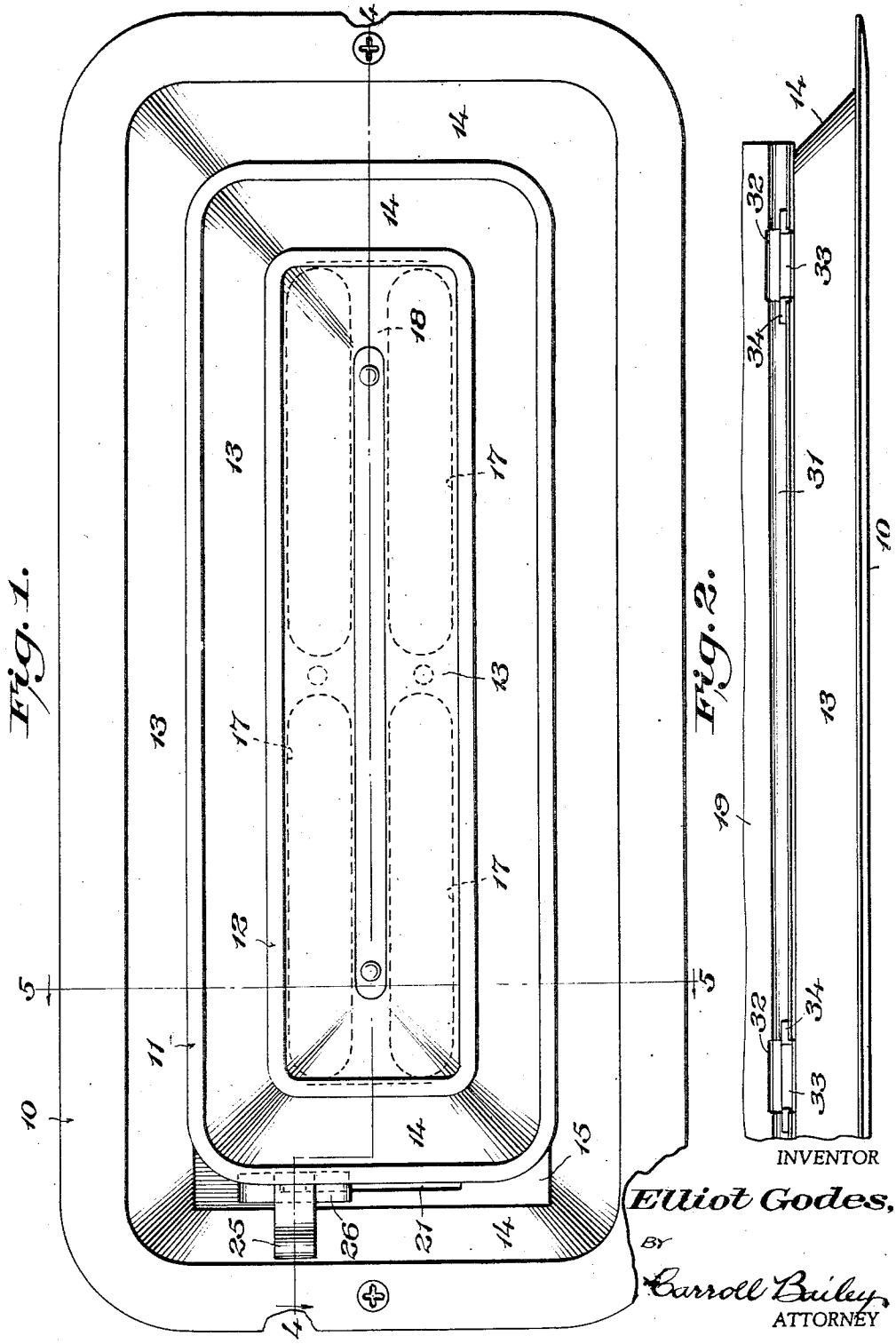
June 3, 1958 E. GODES 2,837,019

AIR OUTLET DEVICE FOR VENTILATING APPARATUS

Filed April 19, 1956 3 Sheets-Sheet 1



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AIR OUTLET DEVICE FOR VENTILATING APPARATUS

