

Dec. 18, 1928.

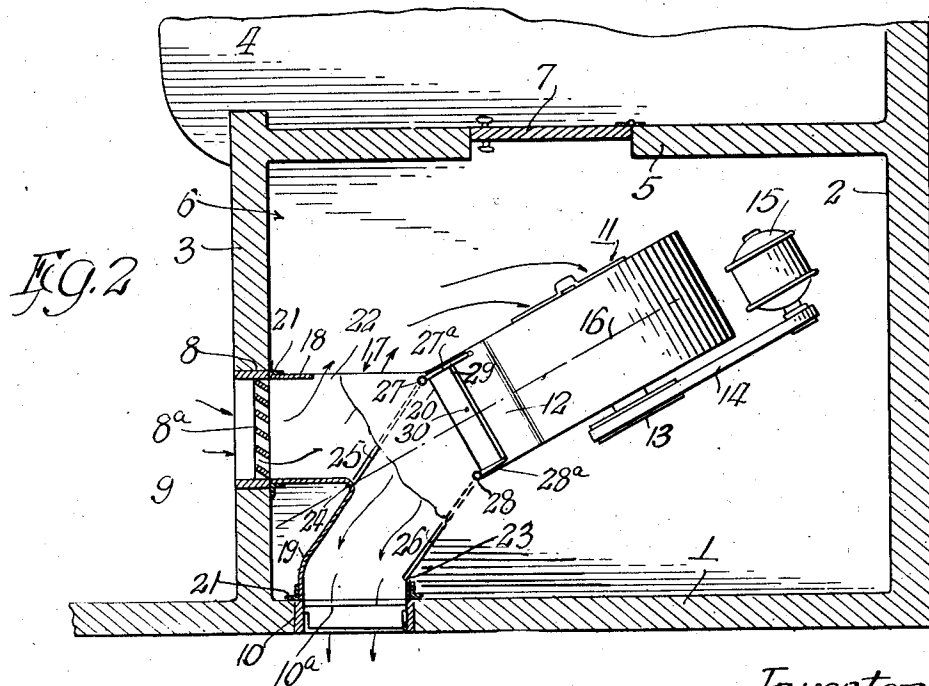
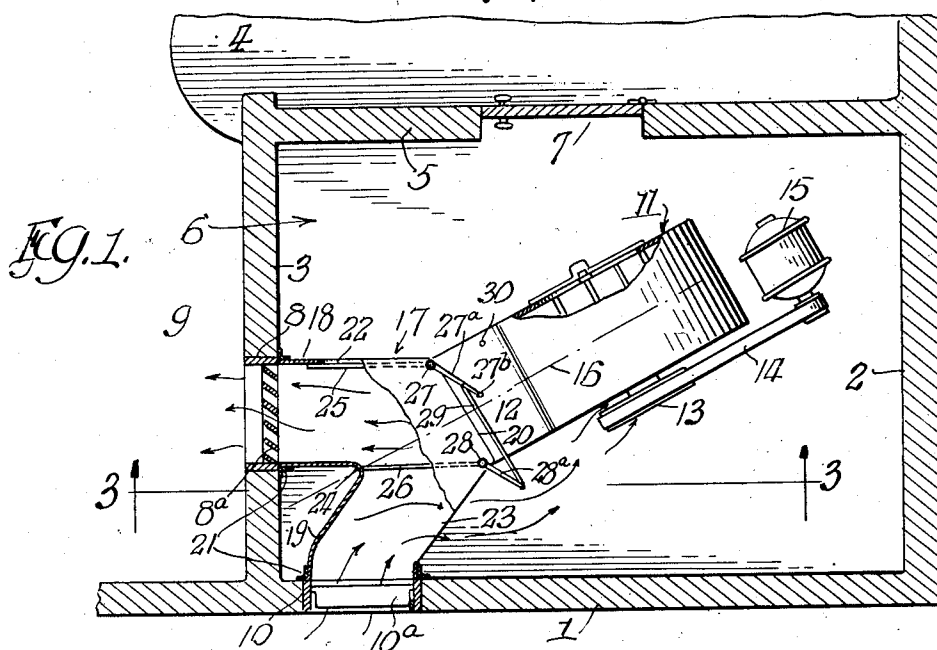
1,695,784

I. C. STERNBERG

VENTILATING APPARATUS

Filed May 27, 1927

2 Sheets-Sheet 1



Inventor
Irving C. Sternberg
by Arthur H. Nelson Atty.

