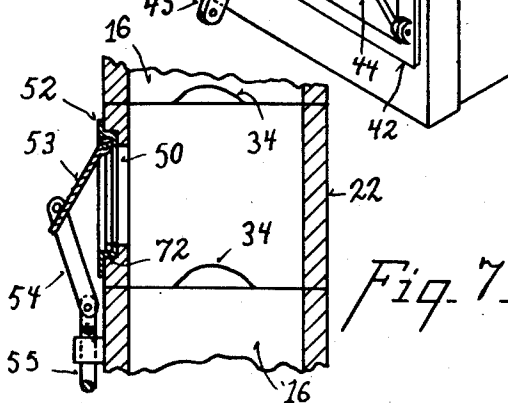


Fig. 7.

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1,968,680

VENTILATING APPARATUS FOR BUILDINGS

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Application February 25, 1931, Serial No. 518,204

2 Claims. (Cl. 98—31)

My invention relates to improvements in ventilating apparatus for buildings, particularly buildings constructed from concrete blocks. One of its objects is to provide improved means to ventilate the rooms and walls of the building whereby the walls, both above and below the ground level are kept dry and practically free from excessive moisture, and supplied with fresh air, while foul air, smoke and other gases are discharged to the exterior of the building. Another object is to provide for an automatic ventilation and control of the air circulation except where positively adjusted by the operator. Another object is to provide for an improved arrangement of blocks in the wall structure to provide for ventilation in harmony with other structure features. My invention comprises means for simultaneously supplying fresh-air to the interior of the building and discharging foul air, smoke and other gases therefrom, consisting of siphon blocks constructed with a pair of passages or ports and so arranged that while foul air and other gases are discharged through one port to the exterior fresh air enters to the interior through the other port.

My invention also comprehends a novel arrangement of siphon cap blocks and siphon regulating air blocks placed upon the top row of the wall and each having one end projecting preferably beyond the outer face of the wall.

My invention also includes a pair of air ports in some of the blocks beneath the ceiling in each room on each floor and is provided with two dampers and controlled by one adjusting device for automatic ventilation of the air circulation after it is adjusted by the operator.

My invention further consists in providing some of the blocks for simultaneously receiving and discharging the air with drainage means.

My invention also comprises certain details of form and arrangement and combination of components, all of which will be fully set forth in the description of the accompanying drawings, in which:

Fig. 1 is a vertical section through a building embodying my improvements.

Fig. 2 is a perspective view of one of the detached blocks, in inverted position.

Fig. 3 is an inverted perspective view of another block.

Fig. 4 is an inverted perspective view of another block.

Fig. 5 is an inverted perspective view of another block and damper regulating means.

Fig. 6 is an inverted perspective view of a block similar to Fig. 2.

Fig. 7 is a sectional detail through a portion of the wall, and

Fig. 8 is a perspective view of one of the blocks employed.

The accompanying drawings illustrate one embodiment of my invention in which as illustrated in Fig. 1 the exterior walls of a building are constructed from a series of concrete blocks, most of which blocks are of the general pattern shown in Fig. 8. Other blocks of special designs substantially as shown in Figs. 2, 3, 4, 5, and 6 are employed to a limited extent and set in the walls of the building so as to provide inlet and exit ventilating conduits for such rooms or compartments of the building as it may be desired to ventilate.

As illustrated a stone or concrete footing is provided at the bottom of the excavation upon which to support the walls of the building. A horizontal row or series of blocks 16 in which is included one or more special blocks 17, shown in Fig. 3 is mounted upon the footing 15 with cement joints; other horizontal rows of blocks 16 are successively built into place one above the other with the joints between the blocks broken until the basement wall rises above the ground level 18 and the basement wall is completed up to the locality where it is desired to locate joists 19 to support the first floor of the building. A horizontal row of blocks similar to blocks 16, except that they are provided with offset recesses 21 to receive and permit the ends of the joists to enter and be supported upon the wall is then laid and the ends of the joists 19 mounted therein. One or more blocks 22 of the special form shown in Fig. 4 are included in the row of blocks next below the joists 19. One or more blocks 22 are included in the horizontal row of blocks 16 above the next set of joists. The walls are built up from horizontal rows of blocks 16 to a height where it is desired to insert joists to support the second floor, where the building is to be two stories or more in height, or to a locality where the roof is to be applied if the building is to be of one story.

I provide a horizontal row of cap blocks composed partly of blocks of special form 24, shown in Fig. 2 and partly of blocks or special form 25, shown in Fig. 6. The blocks 24 and 25 may if desired be deeper than the blocks 16, and blocks 24 and 25 are set in the wall so that their inclined portions overhang or extend out beyond the face of the wall as shown at the upper right-

hand corner in Fig. 1. Above the row of cap blocks is laid a horizontal row of blocks 26 similar to blocks 16 having offset recesses 21 to receive and support the ends of the roof joists 27. The usual coping 73 is adapted to be attached to the front or outer face of the row of blocks 26, and the roof 30 may be either flat or inclined.

