March 5, 1929. M. FEIBER 1,704,661

FLOOR VENTILATOR

Filed Dec. 27, 1927 2 Sheets-Sheet 1

Fig. 1.

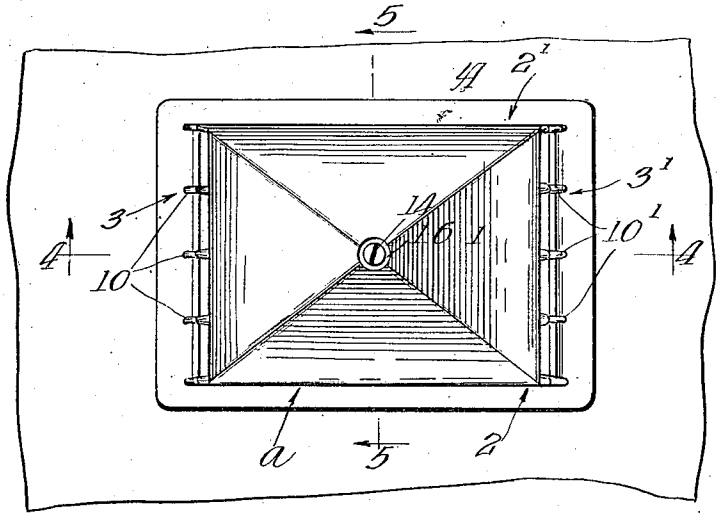
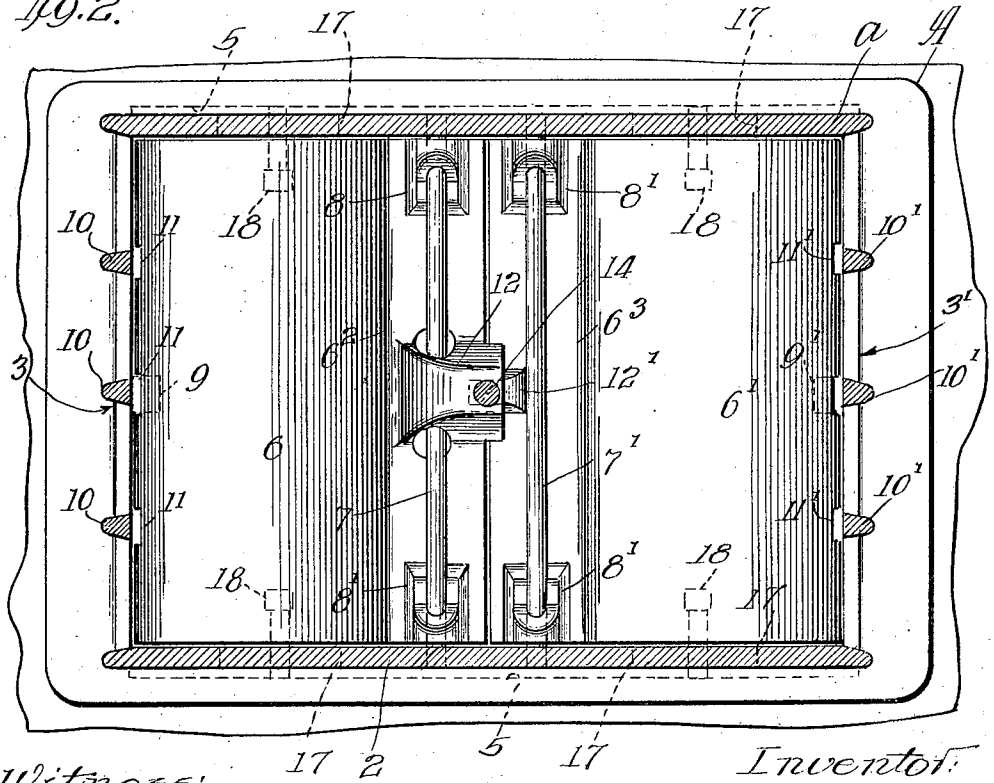


Fig. 2.



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Fig. 3.

