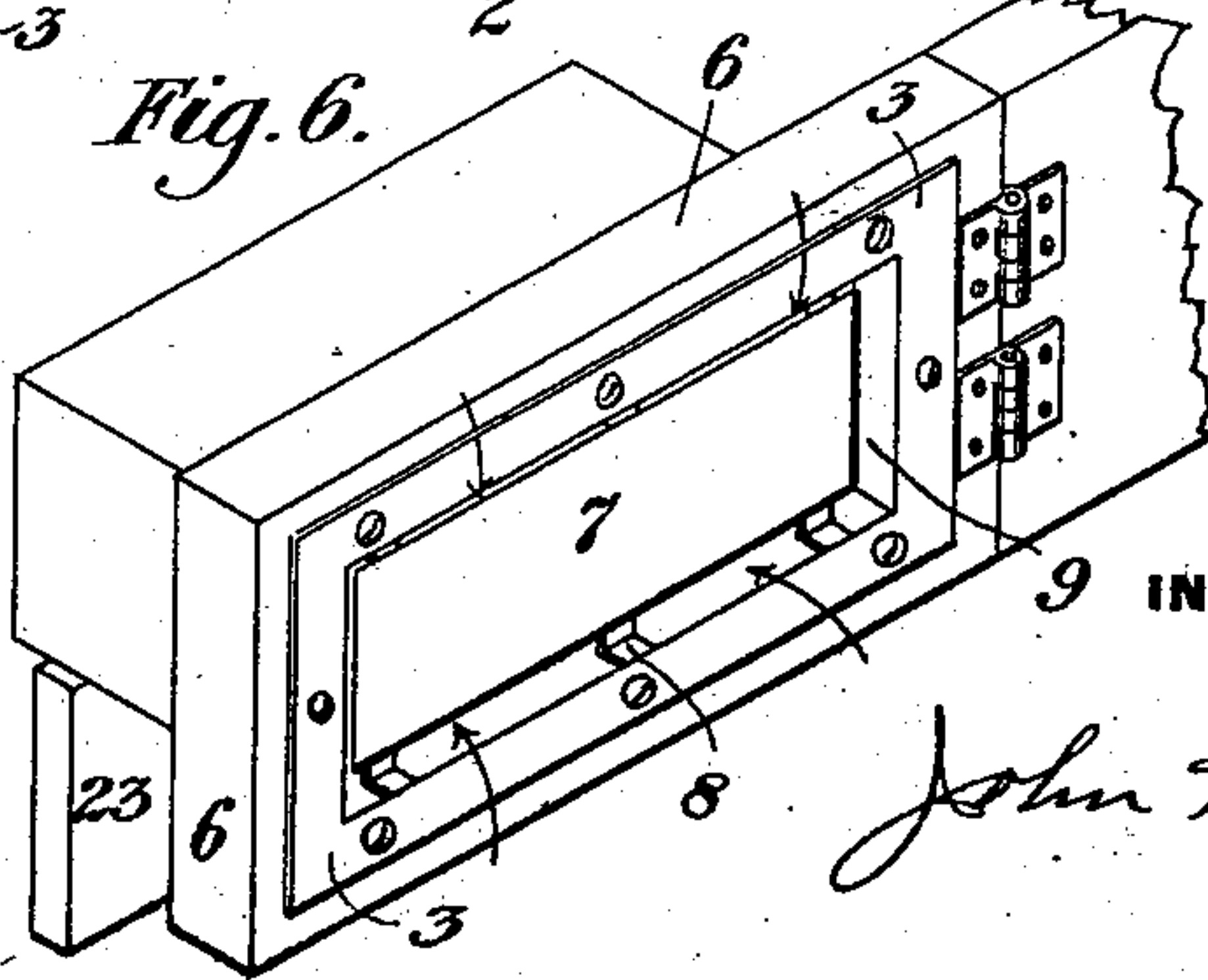
