

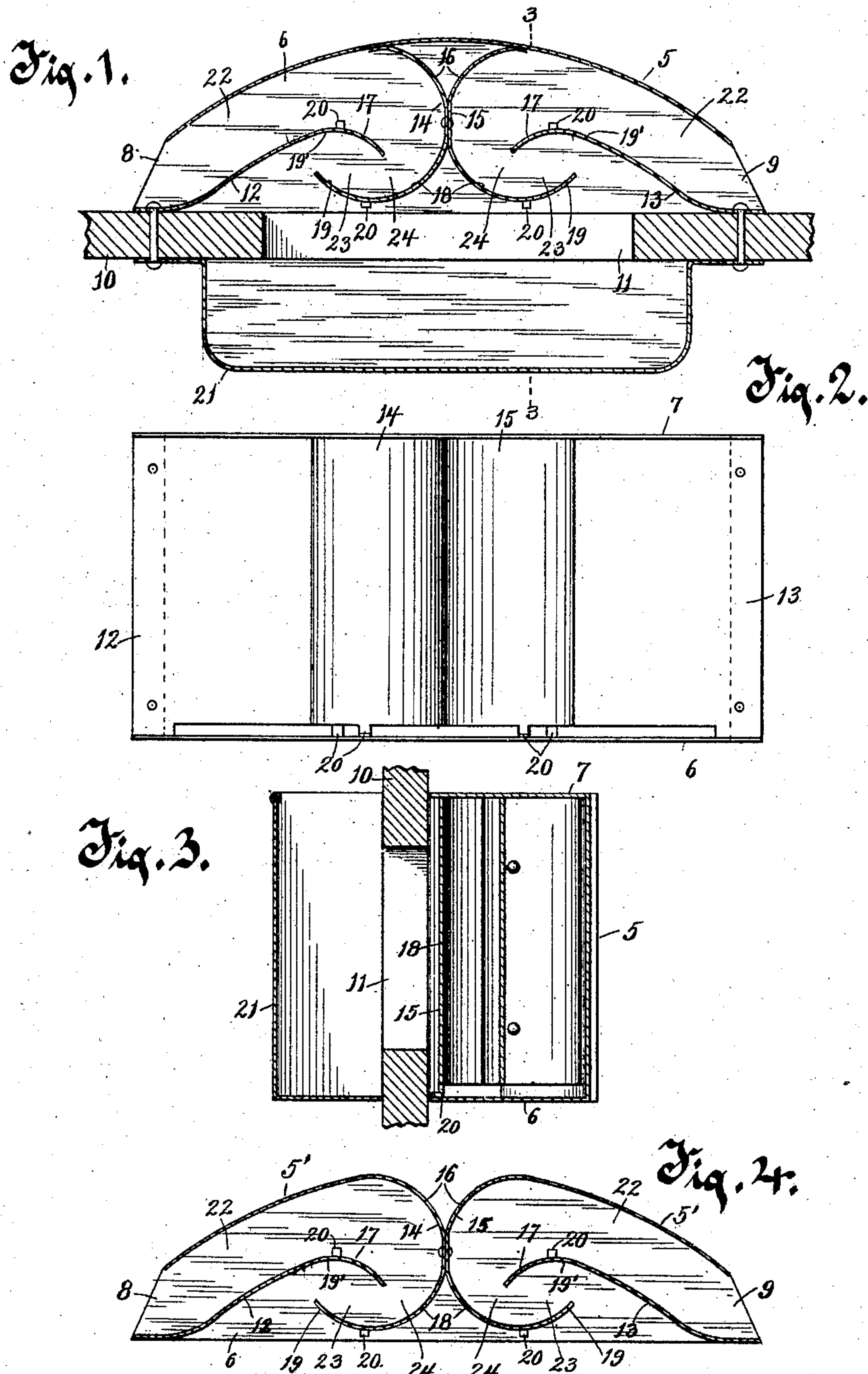
No. 850,160.

PATENTED APR. 16, 1907.

S. C. HODGE & P. DOUGLAS.

VENTILATOR.

APPLICATION FILED JULY 11, 1904.



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## VENTILATOR.

No. 850,160.

Specification of Letters Patent.

Patented April 16, 1907.

Application filed July 11, 1904. Serial No. 216,000.

*To all whom it may concern:*

Be it known that we, SCHUYLER C. HODGE and PEYTON DOUGLAS, both residing in Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Ventilators, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

Our invention has relation to improvements in ventilators for delivering pure air free from the contaminating effects of dust, smoke, cinders, &c., into a room, car, or other inclosed space to be ventilated.

