June 24, 1941. F. A. KUNTZ 2,247,028

TELEPHONE BOOTH COOLING APPARATUS

Filed Oct. 29, 1940 2 Sheets-Sheet 1

FIG. 1

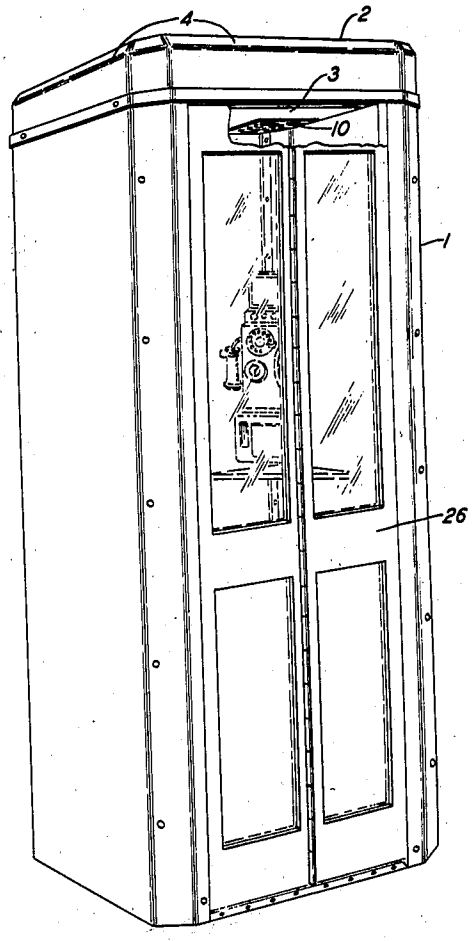

FIG. 2

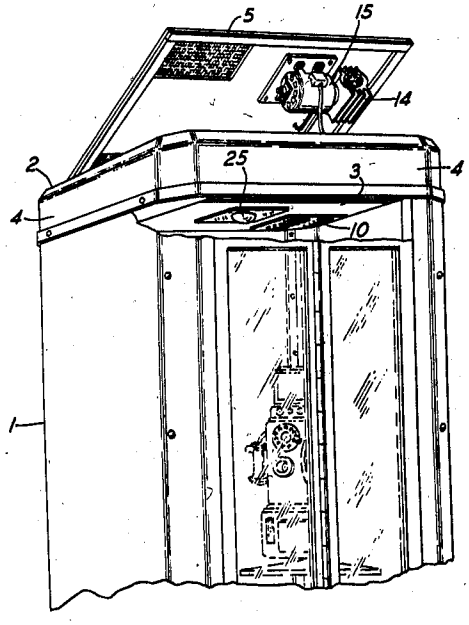

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FIG. 3

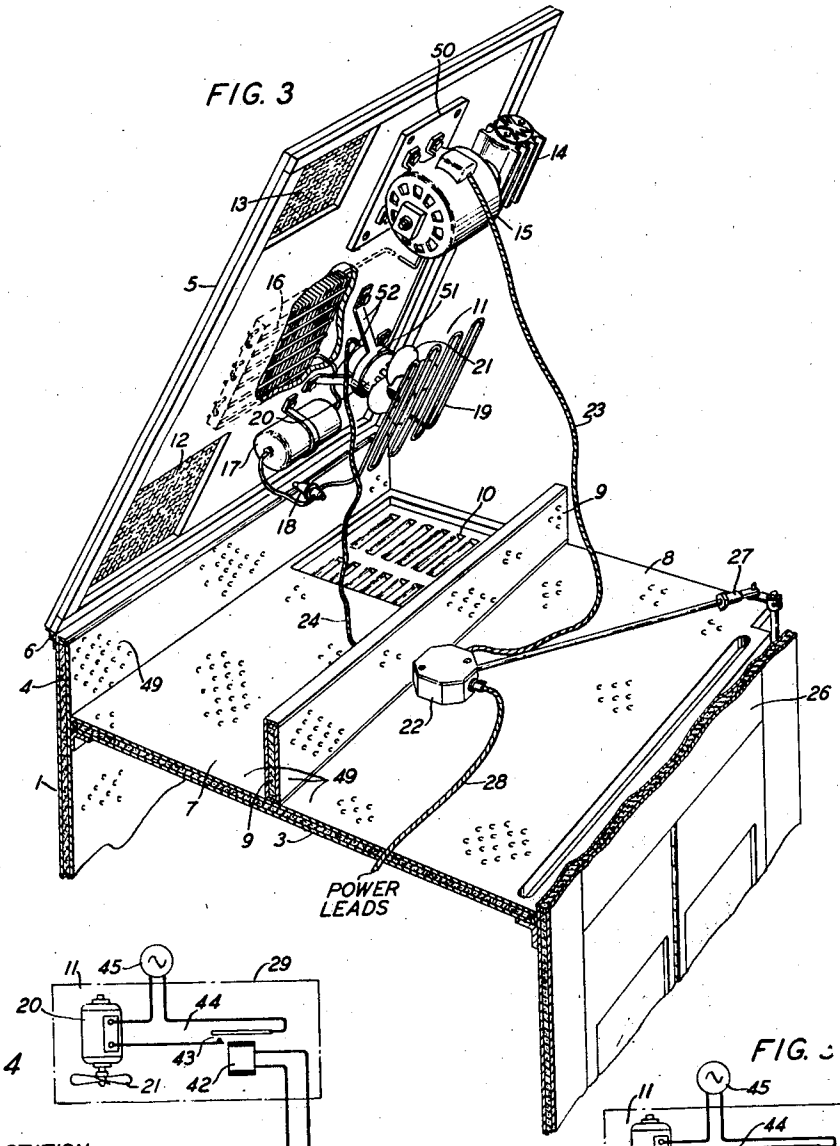


FIG. 4

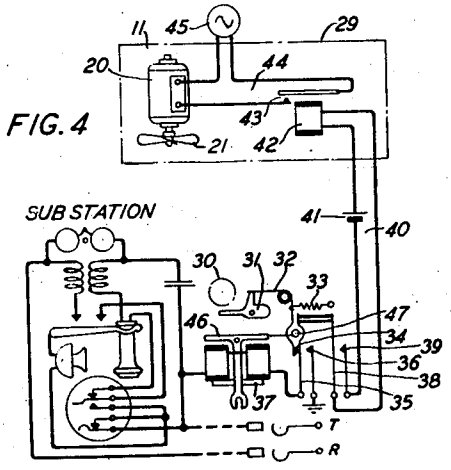
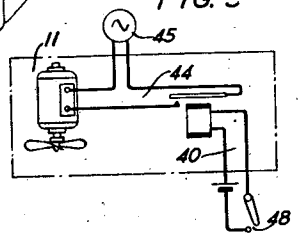


FIG. 5



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Patented June 24, 1941 2,247,028

UNITED STATES PATENT OFFICE

2,247,028

TELEPHONE BOOTH COOLING APPARATUS

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Application October 29, 1940, Serial No. 363,387

8 Claims. (Cl. 62—6)

This invention relates to temperature-changing apparatus for telephone booths.

The object of the invention is to provide means for cooling a telephone booth when the booth is being used during the making of a telephone call.

A feature of the invention resides in the particular construction of the upper compartment in the telephone booth.

Another feature resides in door-operated means for controlling operation of the cooling apparatus.

Another feature resides in a modification involving a coin-controlled means for ensuring the making of some payment by the subscriber for the cooling service.

Another feature resides in an arrangement permitting the user of the telephone booth to manually control operation of the cooling apparatus at will.

In accordance with this invention the space above the ceiling of the booth is divided by a partition to form two compartments. An air inlet is provided in the roof at one side of the rear compartment and a grill is provided in the ceiling at the opposite side of the rear compartment. The compartments are lined with