Dec. 18, 1928.

1,695,784

I. C. STERNBERG

VENTILATING APPARATUS

Filed May 27, 1927

2 Sheets-Sheet 2

Fig. 3.

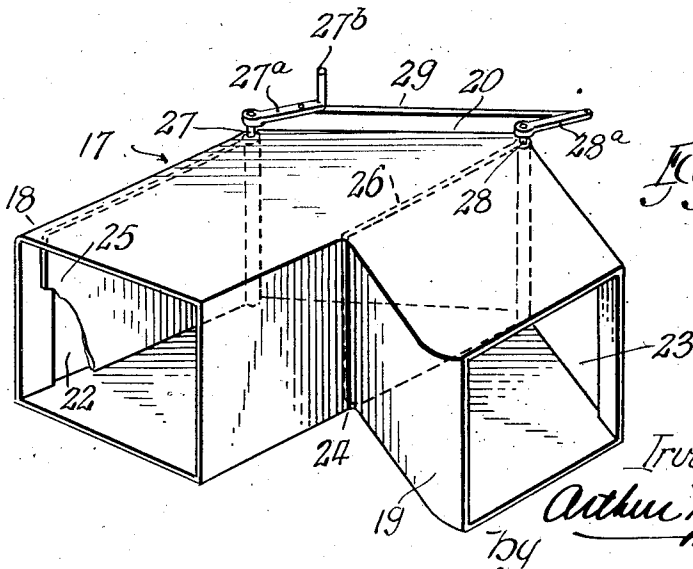
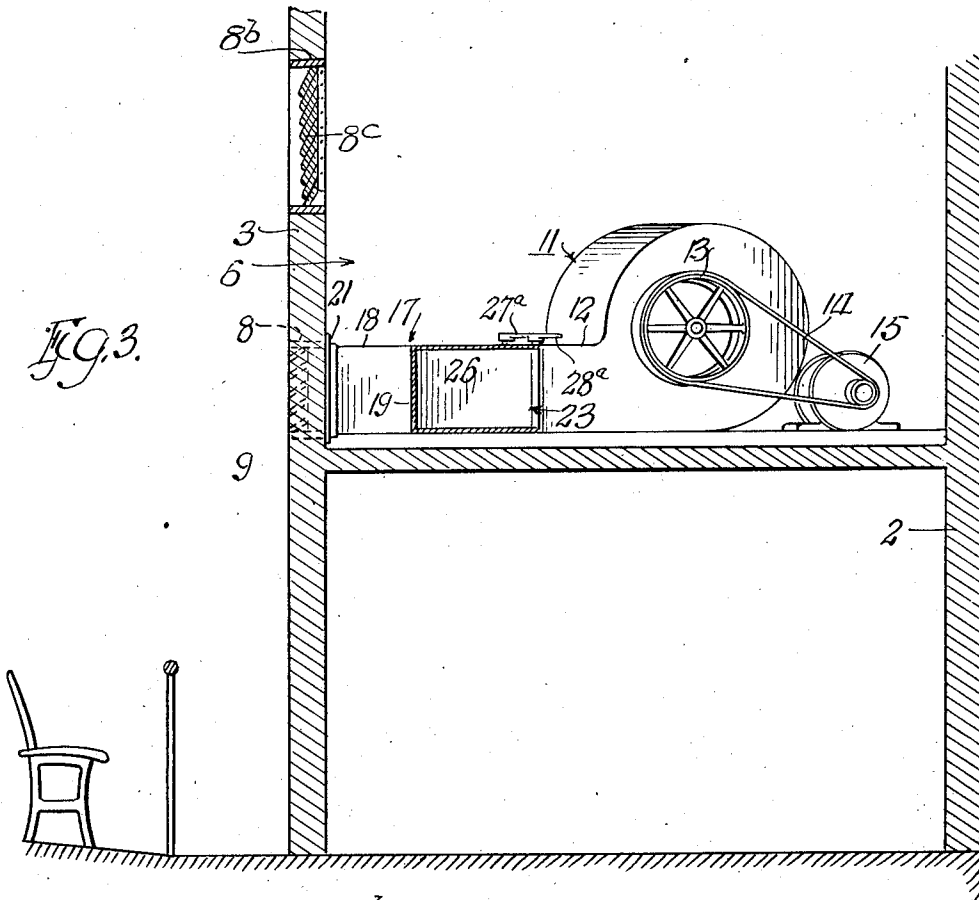