Some forms of ventilators as now constructed employ a valve centrally pivoted in a casing, which casing is open at opposite ends, the said open ends forming intakes for the air. This class of ventilators are designed to take in air only at one end—i. e., the end opposite the end toward which the wind or air current is directed—the wind or air current acting against the valve and turning said valve in a direction to cause the end thereof which is acted against by the air to be turned to a closed position, while the opposite end is turned to an open position—for instance, as is illustrated in Letters Patent of the United States, No. 678,130, dated July 9, 1901.

The objection to the above class of ventilators resides in the fact that the single intake-opening in many instances is inadequate to permit a sufficient volume of air to enter the space to be ventilated, and, furthermore, where the wind is shiftable the valve is caused to be turned frequently on its pivot, and consequently a disagreeable and annoying rattling is produced.

It is therefore the primary object of our invention to overcome the above-pointed-out objections.

A further objection existing in the above-referred-to form of construction is the tendency of the dirt and sediment which settles on the bottom of the casing to be forced by the air-draft along said bottom of the casing and beneath the pivoted valve and into the space to be ventilated. This objection also exists in various other forms of ventilators now in common use.

A further incidental object, therefore, of our invention is to overcome the last-pointed-out objection by means of the improved construction hereinafter pointed out.

In the accompanying drawings, Figure 1 is

a horizontal sectional view through our improved ventilator. Fig. 2 is an inner side view of the device. Fig. 3 is a vertical sectional view on the line 3 3 of Fig. 1, and Fig. 4 is a horizontal sectional view of a slightly-modified form of construction.

In carrying out our invention we provide a hood or casing consisting of an outer, preferably curved, side piece 5 and bottom and top pieces 6 and 7, respectively. The hood or casing is divided interiorly by suitable partitions into air-spaces, which are open to the exterior air at opposite ends of the casing and are also open at suitable points within the casing, the latter openings constituting the points from which the air is discharged into the space to be ventilated. In the particular embodiment of our invention shown in Figs. 1 to 3 of the drawings we show the side piece of the casing of outwardly-curved form and the inlet-openings of the casing as disposed at opposite ends thereof, the said openings being indicated by the numerals 8 and 9, respectively. The inner side of the casing is open, and this open side bridges the opening or aperture leading to the space to be ventilated. This aperture may be in a window-sash, in a wall, or may be cut out of a window-pane and the hood made to bridge the opening so formed. Again, in many instances the aperture or opening will be formed in a board or plate adapted to rest on the window-sill below the raised sash, with the window-sash brought down into contact with the upper edge of said board or plate in a well-known manner. The part provided with the opening is designated in the accompanying drawings by the numeral 10 and the opening or aperture thereof by the numeral 11.

Each separate air-passage in the form of construction illustrated in Figs. 1 to 3 is shown as made up of two walls—viz., a wall extending longitudinally of the hood or casing and preferably sigmoidally curved and an inner wall extending transversely of the hood or casing and curved approximately into an arc of a circle with the curvature inwardly, the two inward curves of said latter walls meeting. These curved walls start from the side piece 5 and may be either separate from but secured to said side piece or the construction shown in Fig. 4 may be employed. In this Fig. 4 form of construction instead of providing a single outer side piece 5 the side piece is made up of two sections 5' 5', and



these sections at their inner ends are bent inwardly to form the curved transverse walls. The longitudinal wall of the left-hand passage is indicated by the numeral 12, the corresponding wall of the right-hand passage by the numeral 13, the inner curved transverse wall of the left-hand passage (in both forms of construction) by the numeral 14, and the corresponding wall of the right-hand passage (in both forms of construction) by the numeral 15. The outer ends of the two longitudinal walls are preferably secured to the board or other member to which the hood or casing is applied, and in the drawings we have shown rivets for that purpose and are gradually sloped outwardly toward the outer wall 5. The meeting surfaces of the two inner curved walls are also preferably riveted or secured together in any other desirable manner.