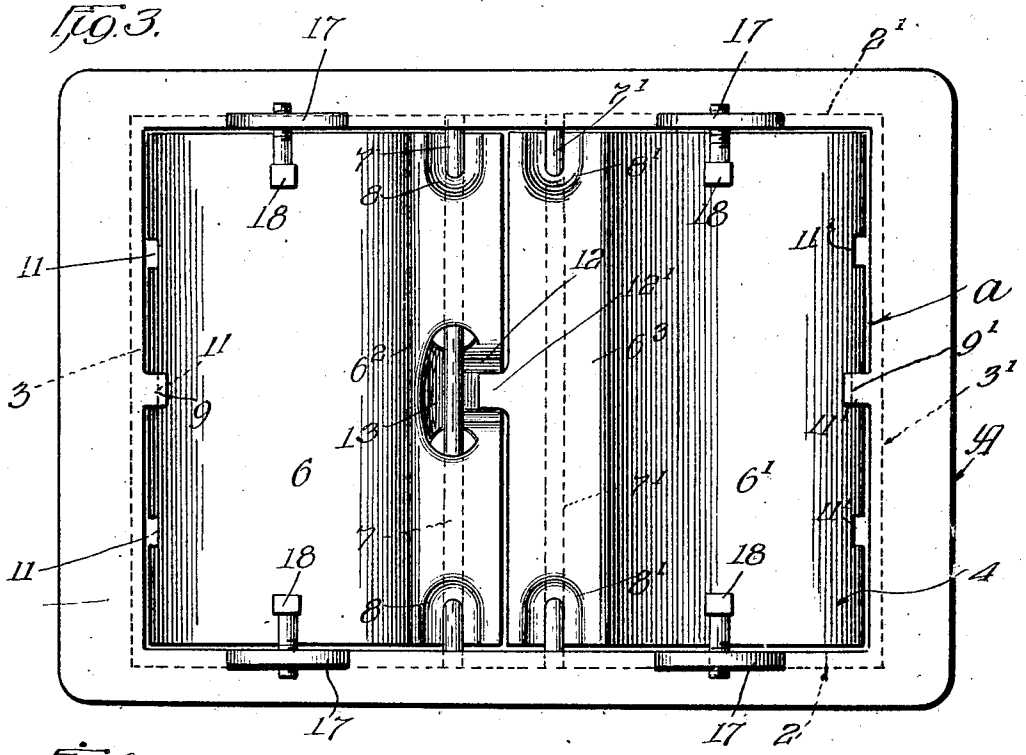


Fig. 4.

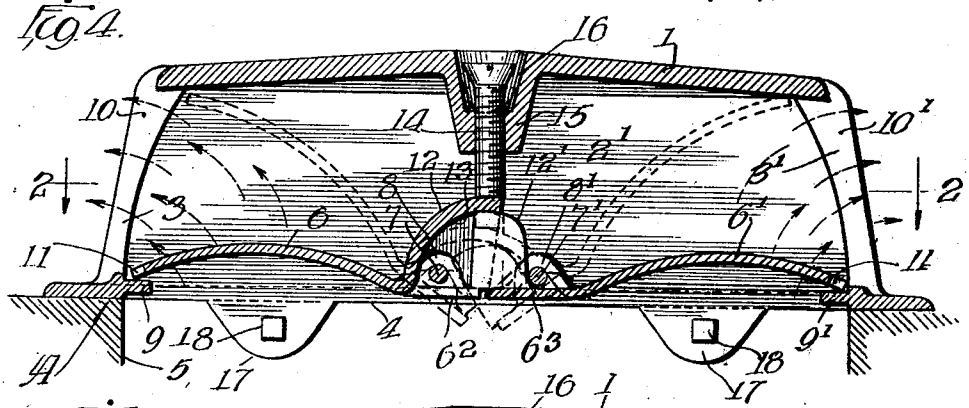
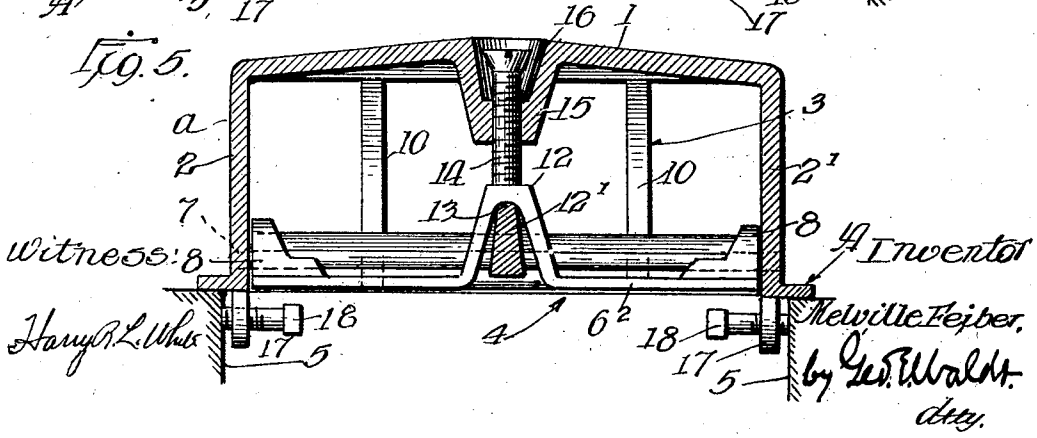


