

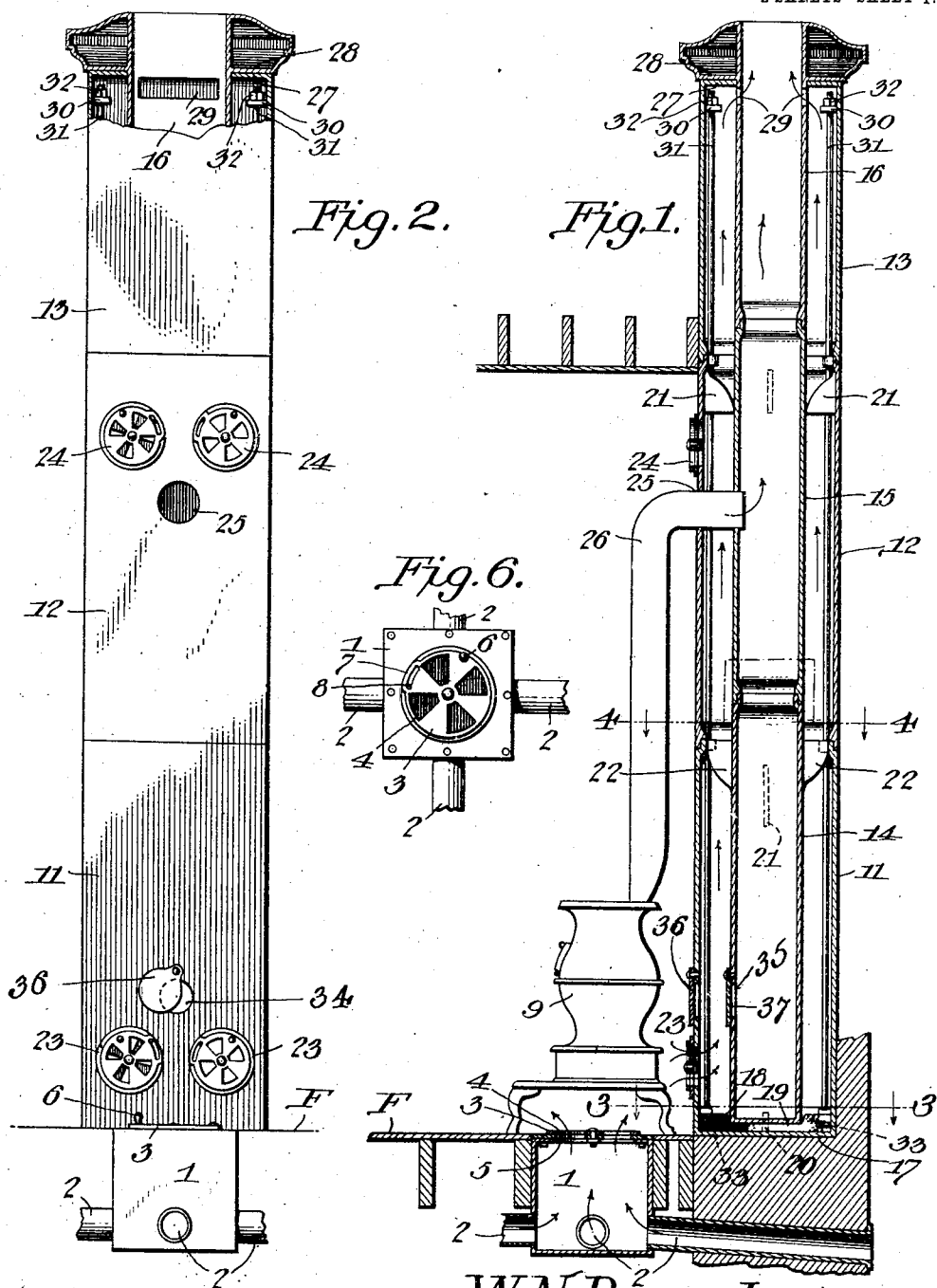
No. 784,963.

