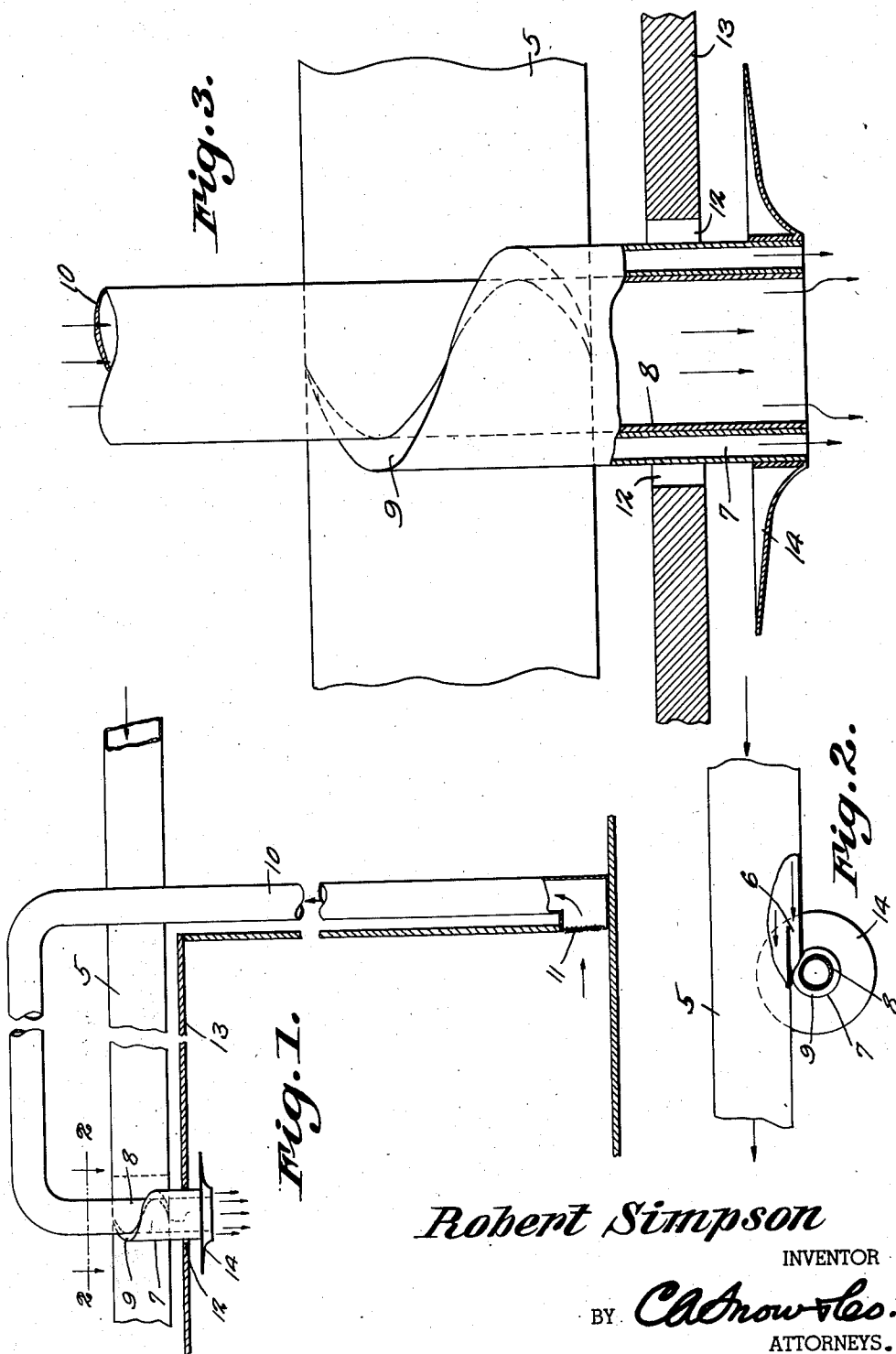


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AIR SUPPLY OUTLET
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AIR SUPPLY OUTLET

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This invention relates to devices for controlling the discharge of air into a room and more particularly to devices of this character used at the terminal of an air supply duct or the like.

An important object of the invention is to provide a device of this character which will be so designed as to permit distribution of the air in a rotating and expanding flow or stream, thereby permitting the air to be spread over a wide area, and greatly lessening the possibility of creating a draft.

A further object of the invention is to provide a device of the character described which will have embodied in its construction features designed to prevent the stratification of air in the room, and to permit the removal from the room of foul air which may collect therein.

Another important object of the invention is to provide a device of this character in which the flow of air supplied to the room will be joined and mixed with a flow of siphoned air, thereby greatly increasing the effectiveness of the distribution of air through the room.

The above stated objects are attained in the invention by means of an outlet containing few and simple parts, without the necessity of moving parts or mechanisms, the invention embodying, in brief, a shell placed within another shell, with each shell providing an opening for a separate flow of air, and the two flows or streams being joined and distributed throughout the room area in a rotating and expanding motion.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts, hereinafter more fully described and pointed out in the claims, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

Referring to the drawing

Figure 1 is a side elevational view of the invention, shown partly in section.

Figure 2 is a sectional view taken on line 2-2 of Figure 1, with parts cut away.

Figure 3 is a detail side elevational view, shown partly in section.

Referring to the drawing in detail, the invention is used in combination with a conventional air supply duct or conduit 5. A branch opening 6 permits part of the air flowing through the air supply duct 5 to be diverted into an outer shell 7, which is of cylindrical formation, and which is provided at its lower end with an opening for

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permitting the passage of the air supply into the room.

