March 31, 1931. G. G. GROTHAUS 1,798,791

VENTILATING APPARATUS

Filed May 17, 1928 2 Sheets-Sheet 1

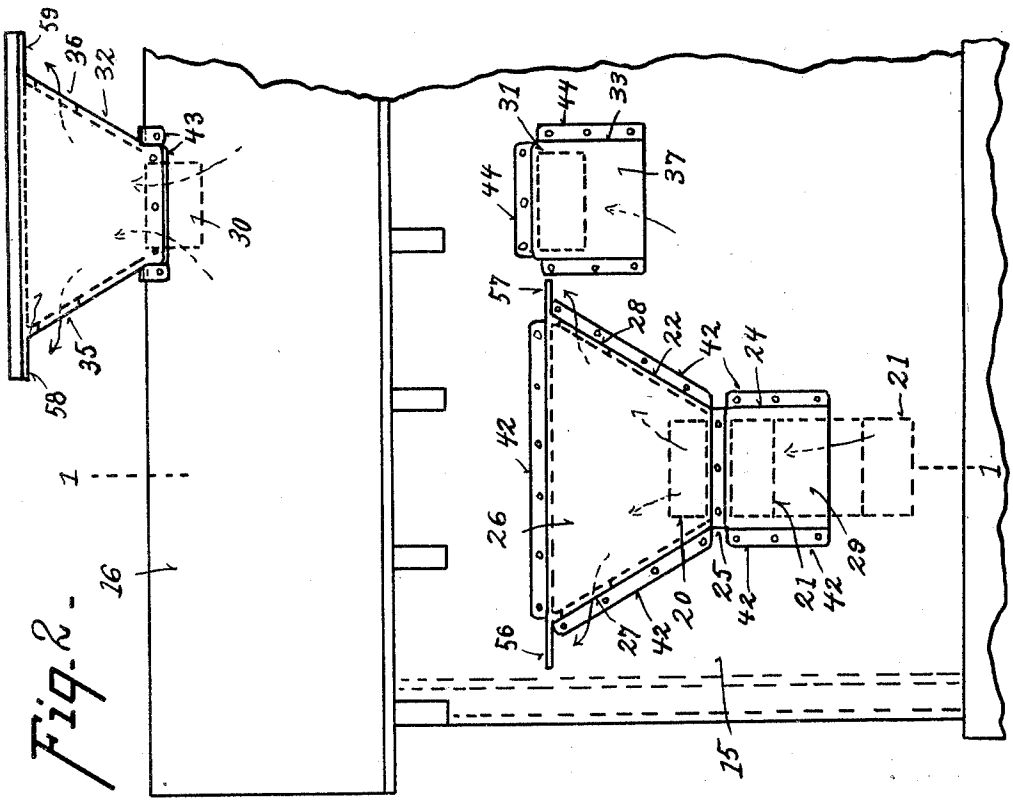


Fig. 2.