Filed April 19, 1956 3 Sheets-Sheet 2

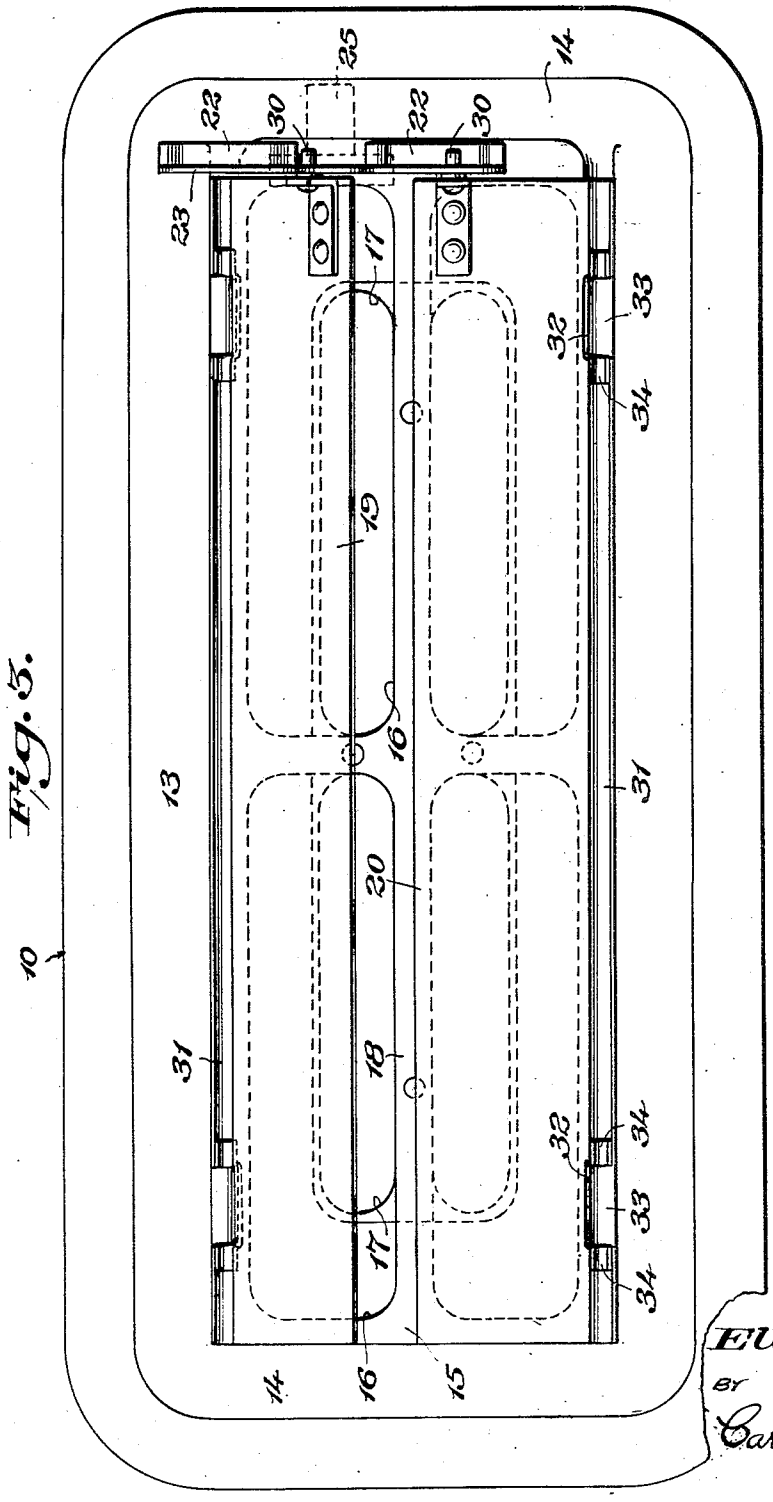


Fig. 5.

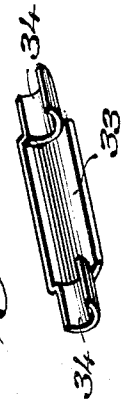


Fig. 9.

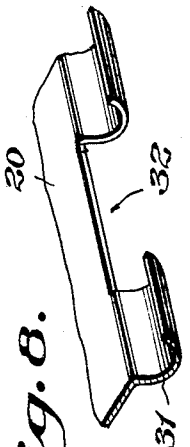


Fig. 8.

