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K. M. DE VOS ET AL

VENTILATOR OR AIR EJECTOR

Filed Jan. 14, 1922

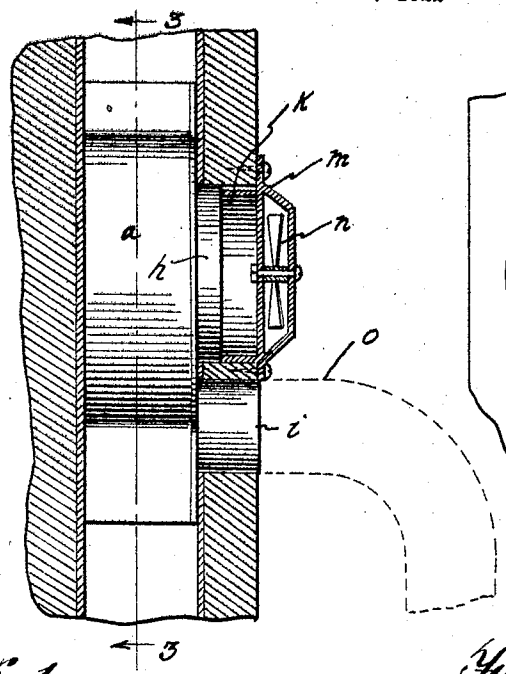


Fig. 1

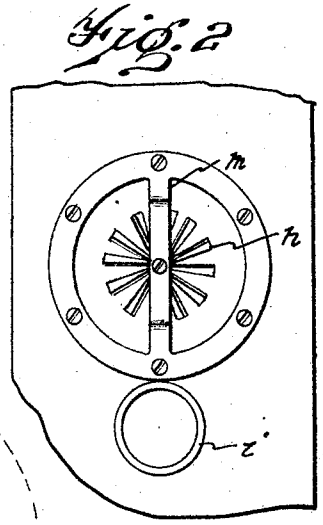


Fig. 2

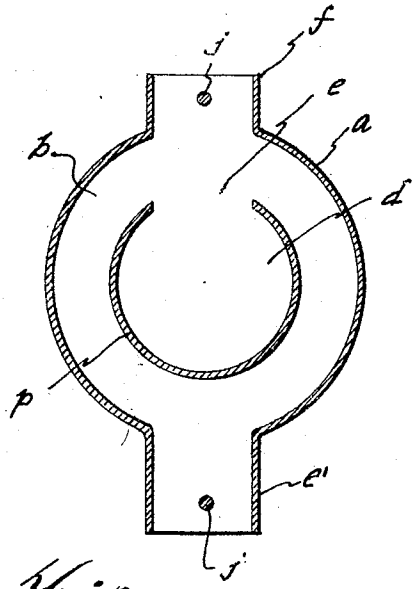


Fig. 3

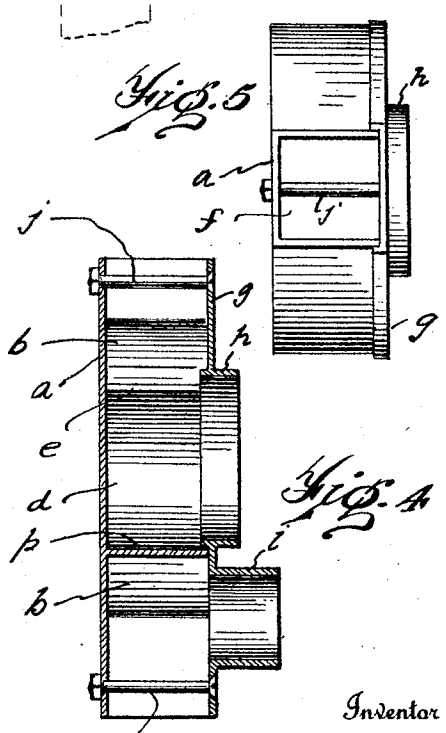


Fig. 5

Fig. 4

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UNITED STATES PATENT OFFICE.

KENNETH M. DE VOS AND EARLE W. BAGG, OF DETROIT, MICHIGAN.

VENTILATOR OR AIR EJECTOR.

Application filed January 14, 1922. Serial No. 529,149.

To all whom it may concern:

Be it known that we, KENNETH M. DE VOS and EARLE W. BAGG, citizens of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Ventilators or Air Ejectors, of which the following is a specification.

This invention relates to ventilators and air ejectors for apartments and buildings, and has for its object a device of this kind which is calculated to work in connection with the flue of a stove. Ventilators of this type are not broadly new but the ventilator hereinafter described in detail and claimed is thought to embody new features of construction in which the arrangement of the flue and the air duct gets the maximum amount of surface exposed to the flue gases. This ventilator also is arranged to act as a catch pocket to catch all material falling down through the chimney. In the construction of chimney flues a great deal of mortar, other material and refuse falls down through the flue, very often clogging the same and requiring expensive operations in order to remove the same. This ventilator is so constructed that it catches all material falling down from above, as will be presently explained.

In the drawings,—

Fig. 1 is vertical section of the chimney showing the ventilator installed in place.