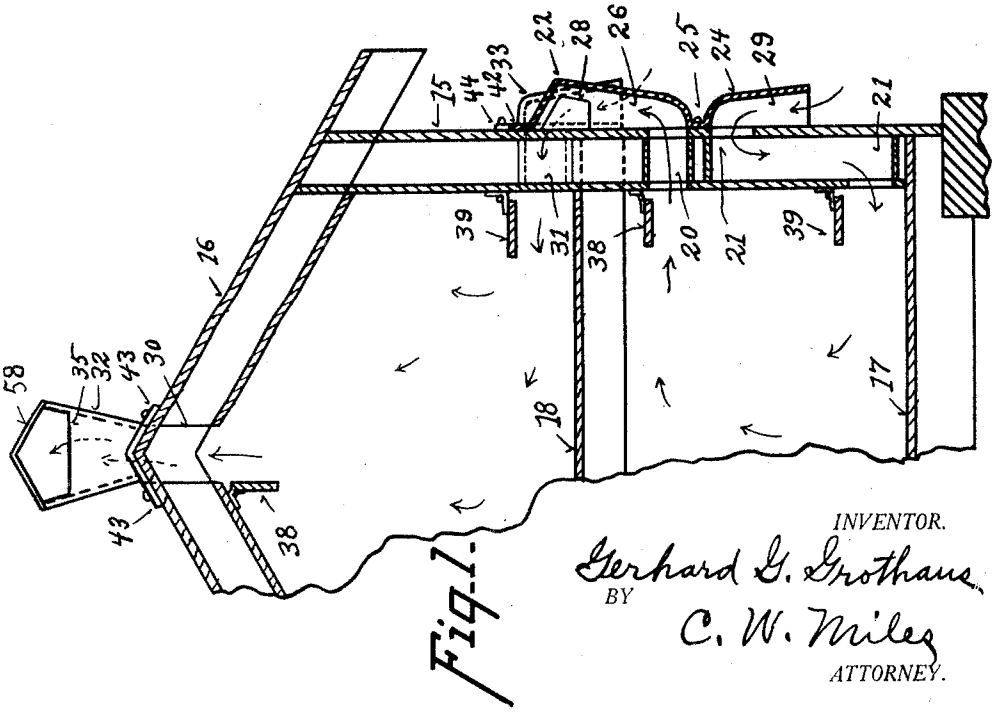


Fig. 1.

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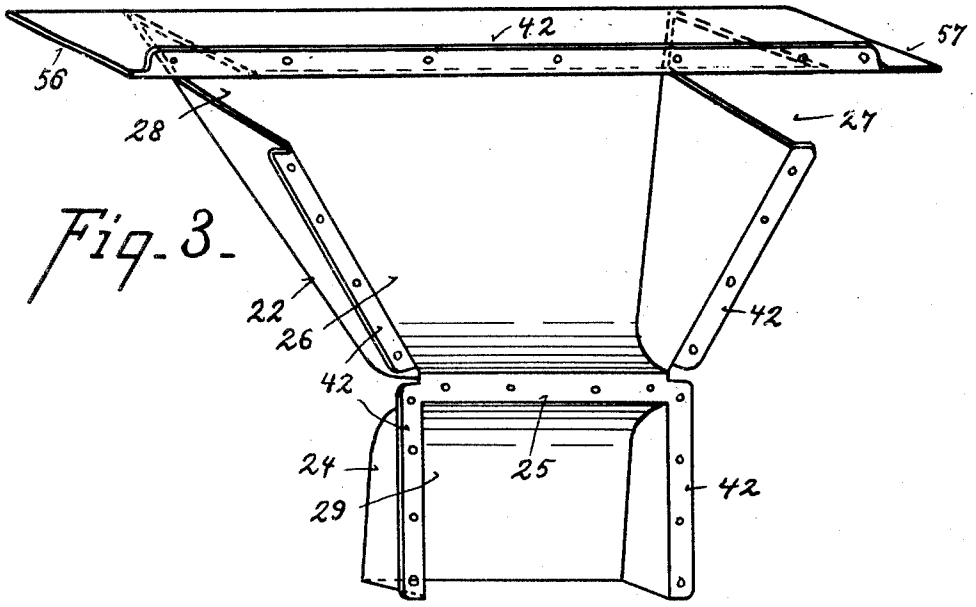


Fig. 3.

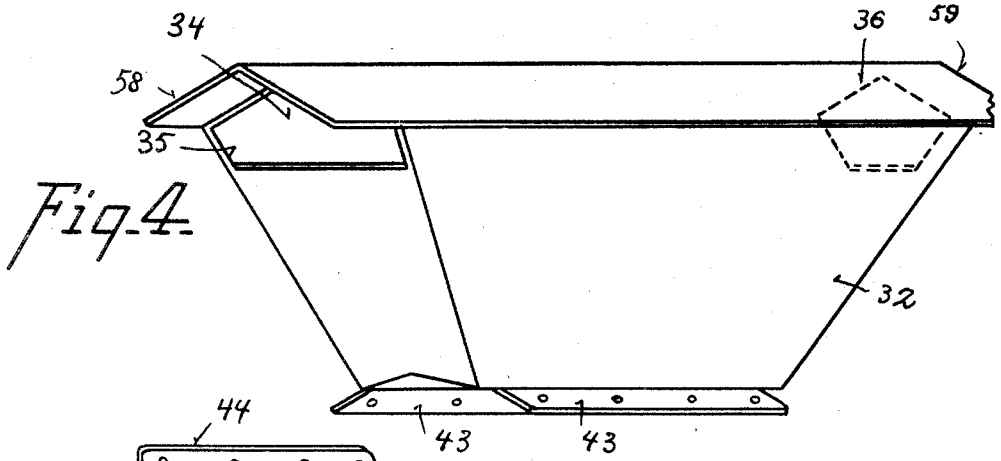


Fig. 4.