soft material for sound absorption. On the upper side of the roof is mounted a condenser of the cooling apparatus, the other parts of said apparatus being mounted on the under-side of the roof and within said compartments. The compressor is located within the forward compartment. The evaporator coil is located in the rear compartment and in register with the grill in the ceiling. A motor-driven fan is provided in register with the evaporator coil to drive air across the evaporator coil and downwardly through the grill in the ceiling of the booth. The compressor and motor-driven fan are cushion mounted on the under-side of the roof. The roof equipped with the cooling apparatus is equipped with hinges and may be entirely removed from the booth and be replaced by a standard roof when the cooling apparatus is not required. The roof is cushioned at its points of engagement with the booth structure.

In the drawings:

Fig. 1 is a view in perspective of a telephone booth constructed according to the invention and with a small portion broken away to show an inner part of the structure;

Fig. 2 is a view of an upper portion of Fig. 1, but with a larger portion broken away and the roof in an open position to permit viewing of some of the cooling apparatus;

Fig. 3 is an enlarged view, partly in section, of an upper portion of the telephone booth and showing the mounting arrangement of the cooling apparatus and a door-controlled switch for controlling the cooling apparatus;

Fig. 4 is a schematic diagram of part of the cooling apparatus and showing the modification including the coin box control for the apparatus; and

Fig. 5 is a schematic diagram of part of the cooling apparatus and showing an arrangement for manually controlling the cooling apparatus.

