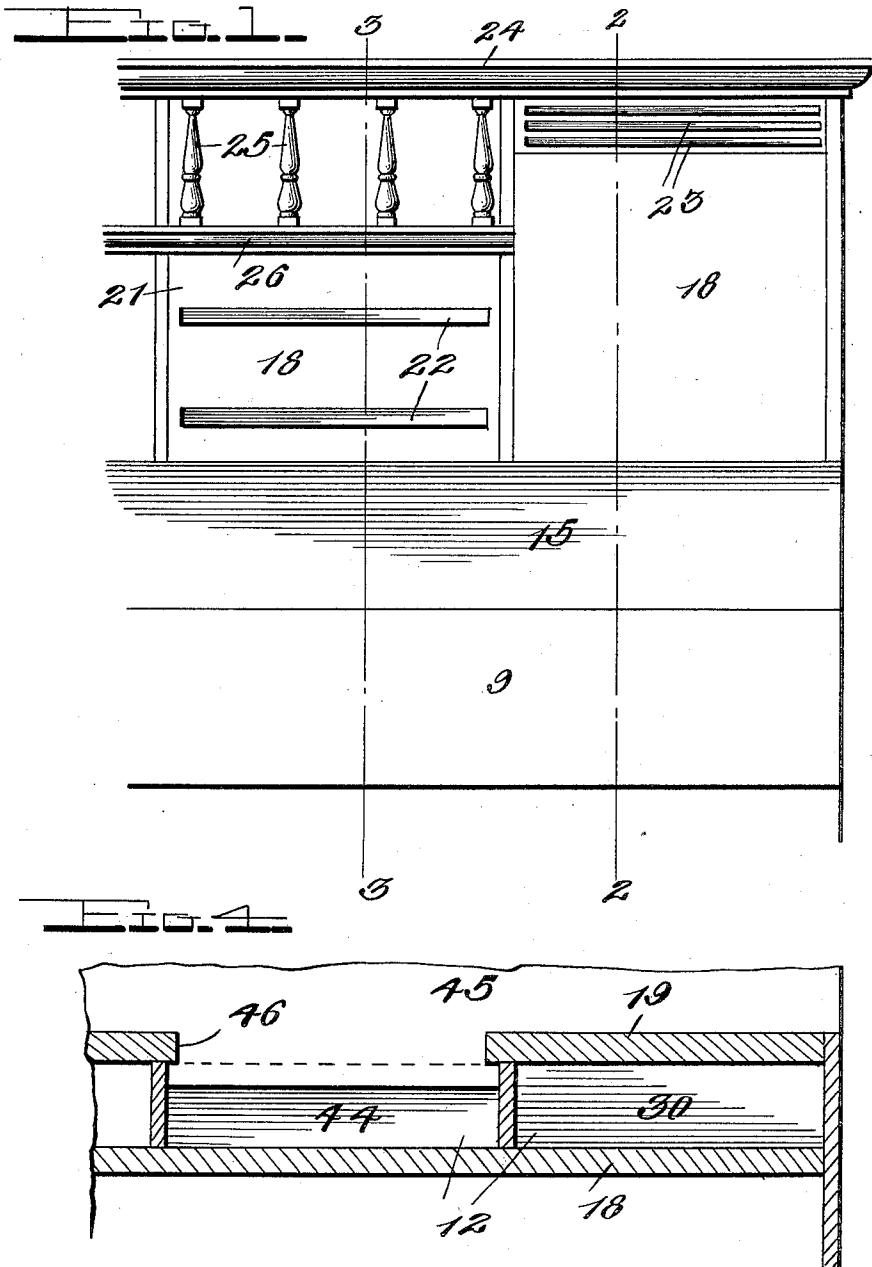


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VENTILATING SYSTEM FOR BUILDINGS.  
APPLICATION FILED OCT. 14, 1911.

1,057,599.

Patented Apr. 1, 1913.

