

(No Model.)

2 Sheets—Sheet 1.

S. COSTA.  
ASPIRATOR OR VENTILATOR.

No. 475,010.

Patented May 17, 1892.

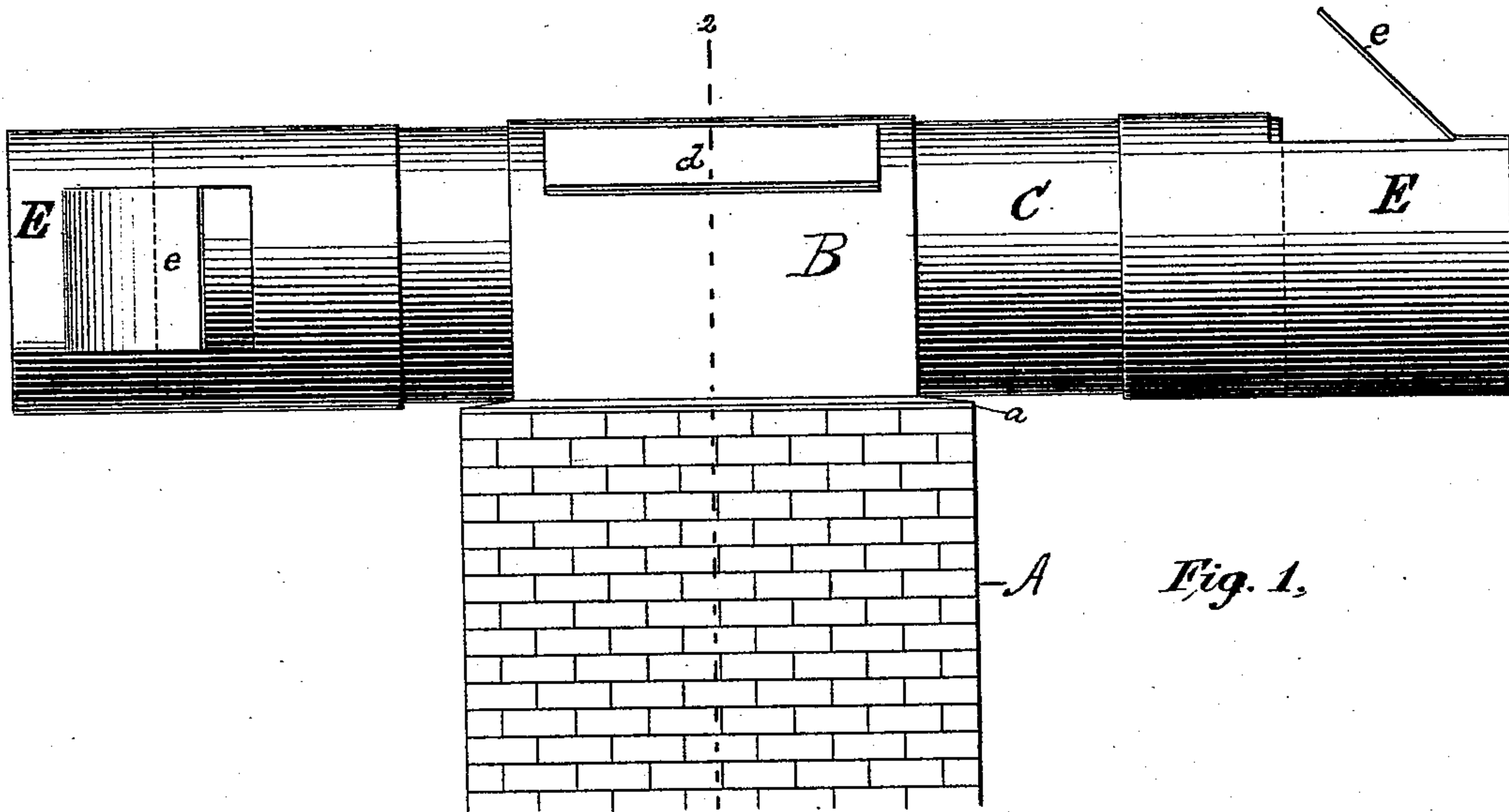


Fig. 1.

