W. G. FORCIER.

VENTILATOR.

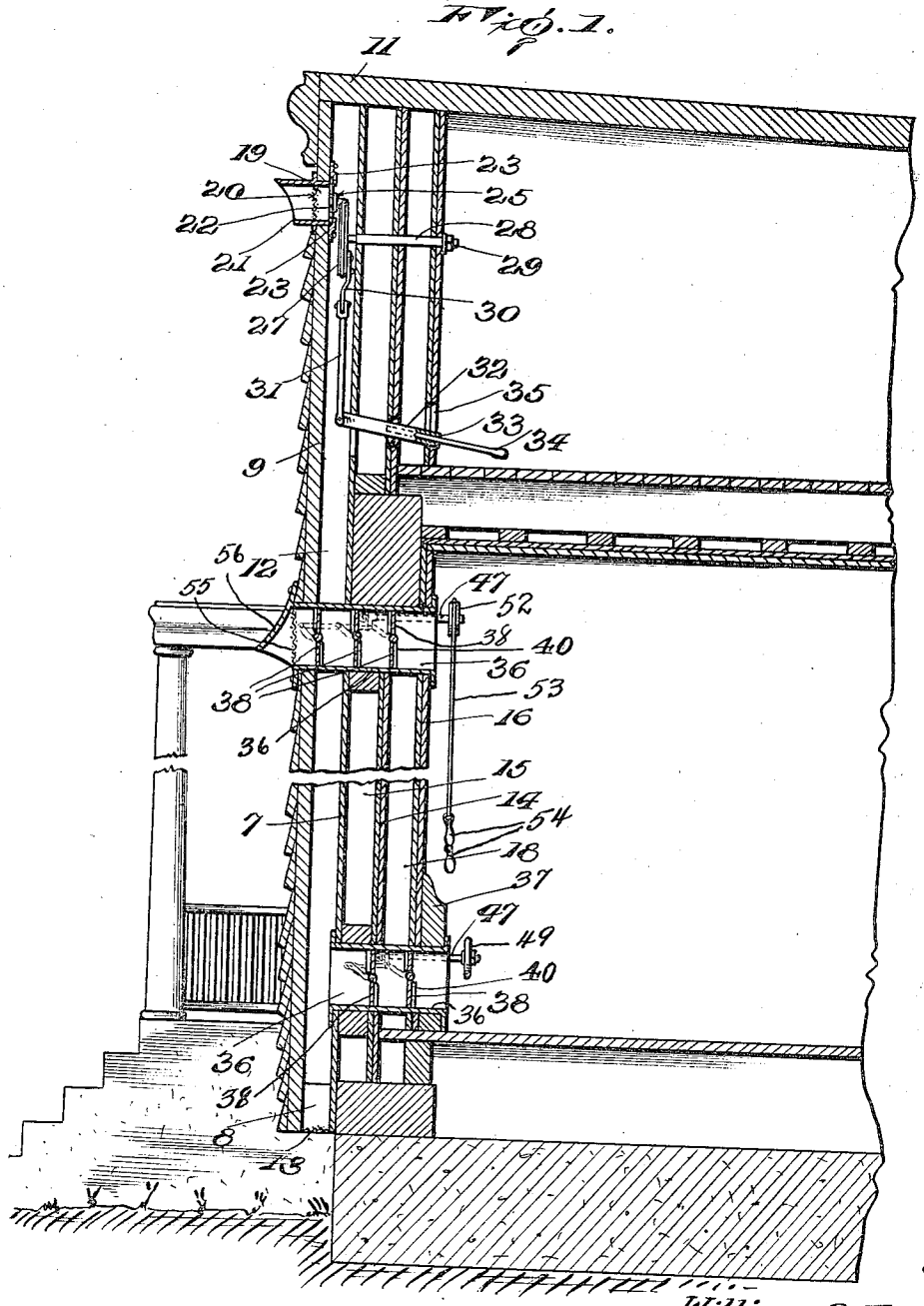
APPLICATION FILED JAN. 20, 1920.

1,373,960.

