

Nov. 14, 1939.

P. BERNHARDT

2,179,707

VENTILATOR

Filed May 14, 1936

2 Sheets-Sheet 1

FIG. 1.

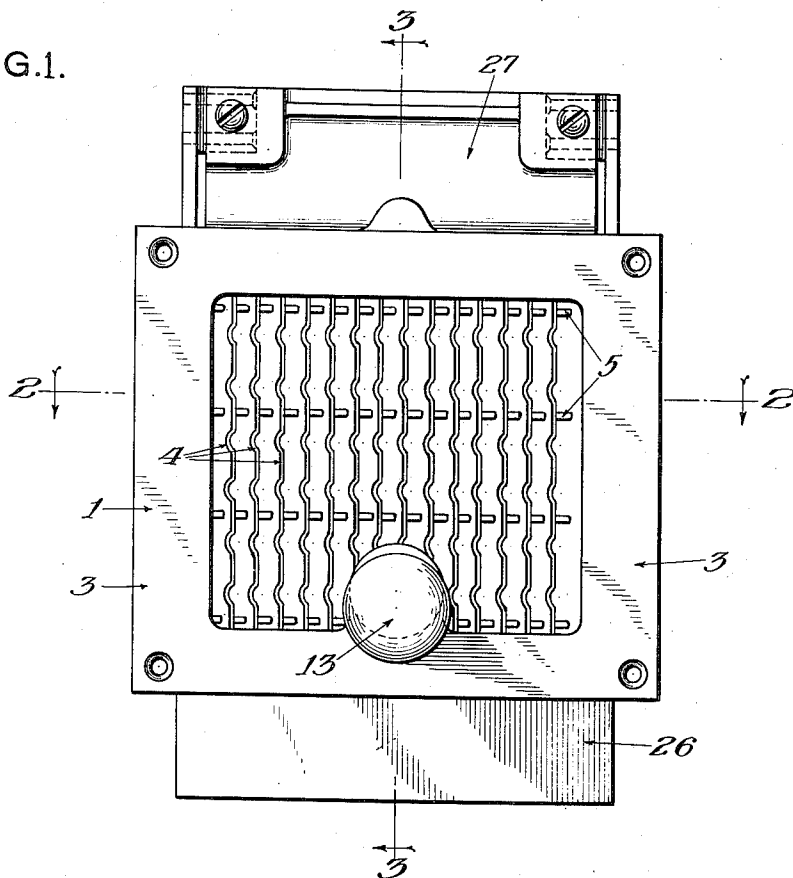


FIG. 6.

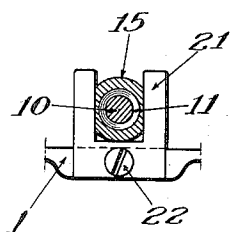


FIG. 2.

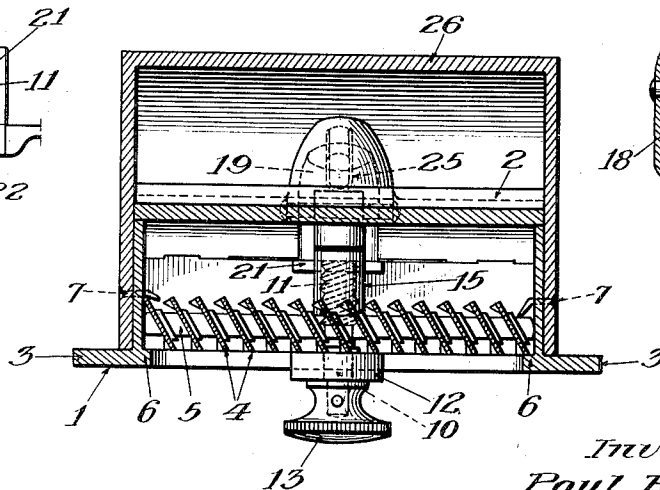
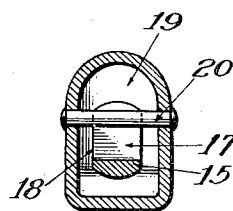


FIG. 7.



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FIG.3.

FIG.4.

