

July 16, 1940.

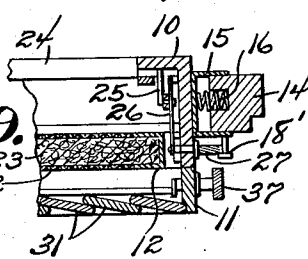
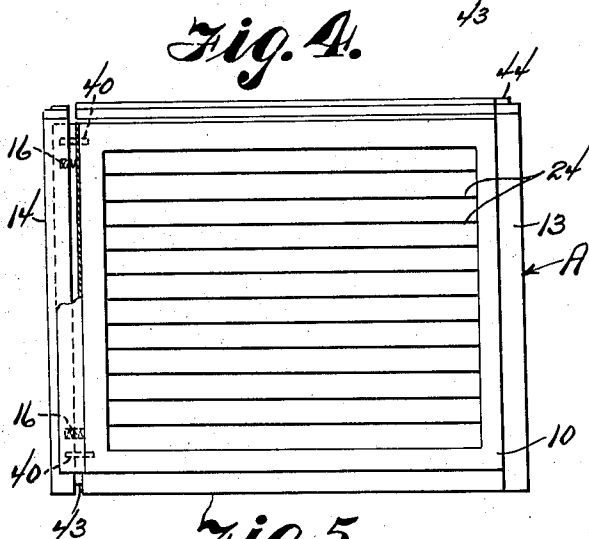
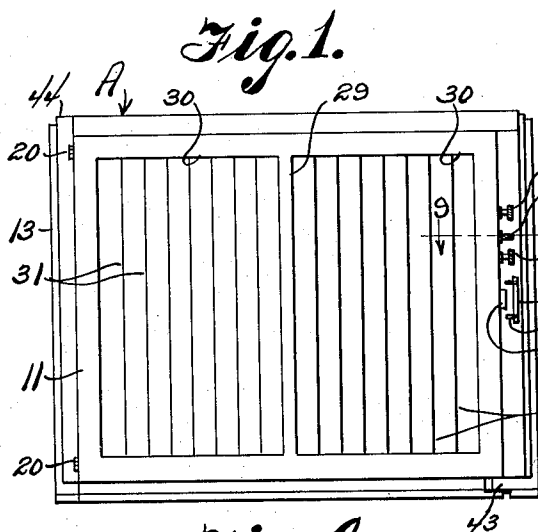
E. M. ANDERSEN

2,207,770

COMBINATION AIR CONDITIONER AND VENTILATOR

Filed Sept. 13, 1939

2 Sheets-Sheet 1



Elmer M. Andersen
INVENTOR
BY Victor J. Evans & Co.
ATTORNEYS

July 16, 1940.

E. M. ANDERSEN

2,207,770

COMBINATION AIR CONDITIONER AND VENTILATOR

Filed Sept. 13, 1939

2 Sheets-Sheet 2

Fig. 10.

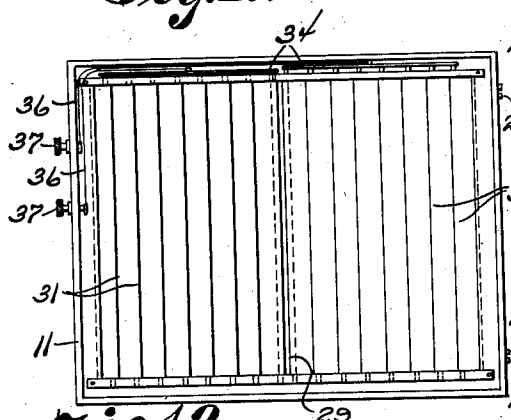


Fig. 11.

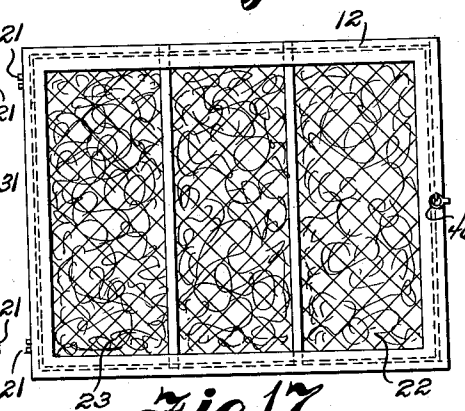


Fig. 12.