Patented Apr. 5, 1921.

2 SHEETS—SHEET 1.

Fig. 1.



Inventor

William G. Forcier.

By

Lacey & Lacey, Attorneys

W. G. FORCIER.

VENTILATOR.

APPLICATION FILED JAN. 20, 1920.

1,373,960.

Patented Apr. 5, 1921.

2 SHEETS—SHEET 2.

Fig. 2.

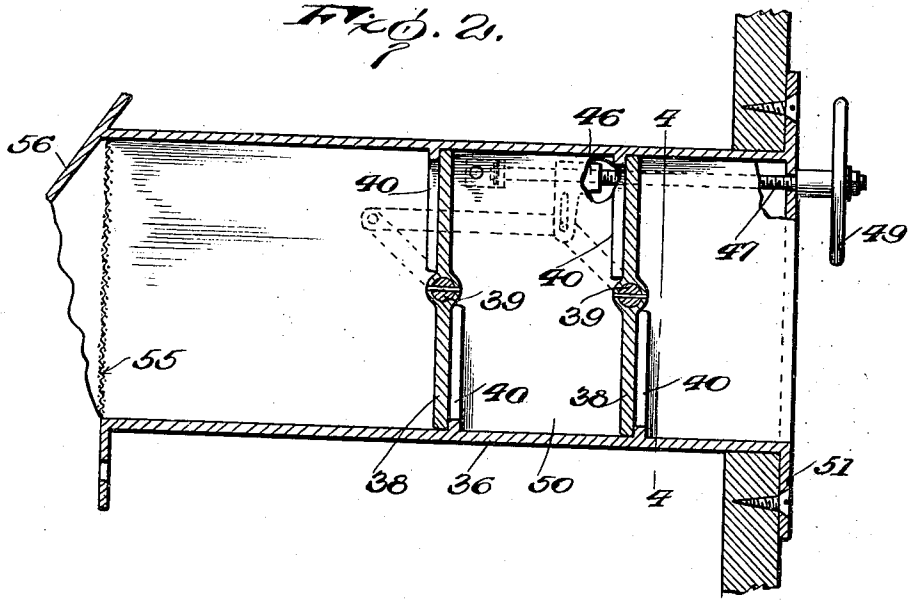
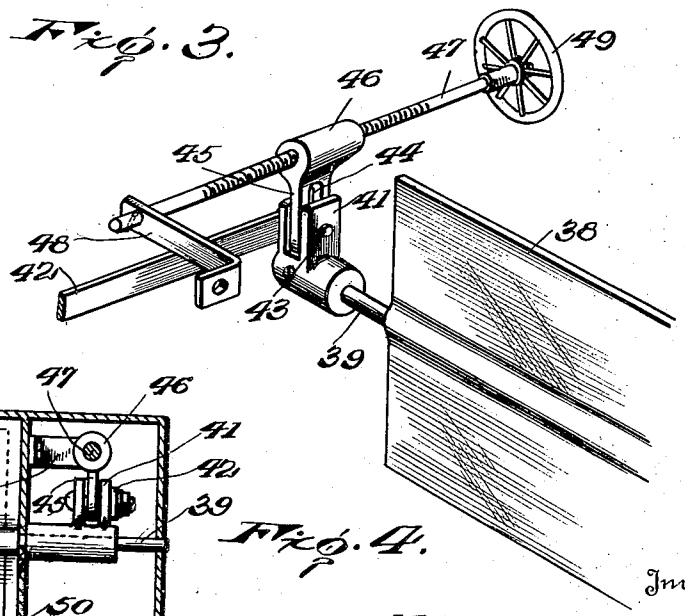


Fig. 3.



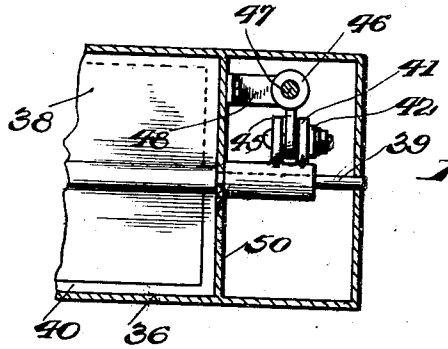


Fig. 4.

