April 16, 1946. I. R. DISBRO ET AL 2,398,627

MEANS FOR PURIFYING AIR IN ELEVATOR CARS

Filed Aug. 30, 1944 2 Sheets-Sheet 1

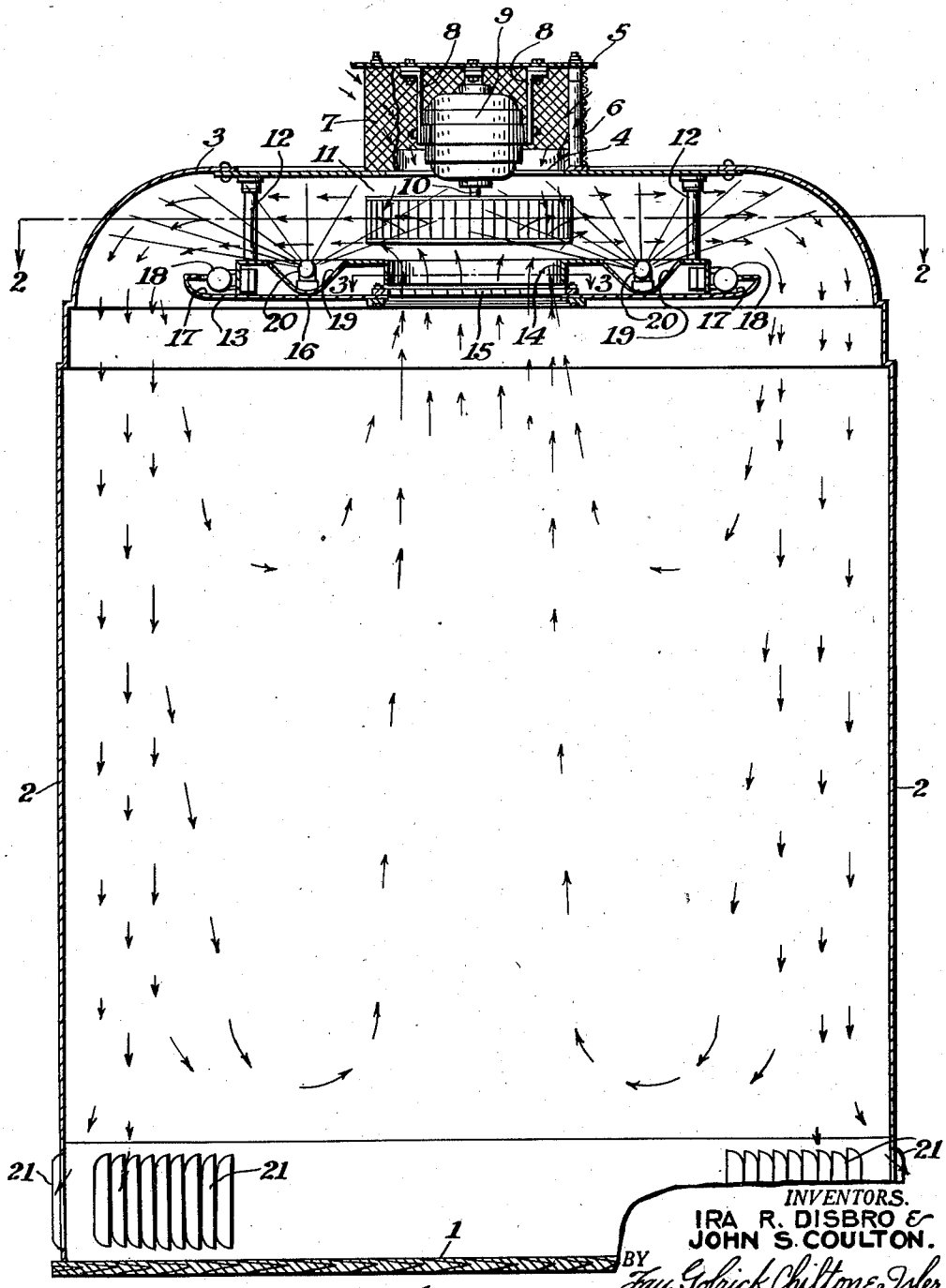


Fig. 1

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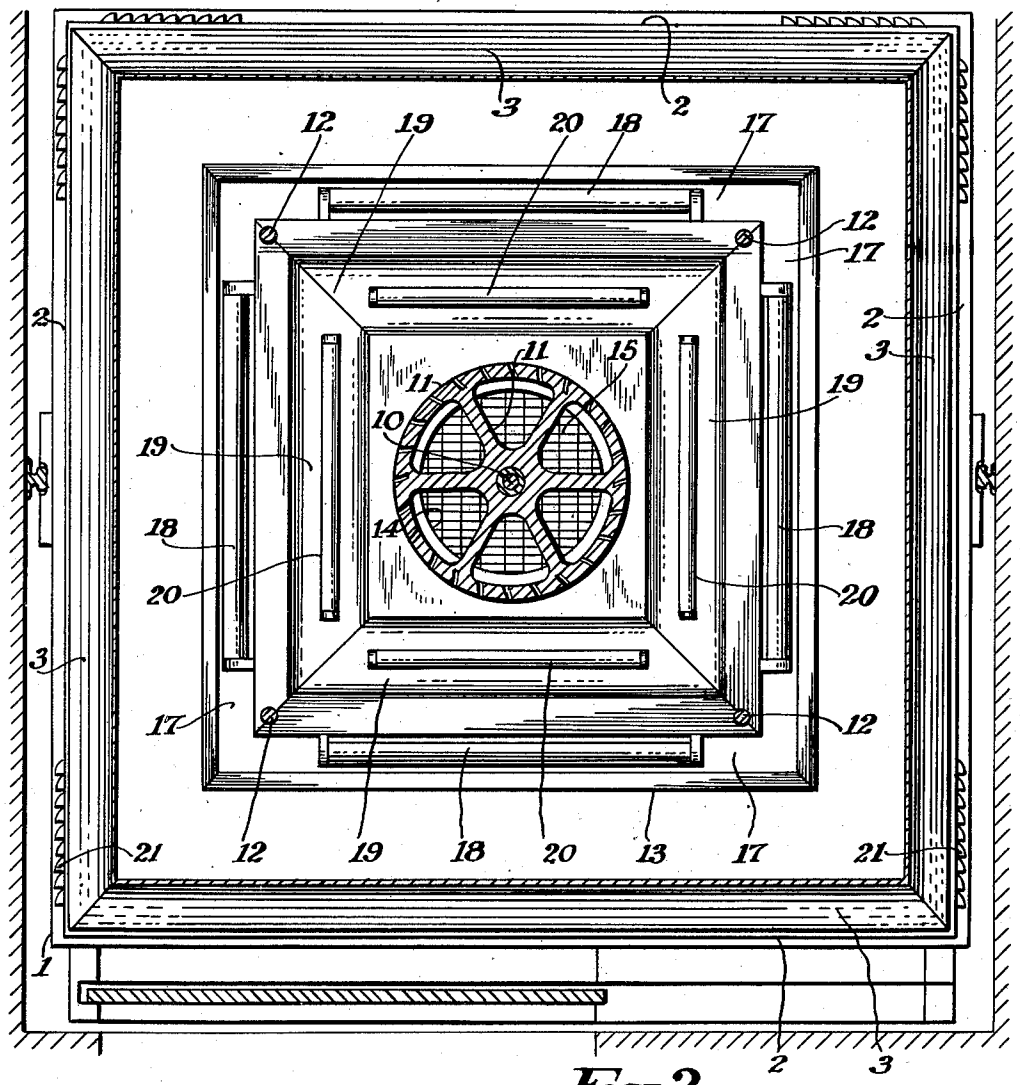


Fig. 2

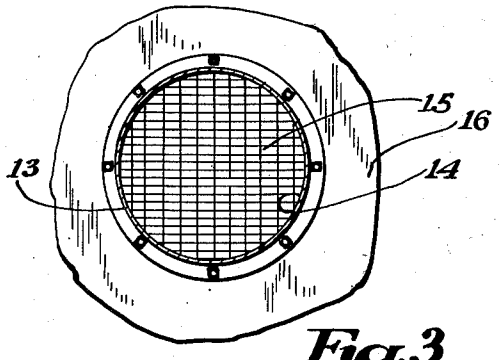


Fig. 3

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2,398,627

MEANS FOR PURIFYING AIR IN ELEVATOR CARS

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Application August 30, 1944, Serial No. 551,795

1 Claim. (Cl. 98—38)

This invention relates, as indicated, to a method of and means for purifying air in elevator cars and the like.

It has been proposed, as in U. S. Patent No. 2,350,389, to ventilate an elevator car by drawing air from the interior of the car and from a point exteriorly of the car, and blowing said air in a horizontal direction at a point below the ceiling or canopy of the car.

The constant recirculation of the air which is in the car, while highly desirable from the standpoint of ventilation, is undesirable from a hygienic standpoint, since such air becomes increasingly germ-laden, particularly during the hours in each day when the elevator car is crowded.

The present invention has as its primary object a method of purifying such recirculated air while retaining all of the benefits of recirculation.

Another object of the invention is to purify such recirculated air in such a manner as to avoid direct exposure of the passengers in the car to the purifying agent.