Fig. 4.

Inventor
Irving C. Sternberg
Arthur H. Nelson
Atty.

UNITED STATES PATENT OFFICE.

IRVING C. STERNBERG, OF NEW YORK, N. Y., ASSIGNOR TO ARCTIC NU-AIR CORPORATION, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

VENTILATING APPARATUS.

Application filed May 27, 1927. Serial No. 194,620.

This invention relates to improvements in ventilating apparatus and it consists of the matters hereinafter described and more particularly pointed out in the appended claims.

5 The primary object of the invention is to provide a ventilating apparatus especially adapted for use in theatres, restaurants and other places of public gathering, wherein a plurality of different ventilating actions may be had with one and the same apparatus, as for instance when fresh outside air is desired, or the exhaustion of inside air or even the recirculation of the same.

15 Another object of the invention is to provide a duplex mouth arrangement for the apparatus which opens one into the space to be ventilated and the other to the outside atmosphere respectively, there being a novel damper arrangement therein whereby either mouth opening may be readily connected to the inlet or outlet of the fan casing included in the apparatus.

20 These objects of the invention as well as others, together with the many advantages thereof, will more fully appear as I proceed with my specification.

In the drawings:

30 Fig. 1 is a horizontal plan sectional view through a typical blower room of a theatre in which is embodied the preferred form of my invention.

Fig. 2 is a similar view with certain parts in a changed relation.

35 Fig. 3 is a vertical sectional view as taken on the line 3—3 of Fig. 1.

Fig. 4 is a perspective view of the duplex mouth as it appears when removed from the blower or fan casing.

40 The invention is herein illustrated and will be described as embodied in the ventilating apparatus of a theatre but this is to be considered as by way of illustration only and not by way of limitation because the invention is also applicable for other uses where its peculiar characteristics make it of advantage to do so.

45 Referring now in detail to that embodiment of the invention illustrated in the accompanying drawings, 1 indicates one of the side walls of a theatre building, 2 indicates the rear wall thereof, 3 indicates a wall at the front of the stage 4, and 5 indicates a wall parallel with the side wall and connecting the rear and stage walls. The various walls 50 define a normally closed compartment 6,

which is commonly termed a blower room, at one side of the stage in which the ventilating apparatus is located, access being had to said room from the stage through a door and doorway 7.

60 In the stage wall 3 is provided a rectangular opening 8 connecting the blower room 6 and the auditorium 9 of the theatre and in said opening are provided the usual deflector blades 8^a. In the wall 1 near the stage wall 65 is a second rectangular opening 10 connecting said blower room with the outside atmosphere, there being a plurality of louver like movable dampers 10^a therein to open or close the same. In the stage wall 3 above the opening 8, I provide a second opening 8^b in which 70 is a louver damper arrangement 8^c that may be manipulated from within the blower room to open or close off said opening.