Fig. 5.



Patented Mar. 5, 1929. 1,704,661

UNITED STATES PATENT OFFICE.

MELVILLE FEIBER, OF CHICAGO, ILLINOIS.

FLOOR VENTILATOR.

Application filed December 27, 1927. Serial No. 242,710.

This invention relates to floor ventilators particularly designed and adapted for supplying fresh air to auditoriums, theatres, and other relatively large rooms in which considerable numbers of people congregate, without exposing occupants of the room to drafts of air.

Ventilators of the type to which the present invention relates are usually installed under stationary seats where they will be out of the way and to a large extent concealed.

One object of the invention is to simplify and improve the construction of ventilators of the type specified and to eliminate, as far as practically possible, loose and detachable parts which, by working loose or falling off, are liable to impair the operativeness and efficiency of the ventilator, in whole or in part.

A further object of the invention is to provide improved and simplified means for securing the ventilators in position, whereby they may be installed and removed quickly, conveniently and economically.

Still a further object of the invention is to provide simple means of new and novel construction for opening and closing the dampers which control the air discharge passageways through ventilators of the type specified.

To effect the objects of the invention, my improved ventilator comprises the various features, combinations of features and details of construction hereinafter described and claimed.

In the accompanying drawings, in which my invention is fully illustrated,

Figure 1 is a top plan view of a ventilator embodying my invention and improvements;

Figure 2 is an enlarged sectional plan view thereof on the line 2—2 of Fig. 4;

Figure 3 is an enlarged bottom plan view of the ventilator;

Figure 4 is an enlarged sectional elevation on the line 4—4 of Fig. 1; and

Figure 5 is an enlarged sectional elevation on the line 5—5 of Fig. 1.

Describing my improved ventilator with particular reference to the drawings, said ventilator, designated as a whole A, comprises a body portion or housing *a*, said body portion or housing being hollow and forming a substantially rectangular box-shaped structure, the top 1 and sides 2, 2′, of which are closed, and the ends 3, 3′ and bottom 4 of which are open. In use, the ventilator is adapted to be installed with the bottom opening 4 in communication with the discharge end of a flue, indicated at 5, Figs. 4 and 5, which may be assumed to communicate with an air supply trunk, not shown, in a usual manner.

In ventilators of the type to which my invention relates, the passage of air from the flue 5, through the ventilator and into the room to be ventilated through the open ends 3, 3′ of the body portion or housing *a* of the ventilator, is controlled by dampers 6, 6′, respectively pivoted on rods 7, 7′ the ends of which are secured in the side walls 2, 2′ of said housing. Said rods can be secured in position in a simple manner without the use of separate means, by upsetting the outer ends thereof so that they will be larger than the bearings for said rods.

