

(No Model.)

J. HONEYMAN.  
VENTILATOR.

No. 371,067.

Patented Oct. 4, 1887.

FIG - 1 -

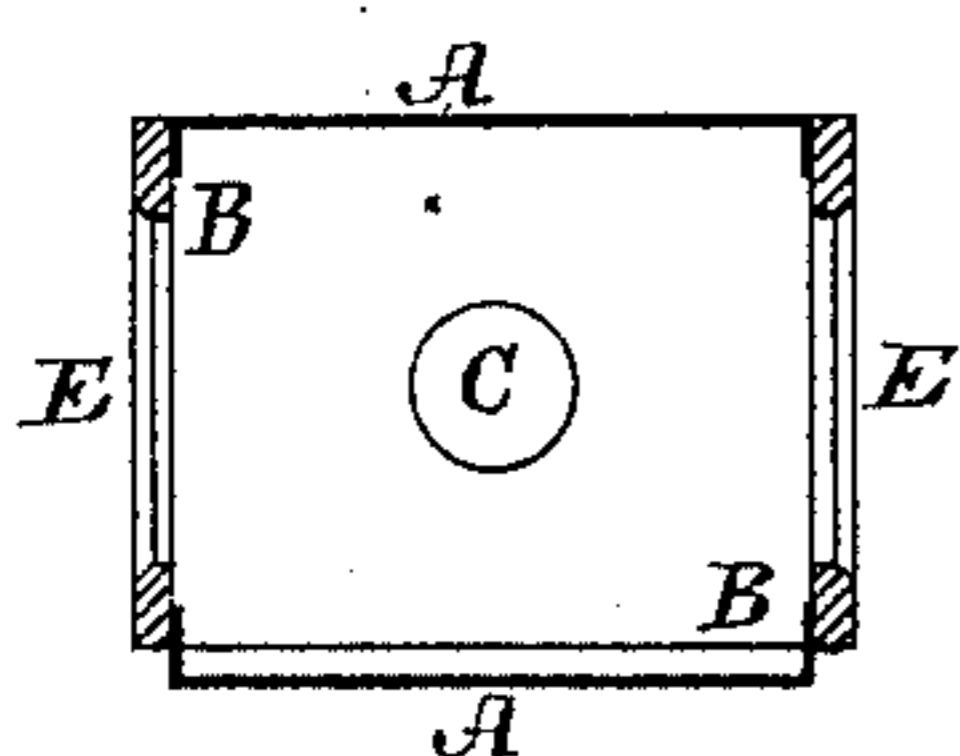


FIG - 2 -

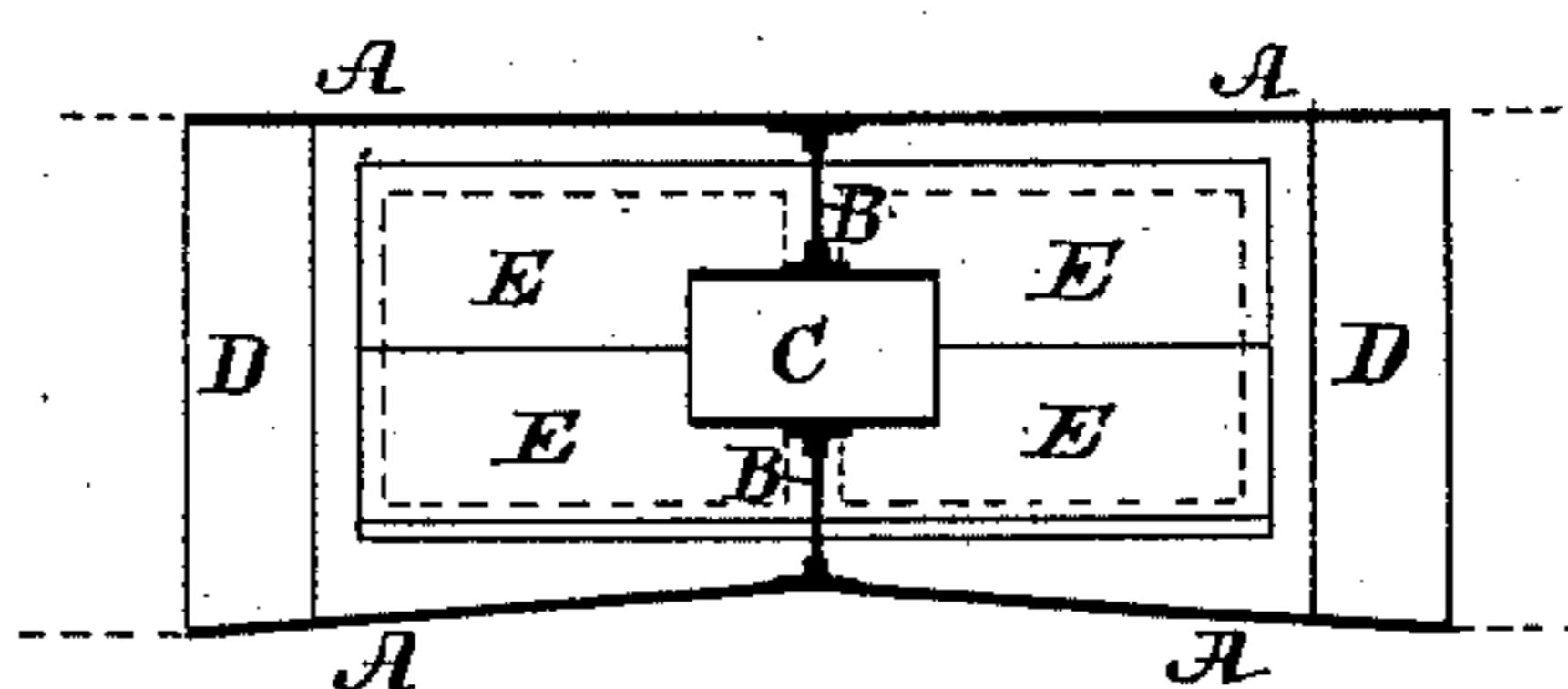


