Nov. 27, 1956 V. M. CARLSON 2,772,332

ROOM VENTILATOR

Filed July 16, 1954

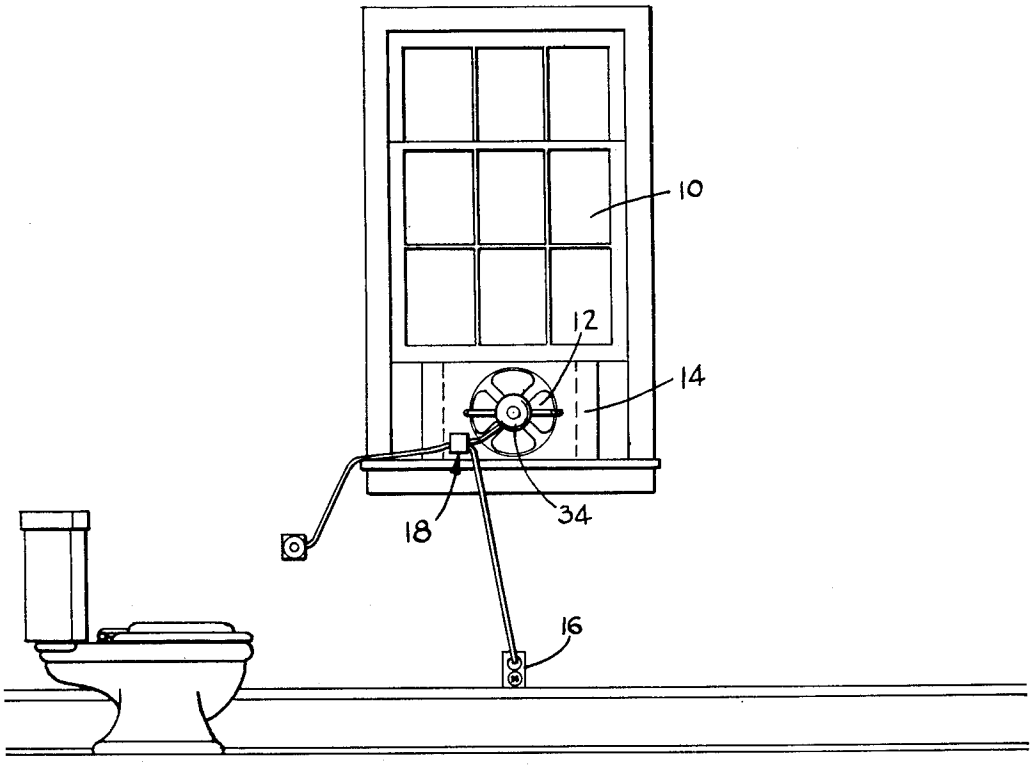


FIG. 1

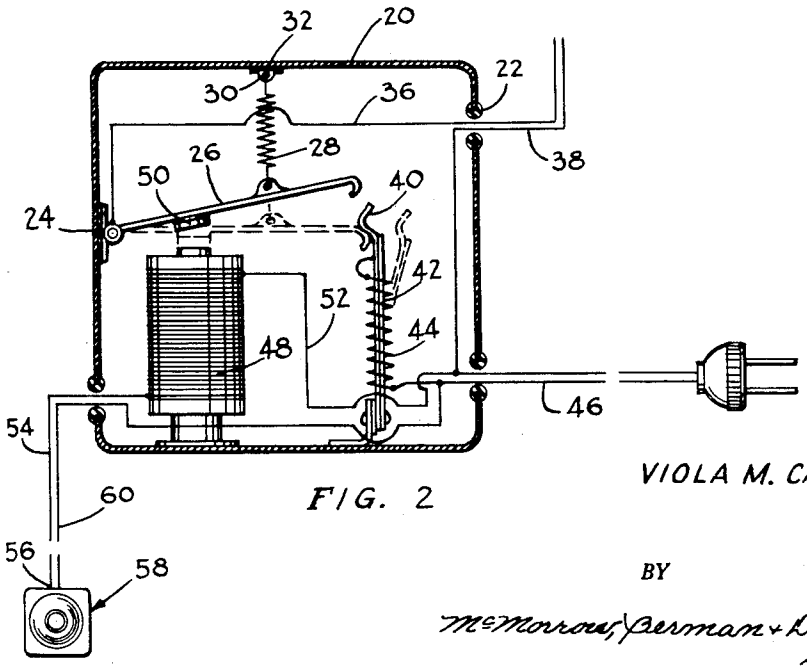


FIG. 2

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ROOM VENTILATOR

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1 Claim. (Cl. 200—88)

This invention relates to a room ventilator and has for its primary object to exhaust air from the interior of a room and discharge it to the external atmosphere.

Another object is to automatically control the period of operation of the exhaust fan and to automatically disconnect it from the source of power after it has operated for a selected period of time.

The above and other objects may be attained by employing this invention which embodies among its features an electrically driven exhaust fan mounted in a window, a source of electrical energy having one pole thereof connected to one pole of the exhaust fan, a contact lever mounted to move in an arcuate path and electrically connected to the opposite pole of the fan, yielding means supported adjacent the contact lever and operatively connected thereto for holding said lever retracted in its arcuate path, a thermally distortable latch arm mounted adjacent the contact lever and extending into the path of movement thereof for engaging the lever and holding it advanced in the arcuate path against the effort of the yielding means, a heating coil mounted adjacent the latch arm and electrically connected to the latch arm and to the opposite pole of the source of electrical energy for heating the latch arm and causing it to distort and disengage the contact lever to interrupt the flow of electrical energy through the fan and the coil, and remote controlled means mounted adjacent the contact lever for moving it against the effort of the yielding means and into engagement with the latch arm.

