

F. E. DAVIS.
DUST TRAP AND VENTILATOR.

APPLICATION FILED SEPT. 3, 1903.

NO MODEL.

Fig. 1.

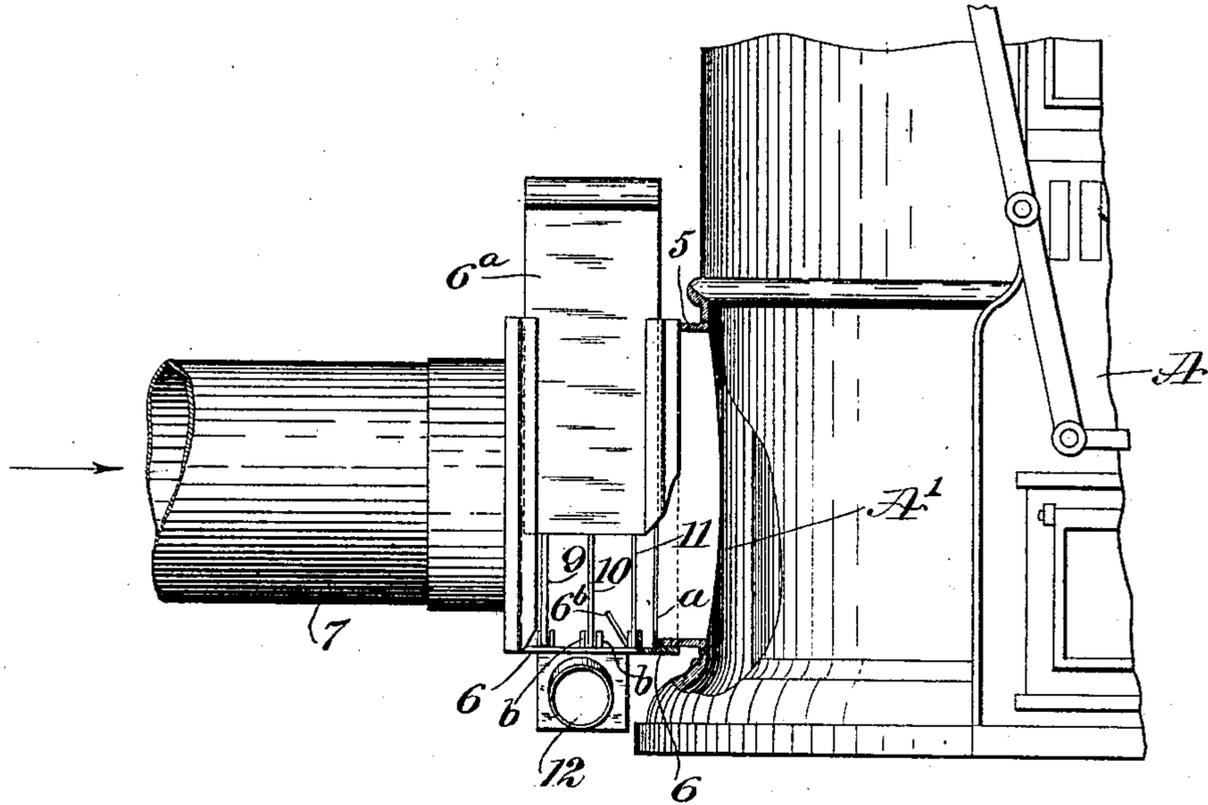


Fig. 2.

