No. 864,606. PATENTED AUG. 27, 1907.

H. BRASSINGTON.

VENTILATOR.

APPLICATION FILED OCT. 23, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

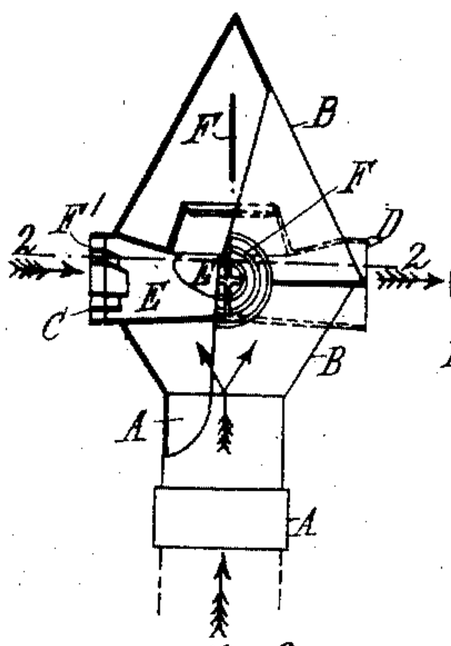


Fig. 4.

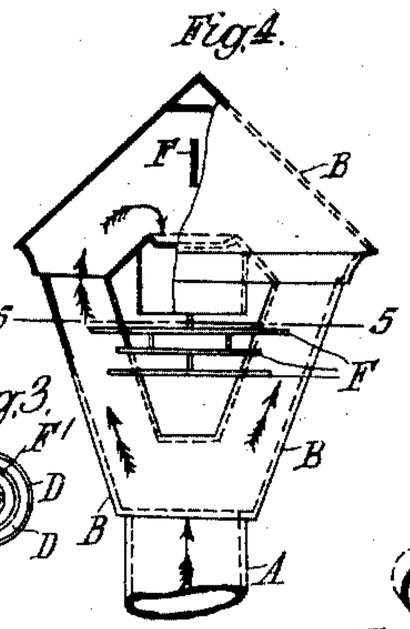


Fig. 3.

Fig. 5.

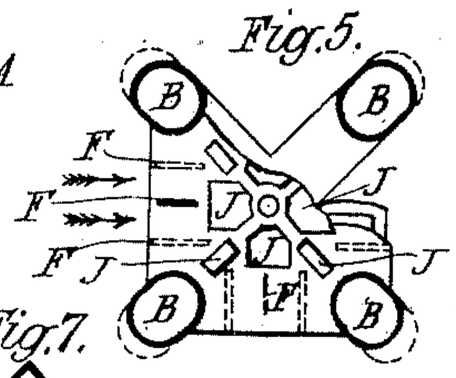


Fig. 8.