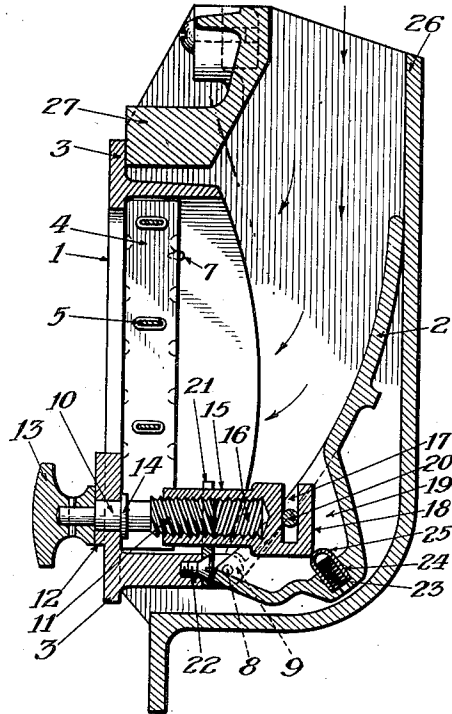
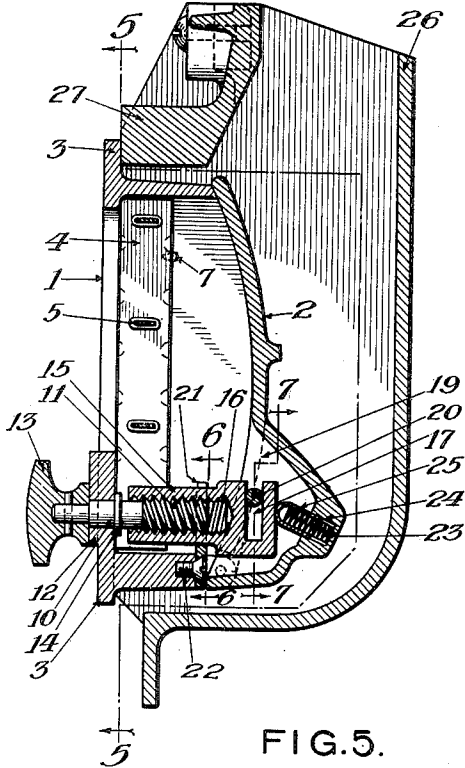
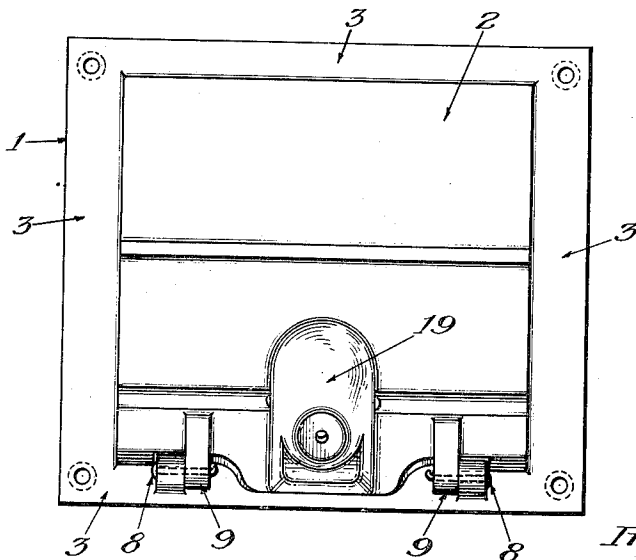


FIG.5.



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UNITED STATES PATENT OFFICE

2,179,707

VENTILATOR

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Application May 14, 1936, Serial No. 79,656

7 Claims. (Cl. 98—106)

This invention relates to a ventilator or similar appliance.

The ventilator to which the invention applies in particular is of the type in which a frame or casing enclosing a passage for the delivery of air therethrough is provided with an adjustable damper arranged to control the flow of air through the passage.

The invention has for its object to provide the damper with an actuator by which it is readily movable to adjust its position and then firmly retained in its adjusted position.

Another object is to provide a ventilator which is simple in construction and durable and efficient in service and which may be readily assembled and disassembled.

Another object is to provide a unitary ventilator which may be readily installed.

Another object is to provide a ventilator which may be readily and economically manufactured.