FIG - 4 -

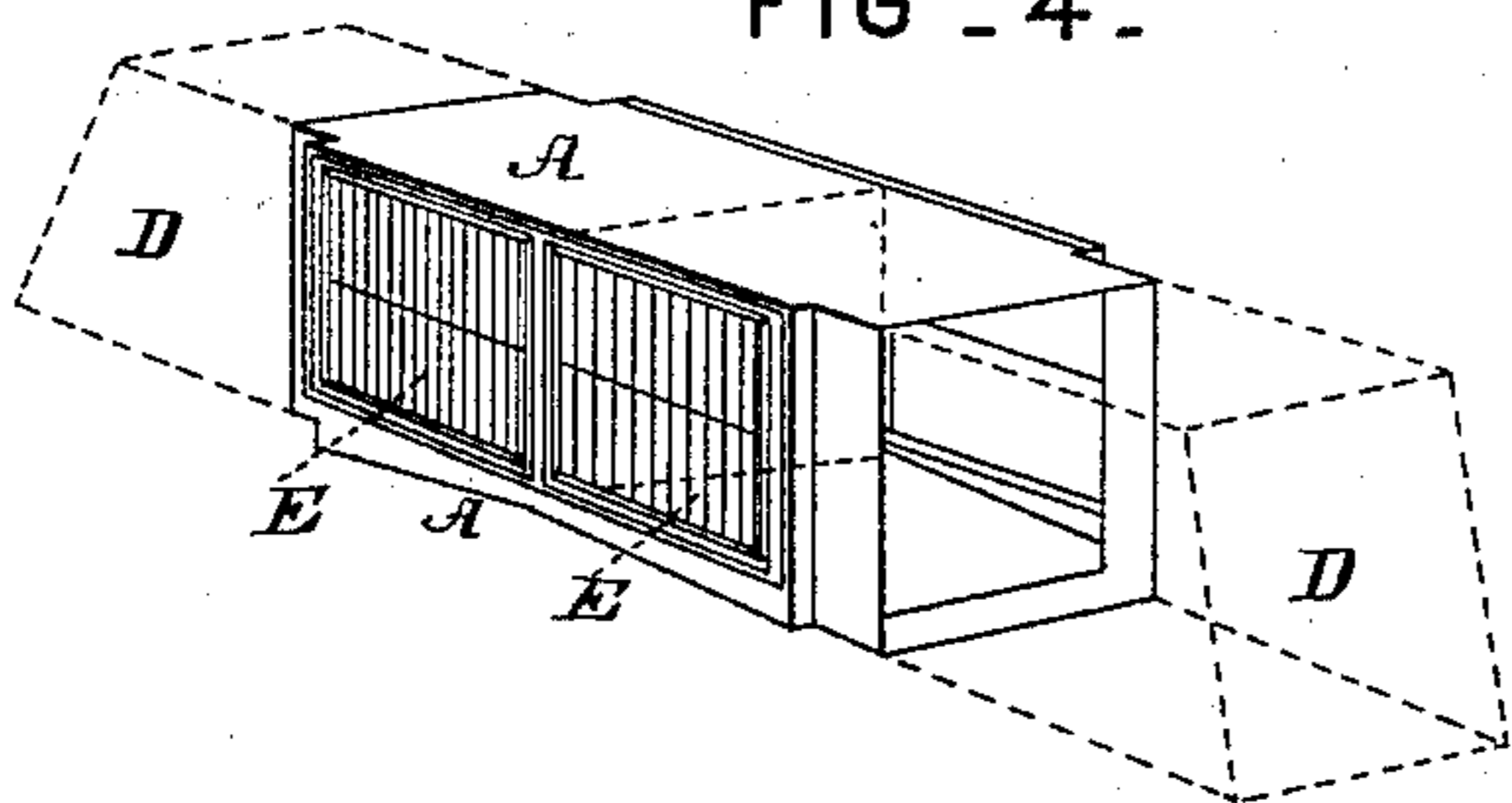


FIG - 3 -