4 SHEETS—SHEET 1.



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Witnesses

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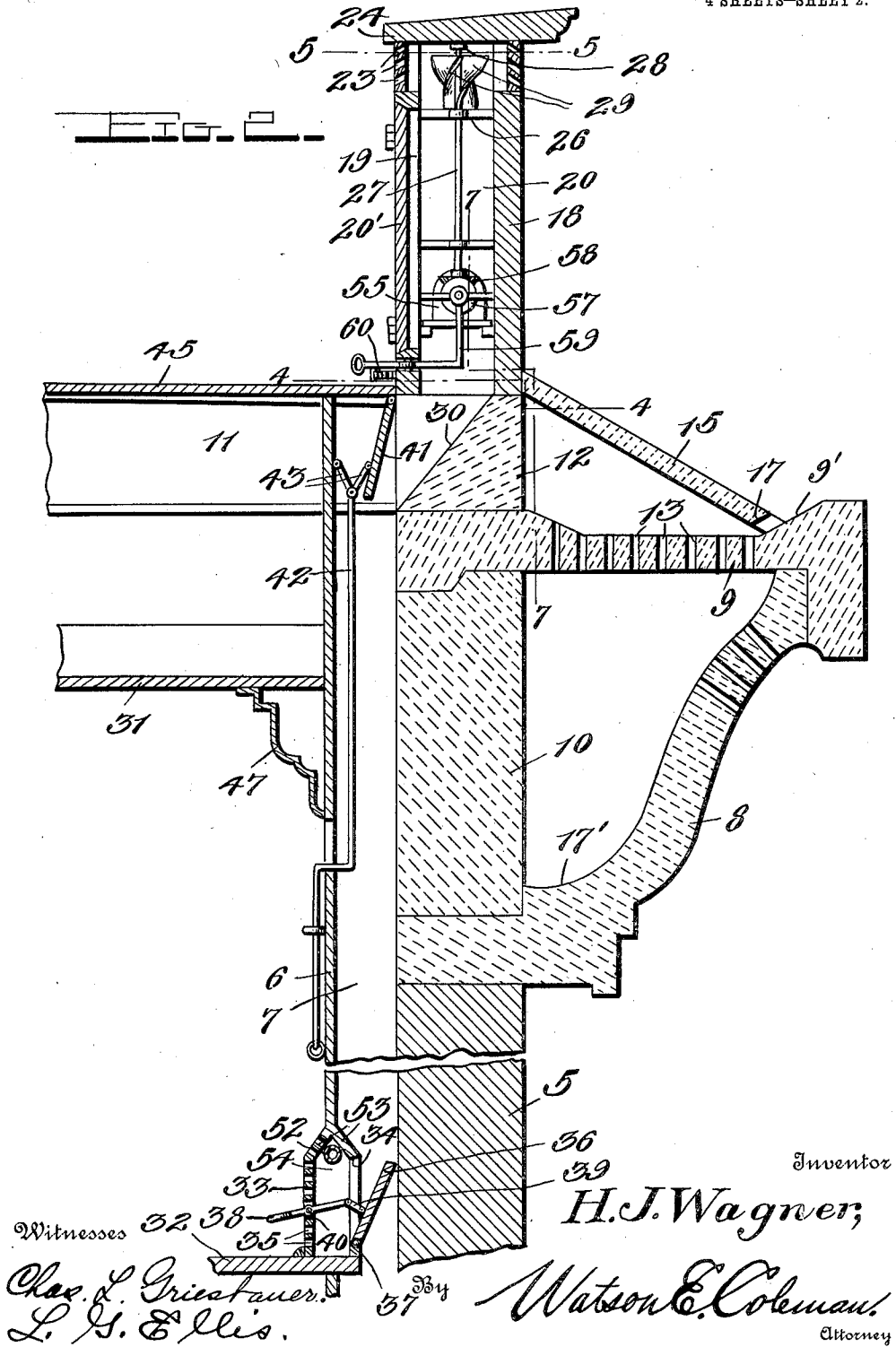
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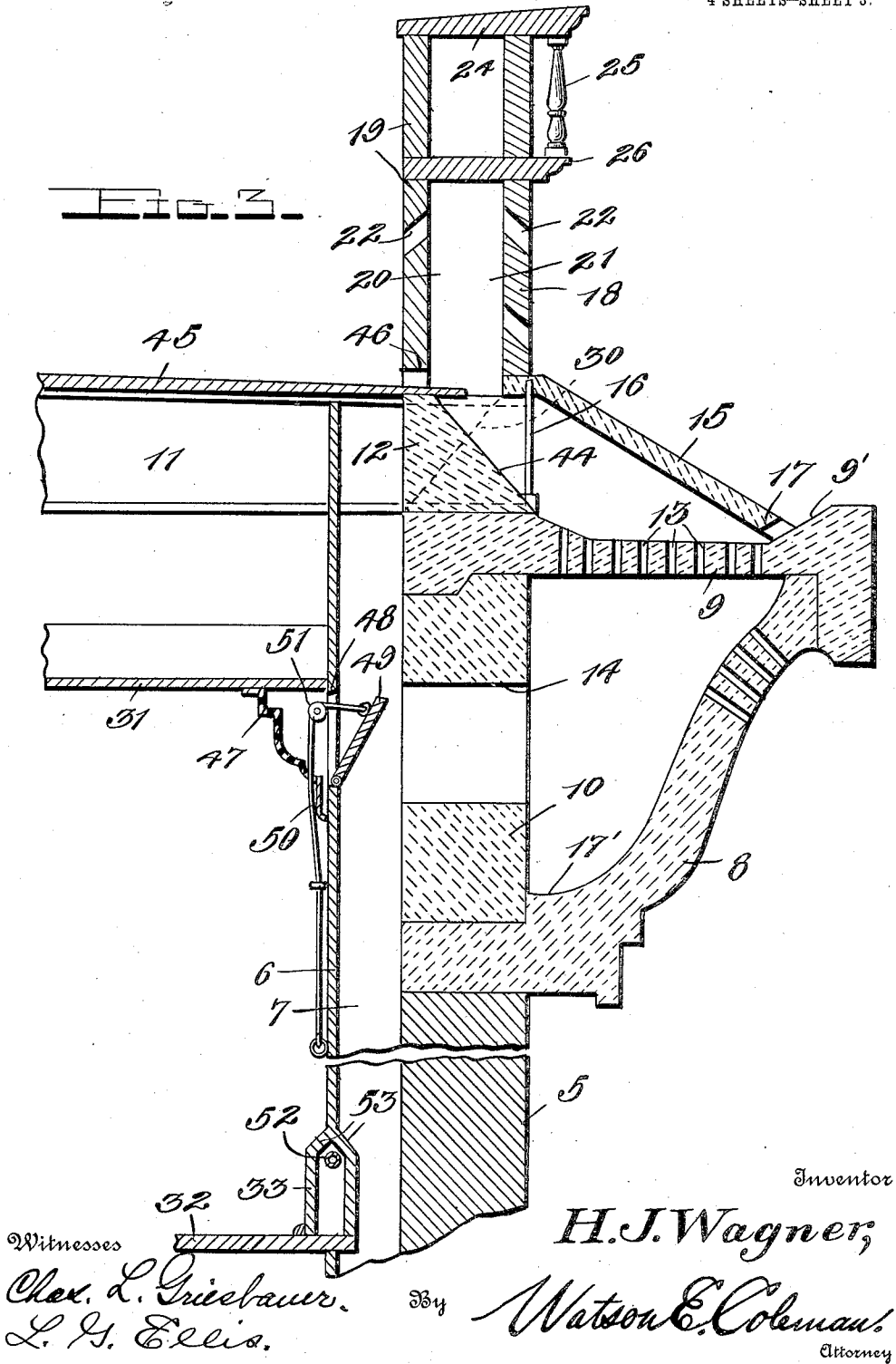


