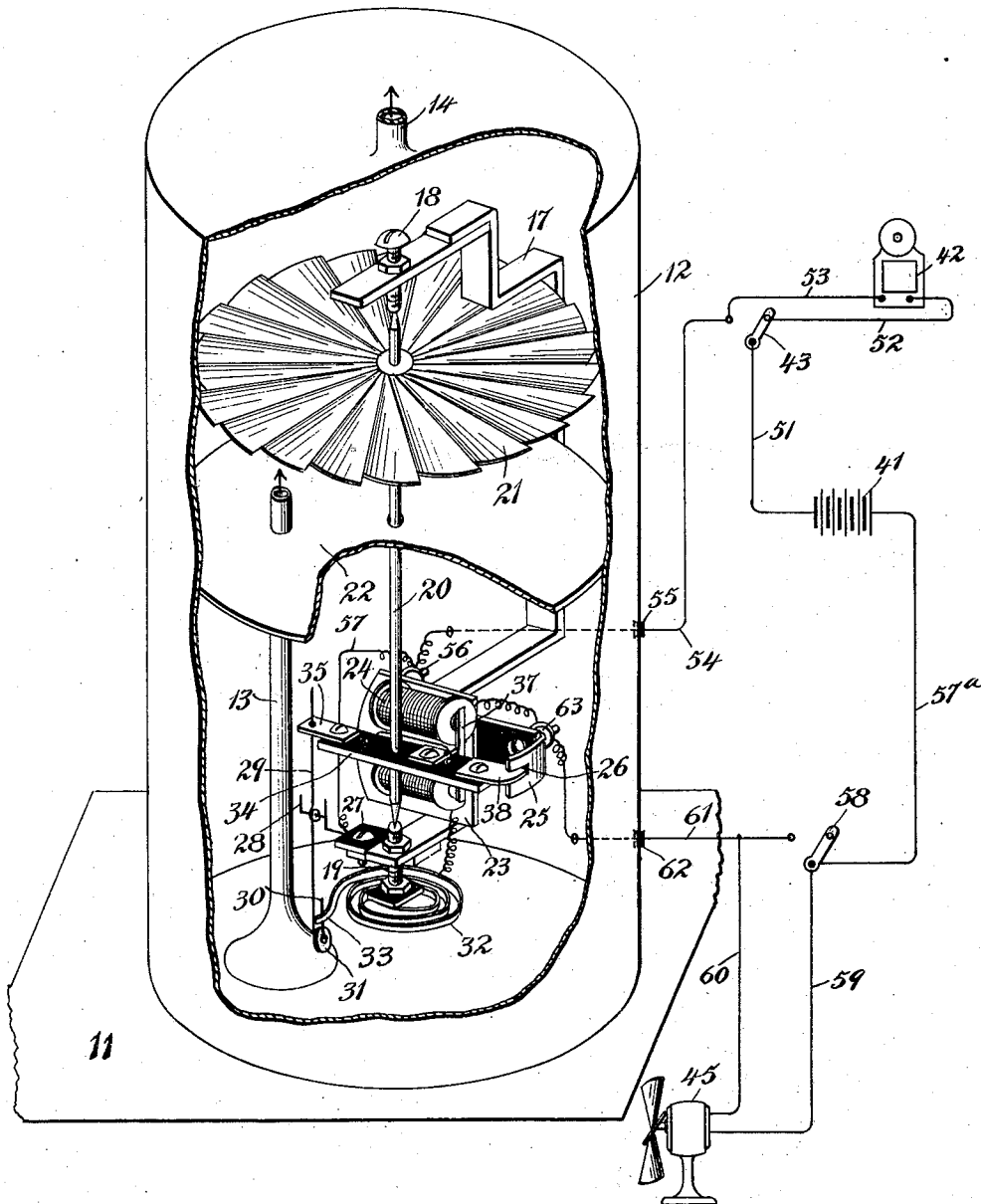


A. MALINOVSKY.
VENTILATING DEVICE.
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1,047,960.

Patented Dec. 24, 1912.



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UNITED STATES PATENT OFFICE.

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VENTILATING DEVICE.

1,047,960.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ANDREW MALINOVSKY, a citizen of the United States, and a resident of No. 622 Congress street, in the city and county of Schenectady, New York, have invented certain new and useful Improvements in Ventilating Devices, of which the following is a specification.

My invention relates to ventilating devices for rooms or other confined spaces. Its object is to protect such rooms from overheating, as by fire or otherwise, and from the escape of illuminating gas. This object is attained by utilizing a small upward current of air or gas to complete an electric circuit whereby either an alarm may be given, or ventilating means, as a window or power driven fan, may be operated; or both these results may be simultaneously secured.

In the drawing, which represents in broken perspective a preferred form of my device, 12 designates a cylindric casing located substantially at the ceiling plane of a room 11 or other confined space to be ventilated, in which casing is a small, open-end tube 13, communicating with the room 11 and funnel-shaped at its lower end. The upper end of the casing 12 opens to the outer air through a tube 14, which may be provided with any convenient means, not shown, at its upper end for the prevention of a "back draft" or reverse current.

