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3,712,967

SWITCH AND HOUSING ATMOSPHERIC CONDITION RESPONSIVE

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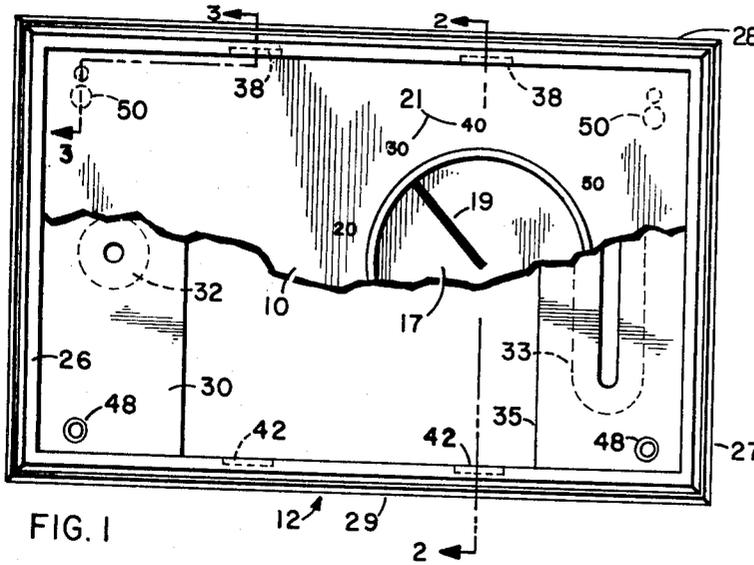


FIG. 1

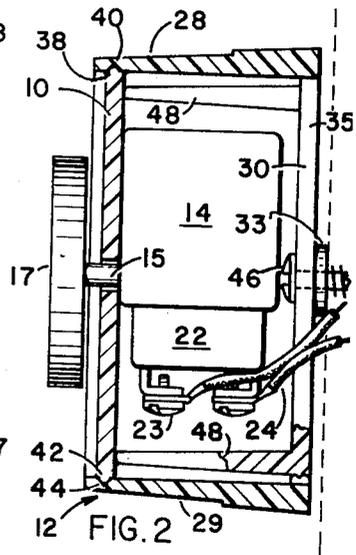


FIG. 2

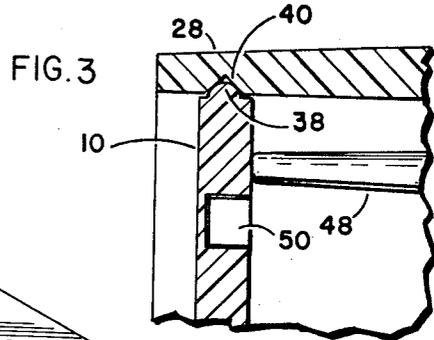


FIG. 3

FIG. 4

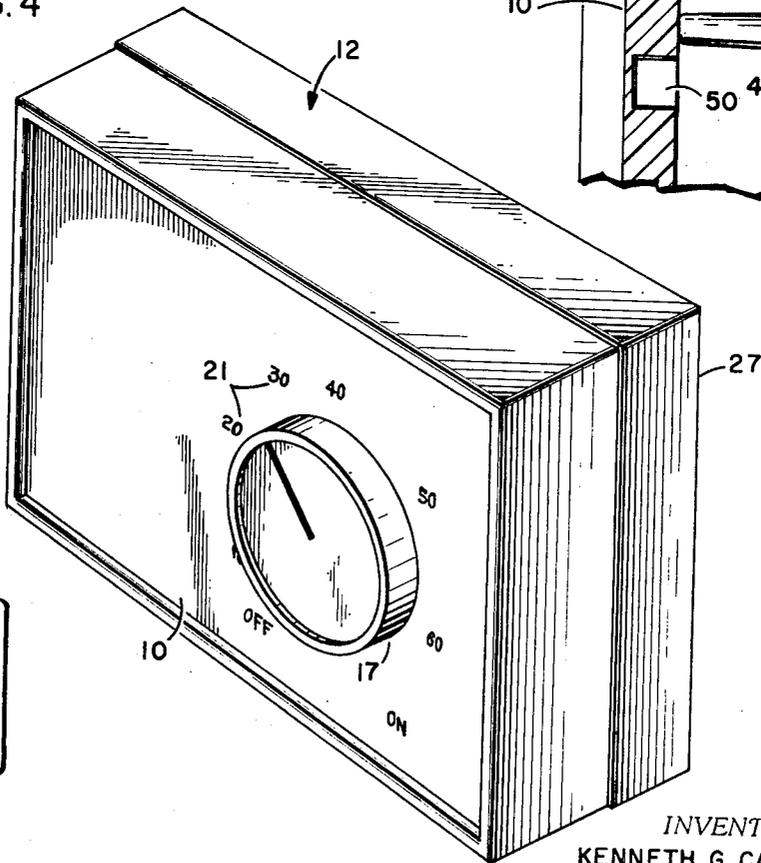
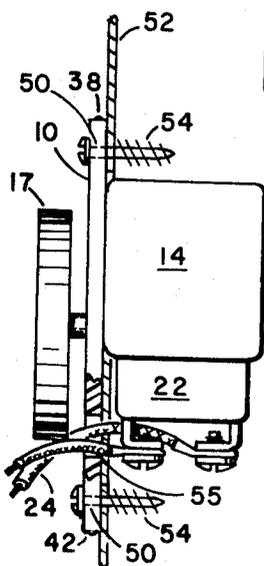