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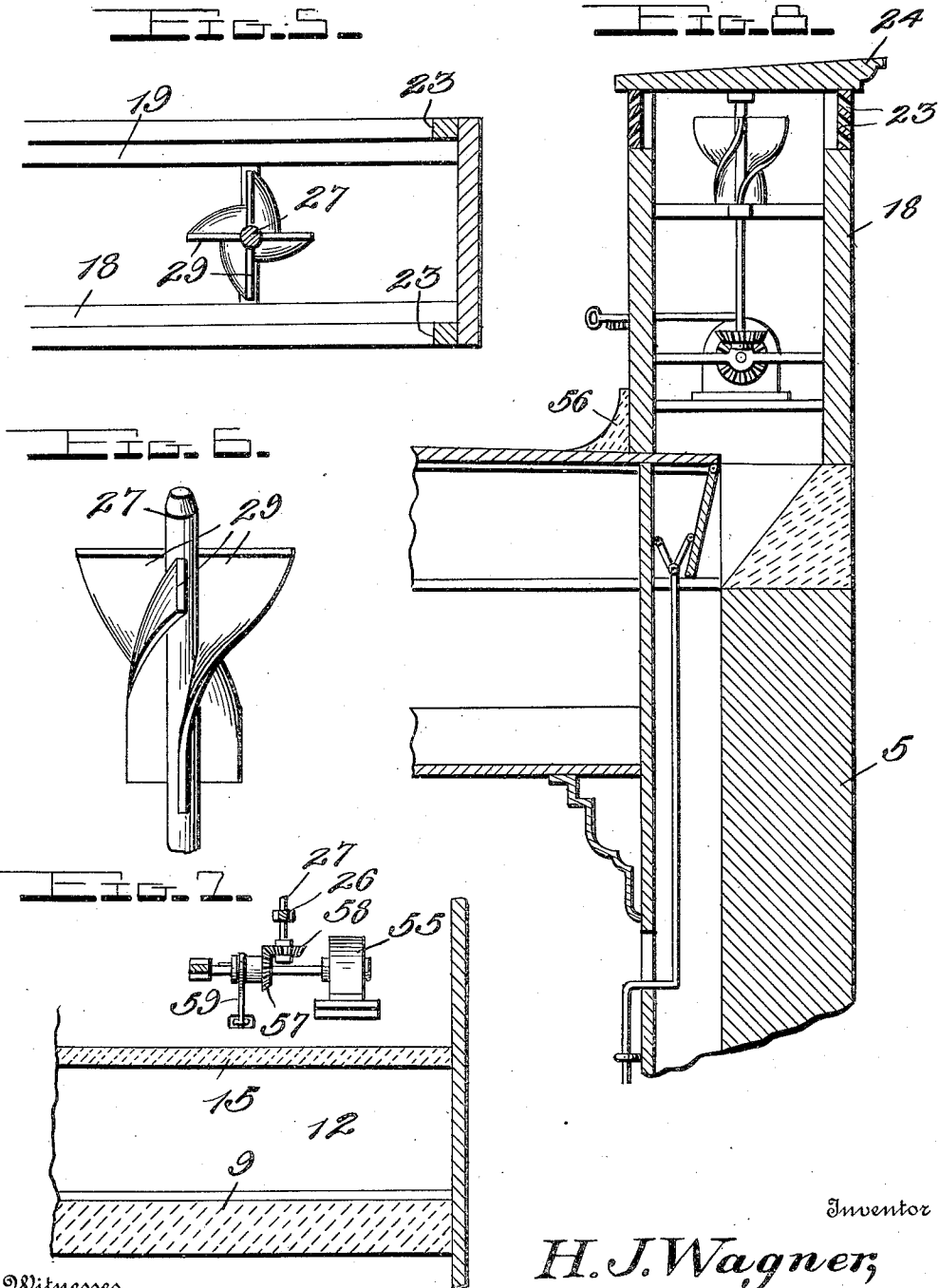


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Witnesses

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# UNITED STATES PATENT OFFICE.