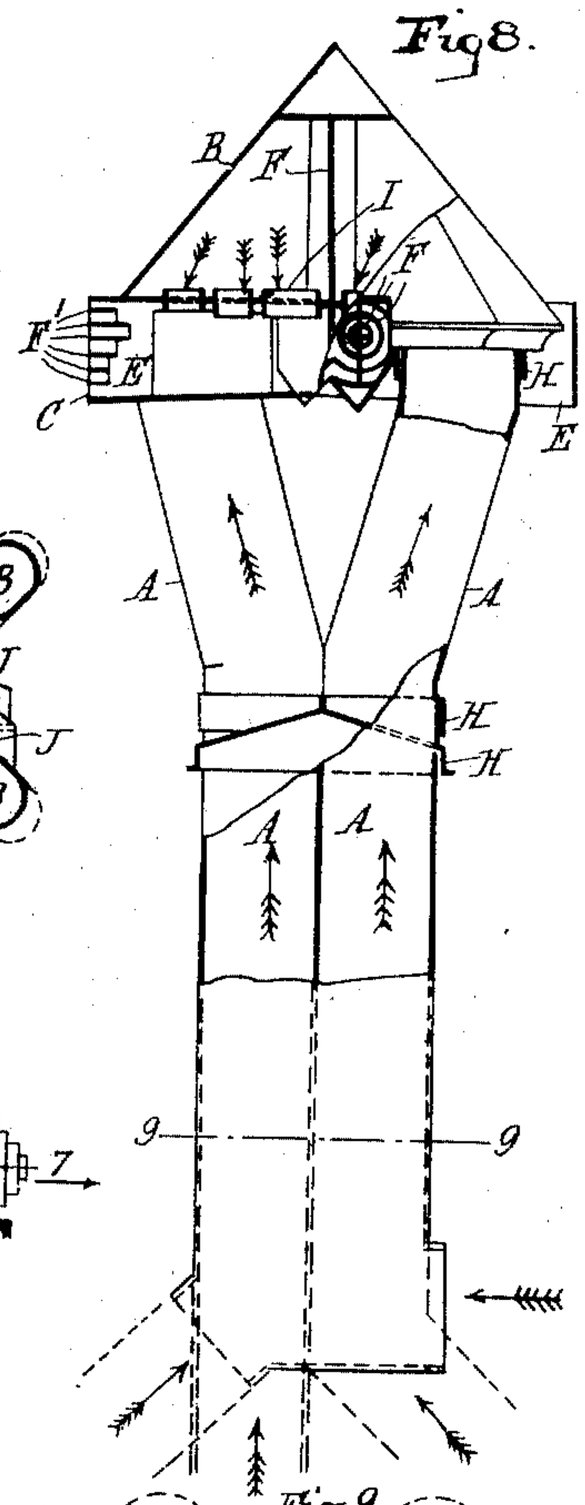


Fig. 2.

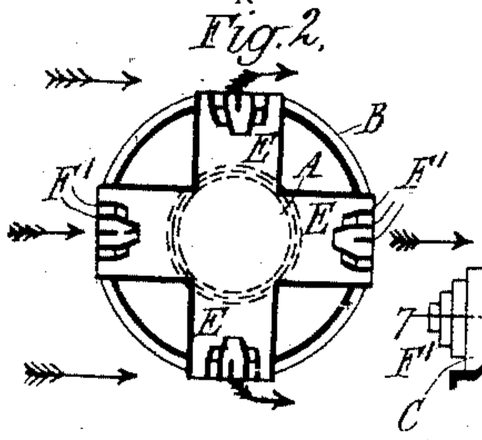


Fig. 7.

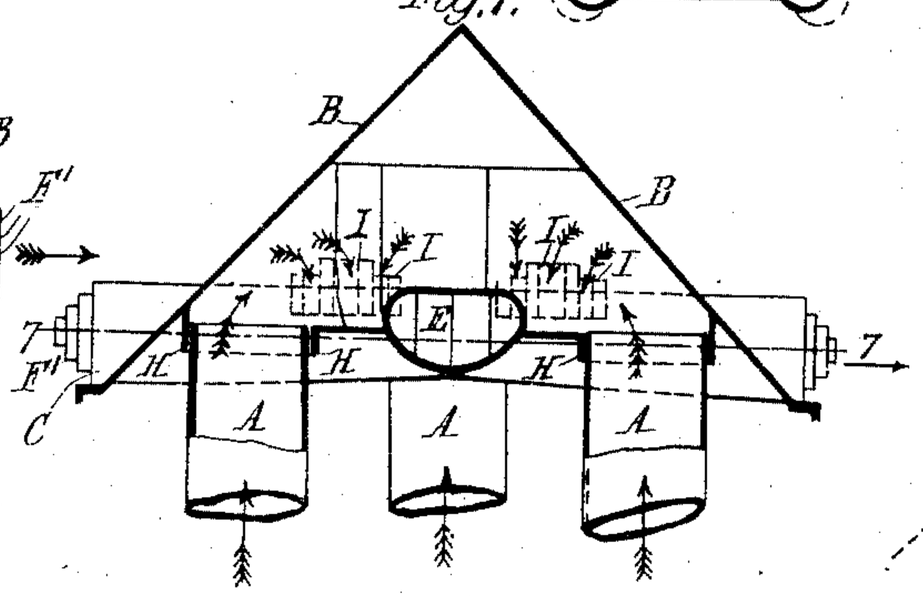


Fig. 9.