Mounted within the casing 12 is a bracket 17 carrying at its upper and lower ends cupped set screws 18 and 19, between which is supported an axial shaft 20, on which is a fan 21, the blades of which rotate above the end of the tube 13. Mounted on the bracket 17 below the fan 21 is a screen plate 22, apertured for the passage of the tube 13 and the free rotation of the shaft 20. Secured to but insulated from the bracket 17 is a plate 23 carrying a two-pole electro-magnet 24, in front of the poles of which is an insulated metal strip 25, slotted at 26. Also mounted on the bracket 17 by means of an insulating strip 27 is a radially extending arm 28, on which is pivoted a wire 29, shown as having an upturned lower end 30, and with a weight 31, which tends to maintain the wire in a vertical position. Supported by but insulated from the set screw 19 is a spirally coiled spring 32, the free end 33 of which projects radially in the path of pivotal movement of the swing-

ing wire 29. Fast on the shaft 20 of the fan 21 is an insulating strip 34, carrying at one end a metal plate 35 perforated at 36 for the free passage of the wire 29. The strip 34 also carries an insulated armature 37 positioned to move in the path of attraction of the poles of the magnet 24; and a metal blade 38 positioned to enter the slot 26 in the strip 25 and to form therewith a knife-switch.

Outside of the casing 12 and at any desired points either within or without the room to be ventilated are a battery 41; an alarm signal, shown as a buzzer bell 42; and a switch 43. In a window or any convenient opening in the wall 44 of the room to be ventilated may be provided a motor driven fan 45 for rapidly changing the air therein.

The wiring is as follows: From one pole of battery 41 a wire 51 passes to the lever of switch 43, the buttons of which are connected by wires 52-53 to the poles of the magnetic bell 42, one of said buttons being also connected by wire 54, which passes through an insulated aperture 55 in casing 12, to a clip 56, whence a wire 57 passes to arm 28, with which wire 29 has metallic connection. From the other pole of battery 41 a wire 57^a passes to the lever of a switch 58, one button of which is connected by wire 59 with one pole of the motor of a fan 45, the other motor pole of which is connected by wire 60 with the other button of switch 58, from which also leads a wire 61, passing through aperture 62 in casing 12, connecting through a clip 63 with slotted plate 25. Plate 25 is connected by wire 64 to one pole of magnet 24, the other pole of which is connected by wire 65 to spiral spring 32. Plate 36, through which swinging wire 29 passes, is connected by wire 66 to blade 38.

The operation of the device as here shown is as follows: If the air of the room becomes overheated, or if illuminating gases escape into the room, the heated air or gas rises through the tube 13, overcomes the inertia of the fan 21, and, through the partial rotation of the fan, the shaft 20 and the strip 34, swings the wire 29 so that its lower end contacts with the end of the spiral spring 32, thus energizing magnet 24. The rotation of strip 34 also approaches armature 37 to the poles of the magnet, and introduces blade 38 into slot 26. The pull of magnet 24 on armature 37

assists in making a good contact between blade 37 and plate 25, completing a circuit which includes, with the switches 43 and 58 in the positions shown, battery 41, alarm 5 42, swinging wire 29, spring 32, knife-switch 38—25, ventilating device 45 and connections as described. By throwing switch 43, the ventilating fan 45 may be operated without sounding the alarm 42; or by throwing 10 switch 58, the alarm may be rung without operating the fan 45. It is obvious that the action of the alarm or the fan, or both, will continue until the circuit is purposely broken, as at switch 43 or 58, when spring 15 32 will tend by its pressure against wire 29 to return fan 21 to its normal position and thus open knife-switch 38—25.

The function of screen-plate 22 is to protect the moving parts from a possible back- 20 draft or reverse current through tube 14.

It will be evident that my invention, whether in the form shown or in equivalent but mechanically altered forms, may be installed in many different ways and for 25 divers purposes. Thus, the battery and alarm, without the ventilating means, may be placed in the apartment to be regulated to call the attention of its occupant to its overheating or to the escape of gas. Or, the 30 battery and ventilating device, without an alarm, may be employed to automatically renovate the air in the room. Or, the alarm may be placed in a hotel office and wired to each room to call a clerk's attention to the 35 escape of gas, whether this was accidental, or with suicidal intent. Or, in the latter case, the resistance of the fan may be increased, as by very slightly setting down the screw 18, so that a relatively strong current 40 through the tube 13 would be required to make the circuit, when the device would form an efficient fire alarm.

Broadly considered, my invention includes any device for ameliorating or improving the condition of the air in an apartment, either by withdrawing overheated air 45 or gas therefrom, or by forcing or admitting fresh air thereonto, provided that such means is set in operation by the action of a current of heated air or gas, the volume of 50 the escaping gas being so small as to be negligible. The ameliorating means may

act either directly to ventilate the room, or indirectly by calling the attention of an occupant or other interested person to the need 55 of such ventilation, or by simultaneously employing both of these means. To avoid alternative claims, I will therefore use the phrase "means for ameliorating the condition of the air" to means either the alarm, 60 the ventilating means, or both of these in conjunction. I prefer to utilize the escaping current of air or gas to close—or open—an electric circuit, as in this way a current too small to interfere with the heating of the 65 room may be employed. It may be assumed that the escaping current is continuous, but the device is arranged so that an increased flow, caused by a high temperature or light gas is required to operate the ameliorating 70 means.

By the term "negligible", as applied in the claims to the volume of air or other gas normally permitted to escape from the room, I intend a volume negligible with respect to 75 the total volume of air in the room, *i. e.*, so small as not to materially or noticeably affect the temperature or ventilation of the room.

What I claim is: 80

1. In combination, a room having a small aperture in its upper wall for the escape of a negligible volume of a gas therefrom; an electric circuit; a closing device for said circuit located adjacent said aperture and 85 having a moving part actuable by the movement of such escaping gas therethrough; and means for ameliorating the air in the room controllable by the closing of said circuit. 90

2. In combination, a room having a small aperture in its upper wall for the escape of a negligible volume of a gas therefrom; an electric circuit; a closing device for said circuit located adjacent said aperture and having 95 a moving part actuable by the movement of such escaping gas therethrough; and means for ventilating the room controllable by the closure of said circuit.

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Witnesses:

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