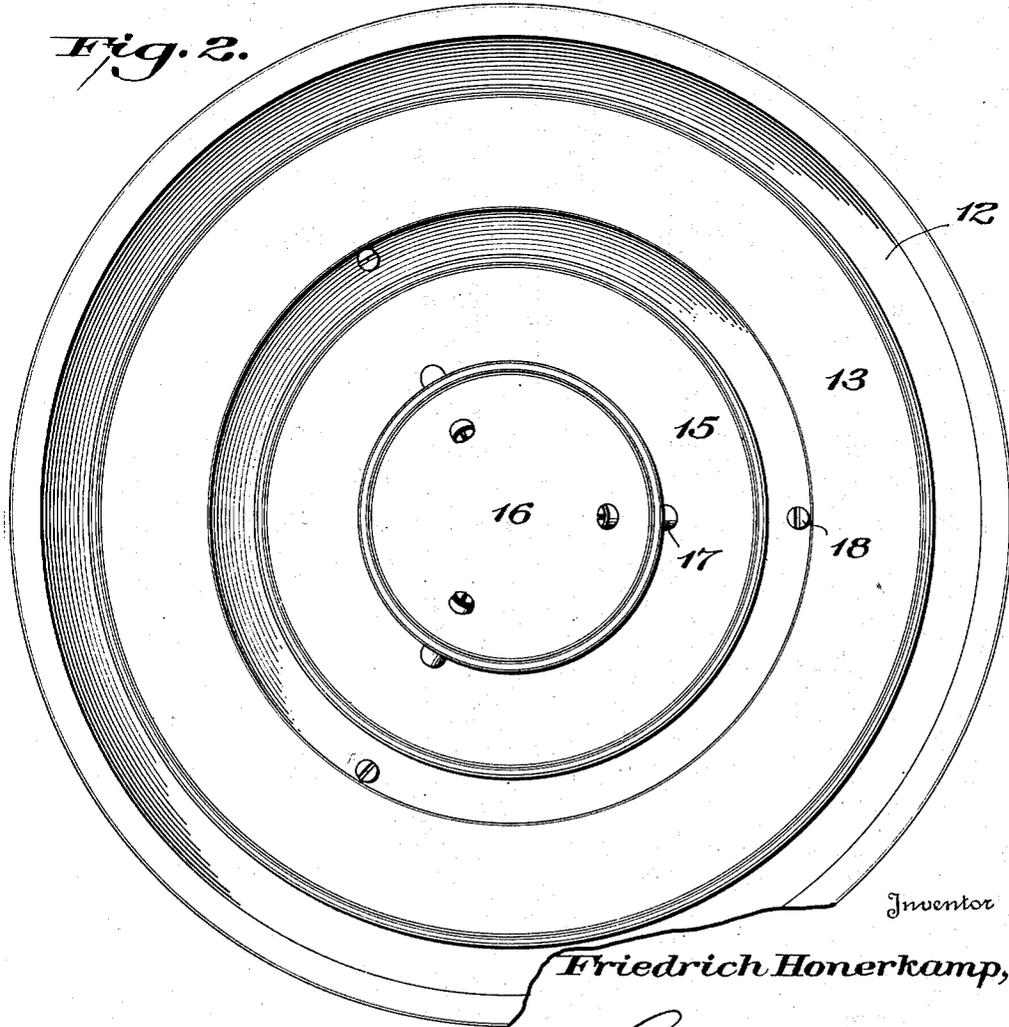
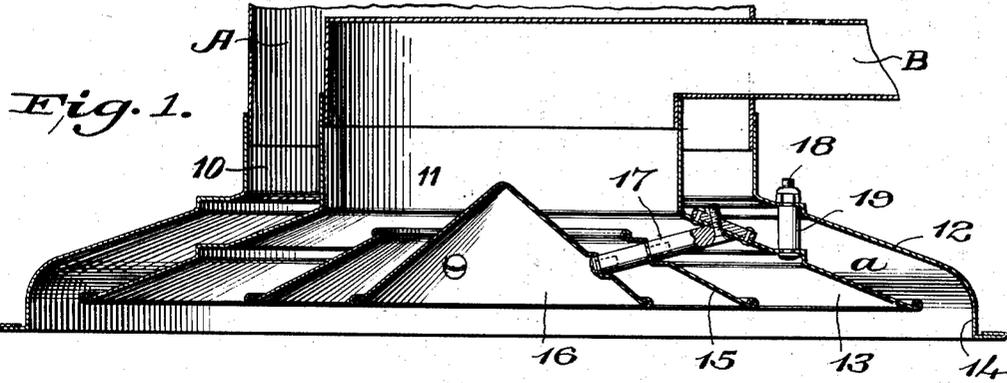


Nov. 28, 1950

F. HONERKAMP
AIR OUTLET DEVICE
Filed Aug. 8, 1945

2,531,733



Inventor

Friedrich Honerkamp,

Carroll Bailey
Attorney

UNITED STATES PATENT OFFICE

2,531,733

AIR OUTLET DEVICE

Friedrich Honerkamp, New York, N. Y., assignor
to Anemostat Corporation of America, New
York, N. Y., a corporation of Delaware

Application August 8, 1945, Serial No. 609,515

3 Claims. (Cl. 98-40)

1

This invention relates to ventilating apparatus, and has particular reference to improvements in air outlet devices through which air is delivered from air supply ducts into enclosures.