In the use of the device the air is free to enter both ends of the casing and in its progress through the passages is impeded to such an extent as to prevent its entering the room or space to be ventilated with too great rapidity and with great force. This is effected to some extent by the inclining or sloping of the walls 12 and 13 toward the outer wall. In fact, the circuitous passages through which the air is compelled to travel causes the said air to be obstructed and its force broken by contact with different points of the walls forming the passages. The approximate different points of contact of the air in its course through the passages are indicated by the numerals 16, 17, 18, 19, and 19'. It will be seen from the construction described that the force of the air is greatly broken and retarded, and consequently the said air is not only prevented from entering the space to be ventilated with too great force and rapidity, but, furthermore, it is held back or retarded sufficiently to afford the heavy particles, such as dirt and other sediment, an opportunity to settle in the bottom of the casing and prevent it from passing through the opening 11 and entering the space to be ventilated. At the same time a sufficient volume of air for thorough ventilation is admitted.

Our improved device is also preferably so constructed that the dirt and sediment which settles on the bottom of the casing is carried out of the casing by the draft or current of air along the said bottom of the casing. It will be seen from Figs. 2 and 3 of the drawings that the lower edges of the walls or partitions 12, 13, 14, and 15 are raised above the bottom of the casing, so that a clear passage is formed along said bottom, and consequently instead of the dirt or sediment being carried through the opening 11 into the space to be ventilated they are blown by the air draft or current along the bottom of the casing and out of one of the end openings of said casing, in accordance with the direction of the air current or

draft. The raised lower edges of all the several partitions are shown as provided with depending legs 20, having their lower ends turned at right angles and resting upon the bottom, and thereby serving to support the walls or partitions in their raised position.

A screen 21 may, if desired, be placed against the inside of the member against which the ventilator is secured and so positioned as to bridge the opening 11. As this screen is of a common and well-known form of construction, no specific description thereof is deemed necessary.

It will be seen that the outer side piece 5 or side sections 5' 5' form, in connection with the inner walls 14 and 15, the outer walls of the long portions 22 of the air-passages and the reversely-curved portions of the said walls 14 and 15, in conjunction with the oppositely-curved inner ends of the longitudinal walls 12 and 13, form the short passages 23 23, which are in communication with passages 22 at the points 24 24. Therefore under the specific construction shown in the drawings each air-passage may be said to be made up of two portions—viz., the long portion 22, in which the course of the air is inward, and the shorter passage 23, in which the course of the air is outward, but from which latter short passage the air is discharged through the opening or aperture 11 into the room to be ventilated.

While in the accompanying drawings we have shown the transverse walls 14 and 15 as made up of two separate walls, yet we do not wish to be understood as limiting ourselves thereto, inasmuch as a single transverse wall might be employed, the inner end of said wall, which is near the board 10, being split or diverged and curved in opposite directions outwardly beyond the inner ends of the longitudinal walls. We, therefore, wherever separate transverse walls are included in the claims, do not intend thereby to limit ourselves specifically thereto, inasmuch as we would consider the construction just referred to as an obvious modification of two separate transverse walls.

What we claim as our invention is—

1. A ventilator comprising inner and outer longitudinally-extending walls forming an air-inlet passage, and a transversely-disposed wall extended inwardly from the outer wall and across the end of the inner wall and backwardly along the inner side of said inner wall so as to form therewith an outlet-passage for the air.

2. In a ventilator, the combination with a member provided with an opening or passage leading to the space to be ventilated, of a hood or casing having an open inner side bridging the opening of said member, and also provided with top and bottom pieces, an outer wall connecting said top and bottom pieces and forming a closed outer side, an up-



right wall extending longitudinally of the hood or casing from the outer end of the same, and a transverse wall extending from the outer wall, the said longitudinal walls forming an air-inlet passage, and the transverse wall forming a transverse continuation of the air-inlet passage discharging into the passage leading to the space to be ventilated.

3. In a ventilator, the combination with a member provided with an opening or passage leading to the space to be ventilated, of a hood or casing provided with an open inner side bridging the opening or passage of said member, and also provided with top and bottom pieces, an outer wall connecting said top and bottom pieces and forming a closed outer side, longitudinal walls forming an air-inlet passage, and transverse walls extending inwardly from the outer longitudinal wall and at a distance from the ends of the inner longitudinal walls, the said longitudinal walls in conjunction with the outer wall and with the top and bottom pieces forming inwardly-extending passages with their inlet-openings at the outer ends thereof, and the said longitudinal walls in conjunction with the transverse walls and the top and bottom pieces forming transverse passages in continuation of the inwardly-extending passages, the said transverse passages being adapted to discharge into the spaces on the inner sides of the longitudinal walls in position to permit the air to pass through the opening or passage leading to the space to be ventilated.