A further object of the invention is to purify the air in a highly efficient manner, and at a minimum cost, from the standpoint of the purifying equipment required.

A still further object of the invention is to provide purifying equipment which can be easily and inexpensively installed in existing elevator cars, and without requiring extensive redesign or reconstruction of such cars.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawing, forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same,

Fig. 1 is a view, partly in vertical cross-section and partly in elevation, of an elevator car having the novel features of the present invention incorporated therein;

Fig. 2 is a transverse cross-sectional view, taken on the line 2—2 of Fig. 1, and

Fig. 3 is a fragmentary transverse cross-sectional view, taken on the line 3—3 of Fig. 1.

Referring more particularly to the drawing, the elevator car is of conventional design, and comprises a platform 1, walls 2, and a canopy or ceiling 3. The ceiling 3 has a circular opening 4 at the center thereof, and disposed directly above this opening, in spaced relation thereto, is a plate 5, supported by means of tubular spacers 6. Surrounding these spacers is an enclosure 7 of wire mesh or the like.

The plate 5 has secured thereto brackets 8 which serve to support an electric motor 9, the shaft 10 of which extends vertically and has mounted thereon a fan 11 which is preferably of the blower type, as clearly shown in Fig. 2. The fan, it may be noted, is disposed directly below the opening 4 in the ceiling 3 of the car.

Suspended below the ceiling 3 of the car, in spaced relation to the latter, as by means of bolts 12, is a panel 13 of approximately square outline, and having a central opening 14, below which a grill 15 is disposed, the grille being supported by a portion 16 of the panel 13, and being preferably of the type which effectively conceals the blower 11 from the view of the occupants of the car.

The panel 13, it may be noted, is of considerably larger area than the fan 11, and is stamped or shaped to provide a trough 17 around its edges, within which a plurality of fluorescent light bulbs 18 is disposed, such bulbs providing a desirable indirect source of light for illumination of the interior of the car. These bulbs, being disposed adjacent the edges of the panel, are easily accessible for replacement purposes, without removal of the panel.

The panel 13 is also stamped or shaped to provide a rectangular trough 19, the constituent portions of which are substantially parallel to the portions of the trough 17 which they adjoin. Disposed in each of the constituent portions of the trough 19 is a tubular lamp 20. The lamps 20 are germicidal or ultra-violet lamps, of a type which has recently come into use.

The walls 2 of the car have grilles 21 therein, immediately above the platform or floor 1.

When the fan is operated, currents of air will be driven out horizontally by the fan, as indicated by the arrows in Fig. 1, will strike the canopy 3 of the car, and will be deflected downwardly into the car, as is also indicated by arrows. The rush of the driven air away from the blower fan will produce induced air currents, both downwardly through the opening 4 in the ceiling, and upwardly through the grille 15 in the suspended panel 13, this induced air being then blown out horizontally by the fan. Any surplus of air in the car, due to the inrush of air through the ceiling opening 4, is exhausted through the grilles 21.

All of the air which is thus blown horizontally by the fan 9 is subjected to irradiation by the germicidal lamps 20, as indicated by the rays emanating from these lamps in Fig. 1, the trough 19 being so designed as to provide reflective sur-

face which aid in a proper distribution of the rays from such lamps. In this way, all of the recirculated air is constantly being purified without, in any way, interfering with the ventilation of the car. Moreover, since the germicidal lamps are disposed above the suspended panel and spaced well inwardly of both the outer edges of the panel as well as from the edges of the opening 14, the recirculated air is purified without direct exposure of the passengers in the car to the ultra-violet rays from the germicidal lamps.

It will be readily seen that the air in the car is purified in a highly efficient manner and at a minimum cost, since the suspended panel serves a number of distinct functions, and duplication of parts is avoided.

The germicidal lamps can be easily and inexpensively installed, even in existing or old types of elevator cars, and without requiring extensive redesign or reconstruction of the cars.

It is to be understood that the form of our invention, herewith shown and described, is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to, without departing from the spirit of our invention, or the scope of the subjoined claim.

Having thus described our invention, we claim:

In an elevator car including a ceiling, means forming a panel beneath said ceiling, said panel having an opening in the central part thereof for the passage of air therethrough, outer edges of said panel being spaced from the side walls of said car for forming air passages therebetween; an air impelling means disposed intermediate the ceiling and panel and in registry with said opening in the panel for causing air to flow intermediate the ceiling and said panel, said panel having trough-like portions that substantially surround the central portion of the panel and which portions are disposed intermediate the periphery of said air impelling means and said outer edges of said panel; and germicidal lamps disposed in said trough-like portions, said lamps being disposed below the upper surface of said panel.

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