

March 23, 1943.

H. M. WOELFEL

2,314,850

AIR VENT

Filed Dec. 21, 1940

2 Sheets-Sheet 1

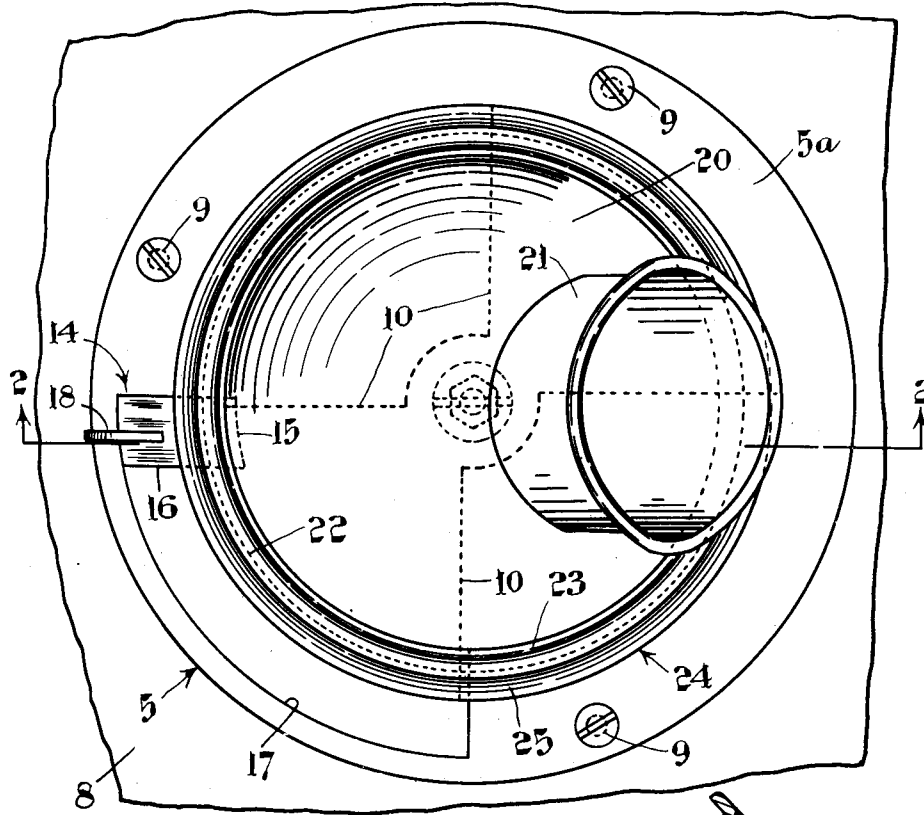


FIG. 1

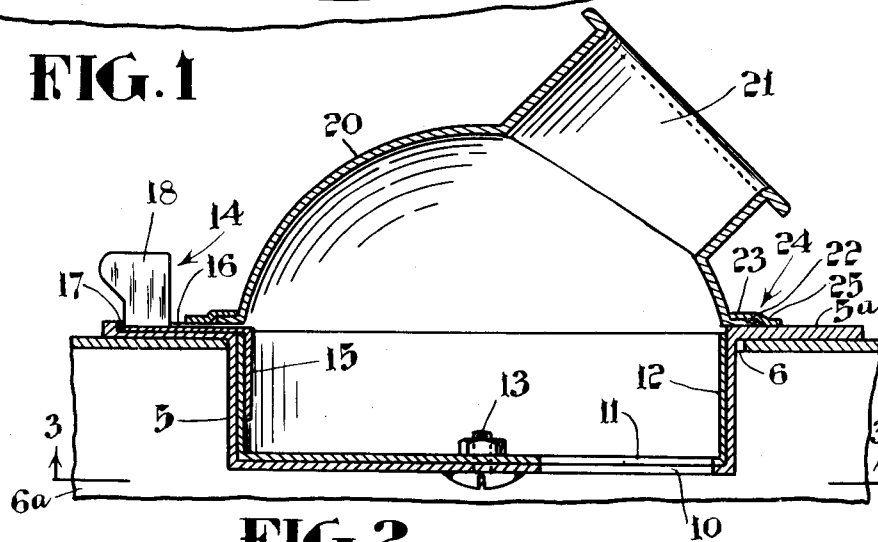


FIG. 2

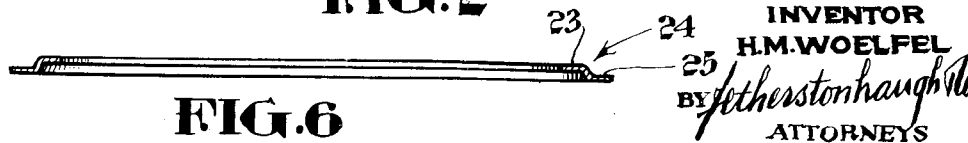


FIG. 6

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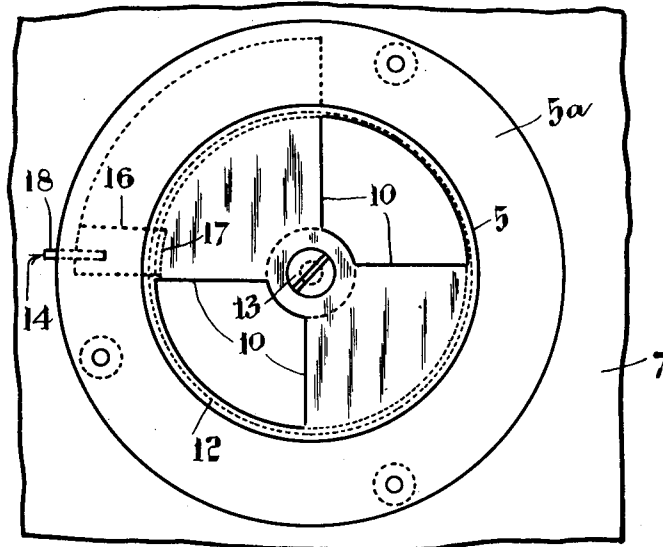


FIG. 3

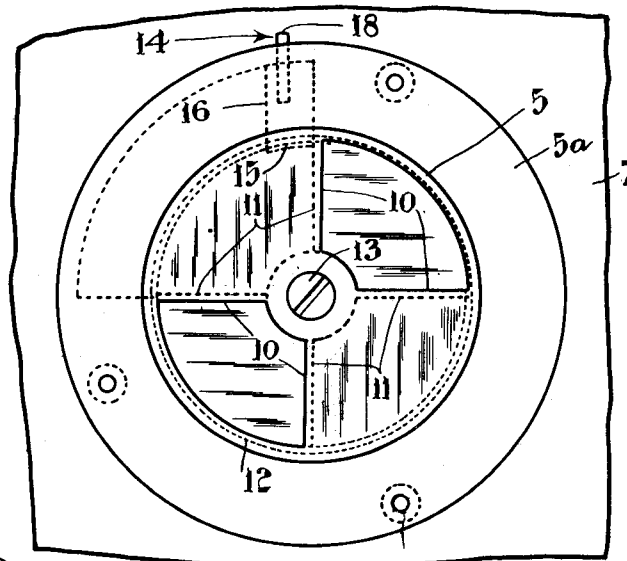


FIG. 4

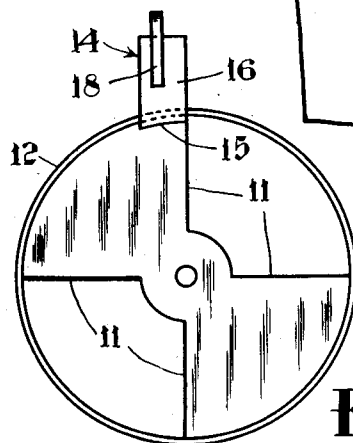


FIG. 5

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UNITED STATES PATENT OFFICE

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3 Claims. (Cl. 98—40)

This invention relates to air distributing outlets for air conditioning and ventilating systems and it comprises an outlet embodying independently operable means for varying both the direction and the volume of air delivered therethrough.

In its preferred embodiment the invention comprises a casing or body member adapted to be mounted in an opening provided in the wall of an air duct, said casing being provided with air admission openings controlled by a damper which is adjustable to regulate the volume of air which is permitted to pass into the casing from said duct and being also provided with an outlet opening in communication with an air delivery nozzle which is rotatably secured to the casing so that it may be turned to direct the air discharging therethrough in any desired direction.

An important feature of this assembly is that the damper controlling the admission of air to the casing or body member is operable independently of the nozzle so that the volume or quantity of air delivered through the nozzle in any adjusted position may be varied by means of the damper.

Proceeding now to a more detailed description reference will be had to the accompanying drawings, in which—

Fig. 1 is a plan view of the invention as applied to a duct of a ventilating or air conditioning system.

Fig. 2 is a sectional view taken substantially along the line 2—2 of Fig. 1.

Fig. 3 is a sectional view along the line 3—3 of Fig. 2. In this view the air outlet device is shown as it appears with the damper in fully open position.

Fig. 4 is a view similar to Fig. 3 but showing the damper in fully closed position.

Fig. 5 is a plan view of the damper per se, and

Fig. 6 is a sectional view of a nozzle retaining ring.