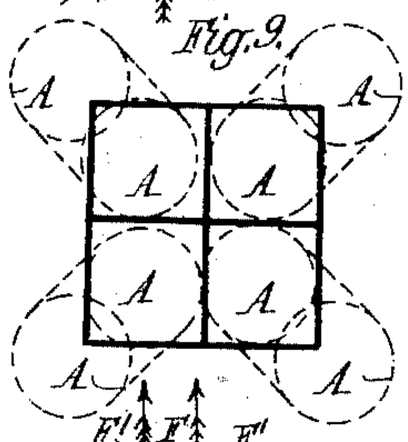


Fig. 6.

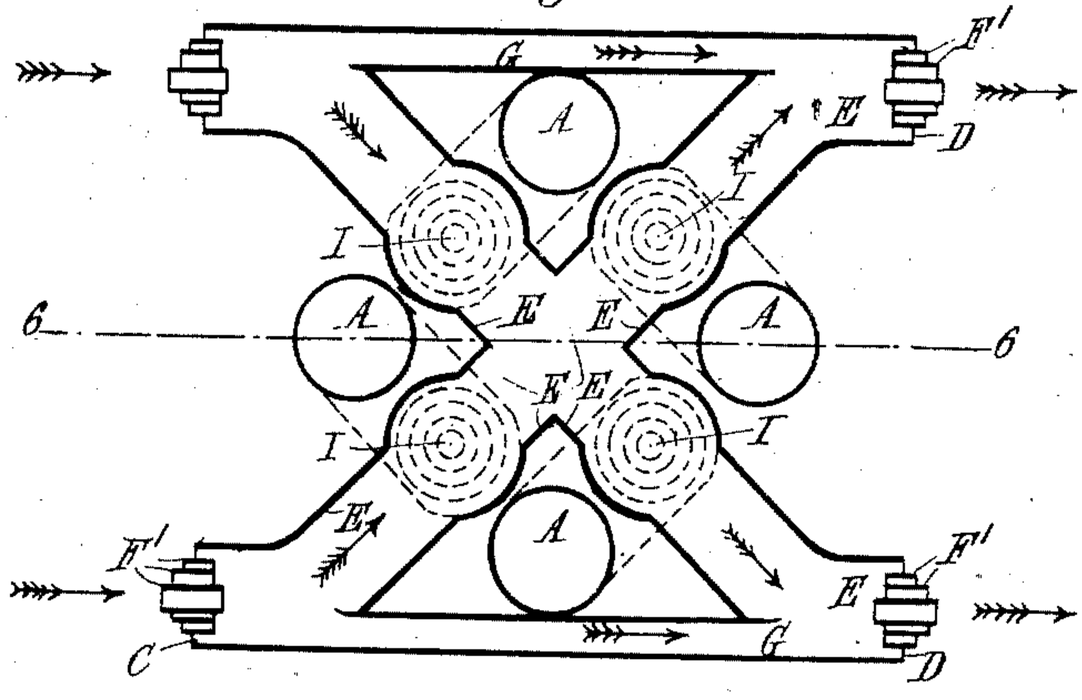
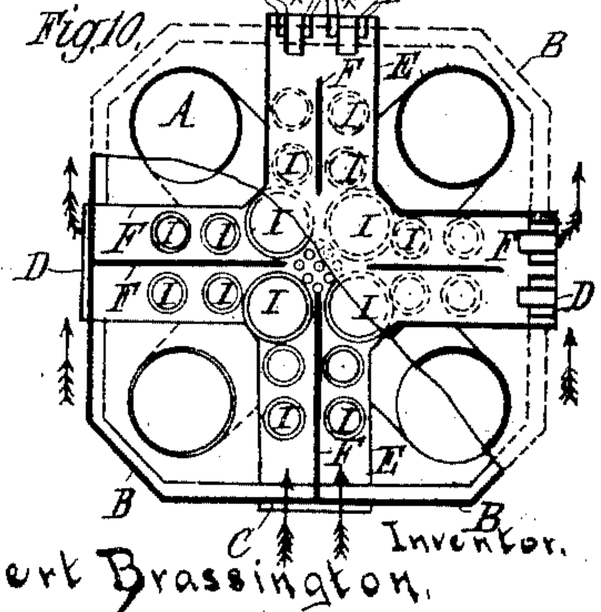


