

May 21, 1929.

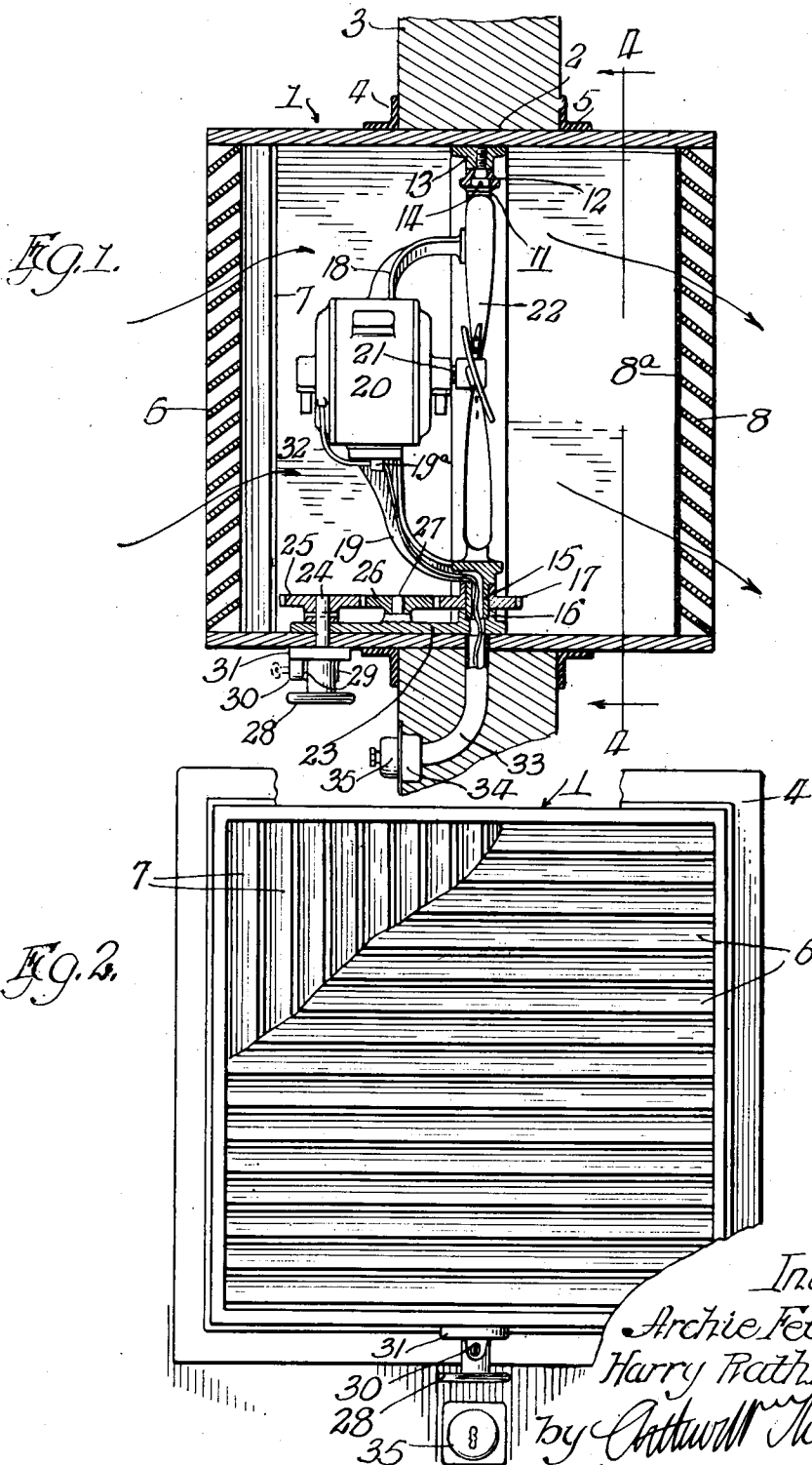
A. FEINBERG ET AL

1,713,648

BLOWER UNIT

Filed Dec. 22, 1926

2 Sheets-Sheet 1



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Fig. 3.