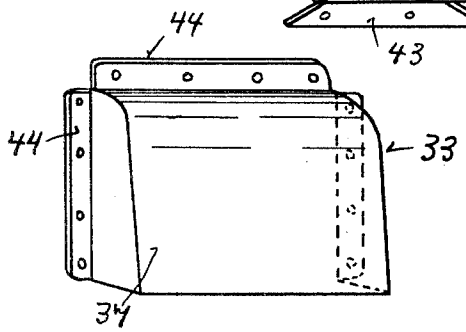


Fig. 5.

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1,798,791

UNITED STATES PATENT OFFICE

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VENTILATING APPARATUS

Application filed May 17, 1928. Serial No. 278,565.

My invention relates to improvements in ventilating apparatus. One of its objects is to provide improved ventilating apparatus whereby dwellings, barns, stables and similar buildings may be freed automatically from foul or damp air and gases and afforded a liberal supply of pure dry air. Another object is to prevent overheating the interior of buildings and their contents during warm seasons, and thereby avoiding and preventing danger of fire therein. Another object is to prevent the accumulation of moisture in buildings to the extent of damaging the buildings or their contents or the health of their occupants. 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 two-story building illustrating the application of my improved ventilating apparatus thereto taken on line 1—1 of Fig. 2.

Fig. 2 is a side elevation of a portion of the building showing the ventilating apparatus in side elevation.

Fig. 3 is a perspective view of one of the ventilating members detached.

Fig. 4 is a perspective view of another of said ventilating members, detached.

Fig. 5 is a perspective view of another ventilating member, detached.

The accompanying drawings illustrate modifications of my invention, in which 15 represents the side wall of a building, 16 the roof, 17 the first or ground floor and 18 the second floor. For the purpose of ventilating the ground floor room two ventilating ports 20 and 21 are provided through the side wall 15 of the building. A ventilating member which is shown in Figs. 1 and 2 as constructed of sheet metal is attached to the exterior of the side wall 15 to register with the ventilating ports 20 and 21. This ventilating member comprises a main or upper section 22 the lower portion of which is fitted over the outer end of the port 20, and an apron section 24 the upper end of which is fitted over the outer end of the ventilating port 21. A partition 25 separates the interior chambers of the upper section from the chamber of the lower section. When the ventilator ports 20 and 21 are open and the ventilator is in operation the warmer air within the ground floor room being near the ceiling tends naturally by convection to escape from the room through the port 20 into the interior chamber 26 of the upper section 22 and thence through one or other of the ports 27 and 28 leading to the external atmosphere from the chamber 26. Section 22 has extended ledges 56 and 57 adapted to prevent the entrance of rain or snow into the chamber 26. At the same time, and as a part of the ventilating operation cool dry air from the external atmosphere enters the chamber 29 of the section 24 from below and thence enters the port 21 to the ground floor room to take the place of a substantially equal volume of air displaced through the port 20. The air taken in through the port 21 may be discharged into the room just below the exit port 20, and the incoming air allowed to flow downwardly inside the room, or if desired the port 21 may be extended downwardly within the confines of the wall 15 as shown in Fig. 1, so as to discharge the air from port 21 into the room near the ground floor. The section 22 protects the port 20 from entrance of rain or snow, and from air currents of high velocity, and permits the air to escape with the external air currents in either direction. The section 24 protects the port 21 against the entrance of rain, snow or air currents of high velocity, and permits a free circulation of air to the room to replace that air escaping through the port 20.

The second story room is provided with an air exit port 30 through the roof or ceiling 16 thereof, and an air inlet port 31 through the side wall 15 thereof near and slightly above the floor 18. The second story ventilating apparatus as illustrated is constructed from sheet metal in two independent members 32 and 33. The member 32 is fitted and secured over the outer end of the air exit port 30 and extends upwardly therefrom, and is provided with an interior chamber 34 having two exit ports 35 and 36 leading from the upper and opposite extremities thereof for the escape of

air therefrom. The member 32 has overhanging roof sections 58 and 59 which serve to prevent the entrance of rain or snow or air currents into the ports 35 and 36 to reach the port 30. The member 33 is attached over the outer end of the port 31 and protects said port 31 against the entrance of rain, snow or air currents of velocity and permits air to enter upwardly into the interior chamber 37 of member 33 and thence through port 31 to take the place of air escaping from the room through port 30. The air contents of the second story room is thus kept cool pure and dry, and frequently changed. Doors 38 serve to close or partly close the air exit ports when desired, and doors 39 to close or partly close the air inlet ports when desired.