According to the invention as it is ordinarily embodied in practice, the ventilator is provided with a frame or casing enclosing a passage for the delivery of air therethrough, an adjustable damper arranged to control the flow of air through the passage, a rotatable operating spindle having a screw thread to form a screw thereon, a connecting link carried by the operating spindle to be movable by the screw in an axial direction thereto and having a transverse groove, and a pin attached at both ends to the damper and arranged lengthwise in the groove.

The ventilator which is hereinafter described and illustrated in the accompanying drawings to exemplify the invention has been devised primarily to control the delivery of fresh or conditioned air into railroad cars, but as will be readily understood, the invention may take and assume other forms and be embodied in other appliances for various uses and purposes.

The views of the ventilator shown in the accompanying drawings and hereinafter described are as follows:

Fig. 1 is a front view of the ventilator arranged in an air delivery box.

Fig. 2 is a transverse section on the line 2—2 Fig. 1.

Fig. 3 is a vertical section on the line 3—3 Fig. 1, showing the damper in its closed position.

Fig. 4 is a vertical section on the line 3—3 Fig. 1, showing the damper in its open position.

Fig. 5 is a rear view of the ventilator on the line 5—5 Fig. 3.

Fig. 6 is a sectional view through the actuator spindle and link on the line 6—6 Fig. 3.

Fig. 7 is a sectional view through the link on the line 7—7 Fig. 3.

The ventilator is provided in general with a frame or casing 1 enclosing a passage for the delivery of air therethrough, an adjustable damper 2 arranged at the rear of the casing to control the admission of air thereto and the delivery of air therefrom, and an actuator connected to the damper to adjust its position and retain it in a fixed position after its position has been adjusted.

The casing 1 has an outward flange 3 at its outer edge to position it in its support and facilitate fastening it in place by screws or other instrumentalities, and it has thereon across the front of the passage therethrough a removable grating to obstruct access thereto and keep extraneous objects therefrom.

The grating is formed by strips 4 arranged apart from each other and carried by bars 5 arranged apart from each other and passing through the strips, and it is retained in place in the casing by a ledge 6 therein and pin 7 attached to the casing and bent over the grating.

The damper 2 is pivoted to the casing at its bottom by removable pintles 8 passing into lugs 9 on the damper and casing, and thereby its position is adjustable to control the admission of air to the casing and the delivery of air therefrom.

The actuator by which the damper is moved at will to adjust its position and retain it in a fixed position after its position has been adjusted, is provided with a rotatable operating spindle 10 having a steep pitch screw thread at its inner end to form a steep pitch screw 11.

The spindle 10 is supported by a bearing 12 formed on the casing and rotatable by a knob 13 on its outer end, and it is retained from axial movement in its bearing by a flange 14 formed upon it on the inside of its bearing and the knob 13 on the outside of its bearing.

The spindle carries and supports a link 15 that is movable by the screw in an axial direction thereto, and it is connected to the damper to adjust the position thereof upon the spindle being turned or rotated.

The link 15 has at its front end a screw threaded socket 16 to receive the screw 11, and it has near its rear and a transverse groove 17 to form a hook 18 thereon.

The damper has formed therein a pocket 19 to receive the link, and a pin 20 is attached at both ends to the damper within the pocket.

The pin is arranged lengthwise in the grooves

to connect the link to the damper and facilitates disconnecting the damper from the link.

The link is retained from rotation by a guide 21 embracing the link and attached to the casing by screws 22.

The damper and the link have interposed therebetween to keep the damper from chattering, a spring 23 setting in a socket 24 in the pocket and having a cap 25 engaging the link and slidable into the socket.

When the spindle is turned or rotated, the screw will impart a ready and quick movement to the damper to adjust its position, but after the damper has had its position adjusted, it will be retained by the screw in a fixed position until the spindle is again rotated to readjust its position.

The ventilator set forth herein may have its parts readily disassembled by removing the pintles from the lugs on the damper or casing and the knob from the spindle, and then dissociating the damper from the actuator and casing and the actuator from the casing, and likewise, it may have its parts reassembled by reassociating the actuator with the casing and the damper with the actuator and casing, and replacing the pintle in the lugs on the damper or casing and the knob on the spindle.

The railroad cars in which the particular ventilator described herein is devised to be used, have installed in the walls thereof at suitable places a box 26 to support the ventilator.