Fig. 10.



Witnesses
Elizabeth P. Crump
L. E. Morrill

Inventor.
Herbert Brassington.
By Mason Fenwick & Lawrence. Attorneys.

No. 864,606. PATENTED AUG. 27, 1907.

H. BRASSINGTON.

VENTILATOR.

APPLICATION FILED OCT. 23, 1906.

2 SHEETS—SHEET 2.

Fig 11

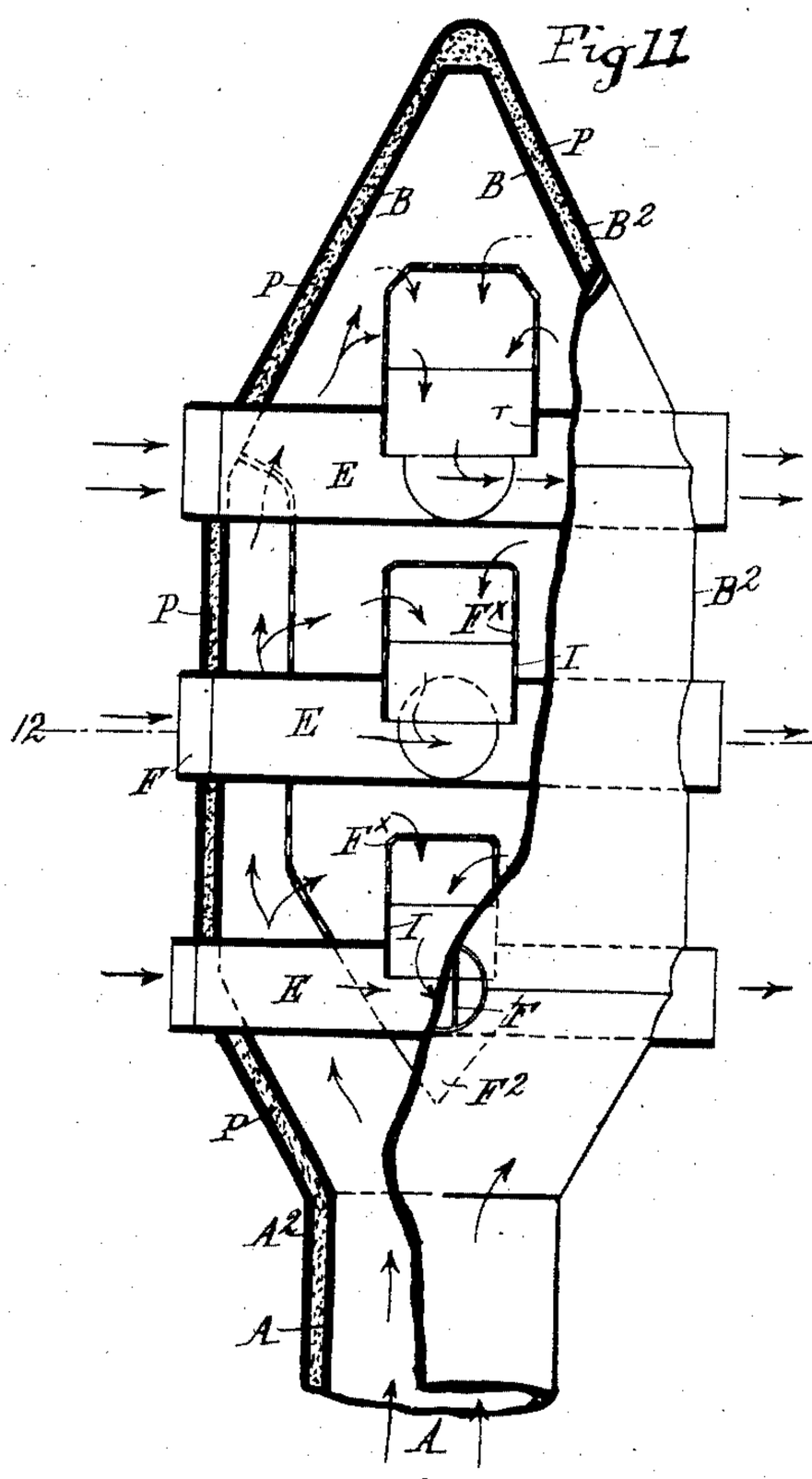


Fig.12.

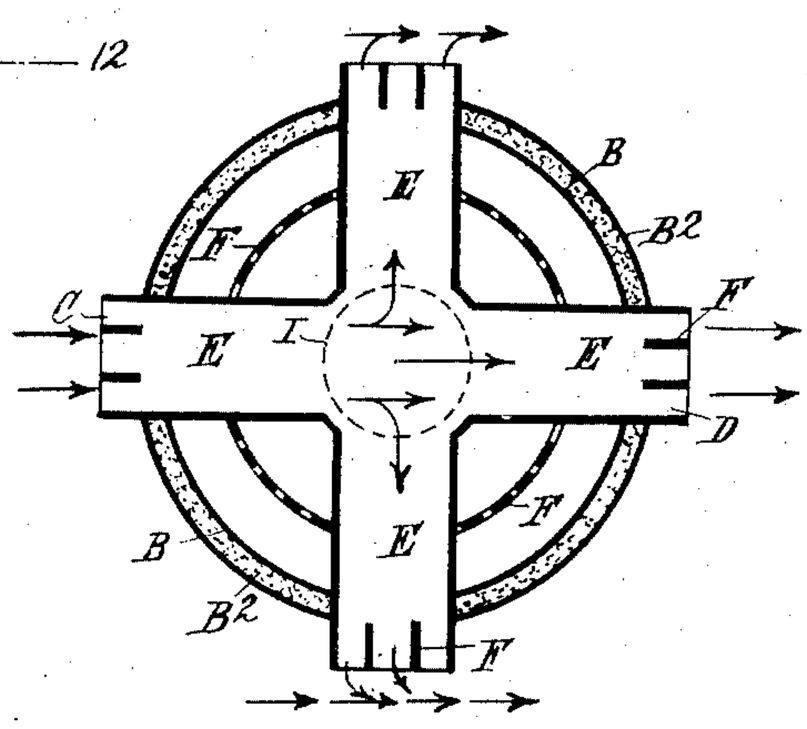


Fig.13.