The ventilating sections 22 and 24 are adapted to be constructed in one piece from sheet metal being provided with flanges 42 which fit against the outer face of the side wall 15, and are adapted to be attached firmly thereto by means of nails or screws. The ventilating sections 22 and 24, may, if desired, be constructed of wood or molded in concrete and built into the wall 15 in place of being constructed of sheet metal and attached to the exterior of the wall. For barns, stables and factories the sheet metal type has advantages of low cost, manufacture in quantity and convenient transportation and application by unskilled labor.

The ventilating members 32 and 33 as illustrated are constructed from sheet metal and are provided with flanges 43 and 44 by means of which they are adapted to be conveniently attached to the building. These ventilating members 32 and 33 may be constructed of other materials such as wood, cast iron or concrete if desired.

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 apparatus comprising in combination with a room having an air inlet port and an air exit port, a ventilating member attached to the wall of the room and projecting exteriorly thereof, said ventilating member having an air exit chamber in communication with the air exit port of the room, a plurality of air exit ports through the walls of said air exit chamber, the walls of said chamber being outwardly and upwardly flaring, and a downwardly extending apron forming an air inlet chamber in communication with the air inlet port to the room into which external air enters upwardly and escapes through the room air inlet port to the room.

2. A ventilating apparatus comprising in combination with a room having an air inlet port and an air exit port, a ventilator section communicating with the air exit port and provided with an air exit chamber extending exteriorly of said room a plurality of air exit ports through the walls of said air exit chamber, the walls of said chamber being outwardly and upwardly flaring, and a ventilator section extending exteriorly of the room and having an air inlet chamber communicating with the air inlet port into which the air enters upwardly and from which the air escapes through said air inlet port to the room.

3. A ventilating apparatus comprising in combination with a room having an air inlet port and an air exit port, a ventilator section communicating with the air exit port and provided with an air exit chamber extending exteriorly of said room, a plurality of oppositely located and weather protected air exit ports through the walls of said air exit chamber, the walls of said chamber being outwardly and upwardly flared, and a ventilator section extending exteriorly of the room and having an air inlet chamber open at its bottom and communicating at its upper end with the room air inlet port and into which air inlet chamber the air enters upwardly and from which the air escapes through said air inlet port to the room.

4. A ventilating apparatus comprising in combination with a room having an air inlet port and an air exit port, a ventilator section communicating with the air exit port and provided with a room air exit chamber wider at the top than at its bottom extending exteriorly of said room and having a plurality of oppositely located air exit ports, weather protecting members projecting from the roof of said chamber above and overhanging said air exit ports, and a ventilating section extending exteriorly of the room and having an air inlet chamber open at its bottom and communicating at its upper end with the room air inlet port and into which air inlet chamber the air enters and from which the air escapes through said air inlet port to the room.

5. A ventilating apparatus comprising in combination with a room having an air inlet port and an air exit port, a sheet metal ventilator adapted to be attached exteriorly to a side wall of said room over said air inlet and exit ports, and comprising an upwardly and outwardly flared air exit section having exit ports through opposite upwardly and outwardly inclined walls thereof and receiving air from the room through said air exit port and discharging air through said weather protected exit ports to the external atmosphere and an air inlet section adapted to take air upwardly into the interior thereof and to discharge air into said room inlet port.

6. A ventilating apparatus comprising in combination with a room having an air inlet port and an air exit port, a ventilator section communicating with the air exit port and

provided with an upwardly and outwardly flared air exit chamber extending exteriorly of said room and having a plurality of exit ports located in the upwardly and outwardly inclined walls of said exit chamber, and a ventilator section extending exteriorly of the room and having an air inlet chamber communicating with the air inlet port into which the air enters upwardly and from which the air escapes through said air inlet port to the room, and means to cut off the air circulation through said ventilator sections manually operable from the interior of said room.

In testimony whereof I have affixed my signature.

GERHARD G. GROTHAUS.