June 9, 1936. F. ACKERMAN 2,043,278

METHOD FOR CLEANING TELEPHONE SWITCHBOARDS

Filed March 16, 1934

FIG. 3.

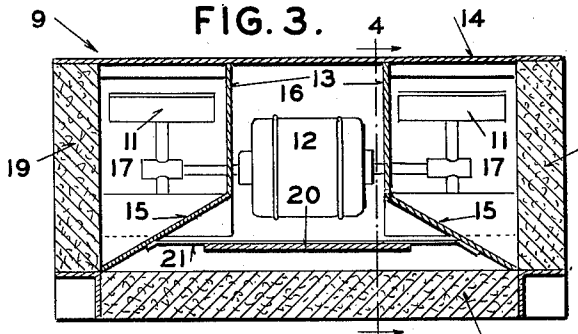


FIG. 1.

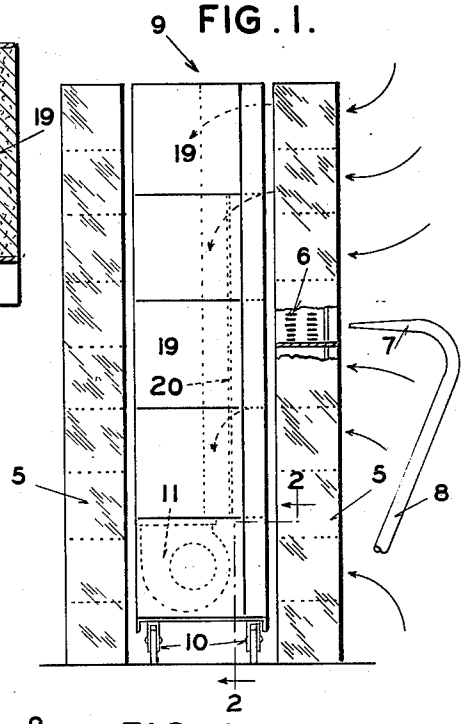


FIG. 2.

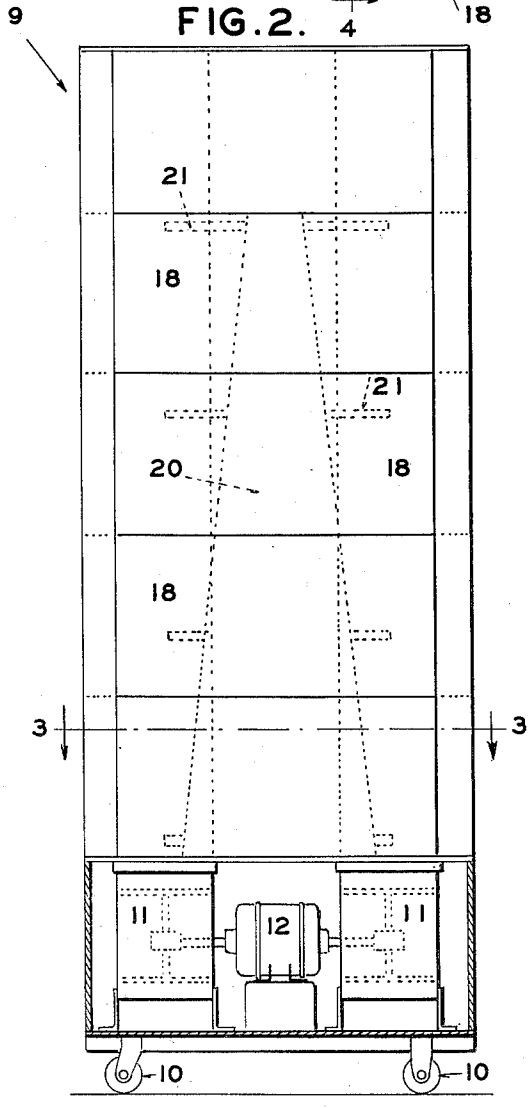
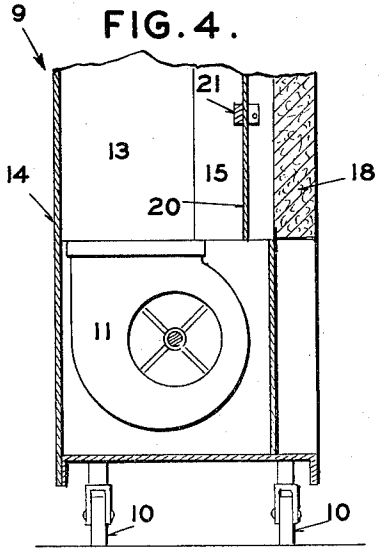


FIG. 4.