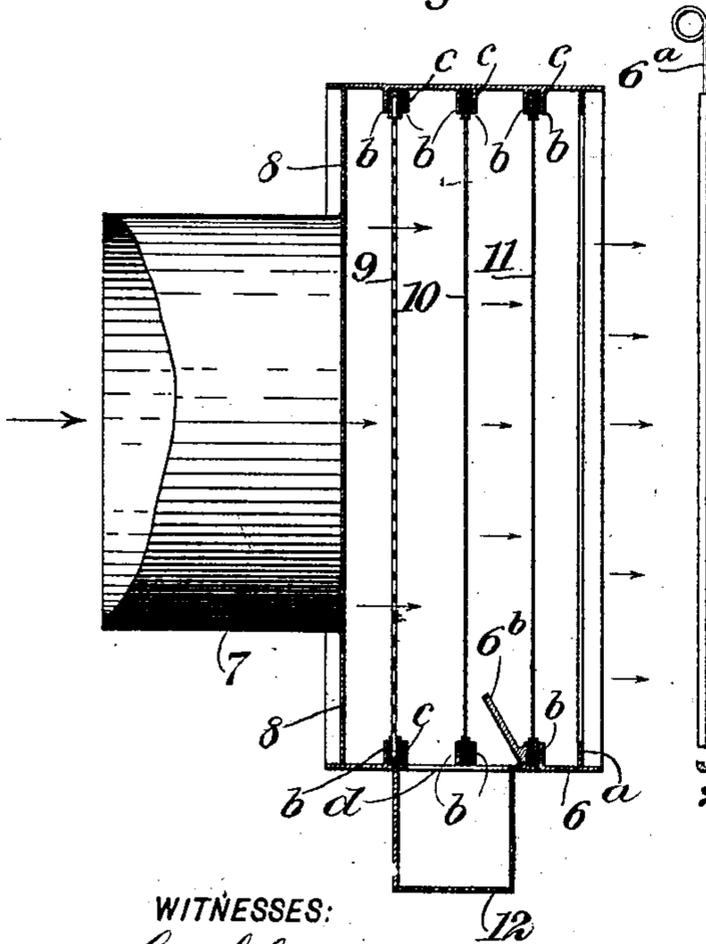
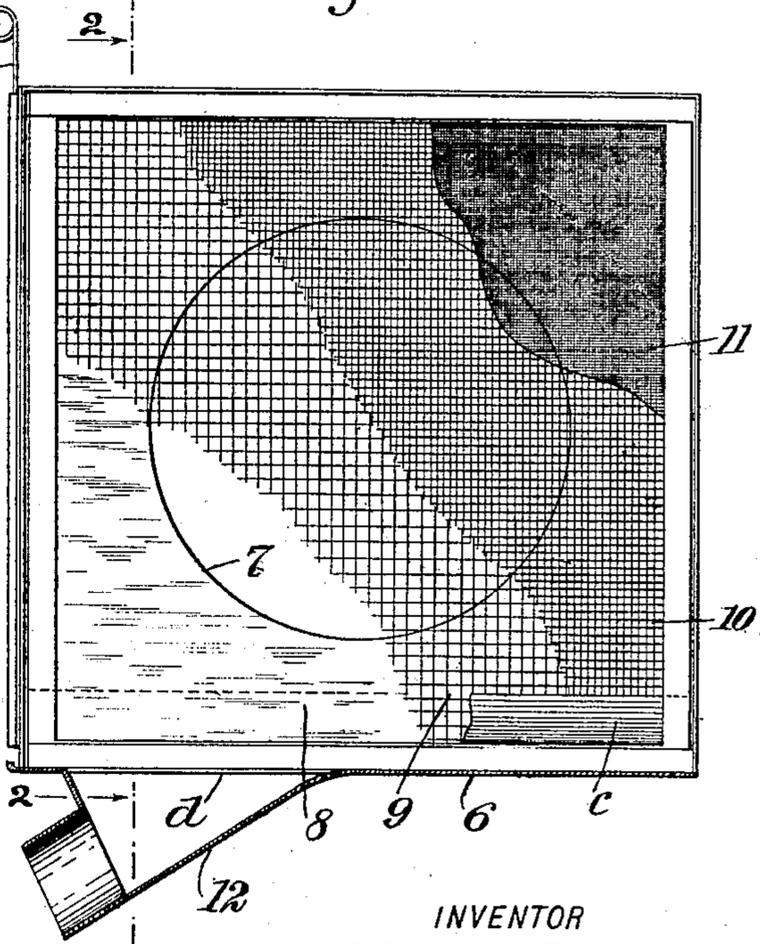


Fig. 3.



WITNESSES:

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FRANK EVERETT DAVIS, OF ATCHISON, KANSAS.

DUST-TRAP AND VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 764,922, dated July 12, 1904.

Application filed September 3, 1903. Serial No. 171,784. (No model.)

To all whom it may concern:

Be it known that I, FRANK EVERETT DAVIS, a citizen of the United States, and a resident of Atchison, in the county of Atchison and State of Kansas, have invented a new and Improved Dust-Trap and Ventilator, of which the following is a full, clear, and exact description.

This invention relates to means for the warming and ventilation of inclosures, and has for its object to provide a simple novel dust-arresting trap for hot or cold air distributing pipes which will effectively coact with any heating or cooling apparatus wherein conduits for heated or cold air, or both, are employed for conveying warm or cool air to and from rooms and prevent the intrusion of dust with the inducted air, a further object being to provide the improved dust-arresting apparatus with a foul-air conduit to remove vitiated air from rooms or other inclosed spaces.

The improvement is particularly well adapted for use with the tubular conduits of hot-air-distributing apparatus, and while it is to be understood that the improved dust-trap may be placed at any convenient point for arresting dust at each air-inlet to a room it may with advantage be positioned at the junction of a cold-air pipe with the lower portion of a hot-air furnace, and to illustrate one application of the improvement it is shown as so applied in the accompanying drawings.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a partly-sectional side view representing the improvement as applied to and connected with the casing-wall of a hot-air furnace. Fig. 2 is an enlarged partly-sectional side view of the improved dust-trap, taken substantially on the line 2 2 in Fig. 3; and Fig. 3 is a plan view, partly in section, showing the interior of the trap.