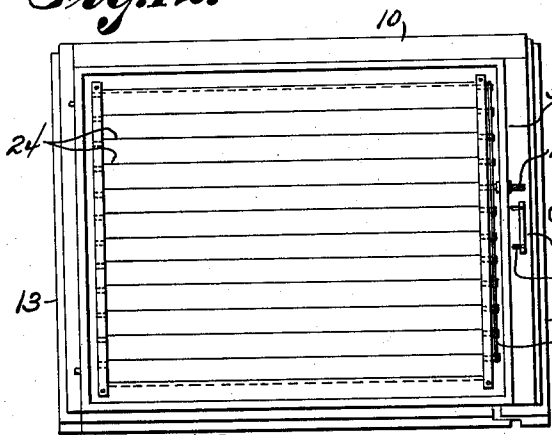


Fig. 17.

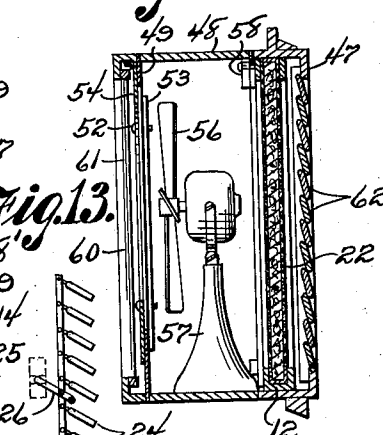


Fig. 16.

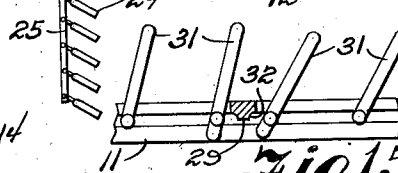
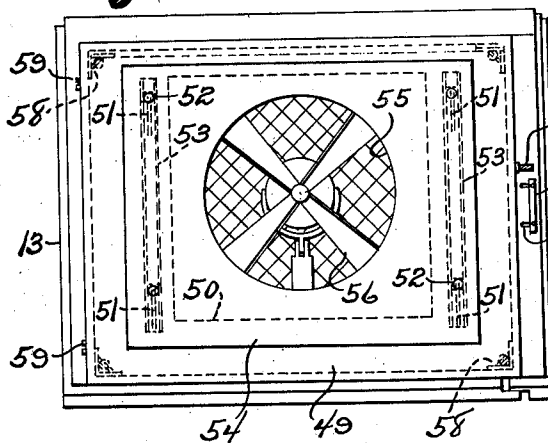


Fig. 15.

Fig. 14.

Elmer M. Andersen

INVENTOR

BY Victor J. Ensmurber

ATTORNEYS

UNITED STATES PATENT OFFICE

2,207,770

COMBINATION AIR CONDITIONER AND VENTILATOR

Elmer M. Andersen, Dallas, Tex.

Application September 13, 1939, Serial No. 294,753

2 Claims. (Cl. 98—94)

The invention relates to an apparatus for filtering, tempering and circulating air and more especially to a combination air conditioner and ventilator for dwellings, offices or other enclosures.

The primary object of the invention is the provision of an apparatus of this character, wherein a filtering pack is removably held in a swinging section interposed between inside and outside louvered sections, the louvers of one being arranged for turning on horizontal axes while the louvers of the other sections are grouped independently of each other, being swingable on vertical axes and are susceptible of manual adjustment for diverting the air from without to within in diversified direction and in this manner the circulation of air can be controlled for ventilating purposes.

Another object of the invention is the provision of an apparatus of this character, wherein the filtering pack is readily removable for replacement purposes and also is readily accessible so that cleaning thereof may be had with dispatch, and this pack when in place for the use of the apparatus will be concealed from view, the air circulating through the said apparatus will be properly filtered for the conditioning of the same.

A further object of the invention is the provision of an apparatus of this character, wherein the construction thereof is such that it can be mounted in a window frame or in a wall for an enclosure and is adaptable for service with a fan of the electric type, the housing for the fan being provided with an adjustable outlet for air passing through the apparatus and drawn into an enclosure from without to within the same, this being desirable where fans of different heights with respect to their stands are used with the apparatus.

A still further object of the invention is the provision of an apparatus of this character, wherein the inside and outside louvers in their relative positions are susceptible of easy manipulation and can be regulated to exclude air from passage through the apparatus or to vary the directional flow of circulation of the air there-through.

A still further object of the invention is the provision of an apparatus of this character, which is comparatively simple in construction, thoroughly reliable and efficient in operation, being regularly cleaned, easy of control, assuring the filtering, and circulation of air from without

to within an enclosure, and inexpensive to manufacture.

With these and other objects in view, the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described in detail, illustrated in the accompanying drawings, which disclose the preferred and modified forms of embodiment of the invention and pointed out in the claims hereunto appended.

In the accompanying drawings:

Figure 1 is a view looking toward the inside face of the apparatus constructed in accordance with the invention.

