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3,025,382

AUXILIARY ELECTRICAL HEATING MEANS

Filed March 9, 1959

2 Sheets-Sheet 1

FIG. 1

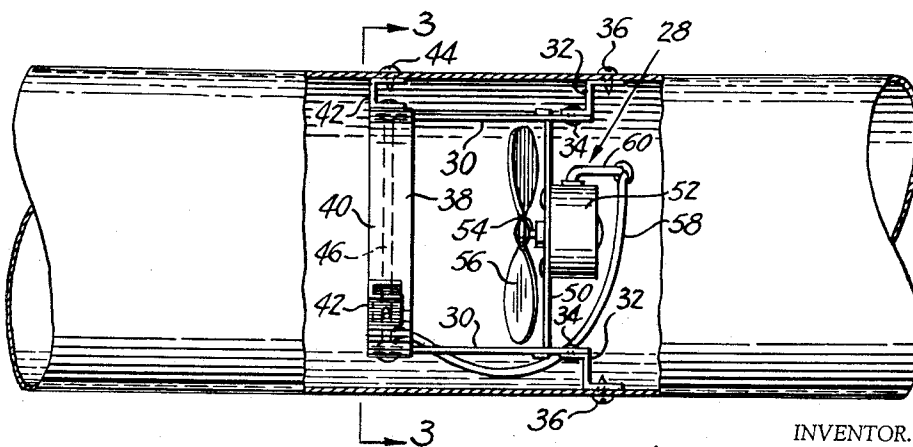
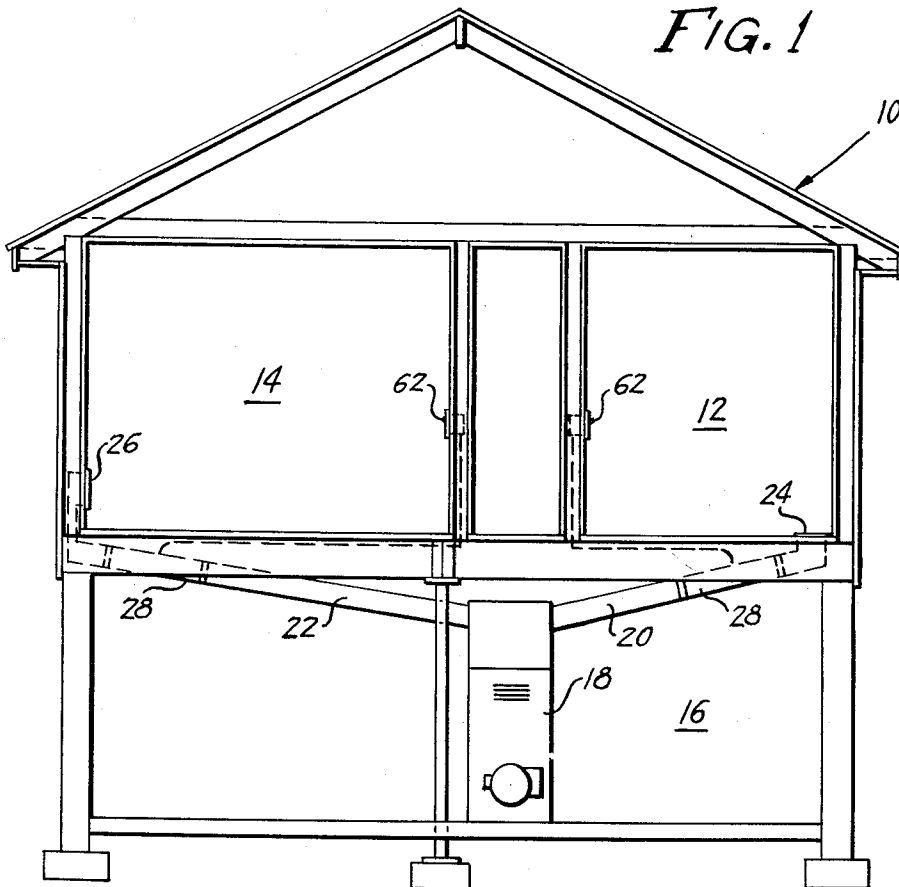


