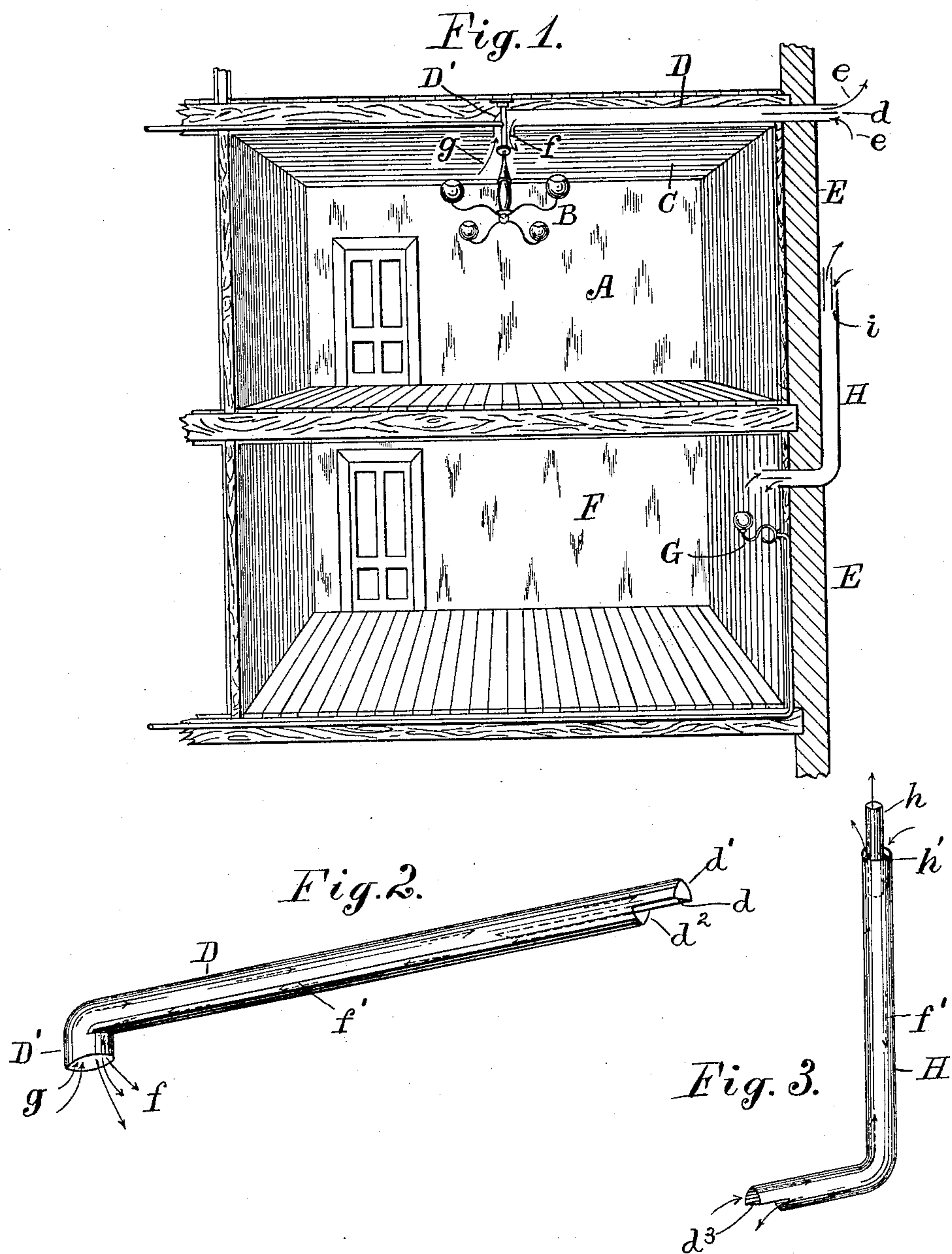


(No Model.)

P. J. SCHLICHT.
APPARATUS FOR VENTILATING.

No. 592,211.

Patented Oct. 19, 1897.



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UNITED STATES PATENT OFFICE.

PAUL J. SCHLICHT, OF SUMMIT, NEW JERSEY.

APPARATUS FOR VENTILATING.

SPECIFICATION forming part of Letters Patent No. 592,211, dated October 19, 1897.

Application filed March 23, 1896. Serial No. 584,408. (No model.)