Figure 2 is an end view thereof.

Figure 3 is a view similar to Figure 2 looking toward the other end.

Figure 4 is a view looking toward the outside face of the apparatus and being partly in section.

Figure 5 is a top plan view.

Figure 6 is a bottom plan view.

Figure 7 is a perspective view of one of the stationary holding strips of the apparatus.

Figure 8 is a perspective view of the adjustable holding strip of said apparatus.

Figure 9 is a sectional view taken on the line 9—9 of Figure 1 looking in the direction of the arrows.

Figure 10 is an elevation looking toward the inner face of the inside louvered section.

Figure 11 is an elevation of the filtering pack carrier.

Figure 12 is an elevation looking toward the inner face of the outside louvered section of the apparatus.

Figure 13 is a diagrammatic side elevation of the louver arrangement and control for the outside section of the apparatus.

Figure 14 is a view similar to Figure 13 of the louver arrangement and control of the inside louvered section.

Figure 15 is an enlarged fragmentary sectional view illustrating another louver adjustment.

Figure 16 is an elevation looking toward the outer side of a modified form of apparatus.

Figure 17 is a vertical sectional view there-through.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawings in detail, particularly Figures 1 to 15, inclusive, A designates generally the apparatus constructed in accordance with the invention and involves an outside frame 10, an inside frame 11 and a filtering pack car-

rier 12, respectively, these frames being formed with open centers. The outside frame 10 at one end is provided with a fixed holding strip 13 while at the other end is a shiftable holding strip 14, the latter working within a channel 15 and is acted upon by coiled springs 16 which urge this strip 14 outwardly of the channel 15. These strips are adapted for engagement between parting strips (not shown) in a window frame (not shown) for the detachable securing of the apparatus A within the latter. The top and bottom edges of this frame 10 are flanged as at 17 and 18, respectively, for the proper fitting of the apparatus with the strips 13 and 14 in the window frame although the said apparatus is adaptable for fitting within a framed opening within an enclosure wall (not shown). The strip 14 is fitted with a handle 18' slidable in slots 19 so as to retract the said strip 14 by hand when it is desired to remove the apparatus from the window frame when being held therein by the strips 13 and 14. This handle 18' is readily accessible at the inner side of the frame 10.

The frame 11 is attached to the frame 10 by side hinges 20 for relative movement thereto. The filtering carrier 12 is adapted for interfitting in the frame 10 and is swingingly connected thereto by hinges 21, the carrier being open at its top and is internally channeled at its bottom and sides for the slidable interfitting therewith of a filtering pack 22, preferably of fibrous oiled filling 23 for catching dust or other sediment, although the said filler may be of glass, wool or fibrous material coated with a sticky material such as petrolatum. The pack is removably insertable through the open top of said carrier, the latter being swingingly supported enables easy access thereto for cleaning purposes of the pack by a vacuum cleaner or other device. The carrier in the interfitting thereof in the frame 10 is held interfitted by a frictional latch or other latching device (not shown).

The frame 10 has arranged at its open center horizontally disposed swingable louvers 24 pivoted about horizontal axes and which in the series thereof through linkage 25 and a lever 26 cooperating therewith are susceptible of manual adjustment by a finger piece 27 of a set screw kind, which operates through a clearance or slot 28 provided in one end of the said frame 10. In this manner the louvers 24 can be readily held in adjusted position for controlling the air flow therebetween and through the apparatus A in the use of the latter. These louvers 24 under adjustment in the closing thereof can be rendered airtight to exclude circulation of air through the apparatus, as is clearly shown in Figure 9 of the drawings.

The frame 11 has its open center divided by a middle vertically disposed dividing piece 29 providing separated openings 30 therein and in these openings are arranged independent groups of vertically disposed horizontally swingable louvers 31. Those louvers 31 of both groups innermost of such groups or next to the strips 29 are adapted to seat within channels 32 in said strips 29 on the closing of both groups of louvers so as to render the openings 30 airtight, as will be apparent from Figure 15 of the drawings. Each group of louvers has each louver therein susceptible of individual adjustment at 33 to regulate one with respect to the other and this adjustment 33 is included with the linkage 34 and turning crank 35, respectively, for the turning of the louvers of each group. Each linkage 34 is actu-

ated by a control 36 including a hand throw knob 37 fitted at one end of the frame 11. Thus the groups of louvers 31 can be adjusted independently of each other and manually by the turning of the knob 37 conveniently located at one end of the frame 11. The frame 11 carries a finger-engaging grip 38 so that it can be conveniently swung for the opening and closing thereof with respect to the frame 10.