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METHOD FOR CLEANING TELEPHONE SWITCHBOARDS

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1 Claim. (Cl. 15—269)

Telephone switchboards are provided with numerous minute and delicate contacts by means of which the desired circuits are established. Particles of dust collect on these contacts, interfering with their proper functioning and resulting in noisy telephone operation.

It is the object of my invention to provide effective means for removing dust particles from such telephone contacts and collecting the dust so as to prevent its re-deposit upon the same or other contacts.

In the accompanying drawing, which illustrates one form of apparatus for carrying out my invention, Figure 1 is an end elevation of a pair of switchboards to which my apparatus is applied; Figure 2 is a front view of the dust collector, partly in elevation and partly in section on the line 2—2 of Figure 1; Figure 3 is a section taken on the line 3—3 of Figure 2; and Figure 4 is a section taken on the line 4—4 of Figure 3.

In Figure 1 of the drawing I have shown two telephone switchboards 5 of the automatic type. This type of switchboard is provided with various styles of automatic switch devices conventionally illustrated at 6, the switchboard being open both at the front and the rear to give access to the switches. This construction also permits the use of an air blast nozzle 7 for detaching particles of dust from the switch contacts. The nozzle 7 is connected by a flexible hose 8 with a high pressure air supply (not shown). Switchboards of this type are usually spaced about two feet apart to permit inspection of the switches. This spacing provides room for a portable dust collector, such as is used in conjunction with the air blast nozzle in carrying out my invention.

The dust collector consists of a housing 9 mounted on casters 10 so as to be readily moved between a pair of switchboards 5. Situated in the lower end of the housing are a pair of suction fans 11 which are driven by an electric motor 12 positioned between them. The housing which extends to the top of the switchboards 5, is divided by partition walls 13, perpendicular to the backs 14, and inclined walls 15 into a central air passage 16, approximately T-shaped in cross section, and a pair of lateral air passages 17. The front face of the passage 16 is covered with porous filtering material 18, and the outer sides of the passages 17, that is the ends of the housing, are covered by similar porous filtering material 19: The filters 18 and 19 may each be formed of a single sheet of material. However, on account of the height of the device which in practice is between eleven and twelve feet, I prefer to apply the filters in sections, as shown in the drawing. The action of the fans 11 is to draw air down through the central passage 16 and discharge it upwardly into the lateral passages 17. The air withdrawn from the passage 16 is replaced by external atmosphere which can only enter through the filter 18. As a result of this, a strong suction is produced over the entire front face of the filter 18. To equalize this suction throughout the area of the filter, I provide a baffle plate 20 positioned adjacent to but out of contact with the inner face of the filter 18. This plate is tapering in form, as shown in Figure 2, and extends from the bottom of the filter to a point near the top thereof. The baffle plate is supported by cross-bars 21 having their ends secured to the inclined partition walls 15. Without the use of the baffle plate the suction would be greater at the lower part of the filter adjacent the fans.

In carrying out my method of cleaning telephone switchboards or panels, as they are usually designated, the dust collector is positioned adjacent one face of the panel, as shown in Figure 1, to establish a suction zone adjacent the panel equal in area to the filter 18. This suction zone is indicated by curved arrows in Figure 1 of the drawing. Dust is now dislodged from the switch contacts by means of a high pressure jet of air delivered from the nozzle 7 manipulated by a workman at the opposite side of the panel. The dislodged dust being in the suction zone is carried to the filter, this action being assisted by the dislodging jet itself which, as it is operated at the opposite side of the panel, discharges air in the same general direction as the currents of air forming the suction zone. The dust carried by these air currents is deposited either upon the face of the filter 18 or are imbedded in its substance. The air drawn from behind the filter 18 is directed upwardly through the passages 17 and returned to the external atmosphere through the filters 19. The object of the filters 19 is twofold; first, to remove particles of dust which may have penetrated the filter 18; and second, to secure a relatively gentle discharge of air over a considerable area, thus avoiding violent disturbance of air in the room containing the panels such as would result from a direct discharge of air from the fans into the room. After an area of the panel equal to that of the filter 18 has been cleaned, the collector is moved forward a distance equal to the width of said filter and the operation is repeated.

Having fully described my invention, what I

claim as new and desire to secure by Letters Patent of the United States is:

The method of dislodging dust from the contact surfaces of switches of a telephone switch panel of the type in which the spaces adjacent the switches are in communication with the air of the room containing the panel and preventing redeposit of said dust on said switches, which comprises dislodging the dust from the contact surfaces of the switches by manipulating a jet of high velocity air against said contacts and simultaneously acting upon a portion of the air of the room to maintain an unconfined zone of air currents of relatively low velocity embracing the contacts being operated upon and of sufficient area that no dislodged dust particles are projected out of said zone by the high velocity jet and said dust particles are conveyed by the air currents of said low velocity zone, and directing the air of the low velocity currents away from the switch panel.

FRANK ACKERMAN.