It is well known that the temperature within a telephone booth is raised by body heat of an occupant. When the telephone call is of long duration the temperature within the booth is sometimes raised to such a high level as to be very uncomfortable to the occupant. Opening of the door to relieve this condition is often undesirable and the occupant is subjected to the uncomfortable temperature during most of the time the telephone call is being made.

My invention provides means for lowering the temperature within the booth without requiring opening of the booth door. The booth is cooled by means of a cooling unit mounted in an upper portion of the booth and designed to blow cooled air down to the occupant of the booth.

As shown in Figs. 1 and 2, the telephone booth 1 has a top portion 2 extending above a ceiling 3, the top portion 2 having front, back and side walls 4 and a roof 5 which is held against undue displacement by means of hinges 6 shown in Fig. 3. The top portion 2 in cooperation with the ceiling 3 forms an upper chamber in the telephone booth 1. This upper chamber as shown in Fig. 3 is divided into two compartments 7 and 8 by means of a wall 9. An opening comprising a grill-work 10 is provided in the rear compartment 7, the grill-work 10 being located in the ceiling 3 of the booth to permit cooled air to be blown down to the occupant. The cooling apparatus generally indicated by the numeral 11 is mounted on the roof 5 in which grill-work openings 12 and 13 are provided.

The cooling apparatus 11 is arranged on the roof 5 so that the compressor 14 with its operating motor 15 will be located in the front compartment 8 when the roof 5 is in normal position. The condenser 16 is mounted on top of the roof 5. The receiver 17, the regulating valve 18 and the evaporator coil 19 are mounted on the under-side of the roof 5 so that they will be located in the compartment 7 when the roof 5 is in normal position, the evaporator coil 19 being in registry with

the grill-work 10 in the ceiling 3. A motor 20 and a fan 21 driven thereby are mounted on the under-surface of the roof 5 to propel air past the evaporator coil 19 and through the grill-work 10. A switch 22 is mounted on the ceiling 3 to provide a means for controlling operation of the motors 15 and 20, the switch being electrically connected to the motors 15 and 20 by means of the respective flexible conductor cords 23 and 24. The switch 22 may also be used as a control means for the lamp 25 mounted on the ceiling 3 and which is often provided in telephone booths to illuminate the interior of the booth. It is common practice in telephone booth constructions to control the operation of the lamp 25 by means of the booth door 26, a system 27 of rods and levers being provided between the door 26 and the switch 22. In the illustration of the present invention shown in Fig. 3 the switch 22 is used in the well-known manner as a controlling means for the lamp 25 and also as above mentioned to control the operation of the motors 15 and 20. When the booth door 26 is closed the lamp 25 and the motors 15 and 20 are connected through the switch 22 to a commercial source of current supply coming into the switch 22 through the power leads 28. The lamp 25 is, therefore, operated to illuminate the booth and the cooling apparatus 11 is brought into operation to supply cooled air to the interior of the booth when the door 26 is closed.

It will be seen by looking at Fig. 3 that when the roof 5 is lowered to the normal position shown in Fig. 1, the compressor 14 and its operating motor 15 will be in the front compartment 8 and that heat from the compressor 14 and the motor 15 will be barred from the rear compartment 7 by means of the wall 9. The condenser 16 is located on top of the roof 5 where it can perform its well-known function much better than would be the case were it confined in one of the compartments. The only heat-generating means in the compartment 7 is the motor 20 which is mounted on the under-surface of the roof 5 and directly above the evaporator coil 19. The relatively small amount of heat generated by the motor 20 is negligible and is not felt in the lower and occupied portion of the booth since the fan 21 circulates the air about the evaporator coil 19. The cooling apparatus 11 is so arranged that it will supply fresh air of relatively low temperature to the interior of the telephone booth and may be set into operation to perform this function by simply closing the door 26 of the booth. The fresh air is taken into the compartment 7 through the grill-work opening 12 in the roof 5 and by means of the fan 21 is driven past the evaporator coil 19 and downward through the grill-work opening 10 in the ceiling 3. When the booth door 26 is opened the switch 22 will be automatically operated to shut off the motors 15 and 20 and the lamp 25. The grill-work opening 13 in provided in the roof 5 to ventilate the front compartment 8 in which the compressor 14 and motor 15 are housed.