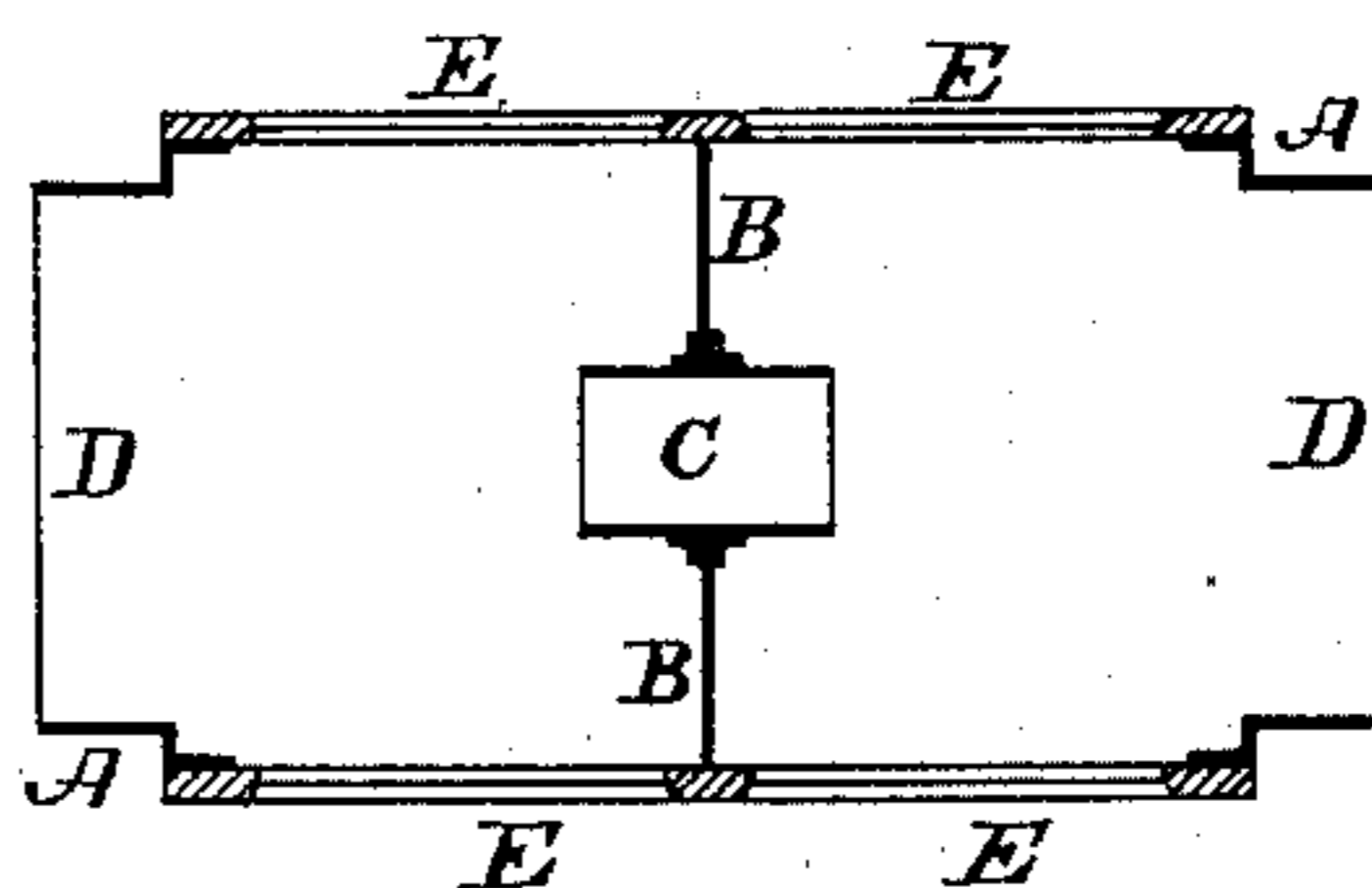


FIG - 5 -

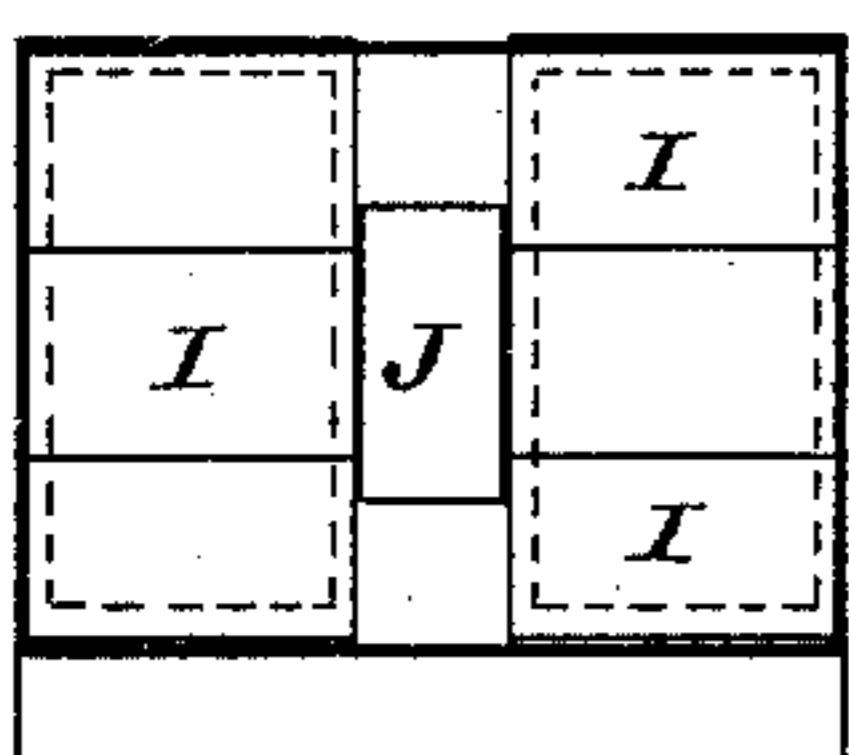