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AIR OUTLET DEVICE FOR VENTILATING APPARATUS

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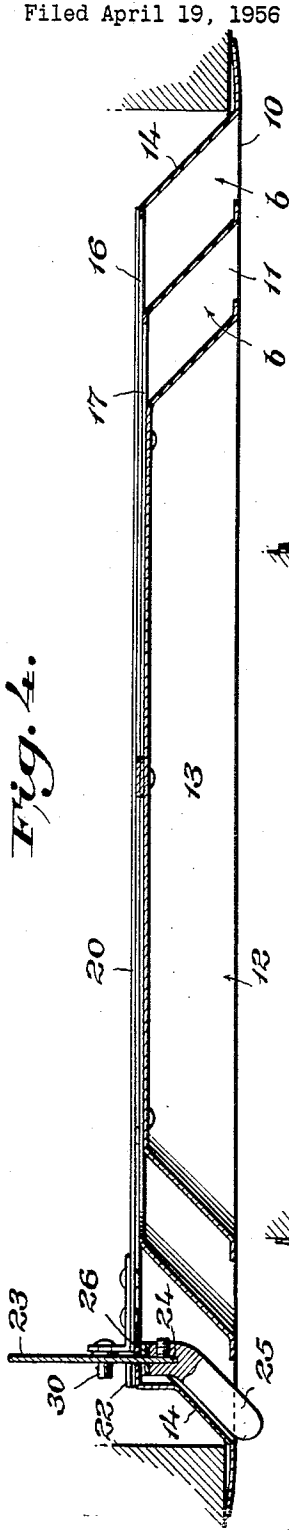


Fig. 4.

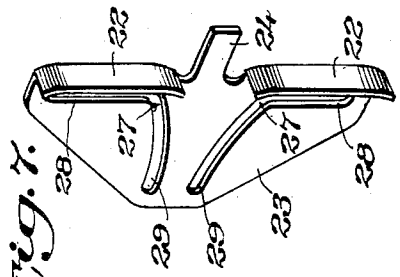


Fig. 7.

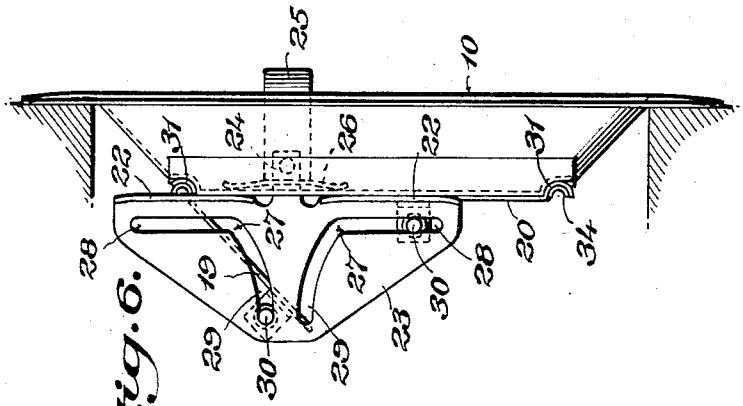


Fig. 6.

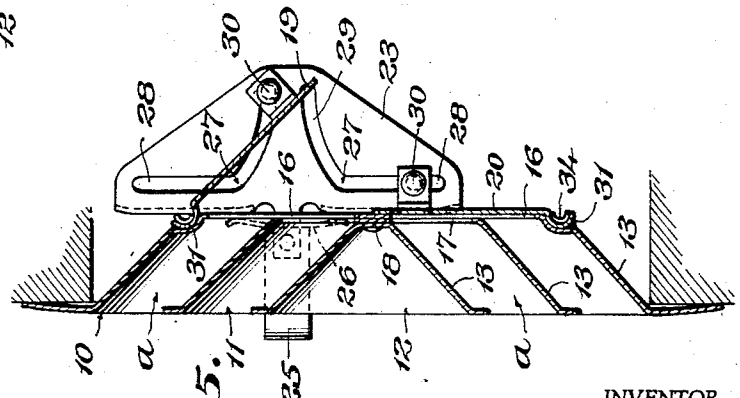


Fig. 5.