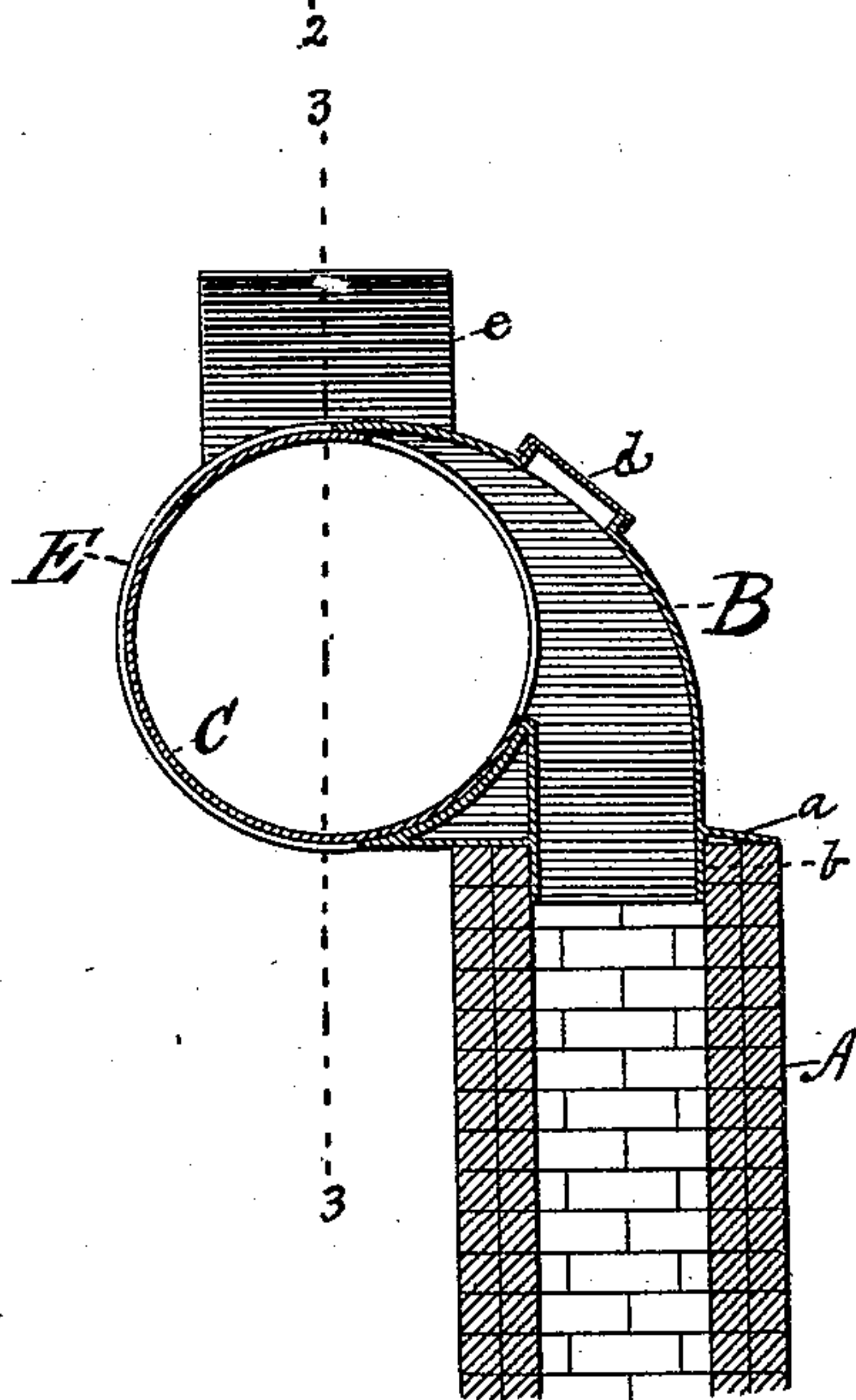


Fig. 2.

