July 1, 1941. C. B. SCHNEIBLE 2,247,891

VENTILATING APPARATUS

Filed July 13, 1939

Fig. 1.

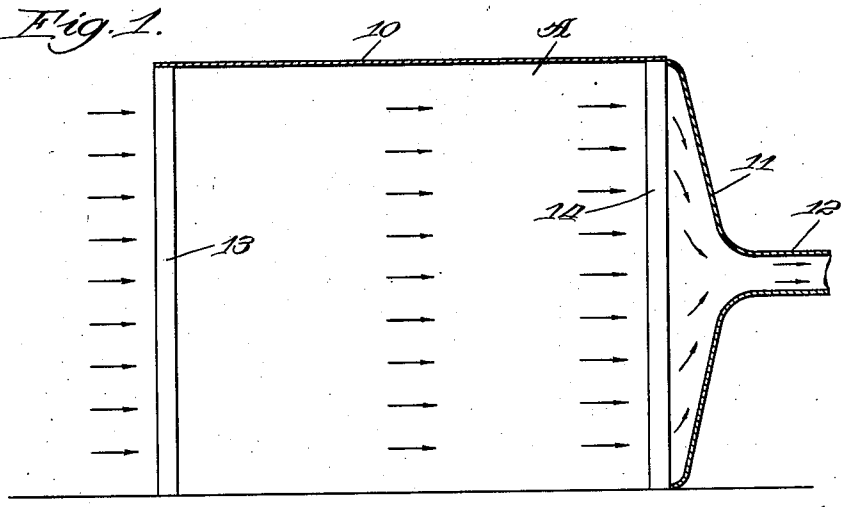



Fig. 2.

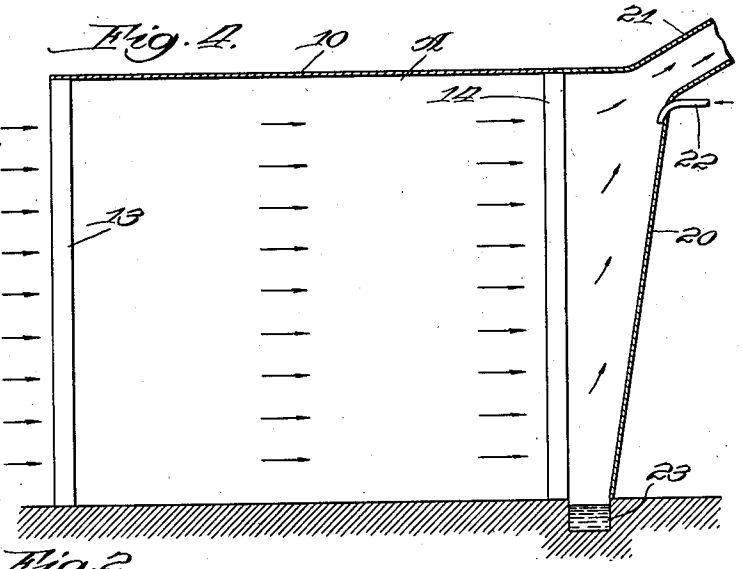



Fig. 3.

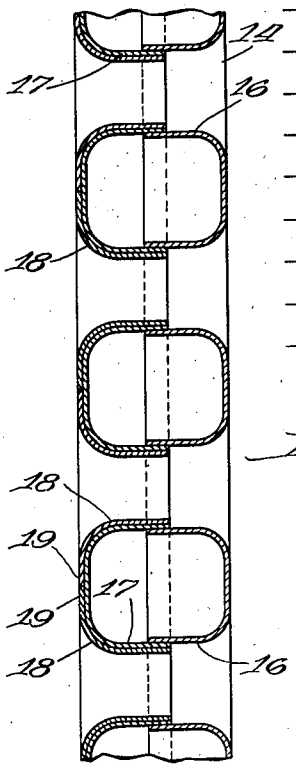
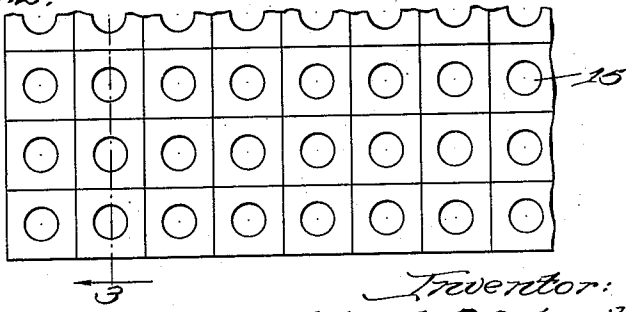



Fig. 2.