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AIR OUTLET DEVICE FOR VENTILATING APPARATUS

Elliot Godes, Manchester, Conn., assignor to Anemostat Corporation of America, New York, N. Y., a corporation of Delaware

Application April 19, 1956, Serial No. 579,364

11 Claims. (Cl. 98—40)

This invention relates to air outlet devices for ventilating apparatus, and has particular reference to means for controlling flow of supply air through such devices.

At certain times it may be desirable to deliver warm air through an air outlet device into a room or other enclosure for the purpose of heating the latter, while at other times it may be desirable to deliver fresh or cool air through the same air outlet device into the room or other enclosure for the purpose of ventilating or cooling the same. Moreover, with respect to certain air outlet devices through which either warm air for heating purposes or cool air for cooling or ventilating purposes is delivered at different times into a room or other enclosure, it may be desirable to have warm air flow therefrom in one direction and to have cool air flow therefrom in a different direction. For example, in the case of an air outlet device of a type which is designed to be mounted in a side wall or baseboard of a room or other enclosure and through which warm air for heating purposes or cool air for cooling purposes is delivered at different times, it usually is desirable to have the warm air flow more or less downwardly therefrom and to have the cool air flow more or less upwardly therefrom, thereby best either to heat or to cool the room or enclosure as the case may be.

Generally speaking, the object of the present invention is to provide an air outlet device comprising two different portions which are designed to cause supply air flowing therethrough to be deflected in different directions, respectively, from the device, and which includes a pair of damper elements respectively controlling flow of supply air through said portions so that either portion may be used to the exclusion of the other for flow of supply air therethrough and so that the amount of supply air flowing through either portion may readily be regulated.

More particularly, an object of the invention is to provide a single, simple, practical, efficient actuating or operating means for the aforesaid damper elements.

Another object of the invention is to provide simple, practical hinge connections between the damper elements and the device to mount the damper elements for swinging adjustments to control flow of supply air through the aforesaid different portions of the device.

With the foregoing and other objects in view, the invention consists in an air outlet device embodying the novel features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawings and defined in the appended claims.

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

Fig. 1 is a front elevation of an air outlet device constructed in accordance with the invention.

Fig. 2 is a top plan view of the device.

Fig. 3 is a rear elevation of the device.

Fig. 4 is a section taken approximately on the line 4—4 of Fig. 1.

Fig. 5 is a section taken approximately on the line 5—5 of Fig. 1.

Fig. 6 is an end view of the device.

Fig. 7 is a perspective view of the damper-actuating slide plate of the device.

Fig. 8 is a fragmentary perspective view of a portion of one of the damper elements of the device; and

Fig. 9 is a perspective view of one of the trunnion elements for hinging the damper elements to the device.

The air outlet device illustrated by way of example in the drawings is of a type which is designed to be mounted in a side wall or in a baseboard of a room or other enclosure and is composed of a first pan-like hollow, flaring member **10**, a second, smaller, pan-like, hollow, flaring member **11** disposed within said first member **10**, and a third, pan-like, hollow, flaring member **12** disposed within said second member **11**.

The members **10**, **11** and **12** each include side and end walls **13** and **14**, respectively, which are spaced apart and which are inclined or flared forwardly and outwardly to provide between them forwardly and outwardly inclined or flared side and end passageways *a* and *b*, respectively, while in the rear walls **15** of the members **10** and **11** are alined openings **16** and **17**, respectively, to provide for flow of supply air from the rear of the device through said passageways *a* and *b*.

The openings **16** in the rear wall of the member **10** are separated by a narrow width portion **18** of said wall which extends centrally and longitudinally of the device. At one side of said portion **18** the side walls of the members **10**, **11** and **12** are inclined forwardly and outwardly in one direction, while at the other side of said portion **18** the side walls of said members **10**, **11** and **12** are inclined forwardly and outwardly in a reverse direction. Therefore, supply air delivered from the rear of the device through the openings **16** and **17** at one side of the portion **18** will be deflected from the device in one direction, upwardly for example, while supply air delivered from the rear of the device through the openings **16** and **17** at the other side of said portion **18** will be deflected from the device in a different direction, downwardly for example. Of course, in either case a certain amount of supply air will be deflected forwardly and outwardly through the passageways *b* at the ends of the device. This, however, is immaterial and may be ignored as far as the present invention is concerned, particularly since, within the purview of the invention, the side walls **13** of the members **11** and **12** may be coextensive in length with the side walls **13** of the member **10** so that all supply air delivered through the device flows only through the side passageways *a* of the device.