Witnesses  
Geo. W. Breck.  
Edward Thorpe.

Salvatore Costa,  
Inventor,  
By his Attorneys,  
Walter Kenyon.

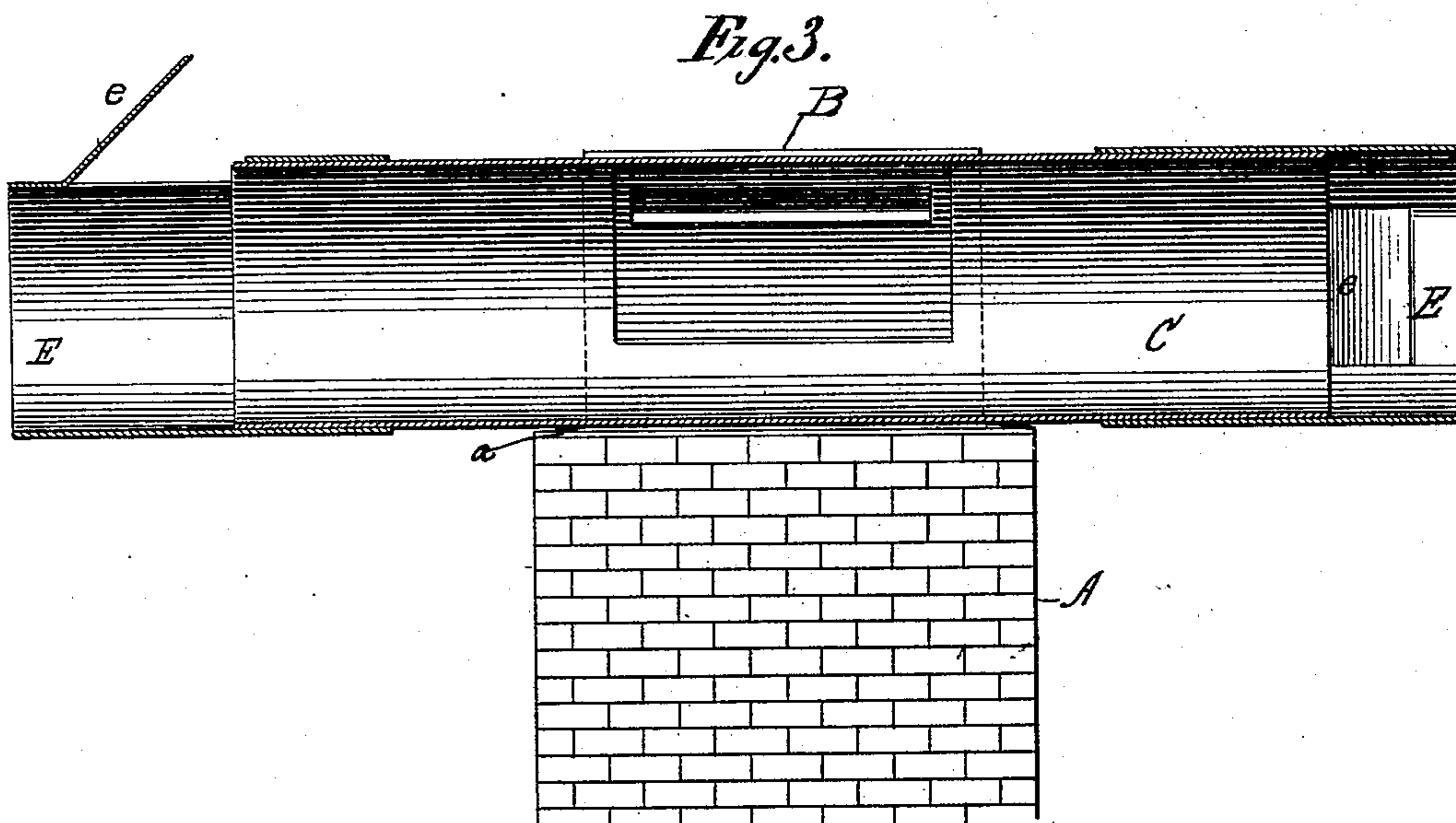
(No Model.)