In Fig. 4 a modification of the invention is shown in which means are provided to ensure the making of some payment by the user of the booth before the cooling apparatus is brought into operation. It will be understood that the upper portion of the telephone booth indicated by the dot-dash lines 29 follows the same construction as that shown in Figs. 1, 2 and 3 and that the various parts of the cooling apparatus 11 are located in the same relative positions as shown in these figures. The modification shown in Fig. 4 is applicable to telephone pay stations in which a coin collect box is located. Since the construction and arrangement of telephone coin collect boxes and the functioning of the apparatus located therein are so well known, it seems unnecessary to burden this specification with a full description of the coin collect apparatus.

In this modification when a subscriber deposits a coin 30 in the coin box, the coin 30 by its own weight operates a pivotally supported trigger 31 to release a centrally pivoted angular lever 32 operated by means of a spring 33. The lower end of the lever 32 is provided with a button 34 bearing against a spring contact 35. When the coin 30 operates the trigger 31 to release the lever 32, the lever 32 is rotated in a counter-clockwise direction by means of the spring 33 and the spring contact 35 is moved by means of the button 34 against a contact 36 to connect one side of a polarized electromagnetic device 37 to ground. The electromagnetic device 37 is controlled by apparatus at a central station and is used in a well-known manner to control the returning of the coin to the calling party or the depositing of the coin in a coin collecting receptacle and also as a means for returning the lever 32 to normal position. An understanding of the function and operation of the electromagentic device 37 is disclosed in O. F. Forsberg Patent 1,043,219, issued November 5, 1912. In my invention as shown in Fig. 4 the lever 32 in addition to performing its normal function of connecting the electromagnetic device 37 to ground is also used to control a local circuit the function of which is to control the cooling apparatus 11. When the lever 32 is moved in a counter-clockwise direction it operates to move contact 38 against contact 39 to close the local circuit 40 comprising a source of current supply 41 and an electromagnetic switch 42 which upon energization closes contacts 43 in a power circuit 44. The power circuit 44 extends from a commercial source of current supply 45 to the motor 20 of the cooling apparatus 11. It is quite obvious that the power supply circuit 44 may also be extended to the motor 15 of the compressor 14. When a coin is deposited in the coin box in the booth 1 the coin collection apparatus operates to signal the central station and also closes the local circuit to the electromagnetic switch 42. The switch 42 closes the power circuit 44 and brings into operation the cooling apparatus 11 to supply cooled air to the interior of the booth 1. At the end of the telephone call the polarized electromagnetic device 37 is operated to restore the lever 32 to normal position. In this operation the centrally pivoted armature 46 is rocked to move an insulating roller 47 either upward or downward against the lower portion of the lever 32 to restore the lever 32 to normal position, in which position is automatically latched by means of the trigger 31. This results in releasing of the contacts 35 and 38 from engagement with the respective contacts 36 and 39. Opening of the local circuit 40 causes deenergization of the electromagnetic switch 42 and consequent opening of the power circuit 44.

In Fig. 5 provision is made for controlling the local circuit 40 by means of a manually operated switch 48. This arrangement may be used in booths wherein no coin collecting apparatus is present and in localities where it is undesirable to have the cooling apparatus operate at all times during the making of a call. In this case the occupant of the booth 1 may simply close the

manually operated switch 48 whenever it is desired to have the cooling apparatus 11 brought into operation.

As shown in Fig. 3, the compartments 7 and 8 are lined with sound absorption material 49 to damp out sound waves produced by the cooling apparatus 11. To prevent vibration caused by the cooling apparatus 11 from being transmitted to the booth structure cushion supports are provided for the motors 15 and 20. The cushion support for the motor 15 comprises a mat 50 of soft material disposed between the base of the motor 15 and the roof 5. The motor 20 is mounted on a cushion 51 which is supported by means of brackets 52 on the under-side of the roof 5. The sound absorption material 49 is extended over the upper edge portions of the partition wall 9 and the walls 4 to serve as a cushioning rest for the roof 5 when the roof is in normal position.

What is claimed is:

1. In a telephone booth having side walls, a rear wall and a front wall, a ceiling and a roof supported by the walls of the booth and forming therewith an upper chamber, a cooling apparatus mounted on the roof and housed in said chamber, said roof having an opening formed therein to provide ventilation for said chamber and said ceiling having an opening formed therein in register with said cooling apparatus to permit air cooled by means of said apparatus to pass from said chamber to the lower portion of said booth.