Referring more particularly to the drawings, 5 designates a cup-shaped casing or body member which is fitted in an opening 6 provided in the wall 7 of an air duct 6a. The mouth portion of the casing or body member 5 is provided with an outwardly directed rim or flange 5a which is fastened to the duct wall 7 by screws 9 or other suitable fastening means. The bottom wall of casing 5 is provided with two diametrically opposite segment shaped air admission openings 10 adapted to register at times with similar openings 11 provided in the bottom wall of a cup-shaped damper 12 which is rotat-

ably mounted in the casing 5, as shown to advantage in Fig. 2. In this connection it will be noted that the central portion of the bottom wall of the damper 12 is rotatably secured to the central portion of the bottom wall of the casing 5 by means of a fastening screw 13 about which the damper is turnable to shift the openings 11 thereof into and out of registration with the casing openings 10. The circumferential wall of the damper 12 is positioned close to the circumferential wall of the casing 5 and is equipped with a handle member 14 by which the damper is turned relatively to the casing to vary the amount of air which is permitted to enter the casing through the openings 10 and 11. The handle member 14 comprises an angular strip of metal presenting a vertical arm 15 which is welded or otherwise secured to the circumferential wall of the damper 12 and a horizontal arm 16 which is movable along the length of an arcuate recess 17 provided in the upper surface of the casing rim or flange 5a. Arm 16 is provided with an upwardly projecting finger piece 18 by means of which the arm 16 is moved along the length of the recess 17 to rotate the damper 12 about the central fastening screw 13.

The top or open side of casing 5 is covered by a dome-shaped member 20 provided with an obliquely directed nozzle extension 21. The dome-shaped member 20 is provided with a flange 22 which is rotatably fitted in an annular channel formed between the outer surface of the casing flange 5a and the outwardly offset inner portion 23 of a nozzle retaining ring 24, the outer portion 25 of said ring being welded or otherwise secured to the flange 5a. This method of fastening the dome-shaped member 20 to the casing 5 permits the nozzle extension 21 to be turned to various adjusted positions about an axis passing through the center of the damper fastening screw 13 and thus permits the air delivered through the nozzle to be directed in any desired direction. It will also be evident that, for any given position of the nozzle extension 21, the volume of air delivered therethrough may be regulated by moving the finger piece 18 along the slot 17 to change the position of the damper 12.

The adjustable air outlet device described herein is adapted for use in air conditioned railway cars where it is especially desirable that the volume and direction of air delivered through each outlet be independently adjustable. It will be understood, however, that the outlet in question is intended for use in connection with any

type of air conditioning or ventilating system to which it is applicable.

Having thus described my invention what I claim is:

1. An air distributing outlet of the character described comprising a cup-shaped casing provided at the top or open-side with an integral outwardly directed flange, a cup-shaped damper rotatably mounted in said casing, said casing and damper being provided with complementary air admission openings formed in corresponding wall portions thereof located below the top or open-side of said casing, a dome-shaped cover provided at its lower edge with an integral outwardly directed flange butted against the upper surface of said first mentioned casing flange, a channel forming ring rigidly secured to the upper surface of said casing flange so that a portion of said ring overlies and engages the upper surface of the cover flange whereby said cover flange is mounted for turning movement about an axis passing centrally through the bottom wall of said casing but is held against tilting movement relative to said axis, said cover being provided with an air outlet opening whose central axis is obliquely inclined with reference to said first-mentioned axis.

2. An air distributing outlet as set forth in claim 1 including a handle member secured to said damper and having a portion thereof extending outwardly through an arcuate recess formed in the upper surface of the casing flange.

3. An air distributing outlet of the character described comprising a cup-shaped casing pro-

vided at the top or open side with an integral outwardly directed flange of substantial width, a channel-forming ring secured to the upper surface of said flange to form therewith an inwardly opening channel immediately adjacent the open top of said casing, said channel-forming ring being of less width than the casing flange and being arranged with its outer edge spaced inwardly a substantial distance from the corresponding edge of said flange, said flange being provided with an arcuate recess in its upper surface which is made wider than said ring so that the latter covers only the inner portion of said recess, a dome-shaped cover provided, at its lower edge, with an integral outwardly directed flange fitted in the channel formed by and between said casing flange and said channel-forming ring, said cover being provided with an air outlet opening inclined so that its central axis is at an angle to the central axis of said casing, a cup-shaped damper rotatably mounted in said casing, said casing and damper being provided with complementary air admission openings formed in corresponding wall portions thereof located below the top openings of said casing, a handle member secured to said damper and having a portion thereof extending outwardly, within the recess of the casing flange, to a point beyond the outer edge of the channel forming ring and a finger piece secured to that portion of the handle member which projects between the outer edge of the channel-forming ring.

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