To all whom it may concern:

Be it known that I, PAUL J. SCHLICHT, a citizen of the United States, residing at Summit, Union county, New Jersey, have invented certain new and useful Improvements in Methods of and Apparatus for Ventilating, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The object of this invention is to ventilate apartments which are lighted by the open combustion of gas; and this object is effected by extending a ventilating conduit or pipe from the outer air to the apartment over the gas-fixture upon which the gas is burned, so that the current of heated air which is generated by the combustion of the gas may readily enter the opening of the conduit.

My invention includes a deflector or air-separator applied to the outer end of the conduit and arranged to initiate a movement of the outer air into the lower part of the conduit, the entering current of cooler air moving through the conduit simultaneously with the escaping current of heated air, and serving to supply the apartment with fresh air as the heated or vitiated air is withdrawn. The entering current of air absorbs some heat from the escaping air, and its temperature is thus elevated, so as not to chill the apartment to which it is conducted. By moving both currents of air in contact with one another in opposite directions through the same ventilating-conduit, the current of fresh air moves more slowly than would be the case if the separate channel were provided and the air were permitted to enter at a natural and lower temperature. The entering air, being admitted to the apartment over the burning gas, is still further heated before it is diffused about the apartment, and the latter is thus ventilated without the production of drafts and chilling of its atmosphere.

The invention will be understood by reference to the annexed drawings, in which—

Figure 1 exhibits a perspective view of part of a building in section, showing the interiors of two apartments provided, respectively, with a chandelier and a wall-bracket for burning gas, with my ventilating device applied separately to each apartment. Fig. 2 shows the ventilating-pipe in perspective detached from

the ceiling of the upper apartment; and Fig. 3 shows the ventilating-pipe in perspective which is detached from the wall of the lower apartment.

A designates an apartment provided with a four-light chandelier B, suspended from the ceiling C. The ventilating pipe or conduit D is shown concealed within the ceiling and extended through the side wall E of the building into communication with the outer air. Over the drop-tube of the chandelier the ventilating-pipe is formed with an elbow D', the mouth of which opens through the ceiling around such tube, over the center of the chandelier. The air and gases heated by the lights in the chandelier are forced, as is usual in such cases, to the ceiling of the room, and the outlet to the open air, which is furnished by the elbow D', secures their discharge through the ventilating-pipe.

It is well known that air will move from an apartment with difficulty unless the atmospheric pressure in the apartment is maintained by introducing a volume of air equal to that removed. The introduction of fresh air serves to displace the heated air and thus secures the discharge of the same from the apartment more rapidly and effectively.

The peculiarity of my invention consists in introducing the fresh air through the same ventilating pipe or conduit D which discharges the heated air, and such operation of the pipe I effect by introducing a deflecting-partition *d* in the outer end of the conduit in such position that the heated air will naturally pass upon one side of such partition and permit a current of cold air to enter without obstruction upon the opposite side of the same. The heated air which enters the elbow D' naturally follows the upper side of the conduit, and the partition *d* is, under such conditions, arranged to divide the pipe horizontally, so that the heated air passes naturally above the partition and is discharged from the outlet indicated by the letter *d'* in Fig. 2, as is represented by the arrow *e* in Fig. 1.

The under side of the pipe is preferably cut off a little space from the outer end up to the level of the partition, as is clearly shown in Fig. 2, thus forming an inlet *d''*, which is distinctly separated by such space and by the partition from the outlet *d'*, as shown in Fig. 2. The

deflector or partition thus serves as an air-separator to prevent the mingling of the two currents or the interference of one with the other. The partition is also extended within the pipe a suitable distance from the inlet d^2 , as indicated in Figs. 1 and 2, thus permitting a current of cold or fresh air to pass into the mouth of the pipe, as indicated by the arrow e' in Fig. 1, without interference from the escaping current of heated air. In such movement the cold air, being heavier than the hot air, naturally moves upon the lower side of the pipe and falls from the nearer side of the elbow into the apartment, as indicated by the arrow f in Fig. 2. When the heated air passes through the pipe, the conditions above described speedily establish themselves, after which the current of heated air which rises above the chandelier B enters one side of the elbow without hindrance from the cold-air current, as is indicated by the arrow g in Fig. 2.

The form of deflector may be materially varied in accommodation to the location and arrangement of the ventilating-conduit where it opens into the outer air, but in all cases the inlet of the conduit which opens into the apartment must be arranged above the level of the gas-fixture and adjacent thereto, so that the heated air and gases which rise from the fixture may readily find an escape through the conduit.