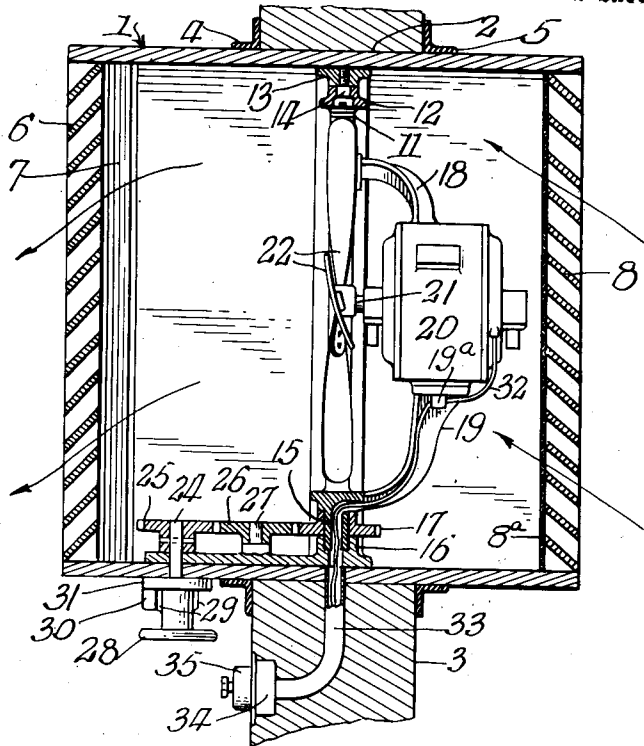
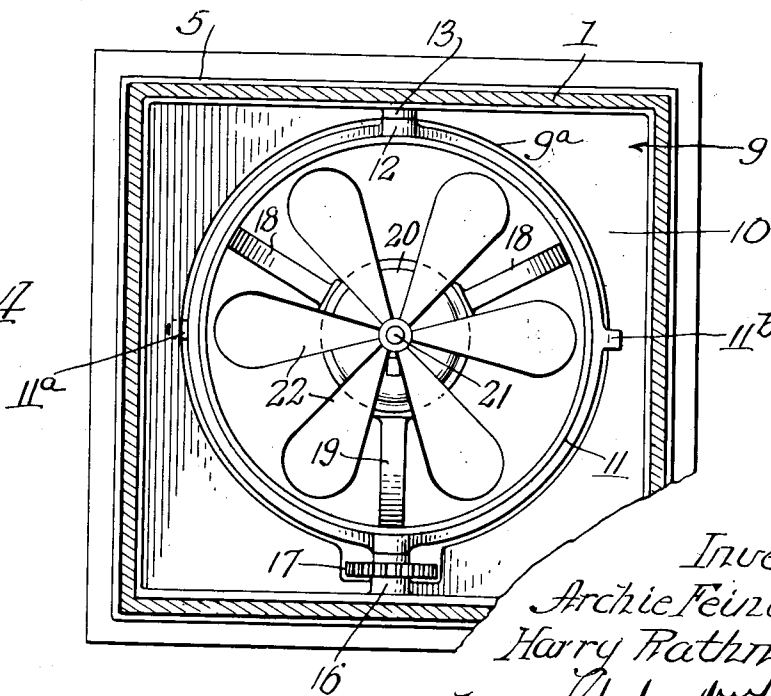


Fig. 4



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UNITED STATES PATENT OFFICE.

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BLOWER UNIT.

Application filed December 22, 1926. Serial No. 156,280.

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

5 The primary object of the invention is to provide a unit complete in itself, ready for installation in an opening in an outside wall of a building and including a rotor which may be manipulated to either blow fresh
10 outside air directly into said building or to exhaust the old stale air from the building and discharge it into outside atmosphere.

Another object of the invention is to provide such a unit which includes a louver
15 ended casing adapted to be positioned in a building wall with a blower rotor and driving motor so arranged in the casing that the rotor may be faced toward either end of the casing to blow fresh air into the building or
20 to exhaust the stale impure air therefrom.

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

25 In the drawings:

Fig. 1 is a longitudinal vertical sectional view of a blower unit embodying the preferred form of our invention.

Fig. 2 is a view in end elevation thereof as
30 viewed from inside of a building.

Fig. 3 is a view similar to Fig. 1 but with some of the parts in a changed relation.

Fig. 4 is a transverse vertical sectional view as taken on the line 4—4 of Fig. 1.