FIG. 5



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3,712,967

ATMOSPHERIC CONDITION RESPONSIVE SWITCH AND HOUSING

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6 Claims

ABSTRACT OF THE DISCLOSURE

The control device disclosed has a decorative enclosure suitable for wall mounting. The face plate of the box-like enclosure is separable from the side walls but is recessed into the side walls so as to present the appearance of a unitary structure. The face plate is removable to give access to the interior of the box to secure it to the wall of a room by using suitable fastening means and also to permit wiring the control device. The face plate carries the control device per se and the face plate can be mounted alone on the surface of a duct with the control device including a sensing means inside the duct.

BACKGROUND AND SUMMARY OF THE INVENTION

This invention is directed to an atmospheric condition control device having a casing that facilitates it being mounted either on the wall of a room or in the return air duct of a warm air heating system. Specifically, the disclosed device is a humidistat that is either room mounted or located in a return air duct. Most satisfactory control ordinarily will be obtained by sensing room humidity directly. However, wall mounting is difficult in some existing buildings due to problems in running wires from the furnace area to a suitable wall location. The present device is convertible to duct mounting so the installer need stock only one model, good for both purposes.

A control device when wall mounted must be enclosed in a decorative case. The present disclosure is that of a control device mounted in a decorative case, the front panel of which can be used in mounting the device in a duct. For wall mounting this front panel is recessed in the front portion of a box-like enclosure so as to present the appearance of a unitary structure having a slightly raised front rim. The box-like enclosure is plastic and is moulded with unitary sides and a back which serves to secure the device to a wall. The front panel and the sides of the box-like enclosure are provided with the cooperating notches and tongues to releasably secure the panel in the box so that there are no fastening means visible from the front. The front panel carries the actual control device with the sensing means and switching means on one side of the panel and thus inside the box and an adjusting knob on the outer side of the panel to be outside the box.

A somewhat different approach to the problem of converting a control device from wall to duct mounting is shown in U.S. Pat. 3,523,217 to Stiles. Similarity exists in that in each case the control device per se is mounted on a generally flat plate, but in the present device there is no need to remove the control device from the plate when converting to duct mounting.

In the drawing:

FIG. 1 is an elevation, partly broken away, of the enclosure for a control device,

FIG. 2 is a section, taken on line 2—2 of FIG. 1 showing a control device mounted within the enclosure,

FIG. 3 is a fragmentary section taken on line 3—3 of FIG. 1,

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FIG. 4 is a perspective view of the device as it appears when mounted on a wall, and

FIG. 5 is a view of the control device mounted in a duct.

DESCRIPTION AND OPERATION OF THE INVENTION

As seen in FIGS. 1—4 of the drawings, the humidity control suitable for wall mounting has a front panel or face plate 10 carried by a case 12. The face plate 10 carries a humidity control mechanism 14 which may be as shown in U.S. Pat. No. 3,163,729 to Flagg. An adjusting shaft 15 extends through the plate 10 and carries an adjusting knob 17. As seen in FIGS. 1 and 4 the knob 17 has an index 19 that cooperates with indicia 21 of humidity value on the plate 12. Control mechanism 14 includes a sensing element for operating a switch 22 having a pair of terminals 23 to which lead wires 24 are attached.