PATENTED MAR. 14, 1905.

W. N. REYNOLDS.
VENTILATING APPARATUS FOR BUILDINGS.

APPLICATION FILED OCT. 20, 1903.

2 SHEETS—SHEET 1.



Witnesses
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Baxter Norton

W. N. Reynolds, Inventor.
by *C. A. Snow & Co.* Attorneys

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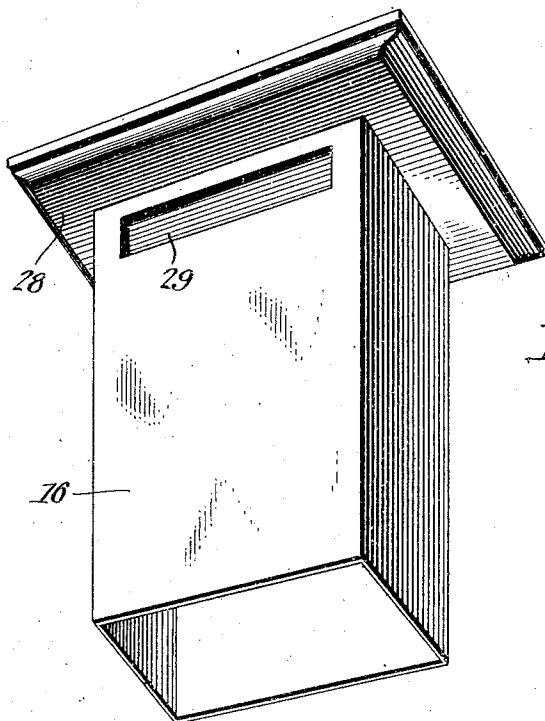


Fig. 5.

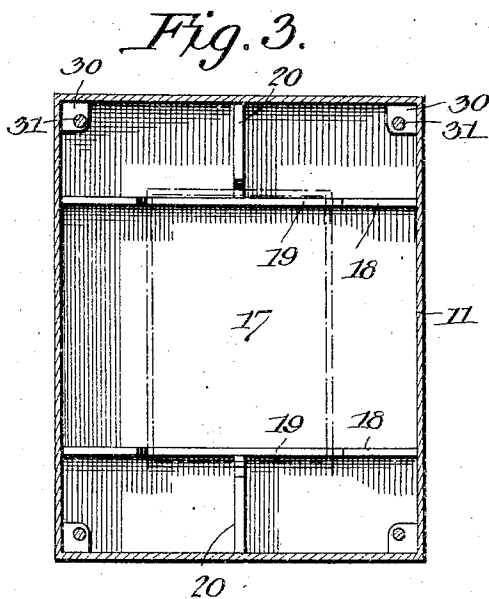


Fig. 3.

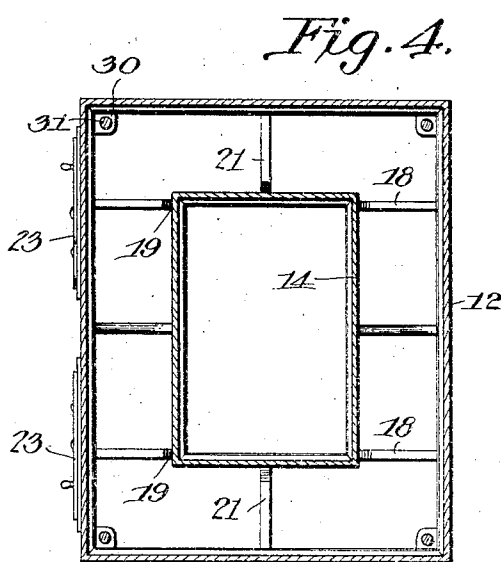


Fig. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM N. REYNOLDS, OF PIERRE, SOUTH DAKOTA.

VENTILATING APPARATUS FOR BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 784,963, dated March 14, 1905.