FIG - 6 -

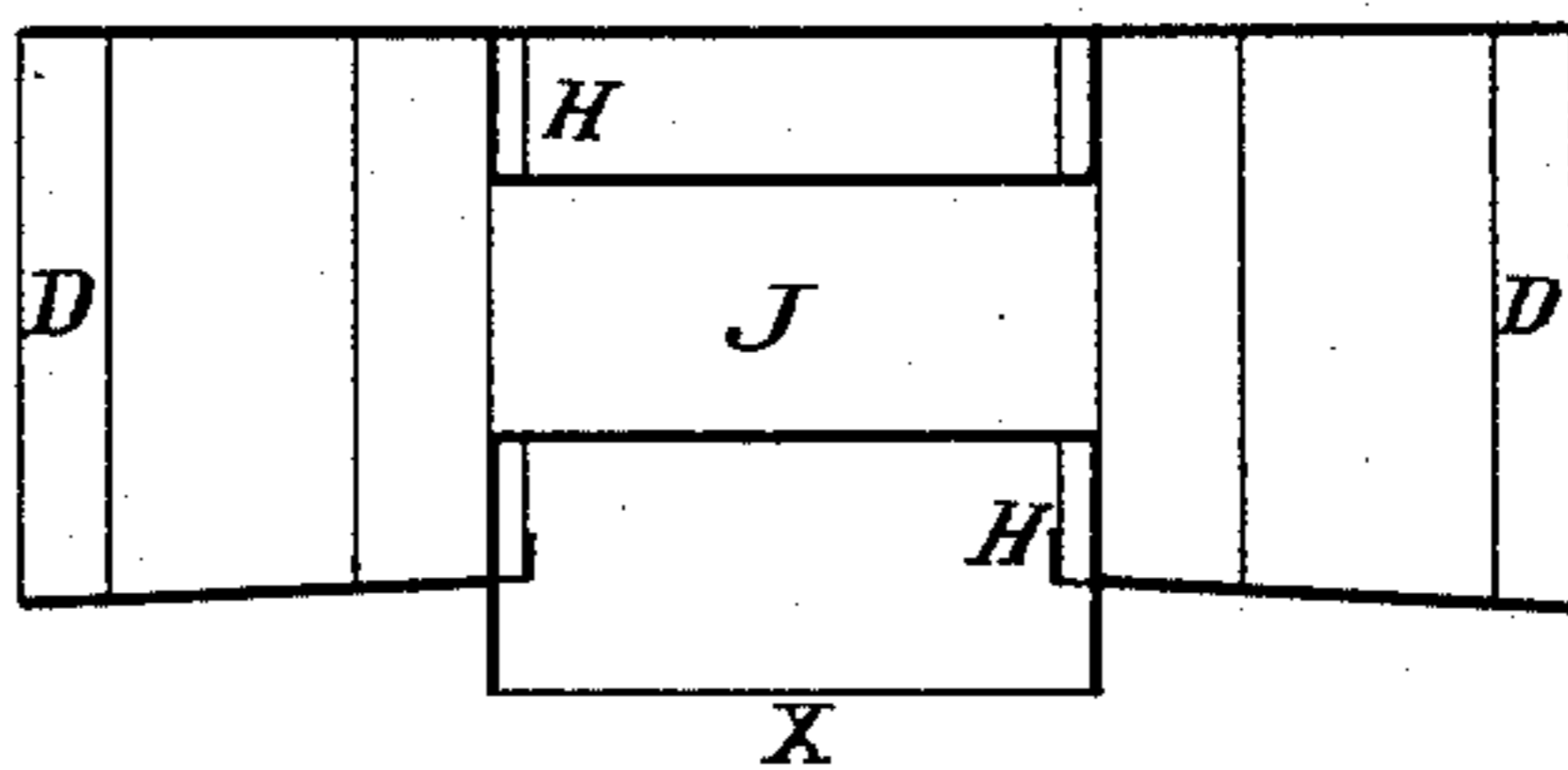


FIG - 8 -