2 Sheets—Sheet 2.

S. COSTA.  
ASPIRATOR OR VENTILATOR.

No. 475,010.

Patented May 17, 1892.



Witnesses  
Livingston Emery  
Edward Thorpe

Salvatore Costa,  
Inventor,

by his Attorneys.

Walter Kemper.



# UNITED STATES PATENT OFFICE.

SALVATORE COSTA, OF BROOKLYN, NEW YORK.

## ASPIRATOR OR VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 475,010, dated May 17, 1892.

Application filed April 15, 1891. Serial No. 388,996. (No model.)

*To all whom it may concern:*

Be it known that I, SALVATORE COSTA, a citizen of the United States of America, and a resident of the city of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Aspirators or Ventilators, of which the following is a specification, reference being had to the accompanying drawings, forming a part of the same, wherein—

Figure 1 is a rear elevation of my apparatus.

Fig. 2 is a section on the plane 2 2 of Fig. 1.

Fig. 3 is a section on the plane 3 3 of Fig. 2.

My invention consists of an improved apparatus for increasing the draft in chimney or analogous device and for preventing the smoke or other matter from being driven down the chimney. Its more important features are a hood connected to the top of the chimney or flue and curved or offset to one side thereof, an open-ended tube in communication with such hood and lying at right angles thereto, and certain deflecting devices made adjustable in their relation to the tube, all of which are hereinafter described in detail, and pointed out in the claims.

Referring to the drawings, B represents the hood. This is made of galvanized iron or any other suitable material and preferably in a single piece with the tube C. The hood is made in the shape shown in Fig. 2, with the rear side curved or offset, as shown, for the purpose of supporting the tube C at one side of the chimney instead of immediately over the chimney, and also for the purpose of bringing the opening between the hood and the tube near the top of the tube. The hood is provided with flanges b, which project down into the chimney, and thus hold the ventilator in position on the chimney, and also with the flanges a, which rest upon and cover the top of the chimney-walls and aid in supporting the ventilator. These flanges a also serve to protect the bricks and mortar of the top of the chimney from the action of the weather, and thus prevent the bricks from becoming loose by reason of the crumbling away of the mortar or its disintegration, due to rain or moisture. The hood is also provided with a manhole d to enable the hood and chimney to be cleaned.

In the best form of my invention the chim-

ney-hood is made in such a manner that the area of a cross-section of the hood, showing a cross section of the passage-way through the hood, shall be equal to the area of the flue or flues of the chimney. The opening from the hood into the tube is also made of an area equal to the area of the flue or flues of the chimney.

C is a tube, which is attached to and supported by the hood B. This tube is made of galvanized iron or other suitable material, and, as already stated, is preferably made in a single piece with the hood B. The cross-section of this tube can be varied in form.

In the best form of my invention the tube C is made of such a size that the area of a vertical section of the said tube is equal to the area of the flue or flues. For convenience and to prevent the wind when blowing through it from rushing down the flues, as has been heretofore quite generally experienced in devices of this nature, the tube is made to project beyond the hood at each end for a distance equal to one and a third times the diameter of the tube. Thus when this device is in place the wind rushing into one end of the tube at any angle will strike no internal obstacles, but will rush out of the other end, thus creating what may be termed a "suction" or "draft" to draw the smoke or foul air or other gaseous matter out of the chimney and create and maintain a constant circulation in the part to be ventilated, or in the case of a chimney cause the fire to "draw" well.

My device can easily be adapted to the ventilators that are held in a position parallel with the wind by means of a vane and that shift with every change of the wind, or to other classes of ventilators. As a result of this construction the tube C is supported at one side of the chimney and not immediately above the flues of the chimney, as in devices heretofore used. The advantages of this feature are, first, that my ventilator can be used upon low buildings that stand immediately next to high ones, where if the ventilator-tube were immediately over the chimney, and hence close to the wall of the adjoining high building, the wind would be cut off from it and it would consequently not operate satisfactorily, whereas my improved ventilator in such a case operates without difficulty, and,



secondly, that the wind is prevented thereby from blowing down directly into the chimney-flues.