The air-heating furnace A may be of any preferred construction, having an air-space

produced around the fire-chamber thereof by the casing-wall A', as usual.

Upon the lower portion of the casing-wall A' a preferably rectangular collar 5 is secured over a suitable opening therein, the free outer portion of the collar having a slidable engagement with the end portion of the metal body 6 of the trap.

The trap-body 6 may with advantage be formed of plate or sheet metal that is shaped to give it a rectangular contour and at one open side is slidably fitted upon or into the collar 5, as shown. The collar is inserted into the trap-body and contacts at its edge with a stop-flange *a*, that encircles the inner surface of the body near the edge thereof, which receives the end of the collar, as clearly shown in Fig. 1.

At the opposite side of the trap-body 6 an air-induction pipe 7 is attached thereto, preferably by means of a plate-metal flange 8, affixed to and projecting radially from the end of the pipe, the outer edge of said flange being cut to proper form and fitted into and secured within the body 6 near its edge, as indicated in Fig. 2.

Within the box-like body 6 a set of perforate screens 9 10 11 is held, said screens being spaced apart and held in place by projections *b*, formed or secured upon the inner surface of the body 6, and to stiffen the screens each is preferably held in a border-frame of plate-metal, as indicated at *c* in Fig. 2.

The screens 9 10 11 are formed of wire-cloth of different mesh or reticulation, the screen 9, which is positioned nearest to the induction-pipe 7, having the largest meshes, the screen 11 very fine meshes, and the middle screen 10 meshes of a grade between the reticulations of the screens 9 and 11.

One side of the box-body 6 is provided with a removable wall consisting of the slide-plate 6^a, having a loose engagement with the grooved edges formed on the body 6 at each end of the same, this removable plate when partly or entirely displaced affording free access to the interior of the trap-body 6 for the removal of dust or heavier impurities that have been arrested by the screens 9 10 11.

A baffle-plate 6^b may be employed to aid in

arresting heavy particles of dust or the like that have passed through the screen 10 and by their gravity have been carried down toward the lower wall of the body 6. This baffle-plate consists of a plate-metal strip affixed by one side edge on the lower wall of the trap-body 6 and thence inclined upward and slightly toward the middle screen 10, which adapts the baffle-plate to prevent an eddy-current of air from agitating the dirt or dust that has fallen upon the lower wall of the trap-body. If found desirable, a similar baffle-plate may in a like manner be erected in an inclined plane from the bottom wall of the trap-body 6, between the screen-walls 9 and 10, to arrest heavy dirt that passes through the coarse screen 9.

In the bottom wall of the trap-body 6 an opening *d* is formed, over which an outlet branch pipe 12 is secured by one end and thence is extended to a vertical draft-flue, such as a chimney, (not shown,) so that the draft of the flue will remove odors or impure air from the air-supply inducted through the pipe 7.

In the arrangement of the dust-arresting and foul-air-removing apparatus as described it will be seen that the air supplied through the induction-pipe 7 may be cold air from the exterior of the building wherein the heating-furnace is placed or the pipe may be extended to cold apartments in the house to return the cold air therefrom to the heating device that may be in the lower portion of the building. The dust-trap may also be employed, in connection with a register in the floor or side wall of a room, to arrest dust carried with the upward current of heated air that is to pass through the register into the room. In this case it will be obvious that the fine screen 11

may with advantage be placed nearest to the heat-outlet in the room. The improvement may also be utilized as a means for arresting dust or removal of odors or impure air if connected with a cold-air supply that may by any suitable means be drawn or forced into a building for cooling the same.

As the form and proportions of the improved dust-trap and ventilator may be changed without departure from the spirit of the invention I claim the right to make such changes as fall within the scope of the claim.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

A dust-trap and ventilator, comprising a rectangular box-body, open at one end and at one side, a vertically-slidable gate that normally closes the side opening, a plurality of screens removably held spaced apart and vertical by their sliding insertion between paired projections on the upper and lower walls of the box, said screens being insertible and removable through the side opening in the box, an inclined baffle-plate held by one edge on the bottom of the box between two screens, to arrest dust that falls from the screens, a foul-air conduit opening into the bottom of the box for removal of heavy vitiated air therefrom by natural draft, an air-induction pipe for supplying air to be screened and purified, and a source of heat through which the purified air passes before entering a room for the ventilation thereof.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK EVERETT DAVIS.

Witnesses:

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H. C. WALCOTT.