Fig. 2 is a front view of the chimney showing the ventilator in place.

Fig. 3 is a vertical section of the ventilator.

Fig. 4 is a vertical cross section of the ventilator.

Fig. 5 is a top plan view of the ventilator.

The ventilator comprises a shell in the form of a channel-like casting *a*. The casting is bulbous at the center and is provided with an annular channel *b* and the inner wall *p* which forms at the center a cylinder-like air duct *d*. This communicates through the port *e* with the annular channel *b*. The shell has a neck *f* leading from the top and a neck *e'* leading from the bottom.

Secured to the face of the casting is another casting or plate *g* which is provided with an air port fitting *h* and a flue fitting *i*. These fittings are part of the plate which is bolted to the main casting by the long stove bolts *j*. This is well shown in the plan view, Fig. 5. The fitting *h* is adapted to fit in an opening *k* left in the wall of the apartment. Secured around this opening is a ventilator grid *m* which may be a single casting, as shown in Fig. 1, and which rotatably supports an air-propelled wheel *n*.

The stove pipe *o* fits into the fitting *i* to take the stove gases, usually a gas stove, and allow them to escape up the chimney, the products of combustion going through this fitting *i* into the flue *b* and then up the chimney. The products of combustion, of course, are more or less hot, consequently they heat the inner wall *p* of the channel or the outer wall of the air duct and consequently cause the air therein to rise through the chimney flue, thereby requiring air from the room to take its place. This arrangement is such that the maximum area of the air duct is placed directly in the path of the products of combustion, where the greatest heating efficiency is obtained from the gases escaping from the stove, thereby promoting a very rapid suction of the air out of the room. This causes the air-propelled wheel *n* to rotate and thereby indicates to the occupant of the room that the device is properly functioning.

The port *e* is directly below the neck *f* of the ventilator. The outlet ports of the flue *b* that carries the products of combustion, open into the side of the upgoing flue which is defined in part by the neck *f*. Consequently any refuse, mortar, brick or other parts falling down during the building operations is bound to lodge in the air duct *d* where they can be easily removed by simply taking out the grid *m*, or for that matter, the grid *m* will not probably be in place at the time they fall. This, therefore, forms a very nice catch pocket for materials falling during the building operation.

Not only are the products of combustion passing through the fitting *i* used to heat the air duct but all the products of combustion from any flues in apartments below strike directly against the air duct of the apartment in which the ventilator is located, thereby securing heat to promote circulation when the stove in the apartment in question is not being used. Furthermore the catch pocket in no way interferes with the draft through the chimney, yet serves to prevent any material falling down below the point where the ventilator is installed.

What we claim is:

1. The combination with a chimney pro-

vided with a chimney flue, of a ventilator comprising a shell having an upper neck portion open at the top communicating with the chimney flue and a lower neck portion open at the bottom communicating with the chimney flue, and the two openings occupying substantially the entire cross section of the chimney opening said shell having a bulbous central portion provided with a central air duct having on one side a by-pass flue connecting the lower neck to the upper neck for taking the products of combustion from the lower neck to the upper neck, the said air duct connected to an air intake formed in the center having an opening or port at its top communicating with the upper neck portion and said shell provided with a connection for communication with a stove pipe.

2. The combination with a chimney provided with a flue, of a ventilator comprising a shell having a neck portion at the top communicating with the chimney flue and a neck portion at the bottom communicating with the chimney flue each adapted to occupy substantially the entire cross section of the chimney opening, said necks connected by an annular flue having its axis on the horizontal for the products of combustion which surrounds a substantially cylindrical air duct which has a port in its upper side in line with the opening in the upper neck, the said air duct arranged to connect to an air intake and the shell provided at the bottom with an opening communicating with said annular flue.

3. The combination with a chimney provided with a flue, of a ventilator comprising a shell having at the top and bottom necks occupying substantially the entire cross section of the chimney opening and having a bulbous intervening portion, said neck portions connected by an annular flue for the products of combustion, and a central air duct having a port in its top in alignment with the upper neck thereby acting as a catch pocket the said air duct opening out into the room to draw the air therefrom and the lower end of the annular flue connecting with a pipe fitting for communication with a stove.

4. The combination with a chimney provided with a flue, of a ventilator comprising a shell formed with an upper neck portion communicating with the chimney flue, and an enlarged central portion having a central air duct cast therein which has a port in its upper side in line with the opening in the upper neck, said port being substantially of the same diameter as said opening, thereby to serve as a catch pocket, an annular by pass flue being formed between the said enlarged central portion of the shell and the central air duct, and the said shell provided near the bottom with an opening connecting the said by pass flue with a stove.

5. The combination with a chimney provided with a flue, of a ventilator, comprising a shell having a bulbous central portion having openings in the top and bottom thereof and provided with an air duct within said bulbous portion acting as a catch pocket, said duct and bulbous portion forming an annular by-pass flue communicating with the openings in said shell, the annulus of said flue having a horizontal axis.

In testimony whereof we affix our signatures.

KENNETH M. DE VOS.
EARLE W. BAGG.