75 In the blower room 6 and suitably arranged on the floor thereof is a blower or fan casing 11 of a well known kind which includes a bottom discharge neck 12 of a rectangular cross section. This casing has the usual air inlets at its sides and the fan thereof is provided with a pulley 13 at one side of the casing 80 driven by a belt 14 from an electric motor 15. The fan casing in this instance is set or arranged at an angle to the plane of any of the walls defining said room and in this instance the longitudinal median plane 85 of the casing as indicated by the dotted line 16 passes through the stage wall at a point midway between the opening 8 and the wall 1.

90 The discharge neck 12 of the fan casing 11 is connected to both openings 8 and 10 respectively by what I term a "duplex discharge mouth" casing indicated as a whole at 17 and best shown in perspective in Fig. 4. This casing which is substantially V-shaped in 95 plan is tubular and includes two legs or portions 18 and 19 respectively, which diverge from a common open rear end 20 of a cross sectional area approximating that of the neck 12 of the fan casing and of substantially the 100 same cross sectional area as either leg 18 or 19. The rear end of the casing is connected in any suitable manner to the neck 12 of the fan casing 11 and as herein shown is directly connected thereto while the discharge legs 105 or portions 18 and 19 respectively are each connected to the walls 3 and 1 about the associated openings 8 and 10 therein by an angle bar 21. Each leg 18 and 19 is open at the far 110 sides as at 22 and 23 respectively, as shown

in Figs. 1 and 2 while the adjacent side walls are closed to form a junction or crotch 24 disposed in the median plane of the fan casing as indicated by the line 16 before referred to.

Means is provided in said duplex discharge mouth casing by which one of said legs 18 or 19 may be continued or connected to the discharge neck 12 and wherein the other neck will be opened or connected to the interior of the blower room and consequently to the inlet openings of the fan casing 11. I find one convenient form of such means to be embodied in a pair of vertically edgewise disposed platelike dampers 25 and 26 respectively each fixed to a vertical axis pin 27 and 28 respectively arranged at the rear end of the duplex mouth casing adjacent the fan casing neck 12. Each damper plate is a length approximating the distance as represented by a straight line between the axis pins 27 and 28 and the crotch 24 and this length is sufficient to close off an associated opening 22—23 in said sides or walls of the duplex mouth casing. On the top end of each axis pin 27 and 28 above the top wall of the casing neck 12 is an arm 27^a—28^a which arms are connected together by a link 29, the arm 27^a having a handle 27^b by which it may be actuated. On the top wall casing neck 12 are provided coacting stops 30 to engage the arm 27^a and thus hold it in either limit of its movement.

Assume that the blower room door 7 is closed and that it is desired to blow fresh outside air into the auditorium. The operation will be as follows. With the louver damper 8^c arranged to close the opening 8^b, the handle 27^b would be grasped and the arm 27^a swung to bring the dampers 25 and 27 into the position shown in Fig. 1 wherein the damper 25 is in a position closing the opening 22 and with the free end of the damper 26 engaged with the crotch 24 so as to expose the opening 23. With the louver damper 10^a in the opening 10, in a position to permit air to pass therethrough, said air will pass into the room and then into the inlet openings of the fan casing. From the fan casing the air is discharged out through the neck 12 into the duplex discharge mouth to be directed by the dampers to the mouth 18 and out through the opening 8 in the stage wall into the auditorium.

Assume that it is desired to exhaust the air from the auditorium. The dampers 27—26 would be moved into the position shown in Fig. 2 and with the fan running, air would be drawn from the auditorium in through the opening 8 to pass through the exposed opening 22 into the fan room. From there it is drawn into the fan casing and discharged out through the neck to be directed by the dampers 25—26 into the leg 19 and out through the opening 10 to atmosphere.