4. In a ventilator, the combination with a member provided with an opening or passage leading to the space to be ventilated, of a hood or casing having an open inner side bridging the opening or passage of the said member, and also provided with top and bottom pieces and an outer wall connecting said top and bottom pieces and forming a closed outer side, a longitudinal wall forming an air-inlet passage with the outer wall and having its inner end curved inwardly, and a curved transverse wall extending from the outer wall at a distance from the inner wall and outwardly beyond the inner curved end of the inner wall, the said curved transverse wall presenting an air-passage around the end of the inner longitudinal wall discharging into the space to be ventilated.

5. In a ventilator, the combination with a member having an opening or passage leading to the space to be ventilated, of a hood or casing having an open inner side bridging the opening or space of said member, and also having top and bottom pieces and an outer wall connecting said top and bottom pieces and forming a closed outer side, longitudinal walls having their inner ends projected toward the outer wall, and transverse curved walls extending from the outer wall around and beyond the inner ends of the longitudinal walls, the said several walls forming air-

passages leading from the ends of the hood and discharging into the passage leading to the space to be ventilated.

6. In a ventilator, the combination with a member provided with an opening or passage leading to the space to be ventilated, of a hood or casing having an open inner side bridging the opening or passage of said member, and also having top and bottom pieces and an outer wall connecting said top and bottom pieces and forming a closed outer side, longitudinal walls extending inward from the ends of the hood, and transverse walls extending from the outer wall beyond the ends of the longitudinal wall, the said walls being constructed to provide a dust-passage above the bottom of the hood or casing, and the several walls forming air-passages leading from the ends of the hood to the space to be ventilated.

7. In a ventilator, the combination with a member provided with an opening or passage leading to the space to be ventilated, of a hood or casing having an open inner side bridging the opening or passage of the said member, and also having top and bottom pieces, an outer wall connecting said top and bottom pieces and forming a closed outer side, a longitudinal inner wall extending from the end of the hood, and a transverse wall extending from the outer wall beyond the end of the inner longitudinal wall, the outer and inner longitudinal walls forming an air-inlet passage and the transverse wall forming with the longitudinal walls a continuation of the air-inlet passage discharging into the space on the inner side of the inner longitudinal wall.

8. In a ventilator, the combination of a member provided with an opening or passage leading to the space to be ventilated, of a hood or casing having an open inner side bridging the opening or passage leading to the space to be ventilated, and also having top and bottom pieces, an outer wall connecting said top and bottom pieces and forming a closed outer side, a longitudinal wall extending inward from the end of the hood, and a transverse wall extending from the outer wall at a distance from the end of the longitudinal wall, and outwardly beyond the end of said wall, the outer and inner longitudinal walls forming an air-inlet passage, and the transverse wall with the inner longitudinal wall forming an air-passage extending from the end of the inlet-passage and discharging into the space on the inner side of the longitudinal wall to permit the air to escape into the space to be ventilated.

9. A ventilator comprising a casing having an open inner side bridging an opening to the space to be ventilated and provided with open ends, longitudinal walls extending inward from the open ends of the casing, the inner ends of said longitudinal walls being



turned slightly toward the space to be ventilated, and transverse walls extending around the inner ends of the longitudinal walls, the ends of the said walls being turned  
5 away from the space to be ventilated and terminating short of said longitudinal walls between the ends of the same.

10. A ventilator comprising a casing having an outer wall and side openings, walls  
10 forming air-passages, and other walls extending inwardly from said outer wall.

11. A ventilator comprising a casing having an outer wall with rearwardly-extending curved portions, and having side openings,  
15 and walls located in said casing, two of said walls being curved to correspond to the outer wall of said casing, the two others being curved outwardly from the middle of the casing at which point they are connected with  
20 said outer wall.

12. A ventilator comprising a casing having an outer wall with rearwardly-extending

curved portions, and having side openings, and walls located in said casing, two of said walls being curved to correspond to the outer  
25 wall of said casing, the two others being curved outwardly from the middle of the casing at which point they are connected with said outer wall, said central walls being provided with backwardly-turned ends. 30

13. A ventilator comprising a casing having an outer wall and side openings, walls forming air-passages, other walls extending inwardly from said outer wall, and a bottom for said casing, longitudinal dust-passages  
35 being provided between the said bottom and the partitions.

In testimony whereof we affix our signatures in presence of two witnesses.

SCHUYLER C. HODGE.  
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Witnesses:

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