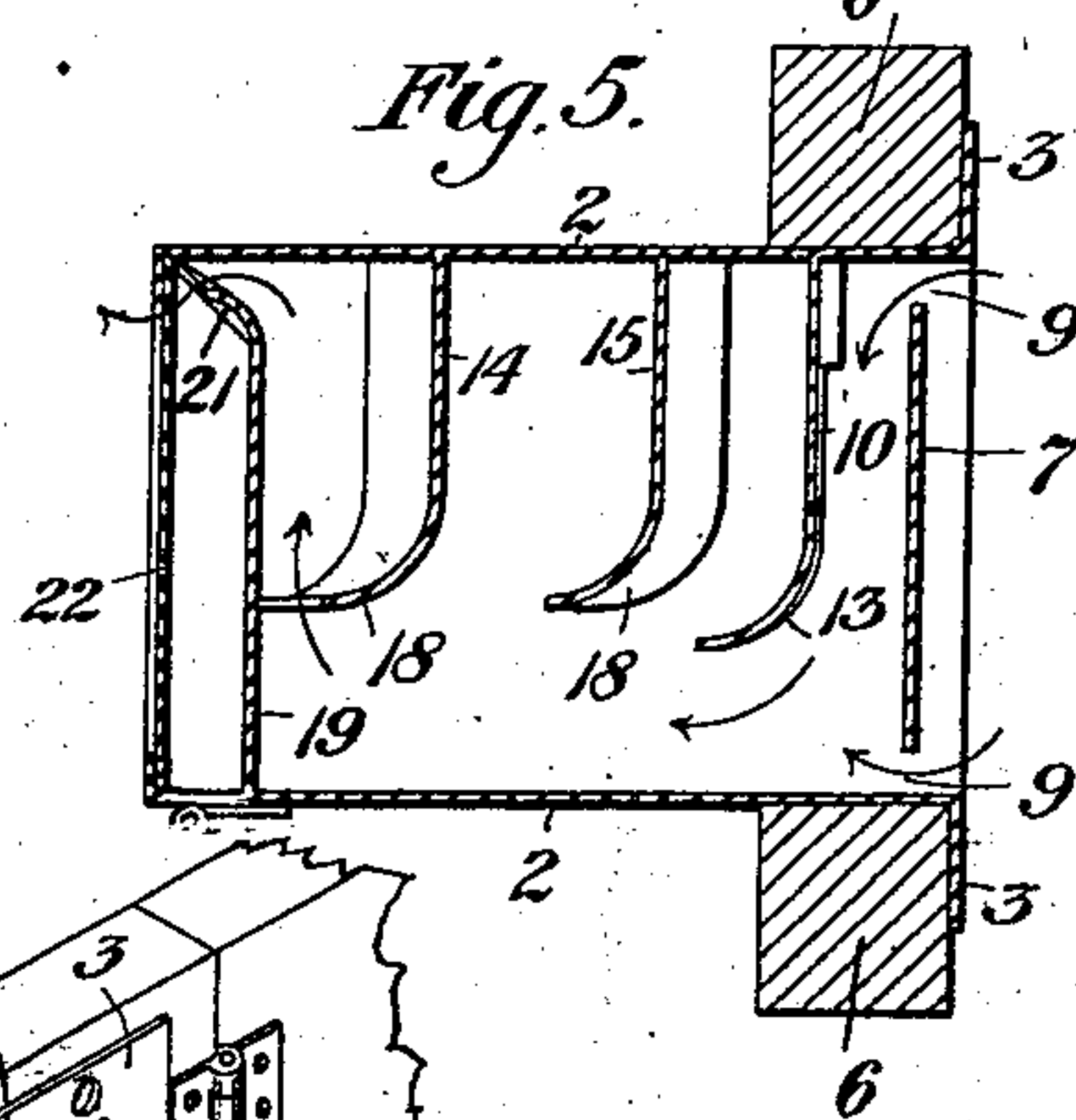