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# UNITED STATES PATENT OFFICE

2,247,891

## VENTILATING APPARATUS

Claude B. Schneible, Chicago, Ill.

Application July 13, 1939, Serial No. 284,321

9 Claims. (Cl. 98—115)

This invention relates to ventilating apparatus. It is useful in manufacturing operations, and particularly in rooms or chambers where the removal of fumes, dust, and other undesirable foreign particles or materials is desired.

An object of the invention is to provide a chamber provided with a means for carrying a direct flow of air therethrough with substantially the elimination of eddy currents. A further object is to provide means whereby a chamber is ventilated by direct flow for bringing about the removal of undesirable or injurious fumes, dust, and other foreign particles. A still further object is to provide means for cleansing the walls and other areas of paint, foreign particles, etc. A still further object is to provide means for the protection of specially equipped ventilating walls through which the flow of air and particle- or fume-laden air passes. Other specific objects and advantages will appear as the specification proceeds.

The invention is illustrated, in a preferred embodiment, by the accompanying drawing, in which—

Figure 1 is a longitudinal sectional view of a chamber ventilated in accordance wtih my invention; Fig. 2, a broken plan view of a portion of one of the ventilating walls; Fig. 3, an enlarged detail sectional view, the section being taken as indicated at line 3 of Fig. 2; and Fig. 4, a longitudinal sectional view of a modified form of chamber embodying my invention.

In the illustration given, a chamber A is formed by a casing wall 10 extending under the top and sides and a rear hood casing 11. The hood casing 11 is provided with a drawoff conduit 12 leading to a suitable source of suction. The bottom wall of the chamber is provided by the floor of the building, usually concrete. If desired, a continuation of the casing for forming the floor may be employed. The front end of the chamber is formed by a ventilating wall 13. At the rear of the casing 10 and just in front of the hood 11 is a ventilating wall 14.

Each of the walls 13 and 14 provides a plurality of ventilating openings 15 which are shown uniformly distributed over the wall.

The walls 14 and 13 are preferably formed from a pair of spaced metal sheets, each of the sheets having inwardly drawn tubular portions which form the openings, the tubular portions of the two sheets being held in telescoping relation. For example, in Fig. 3, the wall 14 is provided on its outer side with inwardly drawn tubular nozzles or portions 16. The inner sheet is provided with inwardly drawn tubular portions or nozzles 17. It will be noted that the two tubular members providing the opening 15 are telescopically engaged near their central portions. The two sheets are secured in this relationship by spot welding or other suitable means. It will be noted that the flow of air is not interrupted because the inner tube portion 17 is smaller than the tubular portion 16 and there is presented no obstructing edge.

Since the sweep of air is toward the wall 14, it is desirable to protect the wall as much as possible to prevent the accumulation of obstructing material thereon. For example, in paint spraying operations, the air current carries paint and fumes toward the wall 14 and in time there is built up an obstructing cake over wall 14 reducing the flow passages. The same result is found with other operations in which foreign particles are drawn toward the wall 14. To overcome this, I have found that waxed paper funnels 18 can be drawn into each of the tubular openings, lying over the tubes 17. Each of the funnel members 18 has an inward portion of restricted diameter and an outwardly flared portion 19, the outwardly flared portion being sufficient to prevent the paper members from being drawn through the openings. By this means, it will be seen that the surface of the wall 14 is very well protected by removable elements, the elements providing good protection about each of the openings through which the air is drawn. Thus, after a painting operation, the surface of wall 14 can be readily cleared by jerking the various cups out of position and throwing them away.

In the event that dust or other abrasive particles are being drawn through the wall 14, I may employ, instead of waxed paper funnels, rubber, steel, Bakelite, etc., cups. The rubber cups provide a resilient wall. The removable rubber liners prevent the dust from striking and abrading the metal walls and greatly increase their life. When worn, they can be readily removed and new rubber sleeves 18 substituted.

In the operation of the structure shown in Figs. 1, 2 and 3, the painting, dust forming, or other operation contemplated, is carried on within the chamber or room A. Air is drawn through the pipe 12 so that fresh air enters through the perforated wall 13 and passes out of the wall 14. The paint, dust, fumes, etc., are drawn through the wall 14, and the wall is protected through the use of members 18 which may be resilient for use in connection with abrasive, or have merely paper or other protective inserts in case of paint, etc.

After the operation or at any suitable time, the wall 14 may be cleaned by removing the members 18. In the case of abrasive, the members 18 need not be removed until they have worn to the extent that it is desired to replace them.