At the rear of the member **10** are two damper elements **19** and **20** which are substantially coextensive in length with the rear wall **15** of said member and which have widths approximately one-half the width of the rear wall of said member **10**. These damper elements are hinged along their outer side edges to outer side portions of the rear wall **15** of the member **10** for swinging movements between closed positions in which they lie flatly against the rear wall of the member **10** and open positions in which they are inclined rearwardly from the rear wall of said member **10**.

Obviously, when both of the damper elements **19** and **20** are closed, all flow of supply air through the device will be denied. Obviously, too, if either of said damper elements is opened while the other is maintained closed, supply air will flow through only one side of the device.

Simple, practical actuating means is provided for operating the damper elements **19** and **20**. In the rear wall **15** of the member **10** near one end thereof is a slot **21** which extends transversely of said rear wall, while

slidably engaged against the rear face of said rear wall **15** adjacent to said slot **21** are flanges or runners **22** at the front edge of a plate **23** which is disposed perpendicularly and transversely with respect to said rear wall and extends rearwardly therefrom.

A tongue **24** extends from the plate **23** through the slot **21** and, forwardly of the rear wall **15** of the member **10**, has fastened thereto a knob or handle **25** which is exposed at the front of the device for finger engagement. Between the knob, or handle **25** and the front face of the rear wall **15** of the member **10** is interposed a leaf spring **26** which reacts from said wall **15** to urge the plate **23** forwardly. The tongue **24** extending through the slot **21** guides the plate **23** for sliding movement transversely of the device, while the leaf spring **26** serves to maintain the flanges or runners **22** of said plate firmly though slidably engaged against the rear face of the rear wall **15** of the member **10** and thus prevents any looseness or play between said plate and said rear wall **15**. By means of the knob or handle **25** the plate **23** may readily be slid transversely of the device.

In the plate **23** are two cam slots **27, 27** which are reversed duplicates of one another and each of which comprises a portion **28** extending parallel to the rear wall **15** of the member **10** and an inwardly inclined portion **29** extending rearwardly from the inner end of said portion **28**.

Corresponding ends of the damper elements **19** and **20** are disposed adjacent to the plate **23** and have pins **30, 30** extending therefrom into the cam slots **27, 27**, respectively. The spacing of the pins **30, 30** from the pivotal axes of the damper elements **19** and **20** and the relationships of the cam slots **27, 27** to each other and to said pins and to the pivotal axes of said damper elements are such that when the plate **23** is disposed in a medial position as regards its sliding movement, the pins **30, 30** are disposed adjacent to the inner ends of the portions **28, 28** of the slots **27, 27**, respectively, and both damper elements **19** and **20** are closed. Hence, by sliding the plate **23** in one direction from its medial position, the rearwardly and inwardly inclined portion **29** of one of the cam slots **27** will cooperate with the pin **30** of one of the damper elements **19** or **20** to effect opening swinging movement of said damper element. At the same time the other damper element will be maintained closed due to its pin **30** remaining in the portion **28** of its related slot **27**. Similarly, by sliding the plate **23** in the opposite direction from its medial position, the first mentioned damper element will be maintained closed and the second mentioned damper element will be opened. Depending upon the amount of sliding movement imparted to the plate **23**, either damper element **19** or **20** may, of course, be opened any desired amount to regulate the amount of supply air flowing through the device, while by returning the plate **23** to its medial position both damper elements will, of course, be closed to deny any flow of supply air through the device.

Since, when either of the damper elements **19** or **20** is closed and the other of said damper elements is open, supply air can flow through only one side of the device, and since each side portion of the device serves to cause supply air flowing therethrough to be deflected from the device in a direction different from the direction of deflection of supply air from the other side portion of the device, it is apparent that simply by slidably adjusting the plate **23** the direction of deflection of supply air from the device is selective, upwardly, for example, in the case of cool air and downwardly, for example, in the case of warm air.