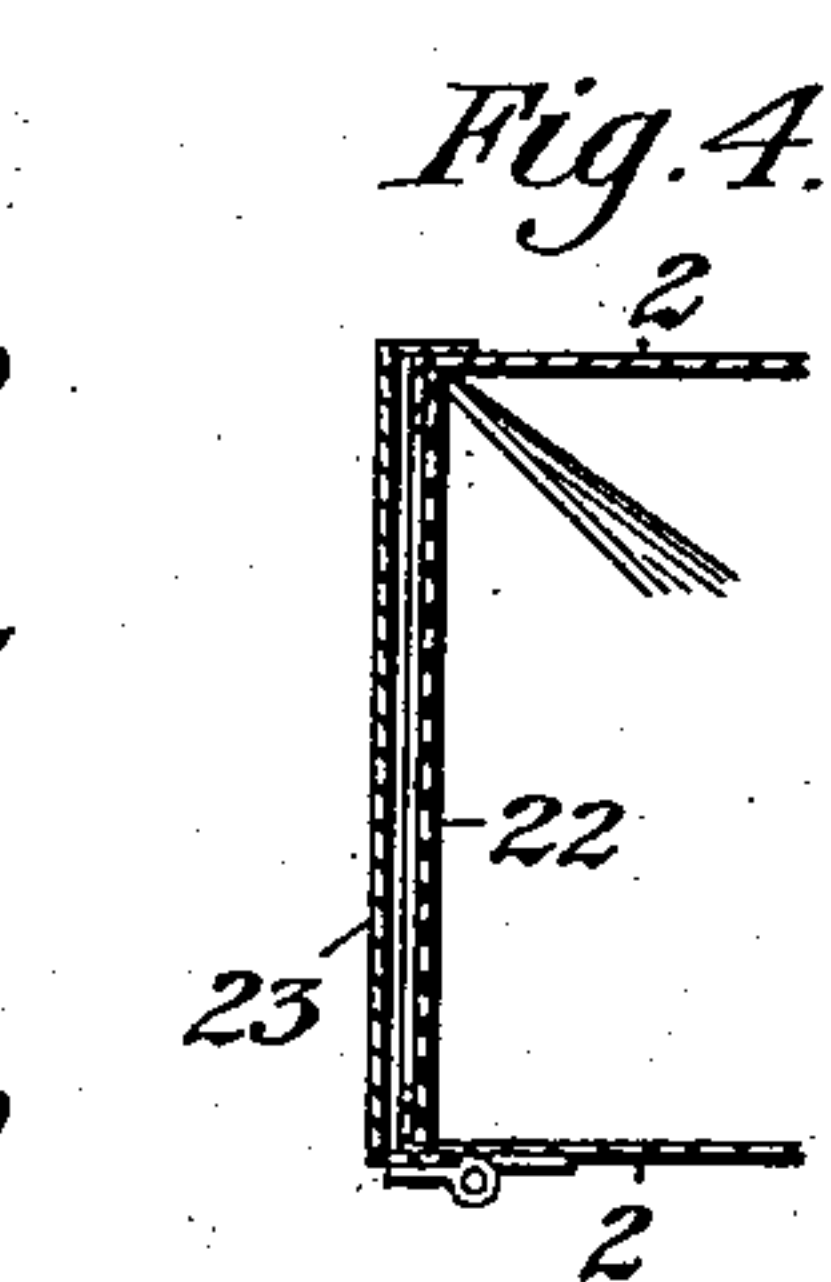
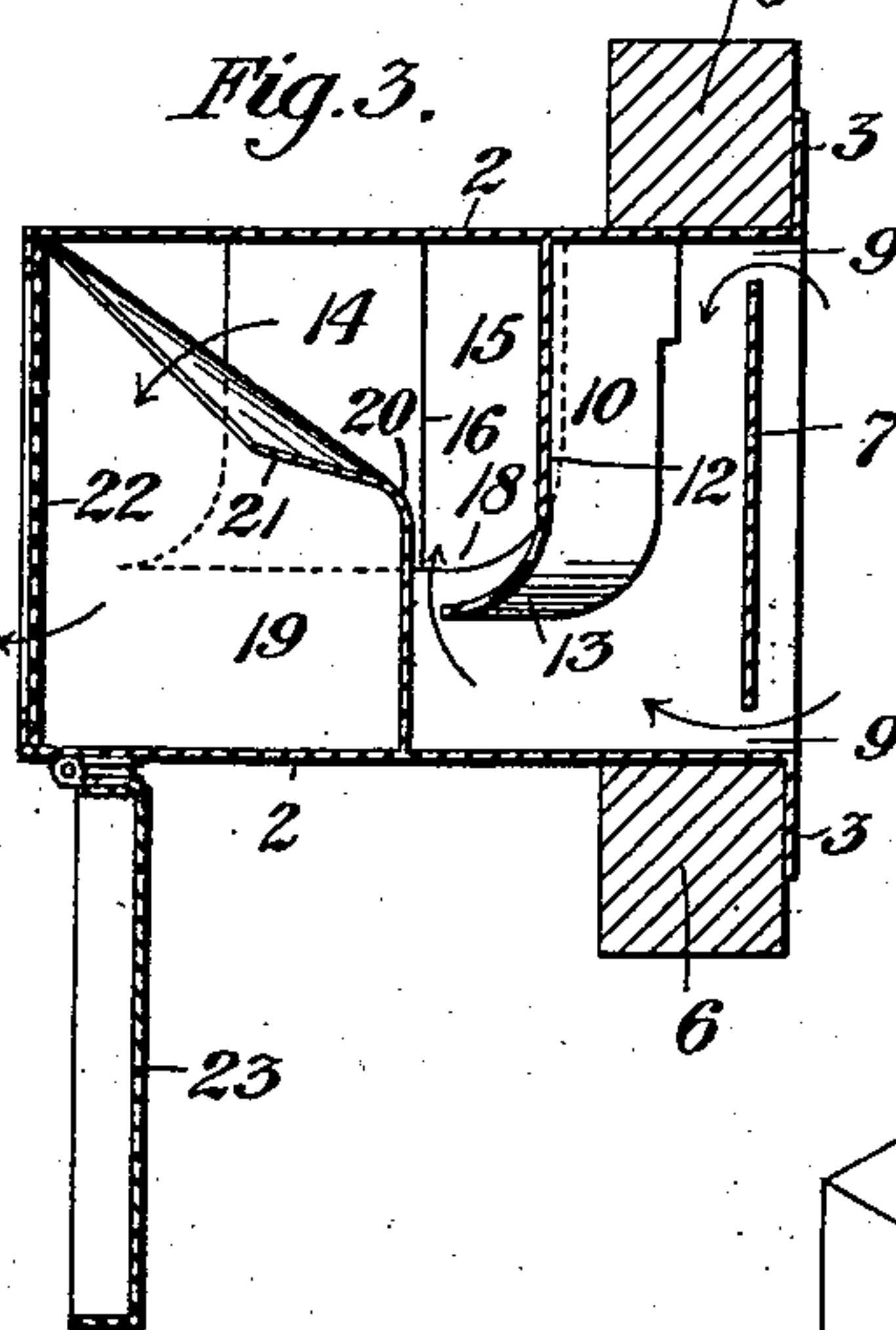
