

Sept. 7, 1937.

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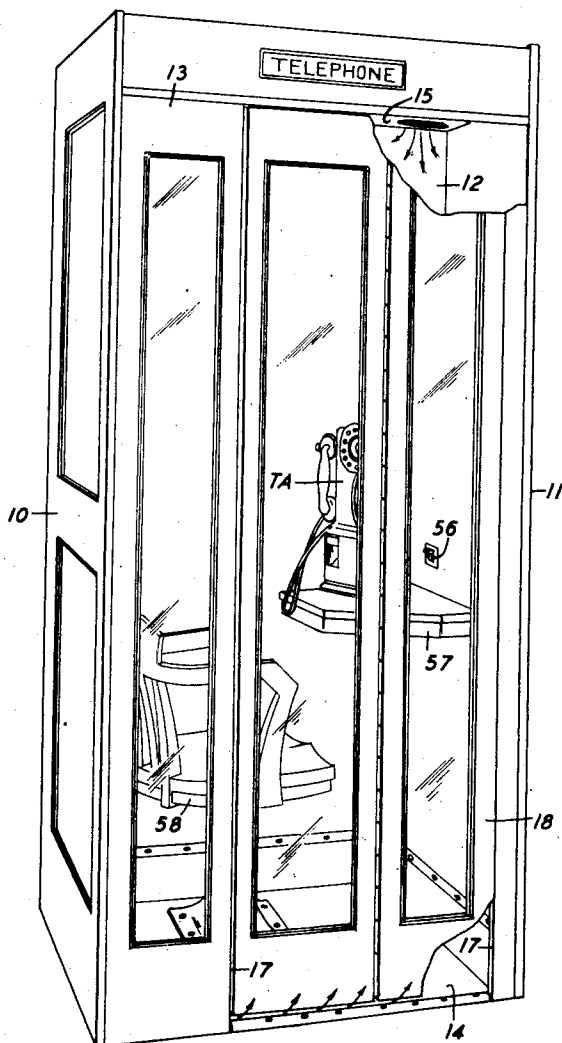
2,092,509

TELEPHONE BOOTH

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3 Sheets-Sheet 1

FIG. 1



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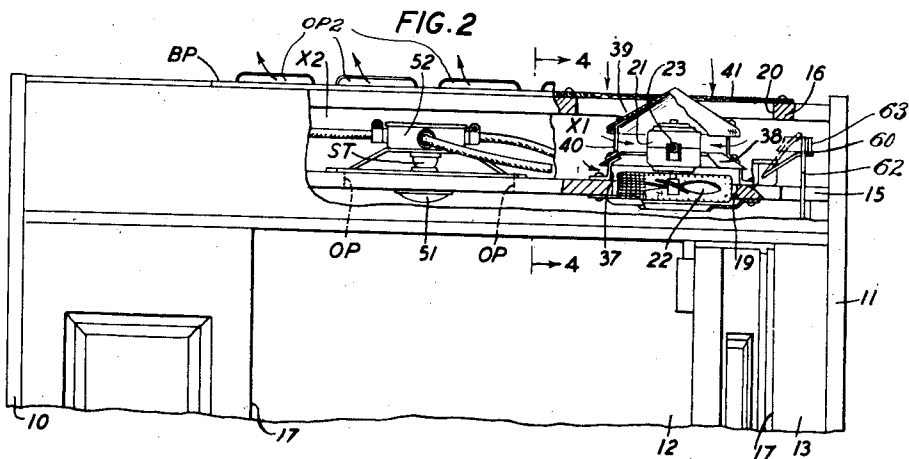
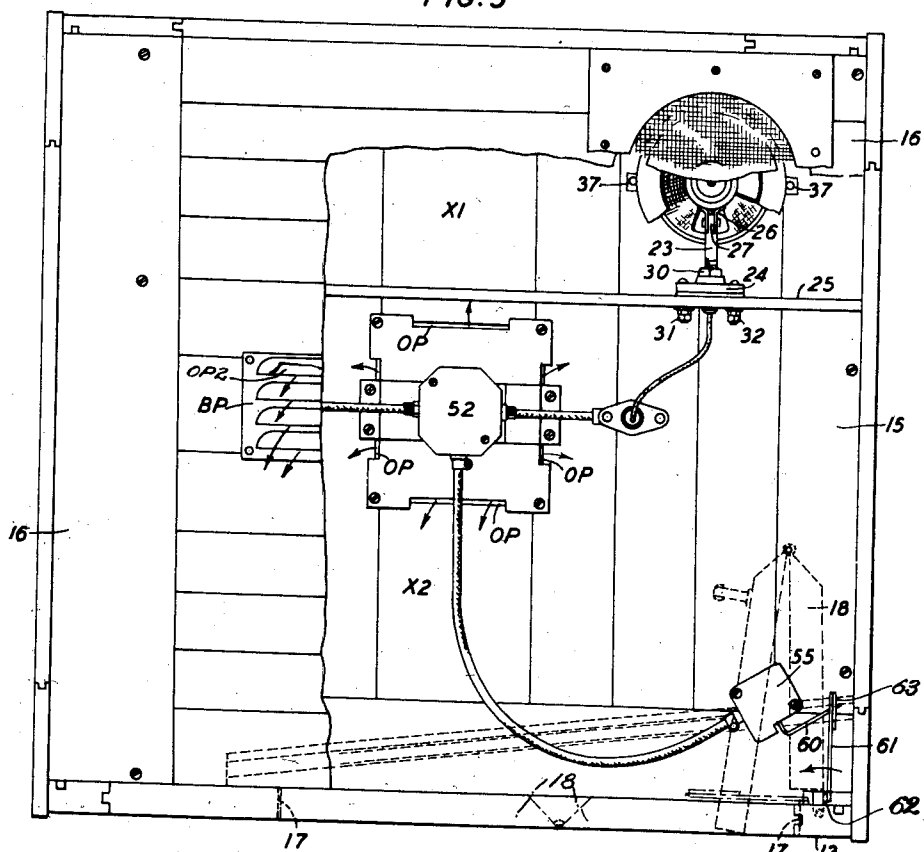