More particularly, the invention relates to an air outlet device especially for, but not limited to, use in delivering heating, cooling or simply ventilating air into relatively narrow enclosures such, for example, as railway cars, motor buses and other land vehicles and the cabins of aircraft, marine vessels and the like.

In order to avoid discomfort to occupants of an enclosure such as mentioned it is necessary that air for heating, cooling or simply ventilating purposes be delivered into the enclosure in some special manner other than in blast form. Moreover, to this end and to the end of securing the greatest benefit from heating, cooling or simply ventilating air delivered into such an enclosure, it usually is necessary that the air be delivered in different manners for said different purposes. At the same time, for the sake of simplicity, economy, conservation of space and other reasons, it is desirable to provide an air outlet device which does not include adjustable parts requiring adjustments to render it suitable for the satisfactory delivery of air for any one of said purposes.

Accordingly, one special and important object of the present invention is to provide an air outlet device which is of simple, inexpensive construction; which is compact and occupies comparatively little space; and which, without including adjustable parts requiring adjustment to adapt it to deliver either heating, cooling or simply ventilating air in a satisfactory manner, is effective to accomplish this purpose because of the novel construction, combination and relationship of its elements.

The present device is of the well known general type including a plurality of open-ended, hollow flaring members spaced apart to provide flaring air passageways therebetween, and in this connection another special and important object of the invention is to connect a plurality of said members together as a unit for unitary installation in and removal from the device, and to advantageously provide readily accessible means, entirely separate and distinct from the means connecting said plurality of members together as a unit, to enable said unit readily and easily to be installed in and removed from the device.

With the foregoing and other objects in view, which will become more fully apparent as the nature of the invention is better understood, the

2

same consists in an air outlet device embodying the novel features of construction, combination and arrangement of elements as will be hereinafter more fully described, illustrated in the accompanying drawings and defined in the appended claims.

In the accompanying drawings, wherein like characters of reference denote corresponding parts in the different views:

Figure 1 is a central, longitudinal section through an air outlet constructed in accordance with the invention; and

Figure 2 is an end elevation looking toward the outer end of the device.

Referring to the drawings in detail, it will be observed that the present device includes an outer, preferably but not necessarily, cylindrical air supply neck, designated as 10, and a smaller, preferably but not necessarily, cylindrical inner air supply neck, designated as 11, disposed preferably, but not necessarily, concentrically, within and spaced from said outer air supply neck.

It will further be observed that a flaring member 12 extends forwardly from the front end of the outer neck 10; that a flaring member 13 extends forwardly from the front end of the inner neck 11 and is spaced from the flaring member 12 to provide between the same and said flaring member 12 an annular flaring passageway *a* of ring-like form; that the front end portion 14 of the flaring member 12 is directed inwardly relative to the rear portion of said member to intercept air flowing through said flaring passageway *a* and to deflect it forwardly from the device, and that, within the flaring member 13, are other annular flaring members 15 and 16 constituting means to intercept air flowing from the inner neck 11, to divide it into separate ring-like streams and to deflect it laterally from the device.

The outer neck 10 is connected with an air supply duct A and the neck 11 is connected with an air supply duct B separate from the duct A. The air supplied through the duct A may be of one kind, heating air for example, and the air supplied through the duct B may be of a different kind, cooling air for example. Or, if desired, the air supplied through both ducts may be of the same kind, either heating or cooling or simply ventilating air for example. Moreover, air may be supplied through both ducts simultaneously, or, at any given time, air may be supplied through only one of said ducts to the exclusion of any supply of air through the other of said ducts.

In any event, the device, together with suitable valve or damper means (not shown) for controlling flow of air to and through the necks 10 and 11, may be employed to deliver either heating, cooling or simply ventilating air into a narrow enclosure in a satisfactory manner with reference to the comfort of occupants of the enclosure.

For example, assuming that the device is mounted at or near the top, and midway or approximately midway between the sides, of a narrow enclosure and that the necks 10 and 11 are connected to separate ducts for supplying heating and cooling air, respectively, it is apparent that by opening one and closing the other of the valve or damper means aforementioned, air for heating purposes may be supplied to the neck 10 to the exclusion of any supply of air to the neck 11, or that air for cooling purposes may be supplied to the neck 11 to the exclusion of any supply of air to the neck 10.

If air for heating purposes is supplied to the neck 10, it will be caused by the flaring member 13 to flow laterally outward through the flaring passageway *a* in more or less diffused, ring-like form, to the margin of the device where it will be intercepted by the wall portion 14 of the flaring member 12 and deflected by said wall portion more or less forwardly from the device, depending upon the angularity of said wall portion to the longitudinal axis of the device. It will thus be delivered in non-blast form practically without causing any discomfort to occupants of the enclosure and, at the same time, in directions to afford the occupants of the enclosure the greatest benefit therefrom.