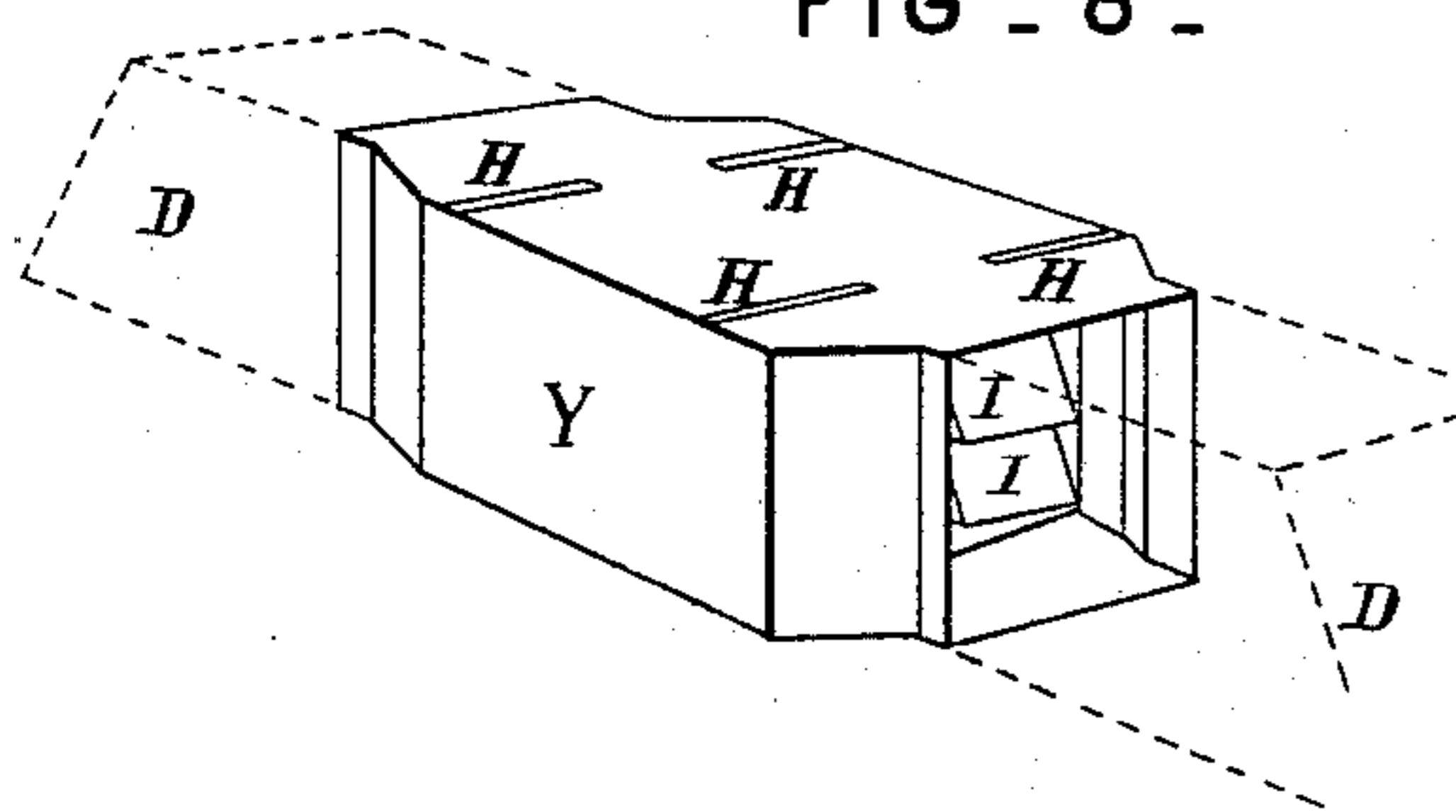
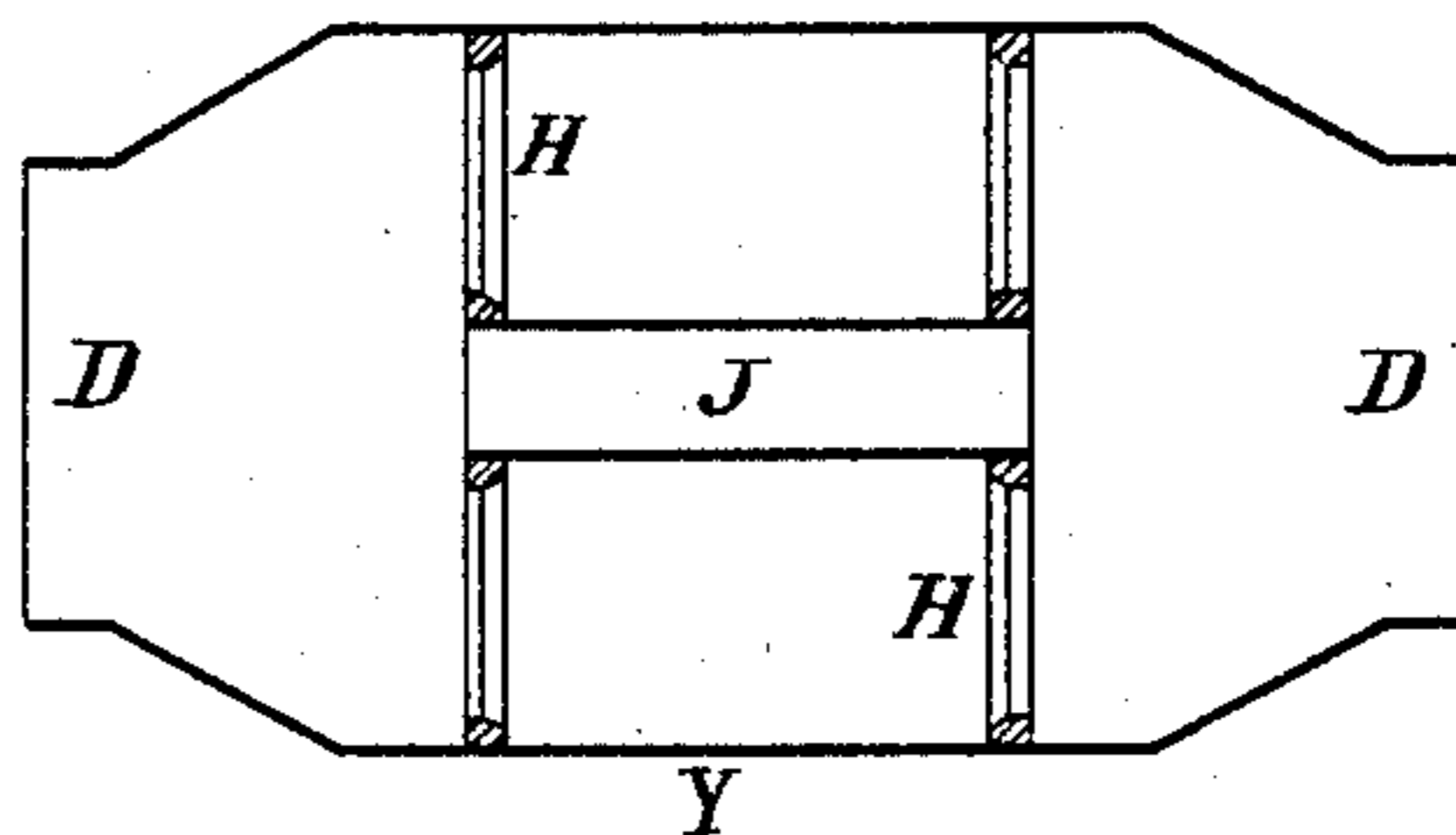