In many cases, when the outside air is extremely cold and the air in the auditorium needs only a recirculation or to be kept in motion, this is brought about as follows. The louver damper 8^c would be opened and the louver damper 10^a in the opening 10 would be closed and the dampers 25—26 would be arranged as in Fig. 1, wherein the leg 18 is connected with the neck 12. With the fan running, air will be drawn into the fan room through the opening 8^b and then pass into the fan casing and then out through the neck 12 to be directed by the dampers 25—26 to the leg 18 and out through the wall opening 8 into the auditorium again. Thus the air in the auditorium is recirculated and reconditioned.

As will be apparent, by my improved structure, I am enabled with one apparatus to provide for either blowing fresh air into the auditorium, exhausting air therefrom or for recirculating the air therein, just as may be desired. My improved apparatus is simple in construction and effective in operation for its intended purpose.

While in describing my invention, I have referred in detail to the form and arrangement of the various parts thereof, the same must be considered as illustrative only, so that I do not wish to be limited thereto except as may be pointed out in the appended claims.

I claim as my invention:

1. In combination with building walls defining a compartment and having apertures therein, one leading to atmosphere and another leading to a room in said building to be ventilated, a blower in said compartment having an inlet and a discharge and means connecting said discharge to either of said apertures, thus bringing the other aperture into the influence of the inlet of said blower.

2. In combination with building walls defining a compartment and having apertures therein, one leading to atmosphere and another leading to a room in said building to be ventilated, there being a third aperture in one of said walls connecting said compartment and room, independently actuated means in said first and third mentioned apertures for controlling the passage of air therethrough, a blower in said compartment having an inlet and a discharge and means capable of connecting said discharge to either said first or second mentioned apertures, said means in said first mentioned aperture closing the said aperture while the third mentioned aperture is opened, thus providing a recirculation of the air in said room through said second and third apertures.

3. In combination with a building wall defining a chamber and having apertures therein, one leading to atmosphere and the other leading to a room to be ventilated, a blower in said chamber having an inlet and a dis-

charge, a casing open at one end and including separate legs, one leading to each of said apertures, and means in said casing for connecting either leg to said discharge and the other to said inlet.

4. In combination with a building wall defining a chamber and having apertures therein, one leading to atmosphere and the other leading to a room to be ventilated, a blower in said chamber having an inlet and a discharge, a casing open at one end and including separate legs, one leading to each of said apertures, each leg having an opening therein, means including a pair of pivoted dampers so arranged as to connect either leg to said discharge and at the same time to uncover the opening in said other leg.

5. In combination with a building wall defining a chamber and having apertures therein, one leading to atmosphere and the other leading to a room to be ventilated, a blower in said chamber having an inlet and a discharge, a casing open at one end and including separate legs, one leading to each of said apertures, each leg having an opening therein, a pair of dampers pivoted near the discharge of said blower and capable of moving in unison to connect one leg to said discharge and to uncover the opening in the other leg.

6. In combination with a building wall defining a chamber and having apertures therein, one leading to atmosphere and the other

leading to a room to be ventilated, a blower in said chamber having an inlet and a discharge, a casing open at one end and including separate legs, one leading to each of said apertures, each leg having an opening therein, a pair of dampers pivoted near the discharge of said blower, means outside the casing for simultaneously moving said dampers to connect one leg to said discharge and to uncover the opening in the other leg.

7. In combination with a blower having an outlet neck, a casing operatively connected at one end to said neck and having a plurality of legs each open at its end and each having an aperture in one of its walls near the first mentioned end and means in said casing capable of being operated to connect either leg to said neck and at the same time to expose the aperture in said wall of the other leg.

8. A casing open at one end and having open ended legs diverging therefrom, said casing having an opening in each side wall near said first mentioned end, and a pair of coacting dampers pivoted at the first mentioned end of the casing and movable to connect either of said legs with said open end of the casing and to expose the opening in the side wall of the other leg.

In testimony whereof, I have hereunto set my hand, this 16th day of May, 1927.

IRVING C. STERNBERG.