HENRY J. WAGNER, OF DELLWOOD, NEW YORK.

VENTILATING SYSTEM FOR BUILDINGS.

1,057,599.

Specification of Letters Patent.

Patented Apr. 1, 1913.

Application filed October 14, 1911. Serial No. 654,620.

*To all whom it may concern:*

Be it known that I, HENRY J. WAGNER, a citizen of the United States, residing at Dellwood, in the county of Erie and State of New York, have invented certain new and useful Improvements in Ventilating Systems for Buildings, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to an improved ventilating system for buildings and has for its object to provide comparatively simple and very efficient means whereby a thorough circulation of air through the walls of the building and the apartments thereof may be obtained.

Another object of the invention resides in the provision of a hollow parapet wall arranged upon the building wall or roof and having communication with an air passage in the latter, and means arranged in the parapet wall whereby a draft of air is forced through the hollow building wall and into the apartment.

A further object of the invention is to provide an effective system of ventilation whereby the heated or impure air is quickly discharged through the building wall to the atmosphere and a copious supply of fresh air admitted to the apartment, the outlet passage for the impure air including the gutter of the building, and means for draining water from the building roof into said gutter without interfering with the free passage of air therethrough.

A still further object of the invention is to provide a hollow gutter having drainage openings in its top, said gutter being arranged upon a building wall provided with an air passage, a hollow parapet wall arranged upon the building wall or roof and communicating with the passage thereof, and a cap arranged over the drainage openings of the gutter to prevent the entrance of cold air therethrough and direct the heated air into the parapet wall.

With the above and other objects in view, the invention consists of the novel features of construction, combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of a portion of a building wall in which my improved ventilating system is incorporated; Fig. 2 is

a vertical section taken on the line 2—2 of Fig. 1; Fig. 3 is a similar section taken on the line 3—3 of Fig. 1; Fig. 4 is a section taken on the line 4—4 of Fig. 2; Fig. 5 is a section taken on the line 5—5 of Fig. 2; Fig. 6 is a detail perspective view of the rotatable rod showing the air directing vanes which are carried thereby; Fig. 7 is a detail vertical section taken on the line 7—7 of Fig. 2; and Fig. 8 is a detail vertical section illustrating a slightly modified construction.

Referring in detail to the drawings and more particularly to Figs. 1 to 5 thereof, it will be observed that the invention in its preferred embodiment is applicable to buildings of that character in which a parapet wall is built above the cornice and roof of the building.

In the drawings 5 designates the outer building wall, and 6 the inner wall of the building which is arranged in spaced parallel relation to said outer wall to provide the vertical air passages 7. It will be obvious that the building walls may be constructed in the manner of the ordinary hollow concrete wall if desired to provide these air passages. However, transverse walls are arranged between the inner and outer building walls to divide or separate the passage for the outgoing air from the passage for the incoming cold air.

A combination cornice and gutter of similar construction to that disclosed in my prior Patent #1,002,611 issued September 5th, 1911, is employed in combination with the improved system of ventilation forming the subject matter of the present application, and this gutter consists of the lower blocks 8 and the upper blocks 9 which are molded of cement or other plastic material. Between the inner edges of these gutter blocks 8 and 9 the cornice blocks 10 are arranged and disposed in vertical alinement with the outer building wall 5. The roof supporting I-beams 11 rest upon the upper gutter blocks 9 and the spaces between these I-beams are filled in with cement as indicated at 12, said cement filling being of a thickness equal to the thickness of the building wall 5. The upper gutter block 9 is provided with a plurality of drainage openings 13 which not only serve as drainage openings for the water from the roof but also as outlet openings for the heated impure air, the cornice blocks 10 being pro-

vided with openings 14 connecting the hollow gutter with the passage 7 into which the heated air is admitted as shown in Fig. 3.