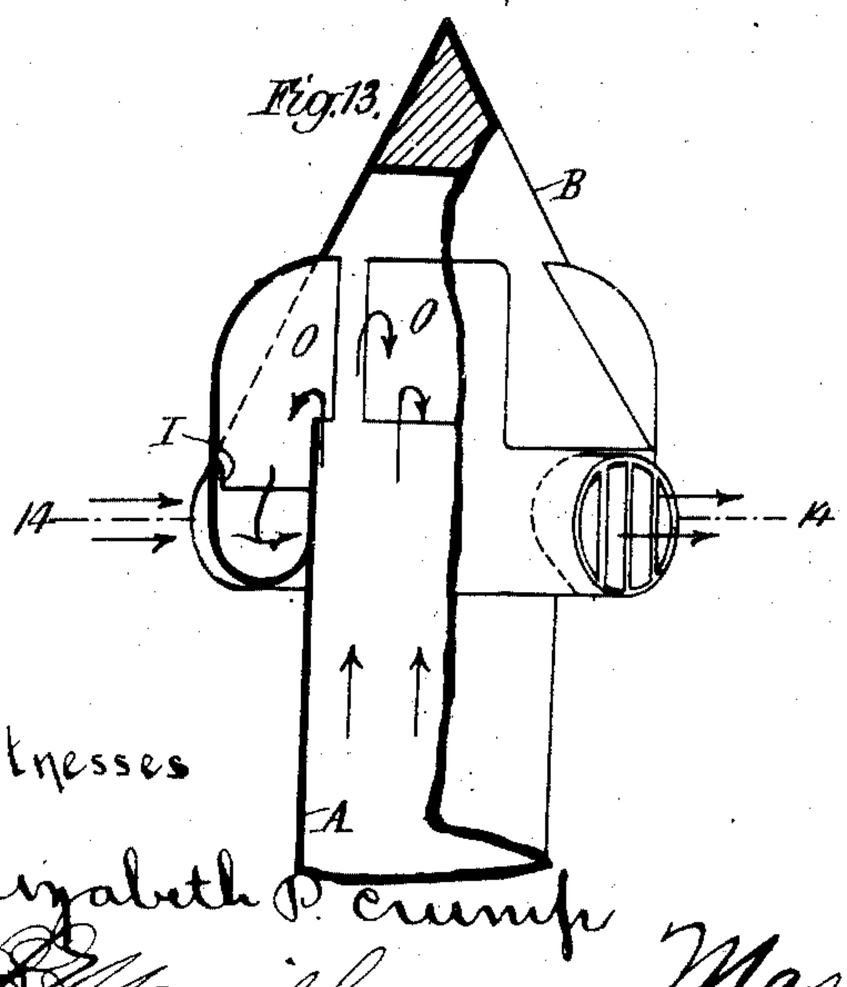
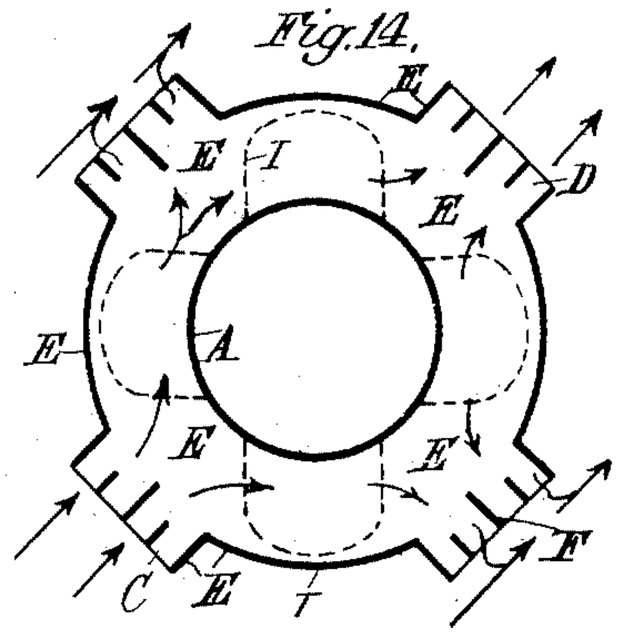


Fig.14.



Witnesses

Elizabeth P. Crump

Monell

Inventor

Herbert Brassington.

By Mason Fenwick & Lawrence

Attorneys

UNITED STATES PATENT OFFICE.

HERBERT BRASSINGTON, OF MORECAMBE, ENGLAND, ASSIGNOR TO CHARLES CRESSEY AND WILLIE CROSSLEY KEIGHLEY, OF MORECAMBE, ENGLAND.

VENTILATOR.

No. 864,606. Specification of Letters Patent. Patented Aug. 27, 1907.

Application filed October 23, 1906. Serial No. 340,166.

To all whom it may concern:

Be it known that HERBERT BRASSINGTON, a subject of the King of Great Britain, residing at 73 Granville road, Morecambe, in the county of Lancaster, England, agent, has invented certain new and useful Improvements in Ventilators, of which the following is a specification.