2. In a telephone booth having side walls, a rear wall and a front wall, an apertured ceiling supported by said walls, an apertured roof hinged to one of said walls, said ceiling and said roof being in spaced relation and forming with said walls an upper chamber in said booth, an upright wall extending across said chamber and dividing said chamber into two compartments, a cooling apparatus mounted on said roof and comprising a compressor, a condenser, an evaporator coil and a motor-driven fan, said compressor being located within one of said compartments, said condenser being located on top of said roof and said evaporator coil and fan being located in the other of said compartments in register with the aperture in said ceiling so that air cooled by means of said cooling apparatus may be driven through the aperture in said ceiling to the portion of said booth lying below said chamber.

3. In a telephone booth having side, rear and front walls and a door, an apertured ceiling supported by said walls, a roof hinged to one of said walls and having a plurality of apertures, said ceiling and said roof being in spaced relation and forming in cooperation with said walls an upper chamber in said booth, an upright wall dividing said chamber into two compartments, a cooling apparatus comprising a motor-driven compressor, a condenser, an evaporator coil and a motor-driven fan, said cooling apparatus being supported on said roof so that the compressor occupies one of said compartments and the evaporator coil and fan occupy the other of said compartments and in register with the aperture in said ceiling, a control switch mounted on said ceiling to control the operation of said compressor and fan and means under control of the occupant of said booth to control the operation of said switch.

4. A cooling apparatus for a telephone booth comprising in combination a two-part chamber in the upper portion of the booth cooperatively formed by wall members of the booth, an apertured ceiling, an apertured roof spaced from the ceiling and an upright wall extending from said ceiling to said roof and dividing said chamber into two compartments, a motor-driven compressor supported on said roof and located in one of the compartments in said chamber, an evaporator coil and a motor-driven fan supported on said roof and located in the other compartment in said chamber, said coil and fan being in register with an aperture in said ceiling, power supply leads extending to the motors of said compressor and fan, a switch in said power supply leads and means under control of an occupant of the booth for controlling the operation of said switch.

5. A cooling apparatus for a telephone booth comprising in combination a two-part chamber in the upper portion of the booth cooperatively formed by wall members of the booth, an apertured ceiling, an apertured roof spaced from the ceiling and an upright wall extending from said ceiling to said roof and dividing said chamber into two compartments, a motor-driven compressor supported on said roof and located in one of the compartments in said chamber, an evaporator coil and a motor-driven fan supported on said roof and located in the other compartment in said chamber, said coil and fan being in register with an aperture in said ceiling, power supply leads extending to the motors of said compressor and fan and a door-operated switch in said power leads to control the operation of said compressor and fan.

6. A cooling apparatus for a telephone booth comprising in combination a two-part chamber in the upper portion of the booth cooperatively formed by wall members of the booth, an apertured ceiling, an apertured roof spaced from the ceiling and an upright wall extending from said ceiling to said roof and dividing said chamber into two compartments, a motor-driven compressor supported on said roof and located in one of the compartments in said chamber, an evaporator coil and a motor-driven fan supported on said roof and located in the other compartment in said chamber, said coil and fan being in register with an aperture in said ceiling, power supply leads extending to the motors of said compressor and fan, a switch in said power supply leads, a coin controlled apparatus in said booth, a local circuit controlled by said coin controlled apparatus, a source of power supply in said local circuit and means in said local circuit to control the operation of said switch.

7. A cooling apparatus for a telephone booth comprising in combination a two-part chamber in the upper portion of the booth cooperatively formed by wall members of the booth, an apertured ceiling, an apertured roof spaced from the ceiling and an upright wall extending from said ceiling to said roof and dividing said chamber into two compartments, a motor-driven compressor supported on said roof and located in one of the compartments in said chamber, an evaporator coil and a motor-driven fan supported on said roof and located in the other compartment in said chamber, said coil and fan being in register with an aperture in said ceiling, power supply leads extending to the motors of said compressor and fan, a switch in said power supply lead, a local circuit, a source of current supply and an electromagnetic device in said local circuit to operate said switch and a manually oper-

ated switch in said local circuit to control operation of said electromagnetic device.

8. In a cooling system for a telephone booth having an upper chamber in combination, a front and rear compartment formed in said chamber, sound absorbing material lining said compartments, a grill-work opening in said rear compartment in communication with the portion of said booth used by an occupant, an apertured roof, a motor-driven compressor mounted on said roof and located in said front compartment, a cushion disposed between said compressor and said roof, an evaporator coil disposed across said grill-work opening, a motor-driven fan disposed between said roof and said coil, a cushion mounting for said fan supported on said roof and means under the control of an occupant of said booth for controlling the operation of said compressor and fan.

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