Inventor

William G. Forcier.

By Lacey & Lacey, Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM G. FORCIER, OF WOLLASTON, MASSACHUSETTS.

VENTILATOR.

1,373,960. Specification of Letters Patent. Patented Apr. 5, 1921.

Original application filed July 31, 1919, Serial No. 314,405. Divided and this application filed January 20, 1920. Serial No. 352,868.

To all whom it may concern:

Be it known that I, WILLIAM G. FORCIER, a citizen of the United States, residing at Wollaston, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Ventilators, of which the following is a specification.

This invention relates to ventilating systems, the present application being a division of an application filed by me July 31, 1919, Serial No. 314,405.

In the accompanying drawings,

Figure 1 is a vertical section of a portion of a building showing the application of my present invention;

Fig. 2 is an enlarged longitudinal section of the ventilator embodying the present invention;

Fig. 3 is a detail perspective view of the operating mechanism;

Fig. 4 is a detail section on the line 4—4 of Fig. 2.

As shown in Fig. 1 of the drawings, the building in which my invention is embodied is of the hollow-wall type, a cardboard sheathing 7 extending the entire height of the building and spacers, one of which is shown at 8, being secured over said sheathing at intervals and serving to hold the same against the several sills and girders of the building. An outer sheathing 9 is secured to the outer sides of the spacers and this sheathing may have a facing of any desired material or style according to the finish to be given the building. The roof 11 extends over the upper end of the space 12 between the inner and outer sheathings but the lower end of said space is open although it is covered with a screen 13 to prevent the entrance of insects. Spaced inwardly from the sheathing 7 is a partition 14, preferably of plaster, a dead-air space 15 being thus provided between the sheathing 7 and the partition or wall 14. Spaced from the partition 14 is an inner wall 16 which forms the outer sides of the outer rooms. Obviously, a second dead-air space 18 is formed between the walls 14 and 16.

To permit circulation of air through the space 12, I provide in the outer wall or sheathing 9, near the roof, a screened opening which is covered or uncovered by a damper 22 which is adjusted by a lever 32 fulcrumed in the wall 14 and operatively connected with the damper.

Within each room of the building, I provide an upper ventilator which is intended to admit fresh air to the room and a lower ventilator which is intended to permit the escape of the vitiated air so that a circulation of air within the room will be set up and all impurities carried off. The ventilators each consists of a tubular casing 36 inserted through the sheathing 7 and the walls 14 and 16, the upper casing being also carried through the sheathing 9 so that it will be open to the atmosphere, while the lower casing opens through and terminates at the inner sheathing 7. The casings may be covered with felt or otherwise calked in the openings through the sheathing 7 and the walls 14 and 16 so that leakage of air around the casings will not occur. The lower casing is located at the floor of the room and extends through the base board 37 therein while the upper casing is located adjacent the ceiling and may be flush with the inner wall or provided with a flange fitting against the same. Within each casing is a plurality of plates 38 which are provided at their ends with trunnions or a shaft 39 journaled in the sides of the casing. If the member 39 be extended through the plates, it will be pinned thereto, as indicated in Fig. 2. The pivot 39 of each plate will, of course, be disposed at the vertical center thereof and within the casing, adjacent each plate, are stops 40 which are arranged at opposite sides of the vertical planes of the respective plates so as to limit the movement thereof and they may be faced with felt or other material so that a draft-proof joint with the plates will be effected as will be readily understood. The outer stops 40 terminate above the pivot pins of the respective plates, while the inner stops terminate below said points, as clearly shown in Fig. 2, and free movement of the plates is thus permitted. Upon one end of the pivot for each plate is secured an arm 41 and the arms of the several plates are connected by a link 42 so as to effect simultaneous movement of the plates. One of the arms 41 is equipped with a pin 43 which plays in a slot 44 in a tongue 45 depending from a sleeve 46 which is internally threaded and mounted upon a threaded rod or worm shaft