This invention relates to ventilators or appliances for use in removing foul or vitiated air or other gases from apartments, buildings or other structures; the ventilator being formed with a head at the top of a main shaft, having oppositely arranged inlet and outlet ways communicating with one another by cross pipes or shafts and with the main shaft by means of an opening leading downwards to the junction of the cross-pipes, the object of the present invention being to construct self-acting exhaust fixtures or natural ventilators which, owing to the absence of all moving or complicated parts are less liable to get out of order, and at the same time are adapted to insure a powerful exhaust irrespective of the direction of the air currents exterior to the apartment or building while effectually preventing the occurrence of down drafts.

Another object is to prevent the action of any shaft being disturbed by adjoining shafts, by conducting a number of shafts separately through an exhaust ventilator to the outer air.

According to this invention the ventilator comprising a main shaft or shafts is surmounted by a conical shaped head on which is a conical and if desired an ornamental cap. In the head portion are four inlet and outlet ways arranged on opposite sides and communicating with one another by cross-pipes or shafts and with the main shaft or shafts by way of the upper conical cap or head. The quadruple inlets and outlets insure of a current of air entering one of the inlets and allows of its exit by another so that from whatever direction the wind may blow, a powerful exhaust up and through the main shaft or shafts is insured. Vanes or deflecting plates may be arranged in the inlets and outlets and other necessary parts to deflect and guide the air currents and also to prevent birds entering or articles being deposited therein.

In order that the said invention may be clearly understood and readily carried into effect I will proceed to describe the same with reference to the accompanying drawings, in which:—

Figure 1 illustrates partly in elevation and partly in vertical section a ventilator constructed according to my invention having quadruple passages and adapted to be applied to a single main or upcast shaft. Fig. 2 is a horizontal section taken along the line 2—2 in Fig. 1. Fig. 3 is an end view of one form of inlet and outlet ways. Fig. 4 is a view of a construction of ventilator having separate passages and provided with baffle plates which form outlets. Fig. 5 is a partial plan and horizontal section the latter being taken along the line 5—5 in Fig. 4. Fig. 6 is a horizontal section taken along the line 6—6 in Fig. 7 illustrating a construction of ventilator having divided passages and puff pipes to induce cross currents between the ends of the inlets and outlets in the event of the ventilator being disposed below the ridge of a roof or similar structure. Fig. 7 is a vertical section taken along the line 7—7 in Fig. 6. Fig. 8 is a partial elevation and vertical section illustrating a construction of ventilator having quadruple upcast shafts connected to a single head and having wind feathers and multiple inlets and outlets. Fig. 9 is a horizontal section taken along the line 9—9 in Fig. 8. Fig. 10 is a horizontal section of the head pertaining to the construction shown in Fig. 8. Fig. 11 illustrates in part elevation and part vertical section a form of ventilator suitable for use with engine exhaust and cooling appliances; Fig. 12 being a horizontal section taken along the line 12—12 in Fig. 11. Figs. 13 and 14 are views respectively similar to Figs. 11 and 12 showing a construction applicable for use with smoke flues or uptakes; the section in Fig. 14, being taken along the line 14—14 in Fig. 13.

In the drawings, A indicates the upcast or main shaft or shafts; B the conical shaped heads; C the inlet ways; D the outlet ways; E the cross-pipes or shafts; F the vanes or deflecting plates, and G the "puff" pipes.

Similar letters in the several figures indicate corresponding parts.