Application filed October 20, 1903. Serial No. 177,833.

To all whom it may concern:

Be it known that I, WILLIAM N. REYNOLDS, a citizen of the United States, residing at Pierre, in the county of Hughes and State of South Dakota, have invented a new and useful Ventilating Apparatus for Buildings, of which the following is a specification.

This invention relates to ventilating apparatus for buildings; and it consists, generally speaking, in means for supplying fresh air to the interior of a building, and a ventilating-flue comprising an inner flue for the conduction of smoke and products of combustion from the building and an outer flue for the passage of foul air from within the building.

The object of the invention is to provide improved means for admitting fresh air into a building without causing disagreeable drafts and to provide an improved form of flue for the conduction of foul air from the building in such manner that the escaping foul air may increase the efficiency of the draft by which the fire in the heating apparatus is sustained.

A further object of the invention is to improve the construction of ventilating-flues by reducing the cost of manufacture, increase the durability of the flues, and provide improved means for securing flue-sections in proper relative position, so preventing disarrangement of the flue-sections and consequent interference with the action of the flue.

In describing the invention reference will be had to the accompanying drawings, in which there is illustrated a preferred form of embodiment of the invention, it being understood, however, that various changes in the form and proportions of the parts and in the exact mode of assemblage thereof may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

In the drawings, Figure 1 is a view in vertical section through the flue and through portions of the floor and ceiling of a room ventilated thereby. Fig. 2 is a view in front elevation of the flue and the ventilating-box. Fig. 3 is a view in section on the line 3 3 of Fig. 1 looking in the direction indicated by

the arrows. Fig. 4 is a view in section on the line 4 4 of Fig. 1 looking in the direction indicated. Fig. 5 is a perspective view of the upper section of the inner flue. Fig. 6 is a plan view of the ventilating-box, showing portions of the air-inlet pipes leading thereinto.

Referring to the drawings, in which corresponding parts are designated by similar characters of reference, F designates a floor in a building, which for the sake of simplicity is shown as being of one story only. In the floor F there is located a box 1, which may be of any suitable contour and which has arranged in the sides thereof near the bottom pipes 2, which extend from the outside of the building into the box and convey fresh air thereinto. In the top of the box, which will be made flush with the upper surface of the floor, there is arranged a register comprising, preferably, a rotatable disk 3, having a plurality of openings 4 of the same contour as openings 5, correspondingly spaced in the top of the box. A disk 3 is pivotally supported upon the top of the box and is provided with a knob or handle 6 for imparting movement thereto. The movement of the disk is preferably limited by means of a slot 7 at the periphery of the disk and stud 8 upon the top of the box. The box 1 will preferably be located in the floor immediately beneath the heating apparatus, which in this instance is a stove 9 of any suitable character, the object of this arrangement being to insure the heating of the air as it enters the building and the prevention of its gradual diffusion throughout the room by deflection in all directions from the bottom of the stove, thereby to prevent the creation of disagreeable drafts, which are not only productive of discomfort to persons within the building, but are also apt to lead to colds and other forms of illness.

The flue is illustrated as consisting of three outer sections 11, 12, and 13 and three inner sections 14, 15, and 16; but it is to be understood that the number of sections will be in all cases determined by the height of the building and the character of the sections employed will

depend upon the number of stories to be reached. The bottom section 11 of the flue is closed at the bottom, as shown, by means of a plate or partition 17, upon the upper surface of which are arranged two bars 18, cut away on their upper surfaces to form seats 19 for the lower section 14 of the inner flue, which is prevented from moving laterally upon the seats by blocks 20, located adjacent to the bars 17 and adapted to contact with the sides of the inner-flue section. Lateral movement of the upper portion of the inner-flue sections will be prevented by cleats 21, fixed on the inside of the outer-flue section and presenting downwardly-inclined upper surfaces to facilitate the guidance of the inner flue into position, and similar cleats 22, fixed in the reverse position upon the inner-flue section. The flue-section 11 is provided near the bottom, at a slight distance only above the floor, with a pair of registers 23, similar to that already described upon the upper surface of the box 1, and hence requiring no further and more detailed description. The outer-flue section 12, which in this instance is shown as extending to the top of the room, is provided on the inside with cleats 21, similar to those on the flue-section 11, and is provided near the top with a pair of registers 24, similar to those employed on the lower-flue section. The flue-section is also provided with an opening 25 to receive a stovepipe 26, this opening being located between the registers 24 and at about the level of their lower margins.