FIG. 3



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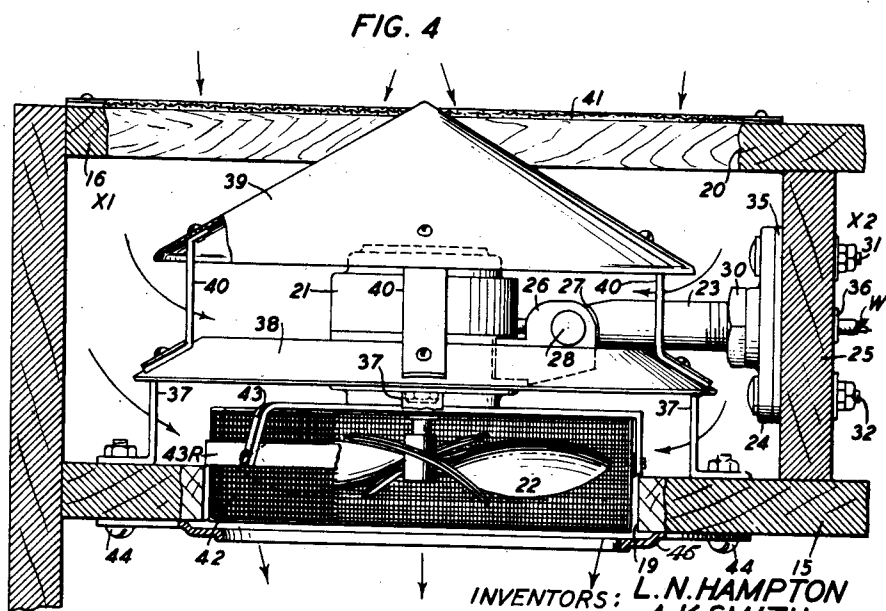
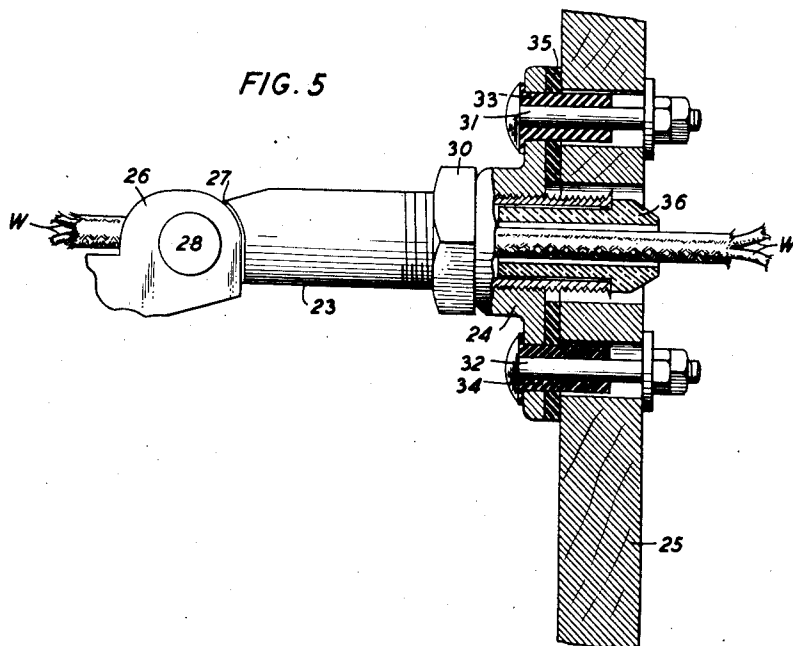
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TELEPHONE BOOTH