In order to prevent the ingress of cold air through the openings 13 I provide an inclined cap or cover 15 for the top of the gutter, the outer edge of said cap resting against the upwardly inclined face 9' of the top gutter blocks and the inner upper edge of said cap being braced and supported by means of the bolts 16 which are connected thereto and to the outer ends of the I-beams 11. This cap may be in the form of a concrete slab or of other material if desired, and at its outer edge is provided with a plurality of openings or recesses 17 whereby the water which may collect in the outer edge of the gutter will be drained off to the interior of the gutter through the drainage openings 13. The trough 17' of the gutter in which the water finally collects and flows to the discharge pipe is disposed considerably below the air openings 14 in the cornice blocks so as to overcome all danger of water entering through said openings into the air passages 7.

The parapet wall hereinbefore referred to consists of the outer and inner vertical walls 18 and 19 respectively which are spaced to provide the vertical passage or channel 20. This parapet wall may be of one height across the entire front of the building if desired and provided with a single central transverse partition to divide the impure air passage from the communicating cold air passage. As shown in the drawings, however, I preferably construct this parapet wall at its ends with the shorter portions 21 which is provided in its front and rear walls with the downwardly and outwardly inclined air escape openings 22. These shorter portions of the parapet wall provide the hot air channels or passages and by reducing the wall in height at this point, the cold air is admitted to the upper ends of the higher portions of the wall upon all sides thereof, the walls of the cold air passage being provided with a large number of downwardly and outwardly inclined openings or perforations 23 so that the cold air may have free entrance into the passage between the parapet walls. The parapet is of course provided with a top wall 24 and an ornamental coping 25 of any desired character may be arranged upon the front of the parapet.

As shown in Fig. 2 of the drawings a supporting bracket or spider 26 is arranged in the walls of the cold air passage of the parapet and in this bracket the lower end of a vertical rod 27 is journaled, the upper end of said rod being also journaled in a bearing 28 secured to the under side of the top parapet wall 24. Upon the upper end of this rod and opposite the openings 23 in the walls of

the parapet, a plurality of spiral blades 29 are arranged, and against these blades the currents of incoming cold air impinge whereby the rod 27 is rotated, the blades 29 directing the cold air drafts downwardly through the passage 20 of the parapet wall. In order to obtain a forced draft of air downwardly into the cold air passage 7 between the building walls, I provide a motor 55 of any suitable construction which is arranged between the spaced walls of the parapet and upon the shaft of this motor a miter gear 57 is secured and meshes with a similar gear 58 which is secured upon the lower end of the vertical rod 27. The gear 57 is keyed upon the motor shaft for longitudinal sliding movement and is provided with a collar to which one end of a lever 59 is loosely connected. This lever extends through the rear wall of the parapet and is pivotally mounted therein intermediate of its ends, said lever carrying a holding dog for engagement with the teeth of a rack 60 which is secured upon the rear face of the wall 19 of the parapet. Thus it will be seen that by moving this lever, the gear 57 may be moved longitudinally upon the motor shaft into or out of engagement with the teeth of the miter gear 58. In this manner positive rotation is imparted to the vertical rod 27 so that the vanes 29 thereon will draw the air through the openings 23 in the parapet wall and force the same downwardly into the cold air passage 7 between the building walls. A door 20' is provided in the rear wall of the cold air passage so that access may be had thereto at any time for repairing the air directing means which is arranged therein. As clearly shown in Fig. 2 the filling 12 between the I beams and immediately below the cold air passage in the parapet wall is provided with a downwardly and inwardly inclined air directing face 30 which connects the passage of the parapet wall with the cold air passage between the inner and outer building walls and directs the incoming air downwardly into the latter.