FIG - 7 -



Attest:

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# UNITED STATES PATENT OFFICE.

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## VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 371,067, dated October 4, 1887.

Application filed July 7, 1886. Serial No. 207,377. (No model.) Patented in England November 18, 1885, No. 14,113.

*To all whom it may concern:*

Be it known that I, JOHN HONEYMAN, a citizen of the United Kingdom of Great Britain and Ireland, residing at Glasgow, in the county of Lanark, Scotland, have invented new and useful Improvements in Ventilators; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the manufacture or art to which it relates to make and use the same.

This invention relates to improvements in uptake or outlet ventilators applicable to halls, churches, schools, and other public buildings, dwelling-houses and the apartments thereof, stables, and situations generally wherein it is required to effect ventilation or promote air-currents.

Figure 1, Sheet 1, of the appended drawings is a transverse section, Fig. 2 a longitudinal vertical section, Fig. 3 a horizontal section, and Fig. 4 a perspective view, of the improved ventilator constructed under one modification of the invention.

As seen by these figures, the apparatus consists of a box or chamber, A, which is shown to be rectangular, but which may be of any desired form in transverse section. The box is divided into two compartments by a partition wall or diaphragm, B, extending across it centrally, and wherein an orifice or hole is made or a pipe or tube, C, is inserted, so as to lie horizontally. From the ends of each compartment pipes, tubes, or air-trunks D extend to a position where they can communicate with the outer atmosphere. These pipes, tubes, or air-trunks D are of considerably larger area than the area of the pipe, tube, or orifice C in the diaphragm B, and they are preferably composed of or lined with zinc, sheet-lead, or other metal not easily affected by damp, the outer ends of the said trunks D being covered with wire or other guards to prevent the entrance of birds, rats, or the like therethrough.