In carrying out the invention, the ventilator may be constructed of any suitable material, the upcast or main shaft or shafts A which may be single or multiple being the base and formed of single, divided or separated up-cast shafts or the like of any convenient or desired shape connected to a head or heads B, of conical formation and provided with passages, with or without connection sockets H—such as shown in Figs. 7 and 8. The conical shaped heads B are provided with cross-pipes or shafts E, inlet ways C, outlet ways D, and vanes or deflecting plates F. The inlet ways C and the outlet ways D may be provided with concentrating and protecting funnels, vanes or deflecting plates F^1 to guide the air currents and also to prevent birds entering or articles being placed in the ventilator. The current or currents of air and the passage of foul or heated and vitiated air, gases, fumes or vapors from rooms or buildings, mines, railway carriages, ships, and the like, such as, engine inclosures, cooling appliances, and tanks, or from gas-stoves, ovens, heaters, smoke flues, lamps, geysers, soil-pipes, and the like is or are indicated by arrows.

The ventilator according to this invention may be arranged and constructed in various forms as may be desired or required to meet the demands of the various places and uses to which the device may be applied. If desired, the cross-pipes E may be formed with inlets I and be connected by "puff" pipes G—such as shown in Figs. 6 and 7—so as to induce cross currents between the ends of the inlets C and the outlets D in case the ventilator is disposed below the ridge of a roof or other situation. The circular outlets D may moreover be dispensed with and passages or openings, such as J, in the baffle, vane, or deflecting plates F be employed as shown in Figs. 4 and 5. In this arrangement the head B is shown as constructed with the downward exhaust passage or outlet—indicated by the curved arrow—having a shaped rim to baffle any upward currents. The baffle, vane, or deflecting plates F are constructed and arranged as shown with a view to protecting the mouth or outlet of the downward exhaust passage from rising winds. The conical shaped head B may be fitted with the midfeather F to separate the rising air currents, coming from the passages B′. In the event of the current of wind changing sufficiently, the inlet ways C may become the outlet ways, and the outlet ways D the inlet ways. The inlets I may be subdivided as shown in Figs. 6 and 7 or they may be arranged in multiple form as shown in Figs. 8 and 10.

Referring to Figs. 1 and 2 wherein is shown a single shaft with quadruple passages E, the action arises by the air currents entering and blowing through some of the passages E and simultaneously passing the ends of others whereby a partial vacuum is created in the head B and a powerful exhaust action effected upwardly in the shaft and outwardly through the passages E and such of the openings D as for the time being constitute air outlets.

The shaft or shafts A and the heads B may be constructed with an outer casing as shown in Figs. 11 and 13 and be packed with non-conducting material so as to prevent the warm internal air being affected by external cold.

Referring to Figs. 11 and 12, the construction comprises cross ways E arranged in tiers in one ventilating head and may or may not be combined with divisions $F^{\times}$ composed of perforated plate or metal netting, a perforated deflecting cone F^2 and a supplementary casing B^2 and A^2 having an intervening packing P of asbestos or other non-conducting material, or a cooling fluid; the objects being to reduce noise and resonance which might otherwise result from the discharge of hot gases and the like into the air.

In the construction illustrated in Figs. 13 and 14 which is particularly applicable for use with smoke flues and uptakes, dusty air and the like, the outlet is by way of the openings O and thence in a downward direction through the passages I escaping by way of the passages E. By means of this construction facility is afforded for the introduction of brushes for cleaning, permitting the upper part of the ventilator to be easily reached. The apex of the cone pertaining to the head B and the vanes F in the passages E may also if desired be rendered removable so as to facilitate cleaning.

It will be obvious that a number of heads may be employed in combination while three four or any other number of crossways E may be arranged with advantage in a ventilator according to my invention.

What I claim and desire to secure by Letters Patent of the United States is:—

1. In a ventilator, a main flue, a closed cowl disposed upon the flue and composed of spaced shells, and a non-conducting material filling the space between the shells, pipes crossed within the cowl in a horizontal plane, and means within the cowl forming communication with the pipes.

2. In a ventilator, a main flue, a closed cowl disposed upon the flue, and composed of spaced shells, and a non-conducting material filling the space between the shells, pipes crossed within the cowl in a horizontal plane, and hoods within the cowl forming communication with the pipes at their junctures.

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

HERBERT BRASSINGTON.

Witnesses:
WM. PIERCE,
H. WATSON.