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

2,092,509

TELEPHONE BOOTH

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3 Claims. (Cl. 98—33)

This invention relates to telephone booths and more specifically to a power ventilating system for use in such a booth.

Heretofore attempts have been made to ventilate telephone booths by mounting an ordinary fan on a wall in the interior of the booth for stirring the normally static air in the booth or by mounting the fan in a manner to generate a current of air exhausting in a conduit-like opening in the space between the ceiling and the roof of the booth, the air entering the booth from the space around the door and its supporting frame and an opening between the base of the booth and the lower edge of the door.

Ventilating systems of this type have been found inefficient owing to the air resistance afforded by such necessarily limited inlet paths and the fact that too great a percentage of the air entered the booth from points too high with respect to the general location of the telephone apparatus as to be effective for ventilating purposes. Such ventilating systems have been found to require a fan capable of circulating a great volume of air with the consequent waste of power and objectionable noises generated by the vibration of a necessarily high powered motor for actuating the fan wheel. Furthermore, in ventilating systems where the air is permitted to enter the booth from the space between the bottom of the door and the floor for ventilating purposes, the applicants discovered that the occupant was supplied with vitiated air including such heavier gases, such as CO₂ and CO that may be in the proximity of the booth.

The object of this invention is to provide an improved ventilating system for telephone booths, which is free from the above-mentioned objections.

According to this invention the ceiling of the booth is provided with openings for mounting a fan and a lighting fixture, the latter having apertured plates forming a path for exhausting the air from the booth in cooperation with another exhausting air path formed at the bottom of the door and the booth base, thus avoiding the drawing of vitiated air of the order above-mentioned in the booth. Means is provided whereby the supporting elements of the fan may be attached to adjacent vertically disposed walls of the booth or to the ceiling while permitting the orientation or adjustment of the fan wheel with respect to the ceiling of the booth, such supporting elements being so constructed as to effectively prevent the vibrations of the motor from reaching the talking compartment of the booth while due to the

comparatively small diameter of its fan wheel and its adjusted relation to the ceiling effectively prevents any air flow noises from interfering with telephone conversations while effecting a thorough ventilation of the booth.

Means in the form of a system of baffle plates is provided for preventing extraneous light from reaching the interior of the booth through the fan wheel opening in the ceiling and without causing resistance to the air flow at this point, with means whereby the operation of the fan is controlled automatically through the movement of the door and manually through the operation of a switch disposed in a convenient position in the booth.

Other features and advantages of the invention will appear from the following description and by the claims appended thereto, reference being had to the accompanying drawings in which,

Fig. 1 is a perspective view of a telephone booth embodying the features of the invention, shown with portions of the front wall and door cut away;

Fig. 2 is a partial view of the booth showing elements of the booth and fan assembly in section;

Fig. 3 is a top view of Fig. 2;

Fig. 4 is a partial view of the booth shown in section; and

Fig. 5 is a partial view of the motor support shown partly in section.