Other features include electromagnetic means mounted adjacent the contact lever for moving it against the effort of the spring and advancing it into latching engagement with the latch arm, one terminal of the electromagnet being connected to one pole of the source of electrical energy, and the opposite terminal of the electromagnet being connected to the opopsite pole of the source of electrical energy through a remotely located push button switch.

In the drawings:

Figure 1 is a view of a wall showing a window therein with this improved fan mounted in the window and connected to a source of electrical energy with the remote control means spaced from the window; and

Figure 2 is an enlarged sectional view through the switch box for controlling the fan.

Referring to the drawings in detail, a room wall is provided with a conventional window **10** in which is mounted a conventional electrically driven fan **12** having conventional extensible side wings **14** for closing the space between the fan and the stiles of the window, it being understood that the unit is adapted to rest on the window sill and to be engaged at its top by the lower sash of the window. The wall in which the window **10** is located is equipped with a conventional electrical outlet **16** which may be located adjacent the base board of the room or in any other convenient location near the window so that the electrical connections with the fan may be connected to the outlet **16**. The structure so far

described is conventional and forms no part of this invention except in conjunction therewith.

Mounted at any suitable location adjacent the fan **12** is an electrical switch unit designated generally **18** comprising a housing **20** having an end wall provided with vertically spaced insulated openings **22**. Mounted on the opposite end wall of the housing **20** within the interior thereof and electrically isolated therefrom by a suitable insulator **24** is a horizontal contact lever **26** which is adapted to move in an arcuate path within the housing. A retractile coil spring **28** is stretched between the contact lever **26** and the top wall of the housing for retracting said lever upwardly. The spring **28** is connected to an eye **30** carried by but electrically isolated from the housing **20** by a suitable nonconducting element **32**. The contact lever **26** is electrically connected to one side of the fan motor **34** by a conductor **36**, while the opposite side of the fan motor **34** is connected to one side of the electrical outlet **16** by means of a conductor **38**.

Mounted on the bottom wall of the housing **20** adjacent the free end of the contact lever **26** and extending into the arcuate path of movement thereof is a vertical thermally distortable latch arm **42** which is insulated from the housing **20**. A heating coil **44** is mounted around the thermally deformable latch arm **42** and is connected at one end to the latch arm, while the opposite end is connected to a conductor **46** which leads to the side of the outlet **16** remote from that connected to the conductor **38**. It will thus be seen that when the contact lever **26** is depressed to engage the lateral projection **40** on the upper end of latch arm **42**, electrical energy will flow from the source to which the conductor **46** is connected, through the heating coil **44** and thence through the latch arm to the contact lever **26** through the conductor **36** to the fan motor **34** and thus complete an electrical circuit through said fan motor during the period that the latch arm **42** remains in engagement with the contact lever **26**.

In order to move the contact lever against the effort of the spring **28** and into engagement with the latch arm **42**, a vertical electromagnet **48** is mounted on the bottom wall of the housing **20** beneath the contact lever **26** which has an armature **50** which is adapted to be attracted downwardly by the electromagnet **48** when the latter is energized. One terminal of the electromagnet is connected through a conductor **52** to the conductor **38**, while the opposite terminal of the electromagnet **48** is connected through a conductor **54** with one terminal **56** of a push button switch **58**, the opposite terminal of which is connected through a conductor **60** to the conductor **46**. It will thus be seen that when the push button switch **58** is closed, the electromagnet **48** will be energized to move the contact lever into engagement with the latch arm **42** beneath the projection **40** and thereby cause the fan motor **34** to be energized. The energization of the fan motor, of course, will cause the heating coil to be energized and after it has attained a predetermined temperature, the thermally distortable latch arm will move outwardly, as suggested in Figure 2, so as to disengage the latch arm projection **40** from the contact lever and permit the spring **28** to disengage the contact arm **26** from beneath the latch arm projection **40** and thereby break the circuit through the fan motor **34** and coil **44**. Obviously, the breaking of the circuit through the coil **44** will cause it to cool and permit the thermally distortable latch arm **42** to return to its initial position in which the projection **40** extends into the arcuate path through which the contact lever **26** moves.

While in the foregoing there has been shown and described the preferred embodiment of this invention, it is to be understood that minor changes in the details of construction, combination and arrangement of parts

may be resorted to without departing from the spirit and scope of the invention as claimed.

What is claimed is:

In a device of the character described, a support, a vertical electromagnet mounted on said support, a vertical thermally distortable and insulated latch arm positioned alongside of said electromagnet, said latch arm having an upper end provided with a lateral projection directed toward said electromagnet and a lower end secured to said support, an insulated horizontal contact lever overlying and spaced above said electromagnet and having an armature thereon, said contact lever having an end pivoted on said support and providing for upward and downward swinging of said contact lever relative to the electromagnet and said latch arm, said contact lever having a free end normally securably and releasably engaged under the latch arm projection in a depressed position of the contact lever, spring means acting between

said support and said contact lever yieldably urging said contact lever upwardly away from the electromagnet and from said latch arm, and a heating coil on said latch arm arranged to be energized to cause said latch arm to move in a direction away from said electromagnet from a normal position to a release position so as to disengage the latch arm projection from the free end of the contact lever.

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