35 Referring now in detail to that embodiment of the invention illustrated in the accompanying drawings, 1 indicates as a whole the casing of our improved blower unit, which is preferably horizontally disposed
40 and is open at both ends. Said casing which is preferably rectangular in cross section, is adapted to be positioned in a correspondingly shaped opening 2 in preferably the outside wall 3 of the building as best shown
45 in Fig. 1. The casing is of an axial depth greater than the thickness of said building wall so that the ends thereof project a suitable distance beyond the inside and outside surfaces of said wall. We find one convenient way to secure the casing in position
50 is to provide spaced inner and outer angle bars 4 and 5 respectively which surround the casing and have one set of flanges secured thereto:—the other set of flanges being fixed

to said building wall. Said angle bars also
55 add a finished appearance and effectively close off the uneven parts of the wall defining said opening. That end of the casing projecting from the inner face of said wall is provided with two sets of louvers, with
60 the louvers 6 of one set arranged horizontally and with the louvers 7 of the other set arranged vertically. The other end of the casing projecting from the outer surface of said wall is provided with but a single set
65 of horizontally arranged louvers 8 which are pitched downwardly and outwardly. Preferably this set of louvers is backed up by a suitable metallic screen 8^a to prevent the entrance of foreign substances within the
70 casing from outside the building wall.

Within the casing midway between its ends is provided a partition wall or plate 9 having a substantially large opening 9^a disposed approximately coaxial with the casing
75 and defined by the web 10 of said partition wall. Preferably when the casing has been set within said wall opening, said partition wall will be arranged in the median plane of said building wall. Within said circular
80 opening in said partition wall is disposed an annular or ring like frame 11 capable of a rotative movement about a vertical axis through at least 180°. At the top of said
85 annular frame is provided an enlarged portion providing a bearing sleeve 12 adapted to engage a similar sleeve 13 on the partition wall; a bolt or pin 14 passing through said sleeves and forming a part of the axis about which said frame 11 may be turned. The
90 diametrically opposite or bottom portion of the ring is provided with a tubular extension or sleeve 15 adapted to bear in an enlarged apertured portion 16 of the partition wall at the bottom thereof to provide the other part
95 of the axis for said annular frame. Fixed to said tubular extension or sleeve 15 of the annular frame is a gear 17 the purpose of which will appear later.

Associated with one side of said annular
100 frame is a plurality of radially disposed and offset spider arms 18 and 19 respectively adapted to engage with and support the casing of an electric motor 20. Preferably the arm 19 is disposed in a vertical plane
105 and leads off and upwardly from the bottom portion of the annular frame and the other arms may be spaced equal arcuate distances

from said arm 19 and from each other. The armature shaft 21 of the motor extends toward the plane of the annular frame and to said armature in said plane is fixed the blades 22 of a fan or rotor which blades may be either of the flat blade or of the bucket type, the flat blade being shown herein for the purpose of simplicity. From the above description it is apparent that the motor and rotor are supported by the annular frame which in itself is so mounted in the casing as to be turned about a vertical axis so that the rotor may be made to face toward either end of the casing, the motor being of such a depth that it may readily swing through the opening in the partition wall 9. On the front and rear sides of the annular frame 11 diametrically opposite each other are laterally extending lugs 11^a—11^b respectively adapted in the turning movement of the frame to engage portions of the partition wall and limit the swinging movement of the frame in either direction to one of 180° only.

Means are provided for turning the frame in one direction or the other from outside the casing and such means is as follows: Integral with the bottom portion of the partition wall 9 and projecting toward the louvers 6 and 7 respectively, is a plate extension 23 suitably fixed to the interior surface of the bottom wall of the casing. Journalled in that end of said plate extension adjacent said louvers is an upright shaft 24 the bottom end of which depends a suitable distance below said bottom wall of the casing. To the top end of said shaft is fixed a gear 25 of the same size as the gear 17, which meshes with another gear 26 journalled on a stud 27 on said plate extension; the gear 26 in turn meshing with the gear 17 fixed on the extension of the frame 11. As best shown in Fig. 4, the partition 9 is cut away at its bottom to accommodate said gear 17. To the bottom end of the shaft 24 is secured a hand wheel 28 the hub of which is formed on diametrically opposite sides to provide parts 29 to coact with a lock 30 depending from a plate 31 fixed to the underside of the bottom wall of the casing as best shown in Figs. 1 and 3. When the lock is unlocked, the hand wheel 28 may be turned and this through the gears 25, 26 and 17 will cause the motor and rotor supporting frame 11 to be turned from one limit to the other as permitted by the lugs 11^a—11^b so that the rotor or fan may be made to face either the set of louvers 8 as shown in Fig. 1 or the sets of louvers 6 and 7 as shown in Fig. 3. When the rotor or fan is in operation and is facing the sets of louvers 6 and 7 fresh air is drawn in through the louvers 8 from outside the building and is blown thru the sets of louvers 6 and 7 which because of being disposed as before described direct such

fresh air toward that part of the interior of the building as is desired. When the rotor or fan faces the louvers 8, stale air is drawn from the interior of the building through the sets of louvers 6 and 7 and is discharged through the louvers 8 to outside atmosphere.