While the damper elements **19** and **20** may be hinged to the member **10** in any suitable known manner, novel means is provided according to the present invention for this purpose. Along its outer edge each damper element is provided with a stiffening and reinforcing rib **31** of

substantially semi-circular shape in cross section which opens rearwardly and which has its front or convex face disposed against the rear face of the rear wall **15** of the member **10**. At suitably spaced points said rib is provided with recesses **32** and in each recess is disposed an element **33** which is welded or otherwise suitably fixed to the rear wall **15** of the member **10** and which is provided at its ends with trunnions **34** which are disposed in the concave side of said rib at either end of the recess **32**. The hinge connections thus provided between the damper elements **19** and **20** are quite simple and easy and economical to provide.

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

I claim:

1. An air outlet device having rear and front ends and comprising a first portion including air passageway defining means extending between said ends and formed to cause supply air flowing forwardly therethrough to be deflected in one direction from the front end of the device and a second portion including air passageway defining means extending between said ends and formed to cause supply air flowing forwardly therethrough to be deflected in a different direction from the front end of the device, a pair of damper elements swingably mounted upon the device at its rear end and controlling flow of supply air through said portions, respectively, an actuator for said damper elements mounted on the device for lineal shifting movements, and connections between said actuator and said damper elements operable in response to shifting of said actuator lineally in one direction first fully to close one and then to effect any desired amount of opening of the other of said damper elements and operable in response to shifting of said actuator lineally in the opposite direction first fully to close the second and then to effect any desired amount of opening of the first of said damper elements.

2. An air outlet device having rear and front ends and comprising a first portion including air passageway defining means extending between said ends and formed to cause supply air flowing forwardly therethrough to be deflected in one direction from the front end of the device and a second portion including air passageway defining means extending between said ends and formed to cause supply air flowing forwardly therethrough to be deflected in a different direction from the front end of the device, a pair of damper elements swingably mounted upon the device at its rear end and controlling flow of supply air through said portions, respectively, an actuator for said damper elements mounted on the device for lineal shifting movements, and cam and cam follower connections between said actuator and said damper elements operable in response to shifting of said actuator lineally in one direction to open one and to close the other of said damper elements and operable in response to shifting of said actuator lineally in the opposite direction to close the first and to open the second of said damper elements.

3. An air outlet device having rear and front ends and comprising a first portion including air passageway defining means extending between said ends and formed to cause supply air flowing forwardly therethrough to be deflected in one direction from the front end of the device and a second portion including air passageway defining means extending between said ends and formed to cause supply air flowing forwardly therethrough to be deflected in a different direction from the front end of the device, a pair of damper elements swingably mounted upon the

device at its rear end and controlling flow of supply air through said portions, respectively, an actuator for said damper elements mounted on the device for lineal shifting movements, and cam and cam follower connections between said actuator and said damper elements operable in response to shifting of said actuator lineally in one direction first fully to close one and then to effect any desired amount of opening of the other of said damper elements and operable in response to shifting of said actuator lineally in the opposite direction first fully to close the second and then to effect any desired amount of opening of the first of said damper elements.

4. An air outlet device having rear and front ends and comprising a first portion including air passageway defining means extending between said ends and formed to cause supply air flowing forwardly therethrough to be deflected in one direction from the front end of the device and a second portion including air passageway defining means extending between said ends and formed to cause supply air flowing forwardly therethrough to be deflected in a different direction from the front end of the device, a pair of damper elements swingably mounted upon the device at its rear end and controlling flow of supply air through said portions, respectively, an actuator for said damper elements mounted on the device for lineal shifting movements, and having a pair of cam slots therein, and cam followers carried by said damper elements and disposed in said cam slots, respectively, said cam slots being shaped and dimensioned so that by shifting of said actuator lineally in one direction they cooperate with said cam followers to close one and open the other of said damper elements and so that by shifting of said actuator lineally in the opposite direction they cooperate with said cam followers to open the first and to close the second of said damper elements.