There is positioned through the outer shell 7 an inner shell 8, which is also of cylindrical formation, and which has an opening aligned on the same plane with the opening in the outer shell 7. The outer shell 7 is further formed by having its wall cut away in a spiral running from the top of the branch opening 6 leading from the air supply duct 5, the resulting space between the spiraled upper edge of the wall of the outer shell 7 and the wall of the inner shell 8 being then closed by a spiral metal strip 9.

The inner shell 8 serves as an outlet for an induced air flow duct 10. In the drawing, the induced air flow duct 10 has its intake opening 11 situated in the room in which its outlet opening is located, but it is pointed out that the duct 10 is adapted to draw its air from other locations, and can, if it is so desired, have an intake opening which is positioned elsewhere than as shown in the drawing. Referring again to the outer shell 7 and to the inner shell 8, said shells are positioned within an opening 12 disposed in the ceiling 13 of the room to which the air supply is fed, said opening 12 being of circular form, and having a diameter greater than the diameter of the shell 7. The ends of the outer shell 7 and the inner shell 8 project a short distance below said opening 12, and there is mounted on the end of the outer shell 7 a dished flange 14, having sides flared outwardly from its circumference, and having a top surface which is parallel to the ceiling 13. The opening 12 serves as an intake opening for an exhaust duct, said duct and the means employed to draw out exhausted air not being shown, as it is not contemplated that the invention embody means for drawing out said exhausted or foul air.

In the operation of the device, air flowing through the air supply duct 5 is led through the branch opening 6 into the outer shell 7. The spiral formation of the outer shell 7 imparts a rotary or swirling motion to the air as it moves downwardly and outwardly through the opening in said outer shell. The presence of the inner shell 8 within the outer shell 7, and the spiral formations of the outer shell 7 results in the setting up of a suction at the opening of the inner shell 8. An air flow is thereby induced through the duct 10, causing air to flow from the opening of the inner shell 8 and to become mixed with the air flowing from the opening of the outer shell 7.

A rotary or swirling motion is imparted to the air flowing from the opening of the inner shell 8,

by the air flowing from the opening of the outer shell 7 and the velocity of the increased stream of air results in the air being distributed throughout the room, without the disadvantage of a noticeable draft being caused in the room, such as often occurs where air is supplied to a room at more than a normal velocity. At the same time, the construction and position of the flange 14 has the effect of preventing the air supply to the room from being taken into the opening 12 leading to the exhaust duct. While preventing the air supply to the room from being taken into the exhaust duct, the construction and position of the flange 14 are adapted to permit the stratified or foul air which collects at the ceiling 13 to be led into the opening 12 and removed from the room.

What is claimed is:

1. In combination with an air supply duct for supplying new air to a room, an air supply outlet including an outer shell having an inlet opening from the duct and an outlet opening into the room, said outer shell being extended through an aperture in the ceiling of the room and being spaced a substantial distance from the edge of said aperture, said outer shell being free of connections to said ceiling to define an open space surrounding the outer shell and communicating between the room interior and the area above the room ceiling, thus to lead stratified air otherwise tending to collect against the ceiling from the room into said area, the outlet opening being in a plane parallel to and substantially lower than the plane of the room ceiling; an inner shell in the outer shell and having a discharge opening in substantially the same plane as the outlet opening of the outer shell; said shells being cylindrical and concentric to define an annular passage for new air surrounding the inner shell; and a flange surrounding and projecting laterally from the outer shell, said flange being spaced wholly from the ceiling and being free of engagement with the ceiling to provide a shield preventing inter-mixing of air issuing from the shells with stratified air to be led from the room.

2. An air supply outlet for attachment to air supply and induced air ducts, including a cylindrical outer shell adapted for projection through a wall of a room and having at one end an inlet opening from the air supply duct and at the other end an outlet into the room; a cylindrical inner shell inside and concentric with the outer shell and having an inlet from the induced air duct and an outlet opening in a substantially common plane with the outer shell outlet, said cylindrical concentric shells defining an annular passage in the outer shell and surrounding the inner shell, the upper edge of the outer shell being cut away in a spiral from said outer shell inlet opening; and a spiral strip extended longitudinally of said edge and closing the space between said edge and the inner shell, said strip and

spirally cut away edge cooperating to form a spiralling roof upon said annular passage constituting a guide for leading air through the outer shell in a spiralling path extending from the inlet opening to the outlet of said outer shell.

3. In combination with an air supply duct for supplying new air to a room, an air supply outlet including an outer shell having an inlet opening from the duct and an outlet opening into the room, said outer shell being extended through an aperture in the ceiling of the room and being spaced a substantial distance from the edge of said aperture, said outer shell being free of connections to said ceiling to define an open space surrounding the outer shell and communicating between the room interior and the area above the room ceiling, thus to lead stratified air otherwise tending to collect against the ceiling from the room into said area, the outlet opening being in a plane parallel to and substantially lower than the plane of the room ceiling; an inner shell in the outer shell and having a discharge opening in substantially the same plane as the outlet opening of the outer shell; said shells being cylindrical and concentric to define an annular passage for new air surrounding the inner shell; a flange surrounding and projecting laterally from the outer shell, said flange being spaced wholly from the ceiling and being free of engagement with the ceiling to provide a shield preventing inter-mixing of air issuing from the shells with stratified air to be led from the room; the upper edge of the outer shell being cut away in a spiral from said outer shell inlet opening; and a spiral strip extended longitudinally of said edge and closing the space between said edge of the inner shell, said strip and spirally cut away edge cooperating to form a spiralling roof upon said annular passage constituting a guide for leading air through the outer shell in a spiralling path extending from the inlet opening to the outlet of said outer shell.

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