Novel means are provided for supplying the necessary current for the motor which means is unaffected by the turning movement of the annular frame 11. Such means comprises a suitable conductor 32 leading from the rear portion of the motor and under a clip 19^a on the motor supporting arm 19, following said arm downwardly and entering the tubular extension 15 of the frame, which is arranged in the plane of the axis of rotation of said frame. From said tubular extension said conductor passes down through a conduit 33 in the building wall, to a terminal box 34 to be controlled by a switch 35 disposed on the interior surface of the building wall in convenient relation to the hand wheel. By means of this switch the "on" and "off" periods of the motor may be readily controlled. The construction described permits the ready turning of the frame 11 without twisting the conductors, as enough slack is provided therefor and as the frame can be turned only 180° in one direction or the other.

The improved blower unit meets the demand of the smaller theater and other places of public gathering as it is made and assembled complete at the factory and may be readily installed in old buildings by cutting a hole in the wall thereof. In new buildings the hole or opening may be provided as the wall proceeds in the making thereof.

The structure described therefore provides a unit which may be used either as a blower for forcing cool fresh air into the building or as a suction apparatus for withdrawing the stale air from the building. The parts are so arranged that the rotor may be faced in either direction for the purpose just mentioned and then locked in this position against tampering by unauthorized persons.

While in describing our invention we have referred in detail to certain forms and arrangement of the parts thereof, the same is to be considered only as illustrative and we do not wish to be limited thereto except as may be pointed out in the appended claims.

We claim as our invention:—

1. A unit of the kind described embodying therein an open ended casing adapted to be set in a building wall, a partition in said casing having an opening therein, an annular frame mounted in said opening for a turning movement about a vertical axis, a rotor and motor, arms connecting the motor with said annular frame whereby the rotor may be faced toward either end of the cas-

ing, means operable from without the casing for imparting such turning movement to said frame, current conductors for said motor having a portion disposed in the plane of said vertical axis of the frame and following up one of said arms to the motor, and a switch outside the casing operatively connected to said conductors for controlling the passage of current to said motor.

2. A unit of the kind described embodying therein an open ended casing adapted to be set in a building wall, louvers in each end of said casing, a partition in said casing between the ends thereof and having an opening therein, an annular frame disposed in the opening of said partition for a turning movement in either direction about an axis disposed parallel with the plane of said partition and a rotor and motor carried by said frame whereby said rotor may be turned to face toward either end of the casing.

3. A unit of the kind described embodying therein an open ended casing adapted to be set in a building wall, louvers in each end of the casing, a partition in the casing between said louvers and having an opening therein, a frame disposed in said opening for a rotative movement about a vertical axis, a rotor and motor supported by the frame, means outside the casing for imparting turning movement to said frame and means for limiting said turning movement to one approximating 180°.

4. A unit of the kind described embodying therein an open ended casing adapted to be set in a building wall, louvers in each end of the casing, a partition in the casing between said louvers and having an opening therein, a frame disposed in said opening for a rotative movement about a vertical axis, a rotor and motor supported by the frame, means outside the casing for imparting turning movement to said frame, and coacting parts on said partition and frame respectively for limiting the turning move-

ment of the frame in either direction to one approximating 180°.

5. A unit of the kind described embodying therein an open ended casing adapted to be set in a building wall, a member in said casing between the ends thereof and defining an opening, an annular frame mounted in the opening in said member for a turning movement about an axis parallel with said member and a motor and rotor carried by the frame whereby the rotor may be turned to face toward either end of the casing.

6. A unit of the kind described embodying therein an open ended casing adapted to be set in a building wall, a member disposed in said casing between the ends thereof and defining an opening, an annular frame mounted in the opening in said member for rotative movement about an axis parallel with the plane of said member, a rotor and motor supported by said frame, means outside the casing for imparting a turning movement to said frame and means for limiting said turning movement to one approximating 180°.

7. A unit of the kind described embodying therein an open ended casing adapted to be set in a building wall, a partition in said casing and having an opening therein, a frame disposed in said opening for a rotative movement about a vertical axis, a rotor and motor supported by the frame, means outside the casing for imparting a turning movement to said frame, and coacting parts on said partition and frame respectively for limiting the turning movement of the frame in either direction to one approximating 180°.

In testimony whereof, I have hereunto set my hand, this 14th day of December, 1926.

ARCHIE FEINBERG.

In testimony whereof, I have hereunto set my hand, this 18th day of December, 1926.

HARRY RATHNER.