The upper-flue section 13 is provided at the top with inwardly-disposed flanges 27 to form guides for the inner-flue section 16, which is provided at the top with a broad flange 28, which is adapted to rest upon the top of the outer flue and form a close joint therewith. The inner-flue section 16 is also provided on opposite sides with horizontally-disposed apertures 29, forming means of communication with the space between the outer and inner flues, so that the foul air which will pass upward into the space between the outer and inner flues may pass into the inner flue before its final passage into the open air and by so doing increase the draft of the inner flue and at the same time extinguish sparks which may rise to the top of the inner flue.

Both the inner and outer flue sections are arranged to interlock, as shown, the flue-sections 11, 12, 14, and 15 being provided at the top with an external rabbet and flue-sections 12, 13, 15, and 16 being each provided at the lower end with an internal rabbet, so that the flue-sections may be interlocked, as shown. The sections of the outer flue are also provided with inwardly-disposed lugs 30 at the corners, which have openings to receive rods 31, which extend from top to bottom of the

flue and are threaded at one end to receive nuts 32 and are provided at the other end with heads 33. The rods 31 are, in effect, bolts extending throughout the entire length of the flue and form means for positively preventing the loosening or disarrangement even in the slightest degree of the flue-sections. To facilitate the cleaning of the inner flue, openings 34 and 35 are formed in the inner and outer flues, respectively, and are covered by pivoted closures 36 and 37.

The stovepipe 26 is of course extended through the inner-flue wall as well as through the outer flue, and the smoke and other products of combustion from the stove pass directly from the stove into the inner flue, to be carried upward in the usual manner.

The registers 23 are disposed near the floor in order that the heavy foul air and any noxious vapors heavier than air may pass readily into the outer flue at that point, and the registers 24 are arranged near the top of the room, so that the heated air, which rises on account of its lightness, may find egress from the room. The escaping foul air which passes outward through the outer flue will pass into the inner flue at the top through the openings 29 and by so doing will have the double effect of increasing the efficiency of the draft through the inner flue and also by deflecting sparks against the side walls of the flue tend to extinguish them before escape into the outer air. By means of the registers in the box 1 and in the outer flue the entrance of fresh air and the escape of foul air may be easily regulated to meet the requirements within a building at any time and proper action of the draft in the flue and a supply of fresh air conveniently and easily controlled.

In the construction of the flue any suitable material may be employed; but that which is to be preferred on account of its lightness in proportion to its strength and its durability in service is iron, and by casting the flue-sections they may be made at comparatively low cost.

Having thus described the construction and operation of my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination in apparatus of the class described, of an outer flue having openings near the floor and the ceiling of the room in which the flue is located for foul air to pass into the flue and an intermediate opening, an inner flue having an opening intermediate of its ends registering with the intermediate opening in the outer flue, a heating apparatus spaced apart from the outer flue, means for admitting cold air below said heating apparatus and for controlling the entry thereof, means for conveying products of combustion from the heating apparatus through the regis-

tering openings to the inner flue, the latter
being provided at the top thereof with open-
ings communicating with the space between
the inner and outer flues and with an out-
5 wardly-disposed flange forming a closure for
said outer flue.

In testimony that I claim the foregoing as

my own I have hereto affixed my signature in
the presence of two witnesses.

WILLIAM N. REYNOLDS.

Witnesses:

CHARLES S. FISHER,
PATTISON F. McCLURE.