31 designates the ceiling of the apartment and 32 the floor thereof while 33 indicates the base board which is arranged around the walls of the apartment immediately above the floor. The inner wall of the building is provided with an opening 34 over which said base board extends and the board is provided with a plurality of air inlet openings 35. A valve plate 36 is arranged between the inner and outer building walls and is hinged to the former at its lower end as indicated at 37. This valve plate is adapted to fit into the opening 34 in the building wall 6 to close communication between the apartment and the air passage 7. The means for actuating the valve plate consists of a foot rod 38 which is pivotally connected to a link 39 which in turn is pivoted

to the valve plate 36. The rod 38 is pivoted intermediate of its ends in an opening provided in the base board 33 as indicated at 40. By forcing the foot rod 38 toward the wall of the apartment the valve plate 36 may be swung to its closed position. A hook or catch of any character may be employed to engage the foot rod and hold the valve closed.

To control the entrance of the cold air to the passage 7 between the building walls a valve plate 41 is arranged between the upper ends of said walls and is adapted to engage at its free edge with the lower end of the inclined directing face 30. This valve plate may be actuated by means of the rod 42 which is connected by means of the links 43 to said plate. The lower end of the rod 42 is movable in the inner wall of the building and when forced upwardly spreads the links 43 and moves the valve plate to its closed position.

Attention is now directed to Fig. 3 of the drawings which illustrates the circuit of the heated or impure air from the apartment through the building walls and the outlets 22 to the atmosphere. To this end the filling 12 between the I beams is provided with a second inclined directing face 44 which extends in a plane at right angles to the first mentioned directing face 30. The roof covering 45 which is supported by the I beams 11 extends at its front edge over the upper end of this inclined face 44 and the rear parapet wall 19 is provided with the drainage openings 46 at its lower end which are in line with said inclined face. The water is thus drained from the roof through said openings and over the inclined face 44 into the trough of the top gutter block 9 and through the openings 13 of said gutter block into the hollow gutter from which it is finally discharged through the ordinary drain pipe arranged at one end thereof. The protecting cover 15 which is arranged over the openings 13 will prevent leaves or other matter accumulating in the trough so that the drainage openings are at all times unobstructed.

The apartment or room is provided with a sheet metal perforated molding 47 which may be of any desired ornamental configuration in cross section and extends over an opening 48 in the inner building wall 6. The impure heated air rising to the ceiling of the apartment finds its escape through the perforated molding and the opening 48 into the passage 7 between the building walls, from which it passes through the opening 14 in the cornice block and the heated air continues in its passage through the latter opening and into the hollow gutter. From the gutter the heated air rises through the drainage openings 13 in the top gutter block 9 and is directed by the inclined cap 7 into

and between the spaced walls of the parapet. This passage is unobstructed and when the hot air strikes the top thereof it readily finds an outlet through the openings 22 to the atmosphere. In this manner the hot air is quickly discharged and at the same time the cold air may be admitted to the apartment which acts to more quickly drive the heated air out and lower the temperature. The opening 48 in the inner building wall 6 is also adapted to be closed by means of the valve plate 49 which is weighted adjacent to its pivoted end so as to move by gravity to its open position. Any preferred means may be employed for closing the plate but as shown a cord 50 is provided which passes over a guide roller 51 arranged upon one edge of the opening 48 and behind the molding 47. The valve plate may be readily closed by simply pulling upon the chain and a nail or hook may be used to receive a ring on the end of the chain and hold the valve plate closed.

In order to slightly heat the incoming cold air I provide a steam pipe 52 which is arranged between the inner building wall 6 and the base board 33, said base board and wall being offset in opposite directions as indicated at 53 to space the same whereby the chamber 54 is provided through which the cold air passes as it enters the room through the openings 35 in the base board.

In Fig. 8 I have illustrated a modification of the invention wherein the cornice and gutter are dispensed with and the parapet wall alone is employed. This wall is of substantially the same construction as in the preferred form of the invention except that the rear vertical wall 19 thereof is disposed in alinement with the inner wall 6 of the building so as to increase the capacity of the air passages between said walls. In this form of the invention, the hot air and cold air take substantially the same course through the building and parapet walls as that previously described for the admission of the cold air to the apartments. The inclined directing faces 30 and 44 are not, however, necessary in this modified construction as will be obvious from a comparison of Figs. 2, 3 and 7. The drainage trough or gutter 56 may be of any preferred construction and is arranged directly upon the top of the roof and against the rear face of the wall 19 of the parapet.