The dampers 6, 6′ are mounted to turn on their supporting rods by means of bearings formed in lugs or bosses 8, 8′ formed on said dampers through which the rods 7, 7′ extend, said rods being loosely fitted to their respective bearings to insure against binding and sticking of said dampers on said rods.

As shown, the damper supporting rods 7, 7′ extend transversely of the ventilator housing *a*, being positioned at substantially equal distances on opposite sides of the transverse center of said housing and closely adjacent to the bottom of the housing. The closed positions of said dampers are defined by inwardly projecting lugs 9, 9′, formed on the base of the ventilator housing which limit turning movement of the dampers in a direction to close them, to fully closed position.

The main portions of the dampers 6, 6′ which extend over the portions of the bottom openings between their respective pivot bearings and opposite ends of said bottom openings, are preferably arched on a rather long radius whereby the air discharged from said ventilators will be deflected along the floor, thus eliminating currents of air passing upwardly directly from the discharge openings of said ventilators so that they will strike persons occupying seats immediately adjacent to said ventilators.

As shown, the top wall 1 of the ventilator is slightly crowned. As shown, also, bars 10, 10′ connect opposite ends of the top wall 1 of the housing *a* with the base portion thereof, said bars operating both to reinforce and strengthen said housing and also to prevent articles from being placed into the ventilator,

which might tend to obstruct the same and thus prevent the designed operation of the ventilator, either in whole or in part.

As shown, there are three bars at each end of the ventilator housing arranged substantially equal distances apart, but the number may be increased or decreased if desired, or said bars may be omitted entirely.

As shown, also, the inner edges of the bars 10, 10′ preferably extend on the arc of a circle which is substantially concentric with the pivotal axis of the dampers 6, 6′ respectively, and to insure that said bars shall not interfere with pivotal movement of the dampers, said dampers are preferably provided in their free ends with notches 11 positioned in line with said bars and of sufficient size to insure adequate clearance between said bars and the dampers.

The dampers 6, 6′ also comprise portions 6^2, 6^3 which, when the dampers are closed, are adapted to close the portion of the bottom opening 4 of the ventilator between the pivots thereof, said damper sections 6^2, 6^3 terminating short of the transverse center line of the ventilator housing to provide necessary clearance between them.

In accordance with my invention, the dampers 6, 6′ are maintained normally closed by gravity or equivalent means, and are adapted to be turned pivotally to open them by means as follows:—Formed on the dampers 6, 6′ adjacent to their respective pivots, are lugs 12, 12′. Both sides or surfaces of the lug 12 curve upwardly over the space between the pivots of the dampers, the relation being preferably such that when said damper 12 is closed, the end of said lug will extend somewhat beyond a vertical line drawn midway between the pivots of the dampers. The outer end of the lug 12′ on the damper 6′ is positioned and proportioned so that, when both dampers are closed, the outer end of said lug will engage the surface 13 on the lug 12, which, for purposes of convenient reference, will be designated its inner surface, substantially halfway between the pivots of the dampers. With the described construction, it is obvious that depression of the outer end of the lug 12 will impart turning movement to the damper 6 to open the same, and will also depress the lug 12′, which will, in turn, impart turning movement to the valve 6′ to open it.

For the ventilator to operate efficiently, it is important that the turning movement imparted to both dampers shall be through arcs of substantially equal length, and in accordance with my invention, the lugs 12, 12′ will be shaped and proportioned to effect this result.

In any given case, this relation can be ascertained graphically, by means of layouts showing the dampers in fully closed and open positions and in one or more intermediate positions.

In the preferable construction shown, pressure is adapted to be exerted upon the free end of the lug 12 to depress the same and thus to open the dampers by means of a screw 14 having threaded engagement with a hole formed in the lower end of a boss 15 which depends from the inner side of the top wall 1 of the ventilator housing *a* in proper position so that the lower end of the screw 14 will engage the lug 12 at a point substantially halfway between the damper pivots. Obviously, as said adjusting screw is screwed down to depress the end of the lug 12, the end of said screw will slide along the outer surface of said lug towards the pivot of the damper 6, while, at the same time, the end of the lug 12′ will slide along the inner surface 13 of the lug 12, and also towards the pivot of the damper 6.