When the ventilator is fitted permanently to a chimney, I have deflectors E placed at each end of the tube of the ventilator for the purpose of causing the wind to pass into the tube when the wind is blowing in a direction which is not parallel with the axis of the tube. These deflectors are short tubes adapted to slide upon the end of the tube C, and are provided with an opening which is partially protected by a projecting piece *e*. This piece *e* prevents the wind from blowing into the opening in the deflector in the wrong direction and causes the wind to pass into the opening in the deflector in such a manner or with such a direction as to produce or increase a draft in the tube C toward the deflector and out of the tube at that end. The deflectors E are thus rotatively adjustable upon the tube C.

In most parts of the country there are prevalent winds, and by employing this permanent ventilator with the deflector attachment, as described, a very little adjusting is necessary. The wind, even if blowing in the tube at an angle, cannot, on account of the length of the said tube, blow down the flue or flues. There is, moreover, a continual suction or draft in the lower part of the tube which causes any draft which may tend down the chimney to change its direction or to so modify its force that the rising smoke or impure air or gases will be drawn out of the chimney.

It is sometimes desirable when my ventilator is permanent to use the deflectors E for increasing the draft in the tube. Referring to Figs. 1 and 3, if the wind is blowing directly toward the tube (at right angles thereto) the adjustable deflectors E may be brought into play. By turning the deflector so that its opening is turned in the direction from which the wind is blowing the wind will be caused to blow through the opening in the deflector and out through the flue or open end of the same deflector, thus producing or increasing the draft in the tube C toward the end where the deflector is placed. The ventilator will, however, act without these deflectors, as the passage of the wind past the open ends of the tube will suck the air or smoke or other matter out of the tube.

When there is more than one flue in the chimney, it is convenient to remove the upper bricks of the partition wall or walls and allow a clear space at the top of the chimney and directly under the opening into the hood. In such a case the main part of the hood need not be made as large or nearly as large as the chimney, but need only be made of such a size that the area of the passage through the

hood will be equal to the sum of the areas of the flues. In the construction just referred to the flanges *a* are made wider, so as to still cover the entire top of the chimney.

The main advantages of my invention are its simple and comparatively cheap construction and its adaptability to be fitted to any size or shape or position of chimney and its efficient and reliable operation in causing a constant draft up the chimney or other device to which it is applied.

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

1. An aspirator or ventilator for chimneys or flues, consisting of a hood adapted to be connected to the top of the chimney or flue and curved or offset to one side thereof and a horizontal tube open at both ends and having a central opening in communication with said offset hood, said tube being at right angles to said hood and of such length that its open ends will be sufficiently distant from its central communication to prevent the wind from blowing directly through either end and thence down the flue, substantially as described.

2. An aspirator or ventilator for chimneys or flues, consisting of a hood flanged at its lower end to fit and be secured to the top of the chimney or flue and curved or offset to one side at its upper end and a horizontal tube connected at right angles so as to be at one side of such hood, with an opening between them situated above the center of such tube, substantially as and for the purpose specified.

3. In an aspirator or ventilator, the combination, with the curved or offset hood and the main horizontal open-ended tube connected thereto, as described, of the deflecting devices consisting of open tubes E, rotatively adjustable upon the ends of said main tube and having side openings and projecting pieces *e*, substantially as described.

4. An aspirator or ventilator consisting of the hood B, provided with the flanges *a* and *b* and curved at its upper end, as shown, the tube C, attached to the upper end of the hood, so as to be supported at one side of the hood, the opening from the hood into the tube at upper side of the tube, the tube C, projecting at each end beyond the said opening for a distance about one-third greater than the diameter of the tube, and the deflectors E, rotatively adjustable around the tube C, substantially as shown and described.

SALVATORE COSTA.

Witnesses:

ROBERT N. KENYON,  
CLARK BROOKS.