From the foregoing it is believed that the construction and operation of my improved ventilating system will be readily understood. The apparatus provides a continuous circulation of air between the walls of the building so that the temperature of the apartments may be readily regulated. It will also be observed that the dead or impure air does not remain between the building walls but is immediately discharged to

the atmosphere owing to the continuous draft of cold air which is circulated through the building walls. The system may be readily installed in a building at comparatively small cost and is very efficient in practical use.

While I have shown and described the preferred construction and arrangement of the various parts, it will be obvious that the device is susceptible of a great many modifications in the details of construction without departing from the essential feature or sacrificing any of the advantages thereof.

Having thus described the invention what is claimed is:—

1. In building construction, a building wall, a gutter mounted thereon and means for supplying a current of warm air to the gutter, said building wall having an outwardly and downwardly inclined face above the gutter, an inclined cap plate arranged over the gutter and resting thereon at its outer edge, said cap plate being provided with openings through which water is drained into the gutter, the roof covering of the building projecting over the inclined face of the building wall and being spaced from the inner edge of the cap plate to admit of the escape of the warm air.

2. In building construction, a building wall, a gutter mounted thereon and means for supplying a current of warm air to the gutter, said building wall having a downwardly and outwardly inclined face to direct water from the roof of the building into the gutter, an inclined cap plate, arranged over the gutter and resting upon the same at its outer edge, the inner edge of the cap plate being spaced from the roof covering of the building to permit of the escape of the warm air, the warm air current contacting with the cap plate, heating the same and melting accumulations of snow and ice thereon, said cap plate being provided in its outer edge with openings through which the water is drained into the gutter.

3. In building construction, a building wall, a gutter mounted upon said wall and means for supplying a current of warm air to the gutter, spaced walls mounted upon the building wall and extending above the roof of the building, means for directing the warm air from the gutter into the space between said walls, the roof covering of the building extending beneath one of said spaced walls to drain water from the roof into the gutter.

4. In building construction, a building wall, a gutter mounted thereon and means for supplying a current of warm air to the gutter, front and rear spaced walls mounted upon the building wall and extending above the roof of the building, means arranged over the gutter to direct the warm air therefrom into the space between said latter walls, said building wall having an inclined face, the roof covering of the building extending beneath said rear wall to discharge the water from the roof upon said inclined face where- by the same is directed into the gutter.

5. In building construction, a building wall, a hollow gutter mounted upon the same, and means for supplying a current of warm air to said gutter, the top wall of the gutter having a plurality of openings there-through, front and rear spaced walls mounted upon the building wall and extending above the roof of the building, an inclined cap plate disposed over the openings in the gutter wall and resting at its lower edge upon said gutter, said lower edge of the cap wall being provided with openings to drain water from said wall into and through the openings in the gutter wall, the rear wall extending above the building wall being provided with openings through which water is drained from the roof into said gutter.

6. In building construction, a building wall, a hollow gutter mounted upon said wall and means for supplying a current of warm air to the gutter, front and rear spaced walls mounted upon the building wall and extending above the roof of the building, an inclined cap wall arranged over the gutter and resting upon the same at its outer edge, said cap wall being adapted to direct the warm air from the gutter into the space between said front and rear walls, said walls having a plurality of outlet openings for the warm air, said rear wall being provided with openings at its lower edge, the building wall having an outwardly and downwardly inclined face, the roof covering of the building projecting beneath the latter openings in the rear wall and extending over the inclined face of the building wall to discharge water drained from the roof into the gutter.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

HENRY J. WAGNER.

Witnesses:

J. O. GARRETSEE,  
MELVILLE J. SNYDER.