If, on the other hand, air for cooling purposes is supplied to the neck 11, it will be divided into separate, ring-like streams and be deflected laterally outward by the members 15 and 16 with the result that it will be diffused and be delivered in other than blast form practically without causing any discomfort to occupants of the enclosure and, at the same time, in a manner to afford the occupants of the enclosure the greatest benefit therefrom.

Alternatively, some cooling air may be supplied through the neck 10 simultaneously with supply of some heating air through the neck 11, or air solely for heating, cooling or simply ventilating purposes may be supplied simultaneously through both necks 10 and 11. In any such case, the respective air streams obviously will intersect and become intermixed and thoroughly diffused in front of and immediately adjacent to the device with the result that occupants of the enclosure will not be subjected to any sensation of blast or draft and yet will be afforded the benefit of the air delivered to the enclosure either for cooling, warming or simply ventilating purposes.

The device may include only a single flaring member or any desired plurality of flaring members within the flaring member 13, and in this connection, if only a single flaring member is provided within said flaring member 13, it may be either closed or open at its rear end. Likewise, if a plurality of flaring members are provided within the flaring member 13, the smaller or innermost of said plurality of flaring members may be either closed or open at its rear end. On the other hand, all other of said plurality of flaring members would be open at both ends.

A feature of the invention, applicable to any outlet device of the general type illustrated and described, is that the flaring members inwardly

of the flaring member 12 are connected together as a unit for unitary assembly with and disassembly from said flaring member 12, and that means separate from the means connecting said flaring members together as a unit is advantageously employed for removably mounting said unit in assembly with said flaring member 12. In this connection it will be noted that the flaring members inwardly of the flaring member 12 are connected together as a unit by struts 17 and that said unit is mounted within the flaring member 12 by bolts 18 passing through the flaring members 12 and 13 and through spacing thimbles 19 interposed between said flaring members. It will further be noted that the bolts 18 are located where they are readily accessible from the front of the device so that assembly and disassembly of the flaring member unit with and from the flaring member 12 is greatly facilitated, especially as compared with extending the struts 17 beyond the flaring member 13 and utilizing the extensions of said struts as means for removably mounting the flaring member unit within the flaring member 12.

From the foregoing description considered in connection with the accompanying drawing it is believed that the construction and operation of the device will be clear and its advantages appreciated. It is desired to point out, however, that while only a single, specific embodiment of the invention has been illustrated and described, the same is readily capable of embodiment in specifically different structural forms within its spirit and scope as defined in the appended claims.

I claim:

1. Air outlet means comprising two separate air supply ducts to be used, one for the supply of air of one kind and the other for the supply of air of a different kind, the outlet end portion of one of said ducts being disposed within the outlet end portion of the other of said ducts, a pair of members connected to the outlet end portions of said ducts, respectively, and extending laterally therefrom in spaced apart relationship to each other to provide therebetween an air outlet passageway leading laterally from the outer of said ducts, means to cause air delivered from the outer duct through said passageway to be directed forwardly from said passageway, and means to cause air delivered from the inner duct to be deflected laterally outward therefrom.

2. Air outlet means comprising two separate air supply ducts to be used, one for the supply of air of one kind and the other for the supply of air of a different kind, the outlet end portion of one of said ducts being disposed within the outlet end portion of the other of said ducts, means including an air deflecting member disposed in the path of flow of air discharged from said outer duct to cause air delivered from the outer of said ducts to be deflected first laterally outward and then forwardly therefrom, and means including an air deflecting member mounted in front of and spaced from the discharge end of said inner duct to cause air delivered from the inner of said ducts to be deflected laterally outward therefrom.

3. Air outlet means comprising two separate air supply ducts to be used, one for the supply of air of one kind and the other for the supply of air of a different kind, the outlet end portion of one of said ducts being disposed within the outlet end portion of the other of said ducts, a pair

5

of flaring members connected to the outlet end portions of said ducts, respectively, and extending in spaced relationship to each other to provide therebetween an air outlet passageway leading laterally outward from the outer of said ducts, air deflector means adjacent to the forward end of the outer of said members to cause air delivered from the outer of said ducts through said passageway to be directed forwardly from said passageway, and air deflector means mounted in front of the outlet end of the inner duct to cause air delivered from said inner duct to be deflected laterally outward therefrom.

FRIEDRICH HONERKAMP.

15

Number
283,258

6

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Country	Date
1,685,701	Blanchard	Sept. 25, 1928
2,010,322	Riddell	Aug. 6, 1935
2,144,631	Kurth	Jan. 24, 1939
2,185,919	Kurth	Jan. 2, 1940
2,229,747	Kurth	Jan. 28, 1941
2,316,541	Ahlberg	Apr. 13, 1943
2,372,830	Honerkamp et al.	Apr. 3, 1945
2,380,553	Serre et al.	July 31, 1945

FOREIGN PATENTS

Number	Country	Date
	Great Britain	Jan. 2, 1928