FIG. 2

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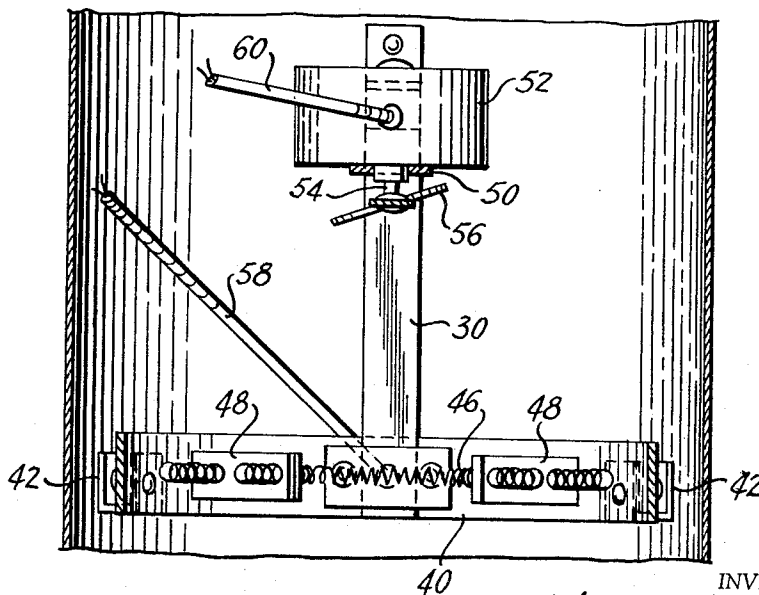
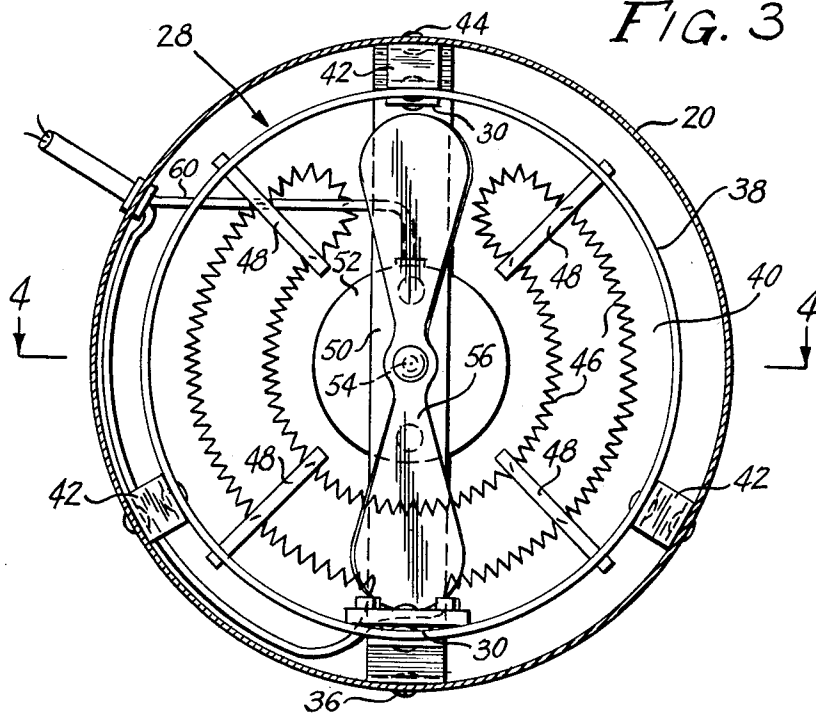


FIG. 4

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3,025,382

AUXILIARY ELECTRICAL HEATING MEANS

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1 Claim. (Cl. 219—39)

This invention relates to electrical heating means, and it particularly relates to electrical heating means adapted to be used as an auxiliary to the central heating system of a building.

It often happens that the furnace of a house is set at a certain temperature which is adequate for maintaining the most comfortable conditions through the house generally. However, it may be desirable to substantially increase the temperature in one or more rooms while retaining the other temperature throughout the rest of the house. For example, if the furnace is set for 72° F. and the lady of the house wishes to give her baby a bath but does not wish to do so unless the temperature of the bathroom is 82° F.; under ordinary conditions, it would be necessary for her to re-set the thermostat so that the temperature of the entire house is increased to 82° F. This not only is a great waste of heat and fuel but also makes the remainder of the house uncomfortable. Furthermore, a rather long interval of time would be necessary before the desired temperature is reached since the whole house must be heated.

Many persons have heretofore attempted to solve the above problem by providing a separate electrical heater in the room to be warmed. Such heater was either a portable type set up directly on the floor or other support in the room or was of the built-in type installed in a special recess in a wall or in the ceiling. However, the portable heaters were dangerous, especially when children were in the house since they might get accidentally burned or might knock the heater over or might insert foreign objects into the heating coils. These portable units might also be inadvertently contacted or knocked over by an adult. The recessed heating units were somewhat safer, but they too had their difficulties such as being expensive to install and taking up wall space which could otherwise be used to greater advantage. Furthermore, in either case, the heating units could only warm the air already in the room.

It is one object of the present invention to overcome the above difficulties by providing auxiliary heating means which cannot be tampered with and which do not occupy any unnecessary wall space.

Another object of the present invention is to provide an auxiliary heating means which utilizes the pre-heated, filtered air from the furnace.

Another object of the present invention is to provide a heating means of the aforesaid type which is easy to install and simple to use.