The telephone booth in which the present invention is particularly well adapted for use generally consists of a plurality of walls 10, 11, 12, and 13, a base 14, a ceiling 15 and a roof 16 shown in Figs. 1, 2, 3, and 4.

The front wall 13 is provided with an opening 17 and to this wall is hinged a folding door 18, the door when closed cooperating with the base 14 to form an opening for the exhaust of the air in the direction indicated by the arrow in Fig. 1 under a condition that will be hereinafter described in detail.

The ceiling 15 and the roof 16 are provided with registering openings 19 and 20 and in centered relation with these openings is mounted a fan consisting of a motor 21, a fan wheel 22 and a tubular supporting arm 23 which is screw-threaded at its periphery for engagement with a similarly threaded flange or base member 24 bolted —to a partition 25 serving to divide the space between the ceiling 15 and the roof 16 into two compartments X1 and X2, as shown in Figs. 2, 3, and 4.

The support for motor 21 consists of a hinge

element 26 secured to the motor casing and engaging its complementary hinge portion 27 formed at the end of arm 23, and a pivot 28 engaging the hinge element 27 of the arm 23 permits the vertical adjustment of motor 21 and the fan wheel 22 carried thereby with respect to the plane of ceiling 15, the lateral adjustment of the motor and the fan wheel with respect to the ceiling opening 19 being effected by the screw adjustment of the arm 23 in the base 24 and secured in such adjusted position by a lock nut 30.

The base member 24 is held to the partition 25 by bolts 31 and 32 fitted with rubber bushings 33 and 34 and a pad 35 placed between the base 24 and the partition 25, these rubber elements being provided for preventing the vibration of the motor reaching the talking compartment of the booth and an insulating bushing 36 inserted in the tubular support 23 is provided for insulating the wires W of the motor circuit from this supporting arm.

On the ceiling 15 and in centered relation with the axis of motor 21 is mounted on a series of brackets 37 a truncated cone-shaped plate 38 and a cone member 39 which is supported in superposed relation to plate 38 by brackets 40 shown in Figs. 2, 3, and 4, these cone elements being provided to prevent the extraneous light reaching the interior of the booth from the opening 20 in the roof 16, the space between the blades of fan wheel 22 and the opening 19 in ceiling 15.

On the top side of roof 16 is securely mounted a metallic screen 41 having a centrally disposed opening fitting over the apex portion of the cone member 39, and on the casing of motor 21 is mounted as on radial arms 43 and ring 43R a screen cage 42 completely enclosing the fan wheel 22, and a ring 45 which is held to the underside of ceiling 15 by bolts 44 is provided to obstruct from view the clearance between the periphery of screen cage 42 and the opening 19 in ceiling 15, thus adding to the aesthetic appearance of the booth.

In an opening OP in the central portion of the ceiling 15 in compartment X2 shown in Figs. 2 and 3 is mounted a lighting fixture having a lamp, not shown, enclosed in an inverted dome-shaped shade 51, the lamp engaging a socket ST secured in a casing 52 and provided with terminals for connecting the operating circuit of motor 21 to the terminal of the lamp, the lamp and the motor 21 being thus controlled through the operation of a common switching device not shown enclosed in the housing 55 and operated in a manner that will be hereinafter described in detail.

The switching device in housing 55 may be of any ordinary type and is provided with an operating camming arm 60 shown in Figs. 2 and 3 disposed in operative relation with an arm 61 extending laterally from a vertically disposed spindle 62 carried by the door section 18 of the booth at a point adjacent its upper disposed hinge, the arm 61 having at its free end a block 63 of anti-friction material bearing on the camming arm 60 for actuating it upon the movement of the door when the latter is moved from the closed or unfolded position indicated by the dot and dash lines to the open or folded position shown by the dash lines in Fig. 3 and in full lines in Fig. 2.

A manually operable switching device 56 shown in Fig. 1 is provided for controlling the operation of motor 21 independently of the movement of the booth door and to the side wall 11 and rear

wall 12 is secured a shelf 57 provided for mounting the telephone apparatus TA in the form of a coin collector box and on the base 14 of the booth is mounted an upright support on which the chair 58 is fitted for pivotal movement.