47 which is swiveled at its outer end in a bracket 48 and equipped at its inner end with a hand wheel or pulley 49. The bracket 48 is secured rigidly to a partition 50 disposed longitudinally of the casing 36 and separating the operating mechanism from the ventilator plates. The space between the partition and the casing at the inner ends thereof is sealed by a cover plate 51 which also provides the inner bearing for the worm shaft 47. The handle 49 at the lower ventilator will be in the form of a hand wheel, as shown, which may be easily grasped and manipulated but at the upper ventilator I substitute for the hand wheel a grooved pulley or disk 52 to which is secured a cable or chain 53 having its ends depending from the said disk or pulley at opposite sides thereof and equipped with grips 54. The cable 53 will depend from the pulley to such point that its ends may be easily reached by an occupant of the room and the ventilator, therefore, easily adjusted. The outer end of the upper casing 36 is covered by a screen 55 and a hood 56 is secured to the outer side of the building to extend over said screen and protect the same and the casing from the weather.

It will be noted that the lower ventilator opens into the space 12 which is open at its lower end to the atmosphere but the upper ventilator extends through said space and through the outer sheathing so that said upper ventilator is directly open to the atmosphere. Therefore, if the lower ventilator be opened the foul air contained in a room will escape but there will be no great rush of outside air into the room, so that the foul air may be discharged without any substantial lowering of the temperature of the room. If the upper ventilator be opened atmospheric air will be admitted to the room so that the necessary supply of fresh air and oxygen may be easily obtained and if both ventilators be opened a circulation of air through the upper ventilator into the room and thence out through the lower ventilator will be created inasmuch as the upper ventilator is open to the outside air and furnishes direct access of the same to the room, while the lower ventilator communicates only indirectly with the outside air and it, therefore, counteracts the usual tendency of air to flow upwardly. Moreover, the upper end of the air space 12 is normally closed and the said space is normally a dead-air space in which there is no circulation. By employing the construction shown and described herein light materials may be employed and buildings quickly erected so that the cost of construction will be minimized and inasmuch as a plurality of dead-air spaces are provided around the building the temperature of the same is more nearly uniform than with other known constructions and the cost of heating the building in cold weather will be very considerably reduced. A very efficient system of ventilation is provided which may be easily controlled by the occupant of the building without disarranging or rendering inoperative any of the parts.

Having thus described the invention, what is claimed as new is:

1. A ventilator for buildings comprising an open-ended casing, a plate mounted within the casing for rocking movement in a vertical plane, a radial arm at one end of the plate, a worm disposed above said arm and held against longitudinal movement, a sleeve mounted upon said worm and having a depending tongue provided with a vertical slot, and a pin inserted through said radial arm and playing in the slot in said tongue.

2. A ventilator for buildings comprising an open-ended casing adapted to establish communication between the interior and exterior of a building, a plurality of plates mounted for rocking movement within the casing and adapted when upright to cut-off flow through the casing, stops at opposite sides of the plates to limit the movement thereof and form seals around their edges, each plate having its pivot at one end extended, radial arms on the respective extended pivots, a link connecting said arms, a worm disposed parallel with the casing and held against longitudinal movement, and a sleeve mounted on said worm and provided with a tongue having a pin and slot connection with the radial arm on one extended pivot.

3. A ventilator comprising an open-ended casing, a longitudinal partition within the casing near one side thereof, plates pivoted at their vertical centers in the said partition and in the side wall of the casing more remote from the partition, the pivots of the several plates being extended beyond the partition, radial arms fixed on the extended pivots of the plates, a link connecting all said arms and extending longitudinally in the space between the partition and the adjacent side wall of the casing, a worm shaft disposed longitudinally of the said space above the several pivots and the radial arms thereon, a sleeve fitted upon said worm shaft and provided with a depending tongue having a vertical slot therein, a pin inserted through one of the radial arms and playing in said slot, and means at the inner end of the casing to rotate the said worm shaft.

In testimony whereof I affix my signature.

WILLIAM G. FORCIER. [L. S.]