While I have shown the ventilating walls 13 and 14 each formed of double sheets with telescoping tubes, it will be understood that a single sheet may be employed with the tubular portions drawn therein.

In the modified structure shown in Fig. 4, the structure is identical with that shown in Fig. 1, except that the hood member 20 is provided with an upwardly flared rear wall communicating with a suction pipe 21. The inclined rear wall 20 is equipped at its top with a plurality of nozzles 22 through which water or other cleansing fluid is flowed to clear the wall. An inclined trough 23 at the bottom of the hood carries away the wash fluid.

While in the foregoing description, I have set forth certain specific details and steps which illustrate a method or structure embodying the invention, it will be understood that such details and steps may be widely varied without departing from the spirit of my invention.

I wish it to be understood that I do not desire to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

I claim:

1. In ventilating apparatus of the class set forth, a casing having an open end and a pipe opposite said open end, said pipe being adapted to be connected to a source of suction, a pair of perforated parallel walls, one of which extends across the open end of said casing and the other across the end of the opposite side of said casing and adjacent said suction pipe, said walls providing between them a working chamber adapted to be ventilated by the passage of air through said perforated walls, and removable shielding means about the openings of said perforated walls.

2. In ventilating apparatus of the character set forth, a casing having an air inlet opening and an outlet opening therein whereby air may pass through said casing, a perforated wall extending across said inlet opening, a second perforated wall extending across said casing adjacent said outlet, and removale guard members having enlarged portions on the inner side of said second wall and having tubular portions extending into the openings of said second-mentioned wall.

3. In ventilating apparatus of the character set forth, a casing equipped with an inlet opening and having an outlet opening whereby air may pass through said casing, a perforated wall extending across said inlet opening, a second perforated wall extending in front of said outlet opening, and funnel-shaped paper guards extending partially through the openings of said second-mentioned wall and having enlarged portions lying against the inner face of said wall.

4. Ventilating apparatus for use with abrasive and the like, comprising a casing having an inlet opening therein for receiving air into the casing and an outlet opening at the opposite side thereof for discharging air from the casing, a perforated wall extending across the said outlet opening and a second perforated wall extending across said outlet opening, and resilient guard members lying against the inner surface of said second-mentioned wall and having tubular portions extending into the openings of said wall.

5. In ventilating apparatus of the class set forth, a casing having an inlet opening, a perforated wall extending across said inlet opening and a second perforated wall at the opposite side of said casing, a hood forming an enclosure to the rear of said second perforated wall and providing a rear upwardly inclined surface, and means for discharging fluid along said inclined surface and for withdrawing the same at the bottom of the hood.

6. In ventilating apparatus of the class set forth, a casing having an open inlet end, a perforated wall extending across said end, a second perforated wall at the opposite end of said casing, a hood behind said second-mentioned wall and providing near its top a suction pipe, said hood having a wall inclining downwardly and inwardly from said suction pipe, a drawoff portion at the lower end of said hood, and means for discharging fluid along said inclined hood wall.

7. In ventilating apparatus, a casing providing a chamber having an inlet and outlet, a perforated wall extending across said outlet, and removable guard cups having portions extending partially through the openings of said wall.

8. In ventilating apparatus of the class set forth, a casing having an inlet opening, a perforated wall extending across said inlet opening and a second perforated wall at the opposite side of said casing, a hood forming an enclosure to the rear of said second-mentioned wall and providing a rear upwardly inclined surface, removable guard cups engaging said second-mentioned perforated wall and having portions extending into openings therein, and means for discharging fluid along said inclined surface and for withdrawing the same.

9. In ventilating apparatus of the class set forth, a casing having an opening inlet end, a perforated wall extending across said end, a second perforated wall at the opposite end of said casing, guard cups engaging openings of at least one of said walls, a hood behind said second-mentioned wall and providing near its top a suction pipe, said hood having a wall inclined downwardly and inwardly from said suction pipe, a drawoff at the lower end of said hood, and means for discharging fluid along said inclined hood wall.

CLAUDE B. SCHNEIBLE.

CERTIFICATE OF CORRECTION.

Patent No. 2,247,891. July 1, 1941.

CLAUDE B. SCHNEIBLE.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1, second column, line 40, for "resiilent" read --resilient--; page 2, first column, line 50, claim 2, for "removale" read --removable--; same page, second column, line 6, claim 4, for the word "outlet" read --inlet--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 23rd day of September, A. D. 1941.

Henry Van Arsdale,
Acting Commissioner of Patents.

(Seal)