In the preferable construction shown, the head of the screw 14 is positioned in a recess 16 formed in the outer end of the boss 15, said recess and screw being so proportioned that the outer end of the screw will be enclosed in said recess in all operative positions thereof, from fully open to fully closed position of the dampers 6, 6′, thus effectually eliminating all danger of the clothing of persons and other articles catching on the end of the screw and being torn, as might happen if the end of the screw projected above the top of the ventilator housing.

In accordance with my invention, as it relates to providing improved and simplified means for securing the housing of the ventilator in position with the open bottom thereof in communication with the flue 5, said securing means comprise lugs 17 which depend from the base of the ventilator housing *a* substantially in line with the side walls 2, 2′ thereof, in proper relative positions so that the distances between the outer sides of said lugs will be substantially equal to the corresponding dimension of the flue 5 so that said lugs will enter said flue with slight clearance, and threaded through holes formed in said lugs are set screws 18, the ends of which are adapted to impinge upon and frictionally engage the sides of the flue 5 at points opposite said lugs, respectively.

I claim:

1. In a floor ventilator of the type specified, the combination of a damper pivoted within the housing of the ventilator and adapted to be maintained normally closed by gravity, and means for turning said damper to open it, comprising a lug formed on said damper the outer surface of which is upwardly inclined in a direction away from the free end of the damper and the outer end of which terminates at a distance from the damper pivot and at the opposite side thereof from the free end of the damper, and means for exerting pressure on the free end of said lug to depress it.

2. A floor ventilator as specified in claim 1, in which the means for exerting pressure on the damper turning lug consists of a screw threaded through a hole formed in a wall of the ventilator housing the end of which is adapted to impinge upon said lug adjacent to its outer end.

3. A floor ventilator as specified in claim 1, in which the means for exerting pressure on the damper turning lug consists of a screw threaded through a hole formed in the top wall of the ventilator housing, the free end of which is adapted to impinge upon said lug adjacent to its outer end.

4. A floor ventilator as specified in claim 1, in which the means for exerting pressure on the damper turning lug consists of a screw, a boss on the top wall of the ventilator housing provided with a hole with which said screw has threaded engagement, the end of said screw being adapted to impinge upon the lug on the damper adjacent to its outer end, said boss being provided with a recess outside of the screw-threaded hole therein adapted to enclose the portion of said screw which projects beyond said screw-threaded hole in all operating positions thereof.

5. A floor ventilator as specified in claim 1, in which the means for exerting pressure on the damper turning lug consists of a screw, a boss which depends from the top wall of the ventilator housing provided with a hole in its lower end with which said screw has threaded engagement, the end of said screw being adapted to impinge upon the lug on the damper adjacent to its free end, said boss being provided with a recess in its upper end proportioned to enclose the upper end of said screw in all operating positions thereof.

6. In a floor ventilator of the type specified, the combination of two dampers pivoted within the housing of the ventilator, the pivots of said dampers being spaced apart, lugs formed on said dampers, respectively, which extend over the space between the pivots of said dampers and are in overlapped position in all operating positions, the outer lug comprising outer and inner surfaces which are upwardly inclined away from the pivot of the damper on which it is formed, and the outer end of the inner lug contacting with the inner surface of the outer lug, and means to exert pressure on the outer surface of the outer lug.

7. A floor ventilator as specified in claim 6, in which the pivots of the dampers are positioned at substantially equal distances on opposite sides of the transverse center line of the ventilator housing.

8. A floor ventilator as specified in claim 1, in which the portion of the damper between its pivot and its free end is arched upwards.

In witness that I claim the foregoing as my invention, I affix my signature this 12th day of December, A. D. 1927.

MELVILLE FEIBER.