In the operation of the booth embodying the features of the invention the closure of the booth door is effective to move the arm 61 in the direction indicated by the arrow in Fig. 3 for operating the switch arm 60 and thereby closing the circuit of motor 21. The movement of fan wheel 22 is effective to draw the air into the booth through the screen 41 at the top of the booth, the space between the light deflector plates 38 and 39 through the screen cage 42 and the opening in plate 43, such air path being indicated by the arrows in Figs. 2 and 4.

The air is exhausted from the interior of the booth mainly through the opening formed between the lower end of the booth door and the base 14 and partly through the lighting fixture openings OP in the ceiling 15 and from the compartment X2 through the openings OP2 in louver plate BP on the upper side of roof 16 as shown in Figs. 2 and 3, the partition 25 preventing the inlet air mixing with the exhaust air in the space between the ceiling and the roof.

The motor of the fan may be controlled while the booth door is in its closed position by the operation of the switching device 56 mounted on the side wall 11 of the booth as shown in Fig. 1.

In telephone booths equipped with the ventilating system of the invention the noise due to the vibration of the motor and the air flow under the action of the fan wheel has been found to be substantially entirely eliminated and thereby greatly improving telephone conversation, while the special combination of the cone elements for the fan effectively prevents the extraneous light reaching the interior of the booth without affecting the efficiency of the fan in the ventilating of the booth. According to the invention it is to be noted that the air-paths are of very large cross-sectional areas and each of a minimum length, thus permitting the use of a small and slow-operating motor to obtain maximum ventilation efficiency and the substantially complete attenuation of noise consequent to the use of a high-powered motor. Moreover, according to applicants' construction the louver plate BP may be placed at the greatest distance from the air-inlet opening 20 in the roof without increasing the air-paths toward or away from the interior of the booth, in order to prevent the exhausted air mixing with the inlet air under the action of the fan wheel.

What is claimed is:

1. A telephone booth having a plurality of walls, a base for securing said walls in assembled relation at their lower ends, a ceiling for securing said walls in assembled relation at their upper ends, a roof supported by said walls, an opening in said ceiling and said roof, a fan wheel, a motor for actuating said fan wheel, and a support for said motor adjustable for positioning said fan wheel in centered relation with the opening in said ceiling and a plurality of cone-shaped baffle plates mounted on the ceiling in superposed relation with respect to each other and concentric to said motor.

2. A telephone booth having a plurality of walls, one of said walls having a door opening, a door for said opening, a floor, a roof and a ceiling each having a plurality of air openings, a partition disposed across said booth dividing the

space between said ceiling and said roof into two compartments, a fan mounted in one of said compartments for drawing air in the booth from one of said air openings in said roof and in said ceiling, a lighting fixture mounted on the ceiling in the opening in the other compartment, a louver plate secured to said roof over said lighting fixture, said louver plate having a plurality of openings cooperating with said lighting fixture to form a continuous air exhaust path from the interior of the booth to the atmosphere, said door when in its closed position cooperating with said floor to form a second air exhaust path for the ventilation of the booth, and a plurality of cone-shaped baffle plates mounted on the ceiling in the first-mentioned compartment in superposed relation to each other and concentric to said motor and said fan wheel.

3. In a telephone booth, in combination with a plurality of walls, a base, a ceiling and a roof supported by the walls, of a partition disposed at an angle with respect to a number of walls in the

space between the ceiling and the roof to form two compartments, openings in the ceiling and the roof in one of said compartments to serve as an air-inlet path, a support secured to said partition, a motor mounted on said support, a fan wheel actuated by said motor and disposed for movement in concentric relation with the opening in the ceiling, a guard element for said wheel disposed in the opening in the ceiling, a plurality of cone-shaped baffle plates mounted on the ceiling in superposed relation to each other, and concentric to said motor for preventing the extraneous light reaching the interior of the booth, the apex of one of said baffle plates protruding above the roof, an opening in the ceiling and the roof in the other compartment serving as an air-exhaust path for the ventilation of the booth and a louver plate over the last-mentioned opening in the roof.

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