Other objects of the present invention are to provide an improved auxiliary heating means, of the character described, that is easily and economically produced, which is sturdy in construction, and which is highly efficient in operation.

With the above and related objects in view, this invention consists in the details of construction and combination of parts, as will be more fully understood from the following description, when read in conjunction with the accompanying drawings in which:

FIG. 1 is a diagrammatic view of a house and its heating ductwork, with heating means embodying the present invention indicated in selected positions in said ductwork.

FIG. 2 is a fragmentary side view of a duct, shown partly in elevation and partly in section to reveal a heat-

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ing means embodying the present invention which is installed therein.

FIG. 3 is a sectional view taken on line 3—3 of FIG. 2.

FIG. 4 is a sectional view taken on line 4—4 of FIG. 3.

Referring in greater detail to the drawings wherein similar reference characters refer to similar parts, there is shown a house 10 having various rooms, two of which are indicated at 12 and 14. The house 10 is also provided with a basement 16 in which is positioned a furnace 18 connected to ducts some of which are indicated at 20 and 22. The duct 20 leads to a floor register 24 in room 12 while duct 22 leads to a wall register 26 in room 14. Interposed in each duct 20 and 22, adjacent the corresponding register is an auxiliary heating unit of this invention generally designated 28.

Each heating unit 28 comprises an annularly-spaced series of supporting arms 30 connected to step-shaped brackets 32 by means of rivets, screws, bolts or the like 34. The brackets 32 are themselves secured to the inner wall of the duct, such as the duct 20 shown in FIG. 2, by means of screws, bolts, or the like, shown at 36.

The opposite ends of arms 30 are connected to an insulating frame 38 of an electrical heater 40. The frame 38 is attached to the inner surface of duct 20 by brackets 42 and screws, bolts, or the like, 44 for further support. Heating coils 46 are supported within frame 38 by means of insulating cross members 48.

At the opposite ends of arms 30 is provided a support plate 50 to which is attached an electric motor 52 having an armature shaft 54 extending toward heater 40. On this shaft 54 is mounted a fan 56. Both the heating coils 46 of heater 40 and the motor 52 are connected by their respective lines 58 and 60 to a manually actuatable switch in the room such as indicated at 62. This switch 62, is, in turn, in electrical circuit with a source of electrical energy. The switch 62 may be in circuit with a signal light or the like to indicate whether the heater unit 28 is on or off.

The operation of the device is obvious from the above description. When additional warmth is required, the switch 62 is merely turned on to complete the circuit between the source of electrical energy and the coils 46 and motor 52. This energizes the coils 46 to emit heat while the fan 56 is rotated by the motor 52 to blow the heated air into the room.

Since the air which is heated by heater 40 is the already pre-heated and filtered air coming through the duct from the furnace, when the furnace is already in operation less energy is required to further heat this pre-heated air than would be necessary to heat up the air already in the room. The heating effect of the auxiliary unit is therefore almost wholly additive and the resulting efficiency is very high. On the other hand, the auxiliary heating unit 28 will operate very efficiently even when the main furnace is not working.

The installation of the auxiliary unit 28 is very simple, requiring merely the removal of one section of the duct, drilling the few mounting holes to receive the screws, bolts or the like for attaching the adjustable mounting brackets 32 and 42, connecting the brackets to the duct, and then connecting the unit to the brackets. The duct section is then replaced and the job is completed by running the wires 58 and 60 to the wall switch 62.

Although this invention has been described in considerable detail, such description is intended as being illustrative rather than limiting, since the invention may be variously embodied, and the scope of the invention is to be determined as claimed.

Having thus set forth and disclosed the nature of this invention, what is claimed is:

For use in a house heating system having a main heat-

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ing furnace and a plurality of ducts leading from the furnace to heat inlets into various rooms of the house, an auxiliary heating unit arranged to be installed in one or more selected ducts of the house heating system, said auxiliary heating unit comprising a common bracket means arranged to be attachably mounted in the selected duct, a fan and heating coil means mounted on said bracket means, a circuit means connected to said fan and heating coil means from the room to which the selected duct leads, a manually controllable switch means in said circuit means and located in the selected room, said bracket means comprising an annular insulating frame of a diameter less than the duct diameter, individual brackets mounted on said annular frame for securing said frame to the inside of the duct, insulating cross members extending inwardly from said annular frame, said heating coil means being mounted on said insulating cross members, a pair of diametrically spaced longitudinally extending supporting arms secured at one end to said annular in-

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5 sulating member, individual brackets securing the other end of said supporting arms to the inside of the duct, a diametrically extending support plate secured to said diametrically spaced supporting arms, a motor shaft journaled through said support plate, a motor for one end of said motor shaft secured to said support plate on one side thereof, and a fan blade mounted on the other end of said motor shaft on the other side of said support plate.

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