The box has an open top to admit thereto fresh air supplied through a conduit from the source of fresh or conditioned air, and an open front to receive the casing of the ventilator.

The ventilator is retained in place upon the box by the flange on its casing being fastened by screws to the wall around the box.

The box has across its front and top above the casing of the ventilator a removable plate 27 attached to lugs therein by screws.

The invention which has been set forth herein is susceptible of various other embodiments from that obtaining in the particular embodiment thereof described in detail herein to explain its principles.

The invention described in the foregoing specification and shown in the drawings forming a part thereof, is hereby defined and claimed as follows:

1. An appliance such as described, comprising, in combination, a casing enclosing a passage, a movable damper having its position adjustable to control the entrance to said passage, a link having a transverse groove, a rotatable spindle carrying said link and having a screw thread to move said link in an axial direction thereto, and a pin having both ends attached to said damper and arranged lengthwise in said groove to connect said damper to said link.

2. An appliance such as described, comprising, in combination, a casing enclosing a passage, a damper pivoted to said casing, and having its position adjustable to control the entrance to said passage, a link having a transverse groove, a rotatable spindle carrying said link and having a screw thread to move said link in an axial direction thereto, a bearing retaining said spindle from axial movement, a guide retaining said link from turning, and a pin having both ends attached to said damper and arranged length-

wise in said transverse groove to connect said link to said damper.

3. An appliance such as described, comprising, in combination, a casing enclosing a passage, a movable damper having its position adjustable to control the entrance to said passage, a link having a transverse groove, a rotatable spindle carrying said link and having a screw thread to move said link in an axial direction thereto, a bearing retaining said spindle from axial movement, a pin having both ends attached to said damper and arranged lengthwise in said groove to connect said damper to said link, a guide retaining said link from turning, and a spring arranged between said damper and said link to keep said damper from chattering.

4. An appliance such as described, comprising, in combination, a casing enclosing a passage, a damper pivoted to said casing and having its position adjustable to control the entrance to said passage, a link having a transverse groove, a rotatable spindle carrying said link and having a screw thread to move said link in an axial direction thereto, a guide retaining said link from turning, a pin having both ends attached to said damper and arranged lengthwise in said transverse groove to connect said link to said damper, and a spring arranged between said damper and said link to keep said damper from chattering.

5. A ventilator, comprising in combination, a casing enclosing a passage for the delivery of air therethrough, an adjustable damper arranged to control the flow of air through said passage, a rotatable operating spindle retained in a fixed axial position and having a screw thread to form a screw, a link arranged on said spindle to be moved in an axial direction thereto by said screw and connected to said damper to adjust its position and retain it in a fixed position after its position has been adjusted, and a spring arranged between said link and said damper to keep said damper from chattering.

6. An appliance such as described, comprising, in combination, a casing enclosing a passage, a movable damper arranged to control the entrance to said passage and having a pocket formed therein, a link projecting into said pocket and having a transverse groove, a rotatable operating spindle carrying said link and having a screw thread to move said link in an axial direction thereto, a bearing retaining said spindle from axial movement, a pin having both ends attached to said damper within said pocket and arranged lengthwise in said groove, and a guide retaining said link from turning.

7. An appliance such as described, describing, in combination, a casing enclosing a passage, a movable damper arranged to control the entrance to said passage and having a pocket formed therein, a link projecting into said pocket and having a transverse groove, a rotatable operating spindle carrying said link and having a screw thread to move said link in an axial direction thereto, a bearing retaining said spindle from axial movement, a pin having both ends attached to said damper within said pocket and arranged lengthwise in said groove, a guide retaining said link from turning, and a spring arranged in said pocket between said link and said damper to keep said damper from chattering.

PAUL BERNHARDT.

CERTIFICATE OF CORRECTION.

Patent No. 2,179, 707.

November 14, 1939.

PAUL BERNHARDT.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1, second column, line 23, for the word "pin" read pins; line 50, for "and" read end; line 54, for "packet" read pocket; line 55, for "grooves" read groove; page 2, first column, line 64, claim 2, after "casing" strike out the comma; and second column, line 27, claim 4, for "transferse" read transverse; line 57, claim 7, for "describing" read comprising; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 26th day of December, A. D. 1939.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.