The blocks 16 are each provided with a central partition 32 and two vertical channels 33. The blocks 16 are also provided with lateral notches or recesses 34, which serve to laterally connect the vertical channels 33 formed in the walls as the blocks are assembled and thereby provide for a free circulation of air from one channel 33 to another to keep the walls dry and to allow any moisture which might enter any of the channels 33 to flow to the bottom of said channels and reach the top of the footing 15, and thence to escape through ports formed in the blocks 17 to the cement floor 36 of the basement, and thence to flow to and escape through the drain pipe 37.

The blocks 17 are provided with ports 40 and 41 leading from the bottoms of the channels 33 into the basement chamber close to the floor 36. Metal rectangular frames 42 (see Fig. 5) are cemented into the ports 40 and 41 and are closed by means of metal doors 44 hinged to the frames 42 and opened and closed to greater or less degree by means of links 45 and vertically adjustable push rods 46, adapted to be latched to different positions of adjustment by means of spring latch members 47. The doors 44 even when closed to not prevent escape of water from the channels 33 to the drain, or a sufficient circulation of air to the channels 33 to keep the walls dry.

The blocks 22 are provided with ports 50 and 51 in which are cemented rectangular metal frames 52 similar to the frames 42 and provided with doors 53, actuated by links 54 and push rods 55 similar to those shown in Fig. 5, and substantially as shown in Fig. 7.

The blocks 25 are provided with recesses 60 and 61, but have no lateral channels or recesses 34. The blocks 25 are provided with ports 63 and 64 leading from the exterior of the building into the recesses 60 and 61. The ports 63 and 64 overhang the outer edges of the blocks 16, and hence communicate with the external air, while at the same time being directed downwardly and protected against the entrance of rain or snow. The ports 60 and 61 have rectangular metal frames 66 cemented around the recesses 60 and 61, and, doors 67 hinged to said frames and adjustable by means of links 68 and push rods 69, substantially as shown in Figs. 5 and 7. By partially or entirely opening the doors 67, an air current will enter either port 63 or 64, and a corresponding flow of air in reverse direction will occur through the other port 63 or 64 thereby automatically supplying fresh air to the room and removing foul air therefrom. The amount of ventilation may be regulated by the extent to which the doors 67 are opened. A block 25 and pair of doors 67 is provided for each room on the first or top floor. The blocks 24 are set

in the row with blocks 25 and have ports or recesses 70 and 71 corresponding to the ports 63 and 64 of blocks 25, which overhang the blocks 16 and communicate with vertical channels 33 in the wall to ventilate the wall channels, and some of the blocks 24 supply air through vertical channels 33 to the doors 44, and to the doors 53. The doors 53 serve to admit fresh air and discharge foul air from the upper portion of the basement, while the doors 44 drain water from the channels 33, and circulate fresh air to and foul air from the lower portion of the basement.

The ventilating ports being arranged in pairs, are both exposed to practically the same conditions of wind and air pressure, and hence it is only the very slight differences in air pressure at one of a pair of ventilating ports which predisposes the air current to enter through one channel, and this air current can only occur when a current in a reverse direction is set up in the other ventilating channel of the pair, thereby providing for a reliable ventilation of the interior space or spaces. The ventilating ports are preferably spaced apart from each other.

While the lower water draining door when closed serves to close the flow of air to any extent, there is still left a narrow groove or channel 72 at the bottom of each port 40 and 41 through which water may be drained, and through which a small quantity of air may be circulated, sufficient to keep the air channels of the walls, even below the ground level, and the cellar or basement compartment practically free from moisture without chilling or excessively ventilating the basement or cellar.

The apparatus herein shown and described is capable of considerable modification within the scope of the claims without departing from the spirit of my invention.

What I claim is:

1. A ventilating wall structure comprising a plurality of concrete blocks having vertical and lateral interconnected channels adapted to drain moisture from said wall structure and enable air to circulate therein, said channels being connected with interior and exterior ports to permit fresh air to enter and foul air to escape, some of said blocks being provided with grooves at the bottom of the interior ports to permit the drainage of water therethrough, said interior ports being located in the bottom row of blocks.

2. A ventilating structure having walls with interconnected vertical and lateral channels adapted to drain moisture from the walls and to enable air to flow therein, said wall being provided with a horizontal row of blocks projecting beyond the external line of the wall near the top thereof, one or more of said projecting blocks being provided with downwardly directed outer ports in pairs communicating with the exterior of said walls, inner ports in pairs communicating with the interior of said walls, a passageway connecting the said inner and outer ports with the said channels in said walls and means for controlling the flow of air through said inner ports.

GERARD GEORGE GROTHAUS.