5. An air outlet device having rear and front ends and comprising a first portion including air passageway defining means extending between said ends and formed to cause supply air flowing forwardly therethrough to be deflected in one direction from the front end of the device and a second portion including air passageway defining means extending between said ends and formed to cause supply air flowing forwardly therethrough to be deflected in a different direction from the front end of the device, a pair of damper elements swingably mounted upon the device at its rear end and controlling flow of supply air through said portions, respectively, an actuator for said damper elements mounted on the device for lineal shifting movements, and having a pair of cam slots therein, and cam followers carried by said damper elements and disposed in said cam slots, respectively, said cam slots being shaped and dimensioned so that by shifting of said actuator lineally in one direction they cooperate with said cam followers first to fully close one and then to open the other of said damper elements any desired amount and so that by shifting of said actuator lineally in the opposite direction they cooperate with said cam followers first to fully close the second and then to open the first of said damper elements any desired amount.

6. An air outlet device having rear and front ends and comprising a first portion including air passageway defining means extending between said ends and formed to cause supply air flowing forwardly therethrough to be deflected in one direction from the front end of the device and a second portion including air passageway defining means extending between said ends and formed to cause supply air flowing forwardly therethrough to be deflected in a different direction from the front end of the device, a pair of damper elements mounted upon the device at its rear end and movable between open and closed positions to control flow of supply air through said portions, respectively, and an actuator for said damper elements mounted upon the device and having operative connections with the latter constructed and arranged so that in a medial position of said actuator both damper elements are closed and so that by movement of said actuator from its medial position either of said damper elements may be opened any desired amount without opening the other of said damper elements.

7. An air outlet device having rear and front ends and comprising a first portion including air passageway defining means extending between said ends and formed to cause supply air flowing forwardly therethrough to be deflected in one direction from the front end of the device and a second portion including air passageway defining means extending between said ends and formed to cause supply air flowing forwardly therethrough to be deflected in a different direction from the front end of the device, a pair of damper elements mounted upon the device at its rear end and movable between open and closed positions to control flow of supply air through said portions, respectively, an actuator for said damper elements mounted upon the device for shifting movements from a medial position, and cam and cam follower connections between said actuator and said damper elements constructed and arranged so that in a medial position of said actuator both damper elements are closed and so that by movement of said actuator from its medial position either of said damper elements may be opened any desired amount without opening the other of said damper elements.

8. An air outlet device as set forth in claim 6 in which the actuator is mounted upon the device for lineal shifting movements.

9. An air outlet device as set forth in claim 7 in which the actuator is mounted upon the device for lineal shifting movements.

10. An air outlet device having rear and front ends and comprising a first portion including air passageway defining means extending between said ends and formed to cause supply air flowing forwardly therethrough to be deflected in one direction from the front end of the device and a second portion including air passageway defining means extending between said ends and formed to cause supply air flowing forwardly therethrough to be deflected in a different direction from the front end of the device, a pair of damper elemnts swingably mounted upon the device at its rear end and controlling flow of supply air through said portions, respectively, a rear portion of said device having a slot therein, a lineally movable actuator for said damper elements slidably engaged against said rear portion of the device and having a portion thereof extending through said slot to guide said actuator for lineal movements, a finger engageable element for moving said actuator carried by said portion of said actuator and exposed at the front end of the device, and connections between said actuator and said damper elements constructed and arranged so that in a medial position of said actuator both damper elements are closed and so that by movement of said actuator from its medial position either damper element may be opened any desired amount without opening the other of said damper elements.

11. An air outlet device having rear and front ends and comprising a first portion including air passageway defining means extending between said ends and formed to cause supply air flowing forwardly therethrough to be deflected in one direction from the front end of the device and a second portion including air passageway defining means extending between said ends and formed to cause supply air flowing forwardly therethrough to be deflected in a different direction from the front end of the device, a pair of damper elements swingably mounted upon the device at its rear end and controlling flow of supply air through said portions, respectively, an actuator for said damper elements mounted on the device for lineal shifting movements, said actuator comprising a plate having a pair of cam slots therein, and cam followers carried by said damper elements and disposed in said cam slots, respectively, said cam slots each being of sub-

stantially L-shape so that in response to lineal shifting of said actuator in one direction one of said damper elements is closed and the other may be opened any desired amount and so that in response to lineal shifting of said actuator in the opposite direction the second of said damper elements is closed and the first damper element may be opened any desired amount.

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