As shown by Figs. 2 and 4, the lower side or bottom of each compartment of the ventilating chamber or box A and its trunk D is sloped downward from the central partition or wall B toward the outer ends of the trunks, to prevent the lodgment of rain or moisture in

the bottom of the ventilator; or the slope of the bottom may be toward the central division, B, and means provided on each side of the said division to catch and draw off water. The sides of each compartment of the chamber A are furnished with a series of valves, E, which may be composed of silk or other light and flexible material stretched on frames, but are preferably made of thin metal, wood, or other equivalent substance and balanced so as to be easily moved by air-pressure, these valves in any case being arranged to open inward, both from external pressure and when a partial vacuum or inducing-current is created in the compartments through the exhaustive or inducing action of the apparatus. An air or wind current in passing through the ventilator constructed as hereinbefore described enters by the air-trunk D into the compartment on one side or other of the mid-wall or diaphragm, B, and the pressure thereby engendered closes the valves E in that compartment, so shutting off communication between the said compartment and the space to be ventilated, and effectually preventing downdraft. The trunk D through which the air-current is entering being of larger diameter than the pipe or passage C, the air in passing through the said pipe or passage is compressed and issues from it into the other compartment D with considerably-increased velocity, which, creating a partial vacuum or inducing-current in the second compartment, first opens the valves E thereof and thereafter draws in through the openings so constituted foul or vitiated air from the apartment or space being ventilated, the said air, with the current through the pipe or orifice C, passing to the outer atmosphere through the air-trunk D. It is found that this action takes place even though the temperature of the air to be exhausted is as low as that of the outer atmosphere, and it will be seen from the construction of the ventilator that under no circumstances (granting the apparatus to be in working order) can there be downdraft into the compartment or building being ventilated, the valves E affording complete protection.

Fig. 5, Sheet 1, illustrates in transverse section, Fig. 6 in longitudinal vertical section, Fig. 7 in horizontal section, and Fig. 8 in per-

spective, a modified form of the ventilator, and wherein two dividing or partition walls, H, are employed at the interior of the box or chamber A, each of these dividing walls or diaphragms being furnished with a series of valves, I, opening toward the air-trunks D. In this case the foul or vitiated air, instead of being drawn in through the sides of the ventilator, as in the preceding arrangement, passes in through the bottom of the space inclosed between the walls or partitions H, (or it may pass in at the top,) and is drawn out into one or other of the air-trunks D through the valves I by the inducing action set up by the current of air passing through the pipe or channel J from one air-trunk to the other.

The arrangement Figs. 1 to 4 is especially applicable to open roofs and the arrangement Figs. 5 to 8 to ceilings or ceiled roofs, a trunk or pipe connected to the ventilator at X, Fig. 6, extending to or passing down through the ceiling; or the air may be drawn through openings at Y, Fig. 7, as at Figs. 1 to 4, in which case the bottom of the space between the partition H is closed.

The improved ventilators constructed under either modification hereinbefore described may be put into turrets or gables or gablets in roofs, and the air-trunks may be curved or angled either vertically or horizontally, and a feature of the invention is that in applying the ventilator to buildings the architectural effect of the structure is not or need not be interfered with, as the apparatus, instead of being set outside the roof, in the usual way, may be set inside the roof, in which case the air-trunks are carried out to and terminated flush with the slates or other cleating on both sides, or they may take the form of dormers, or be otherwise treated.

In buildings having two or more flats, for the ventilation of the under flats the apparatus may be set between the joists under flooring, the air-trunks D in that case being carried out to and terminated flush with the outer walls.

Having now described the invention, what I desire to claim and secure by Letters Patent is—

1. The combination, with an air-trunk open at both ends and provided at an intermediate point with a central contracted passage, of an opening in the side of said trunk near said contracted passage for the admission of foul air, and valves over said openings closed by pressure within the air-trunk, substantially as set forth.

2. The combination, with an air-trunk open at both ends, of a diaphragm placed across said trunk at an intermediate point, and having an opening or passage therethrough of much less area than the said trunk, an opening in the side of said trunk for the admission of foul air near said diaphragm, and valves closed by the pressure of air within the pipe to prevent the escape of air through said opening, substantially as set forth.

3. In a ventilator, the combination of the air-trunk D, open at both ends and having a pair of perforated diaphragms, H, placed across it at suitable distances apart, an opening in the side of the air-trunk between said diaphragms, a pipe, J, of much smaller area than the trunk D, open at both ends, forming a communication between the portions of the air-trunk on opposite sides of the diaphragms H, and valves I, closing against the outsides of the diaphragms, to prevent the escape of air through the opening in the side of the air-trunk, substantially as set forth.

In witness whereof I have hereunto set my hand and seal this 23d day of June, 1886.

JOHN HONEYMAN. [L. S.]

Witnesses:

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