The face plate 10 and case 12 cooperate, as seen in FIGS. 1 and 4 to provide a decorative housing suitable for wall mounting. The case 12 has end side walls 26 and 27, top and bottom side walls 28 and 29, and a rear wall 30, all moulded as a unitary member from a suitable plastic. The rear wall 30 has bosses 32 and 33 extending from its rear surface to space the wall 30 slightly from the wall on which it is mounted and to permit movement of room moisture. The rear wall is also provided with an opening 35 to permit movement of room moisture to the sensing element of control 14 and to provide a passage for lead wires 24 as seen in FIG. 2.

The face plate 10 is located inside the front inner periphery of the case 12 and is provided with tongues 38 on its upper edge that cooperate with notches 40 in the upper side wall 28 and tongues 42 on its lower edge that cooperate with notches 44 in the lower side wall 29. Thus the face plate 10 is recessed slightly in the case 12 to present a pleasing appearance with no fastening means showing, and no indication that the face plate 10 is separate from the case 12.

The upper side wall 28 and the lower side wall 29 are sufficiently flexible to permit disengagement of tongues 38 from notches 40 or tongues 42 from notches 44 so that the plate 10 may be removed from case 12. This is necessary to permit the case 12 to be fastened to a room wall as by screw fasteners 46, and to permit wires 24 to be attached to terminals 23. As will appear below, the plate 10 is also removed if the control is to be duct mounted. Posts 48 extend from the rear wall to abut the back of face plate 10 to assure proper location of the tongues 38 and 42 in the notches 40 and 44.

FIG. 5 shows the alternative duct mounting of the control. Recesses 50 are provided in the four corners of the rear surface of face plate 10 as seen in FIGS. 1 and 3. The thin section of material remaining may be knocked or punched out to provide mounting holes 50 to enable the plate 10 to be secured to the surface of a duct 52 by means of screw fasteners 54. Another knock-out type hole 55 is provided in the face plate 10 to permit the wires 24 to be brought out through the face plate 10. In this mounting arrangement, the case 12 is discarded. There is no great need for decorative appearance when the device is so mounted, however the alternative duct mounting is readily available with a minimum amount of work to an installer who may be using the control device either for wall mounting or duct mounting on a particular job to which he is sent.

The embodiments of the invention in which an exclusive property or right is claimed are defined as follows:

1. A control device comprising, a rectangular box having unitary side walls and a rear wall and a removable face

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plate, cooperating means on the edge of said face plate and on lateral surfaces of certain of the side walls for maintaining said face plate adjacent the front edges of the side walls and parallel to the rear wall, said side walls being flexible to permit disengagement of said means for removal of said face plate, atmospheric condition responsive control means attached to said face plate including sensing means and switching means on the inside of said box and an adjusting knob on the outside of said face plate, said rear wall having openings adapted to receive fastening means extending therethrough into a wall of a room, and an additional opening in said rear wall adapted to provide a passage for wires connected to said switching means.

2. A control device according to claim 1 in which the back side of said rear wall is provided with spacers to hold said box away from the room wall to permit passage of room air into the additional opening of said rear wall.

3. A control device according to claim 1 in which the configuration of said face plate is such as to facilitate passing fastening means therethrough if it is to be mounted on the surface of a sheet metal duct.

4. A control device according to claim 3 in which the

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face plate has areas of reduced thickness adjacent each of its four corners, which areas may be easily punched through to provide openings for screws.

5. A control device according to claim 1 in which said cooperating means include cooperating tongues and notches.

6. A control device according to claim 1 wherein said face plate is adapted to be mounted on the surface of a duct independent of said box whereby said sensing means is positioned to respond to the moisture in the duct.

References Cited

UNITED STATES PATENTS

15	2,735,964	2/1956	Grieve et al.	317—120 X
	2,780,687	2/1957	Keenan	200—61.6
	3,143,610	8/1964	Gustafson	200—61.6
	3,361,938	1/1968	Watson	317—120

20 J. R. SCOTT, Primary Examiner

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200—168 R; 317—120