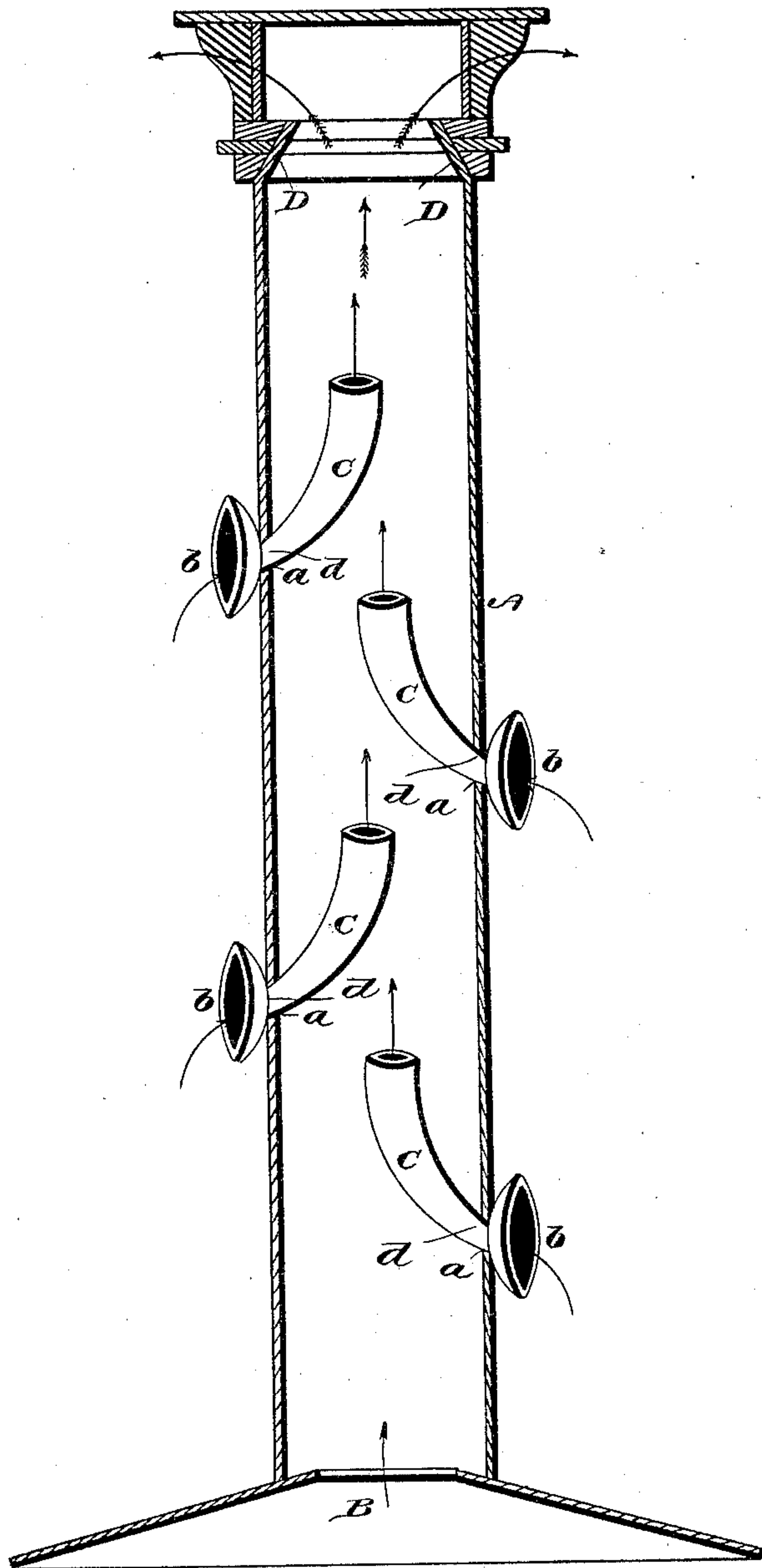


(No Model.)

W. T. COTTIER.
VENTILATOR.

No. 432,817.

Patented July 22, 1890.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM TALBOT COTTIER, OF OAKLAND, CALIFORNIA.

VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 432,817, dated July 22, 1890.

Application filed May 2, 1889. Serial No. 309,331. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM TALBOT COTTIER, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Ventilators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a ventilator, and is more particularly adapted for use in chimneys of dwellings, ventilation of sewers, cess-pools, ships, and railroad-cars, although it may be advantageously used in columns of structures and shafts of mines and other places.

The invention is illustrated in the accompanying drawing by a vertical central sectional view of a chimney.

In carrying out my invention I construct a chimney or shaft A of any suitable material and form, and provide the same at different points in its height with apertures *a* for the reception of induction pipes or tubes, as will be presently explained. The shaft or chimney A is placed above an aperture B, which is of a less size of diameter than the diameter of the said shaft.

C indicates the induction-pipes, which are of a peculiar construction. These induction-pipes are of approximately trumpet form, having a flaring or bell mouth entrance *b* adjacent to a contracted neck *d* and their inner or discharge ends gradually increased from the said neck to the terminal point. It will thus be seen that I present a large mouth for the collection of cold or outside air and also provide an expanding chamber within the shaft or chimney, so that the air enters the induction-pipe from the outside. It is heated by the smoke, gases, and particles of combustion passing through the chimney in the course indicated by the arrows, and thus expanded so as to increase the efficiency of the draft. It is obvious that as these induction-pipes have their discharge ends arranged within the chimney, and in the course of the passage of heated gases and particles of combustion there will be formed what will be properly termed "expanding chambers," so that the cold air entering through the flaring

mouths will be retarded by the neck or contracted portions and thence lightened by expansion in the enlarged portion, so as to accelerate the ascent. It will be observed that the induction-pipes are so arranged in the shaft or chimney that the air leaving one of them will not form into an eddy and be directed downwardly or pass through any of the other pipes. It will also be observed that these induction-pipes are kept some distance from the inner walls of the chimney, so that the upward draft will be central.

D indicates a deflector, which is arranged at a suitable point near the top of the chimney, as shown, so that any smoke or air passing up the chimney will be deflected to the central portion, and from thence discharged, as shown.

The number of induction-pipes to be used will depend upon the height or length of the chimney, and in some chimneys it may be necessary to use but two of them, in which case one will be placed on each side and at different levels or heights. In some instances only one of these induction-pipes can or may be used for want of room or proper exposure, or on ships, steamers, &c.

The devices may be made of sheet metal or any suitable material and applied to chimneys or stacks such as at present in use, and should any of them become impaired or injured they may be readily removed and replaced by others.

Having described my invention, what I claim is—

1. The combination, with a stack or chimney, of an induction-pipe having a flaring or bell mouth receiver on the outside thereof and an upwardly-increasing discharge on the inside, the latter being placed free from contact with the inner wall of the chimney and approximately in the vertical center of said chimney, substantially as specified.

2. The combination, with a stack or chimney, of a plurality of induction-pipes having a bell-mouth receiver on the outside and an upwardly-increasing discharge on the inside and arranged approximately in the vertical center of the stack and at different heights or altitudes, substantially as specified.

3. The combination, with a stack or chim-

ney having a plurality of induction-pipes provided with an upwardly-increasing discharge portion arranged approximately within the center of the chimney at different altitudes
5 and free from the walls thereof, and deflecting-plates in the upper portion of said stack, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM TALBOT COTTIER.

Witnesses:

JOHN G. ROUTSON, .
WM. BURGESS.