Where the outgoing and incoming currents move in actual contact with one another, the interchange of heat is readily made, so that the entering current is warmed in a perceptible degree before it enters the apartment, and is thus rendered more agreeable and suitable for ventilation without any injury to its quality. A modified form of deflector will now be described.

F designates the lower apartment in Fig. 1, in which a wall-bracket G is represented for burning gas adjacent to the wall. The conduit H in this construction is shown extended through the wall and upward outside of the same, with an extension of the upper side of the conduit over the light upon the wall-bracket, and a partition d^3 to form separate inlet and outlet passages for two air-currents. The deflector at the upper end of the conduit consists of a vertical tube h , supported centrally within the top of the conduit by several radial arms h' , and projected somewhat above the top of the same, as indicated in Fig. 3.

It is obvious that any current of air that may be driven by the wind against the projecting portion of the deflector is directed downwardly upon that side of the deflector and enters the annular space i between the deflector and the top of the conduit, and thereafter passes downward upon one side or other of the conduit, as may be determined by the direction of the wind. The heated gases which enter the upper side of the conduit where it passes through the wall E find the

least resistance to their passage upon the opposite side of the conduit to that down which the colder current is driven, and escape through the tubular deflector h and through the annular space at the side of the same opposite that upon which the colder current is descending.

It will be observed that the projection of the tubular deflector and the projection of the upper half of the conduit D in Figs. 1 and 2 serves most effectively to separate the mouths of the passages for the outward and inward currents, and thus avoid the conflict of such currents which would arise if they were required to move simultaneously through two apertures located upon the same plane.

The object of using a tubular deflector instead of the transverse partition d is to receive the impact of the wind from any direction, and to afford a downward passage for the fresh air upon one side of the conduit, thus leaving the opposite side free for the escape of the rising current. The upper side of the conduit is shown projected from the wall E over the burner of the wall-bracket G, and may thus be arranged, when desired, to intercept the heated gases rising from the same; but a provision for this purpose is not essential, as I have found by experience that a ventilating-opening arranged like the elbow D', adjacent to and above a burning gas-jet, will attract the heated gases if connected with a conduit having a deflector at its outer end, as shown herein, and an inward current of fresh air will also be established along one side of the conduit, as is indicated by the arrows f' in Figs. 2 and 3.

The deflecting devices shown herein are similar to those which I have heretofore employed for conducting fresh air into a lamp-chimney or combustion-chamber, as described in my Patent No. 556,280, granted March 10, 1896, for improvements in "Art of and apparatus for producing combustion;" but such appliances have always been connected to a confined chamber in which the combustion of fuel was conducted.

In the present invention the ventilating-conduit is in open connection at its inner end with a large apartment in which various air-currents may be created by the use of doors and windows; and the inlet of the conduit therefore requires a special relation to the gas-fixture by arranging its inlet above the level of the same and adjacent thereto. My present invention therefore includes not only the ventilating-conduit and the deflector upon its outer end, but a special relation of its inlet to the gas-fixture with which it co-operates. As a means of ventilating, my construction possesses the advantage of requiring but a single conduit to simultaneously introduce and discharge the air, and the entire apparatus may therefore be put in operation by extending a single conduit of suitable construction from a certain point in

the apartment to the outer air. The construction also affords the great advantage of ventilating the apartment without chilling the atmosphere in an excessive degree.

5 I hereby disclaim the patents heretofore granted to me on March 10, 1896, for improvements in producing combustion, as I consider my present invention an improvement upon those heretofore claimed by me, and as
10 a specific form of the same.

Having thus set forth the nature of my invention, what I claim herein is—

1. The combination, with an apartment having a gas-fixture therein, of a ventilating-
15 conduit opening into the apartment above the level of and adjacent to said gas-fixture, and having its outlet provided with a suitable deflector dividing the same into inlet and outlet passages, arranged as described, to initi-

ate and separate inward and outward air- 20 currents, as and for the purpose set forth.

2. The combination, with an apartment having a gas-fixture therein, of a ventilating-
25 conduit opening into an apartment above the level of and adjacent to said gas-fixtures, and having its outlet provided with a suitable deflector dividing the same into inlet and outlet passages, the outlet-passage projecting beyond the mouth of the inlet-passage, to
30 separate the inward and outward currents of air, substantially as herein set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

PAUL J. SCHLICHT.

Witnesses:

THOMAS S. CRANE,
EDW. F. KINSEY.