The frame 10 at the inner face thereof about the open center of the same is built with a marginal flange 39 and the frame 11 is of a size to match this flange so as to be substantially flush with the other side faces thereof. The frame 11 is equipped with a suitable friction latching device (not shown) so that it can be latched when in closing relation to the section 10.

The vertically disposed louvers 31 in the respective groups enable control under adjustment of such louvers of the directional flow of air through the apparatus A to within an enclosure.

The strip 14 is held against displacement in the channel 15 at the end of the frame 10 by guide pins 40 fitting the said frame and strip as is clearly shown in Figure 4 of the drawings.

The springs 16 are counterseated at 41 in the strip 14, which also has guide wings 42 and 43 thereon for slidable interfitting with the frame 10. The strip 13 has an end extension 44 for matching the top edge portion of the frame 10, the latter being rabbeted at 45.

The carrier is provided with a finger-engaging pull ring 46 so that said carrier can be manually moved outwardly from its interfitted position within the frame 10 and access being had to this carrier when the frame 11 is swung to open position.

The filtering pack 22 in the arrangement of the carrier 12 will be interposed with relation to the louvers 24 and 31 when the carrier interfits the frame 10 and the frame 11 being in closed position thereto so that air passing through the apparatus from without to within an enclosure will flow through the filtering pack 22 for the conditioning of the same. The adjustment of the louvers regulates ventilation through the said apparatus.

In Figures 16 and 17 of the drawings there is shown a modification of the invention wherein the louvered outside frame 47, which in its construction is identical to the frame 10, at the inner side thereof has swingingly connected thereto a box-like body 48 open at the innermost side of the same while at the outermost side is a swinging plate-like door 49 provided with a substantially square shaped opening 50 therein while at opposite sides of this opening are vertically arranged slots 51, these receiving headed nut-carrying bolts or the like fasteners 52 which are engaged in channeled slides or runners 53 disposed against the inner face of the door 49. These bolts 52 are fixed in a plate-like shutter 54 having a central opening 55, the shutter being susceptible of vertical adjustment relative to the door 49 with which it is fitted so that the opening 55 therein can be changed in its position so that it will be in confronting relation to a bladed fan wheel 56 of an electric motor type portable fan 57 which is adapted to be placed within the body 48 for support thereby as is clearly shown in Figure 17 of the drawings. This adjustment of the shutter 54 is for the purpose of promptly locating the opening 55 therein where fans of different heights are used in the apparatus or when it is desired to vary the point of location of

such opening 55 for changing the outlet flow of air from the apparatus in a vertical direction.

The body 48 is detachably bolted or otherwise separably fastened, as at 58, to the frame 47 in a marginally matched relationship thereto. The fan 57 is for circulation of air through the apparatus drawing it in from the front or the outside to within an enclosure.

10 The frame 47 is equipped with a filter carrier and filtering pack identical to the carrier 12 and the pack 22 hereinbefore described.

Hinged at 59 for horizontal swinging movement is the inside louvered frame 60, being identical in construction to the frame 11 although this frame 60 can be entirely dispensed with if found desirable, the louvers thereof being indicated at 61 while the louvers of the frame 47 are indicated at 62, respectively. The door 49 hinged to the body 48 can be opened outwardly to give access to the interior of said body when the frame 60 is eliminated or not used in association with the body 48.

The door 49 can be fastened in a closed position in any suitable manner or by the use of any standard latch of the friction latching type.

The separable frames and body of the apparatus can be weather stripped in any desirable manner, the weather stripping being not shown, so as to effect weathertight joints therebetween.

The door 49 on the body 48 permits easy access to the fan 57 for its removal from this body 48

should the occasion require and this body 48 can be equipped with suitable electrical connections for supplying current to the fan for the operation thereof.

What is claimed is:

1. An apparatus of the kind described comprising a louvered frame, means included in said frame for adjustment of the louvers, means externally of said frame for the fitting thereof within a wall opening, a swingable pack carrier 10 for interfitting said frame and having a releasable filtering pack, a box-like body arranged with said frame for supporting a fan, a door on said body and having an opening therein, and a plate-like open shutter arranged on the door 15 with relation to the opening therein and adjustably supported.

2. An apparatus of the kind described comprising a louvered frame, means included in said frame for adjustment of the louvers, means ex- 20 ternally of said frame for the fitting thereof within a wall opening, a swingable pack carrier for interfitting said frame and having a releasable filtering pack, a box-like body arranged with said frame for supporting a fan, a door on said 25 body and having an opening therein, a plate-like open shutter arranged on the door with relation to the opening therein and adjustably supported, and an adjustable end strip fitted to said frame.

30

ELMER M. ANDERSEN.