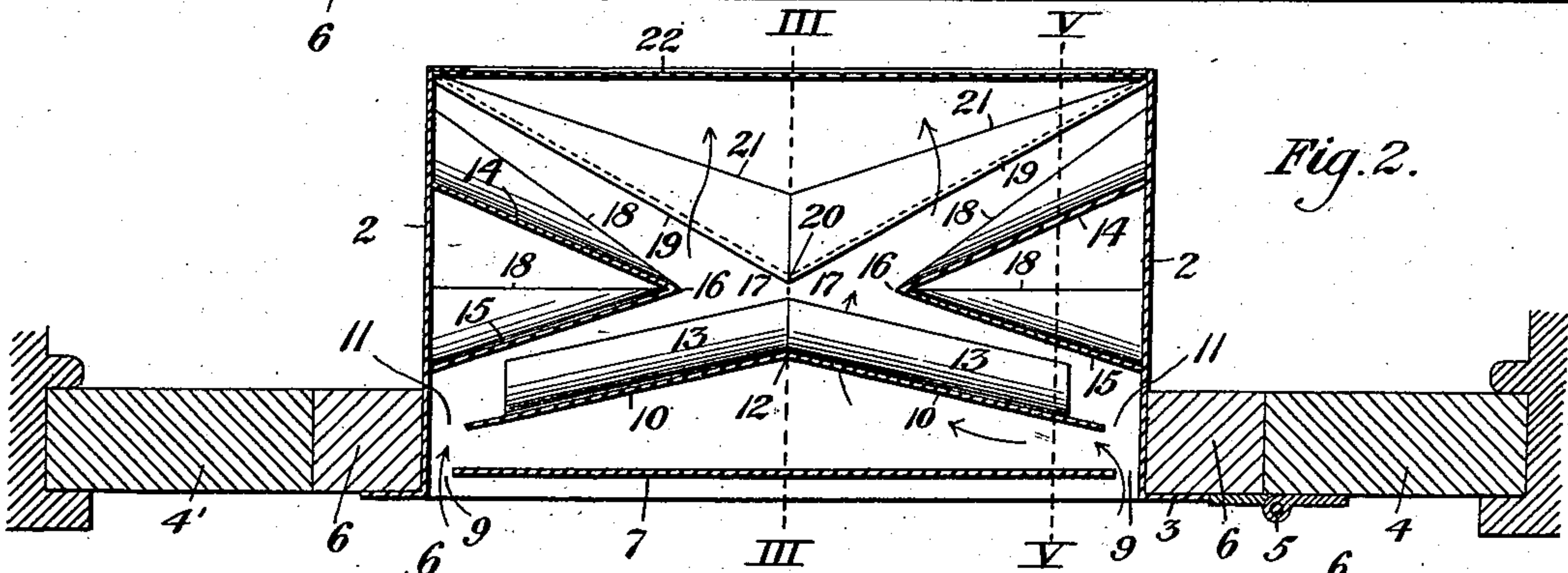
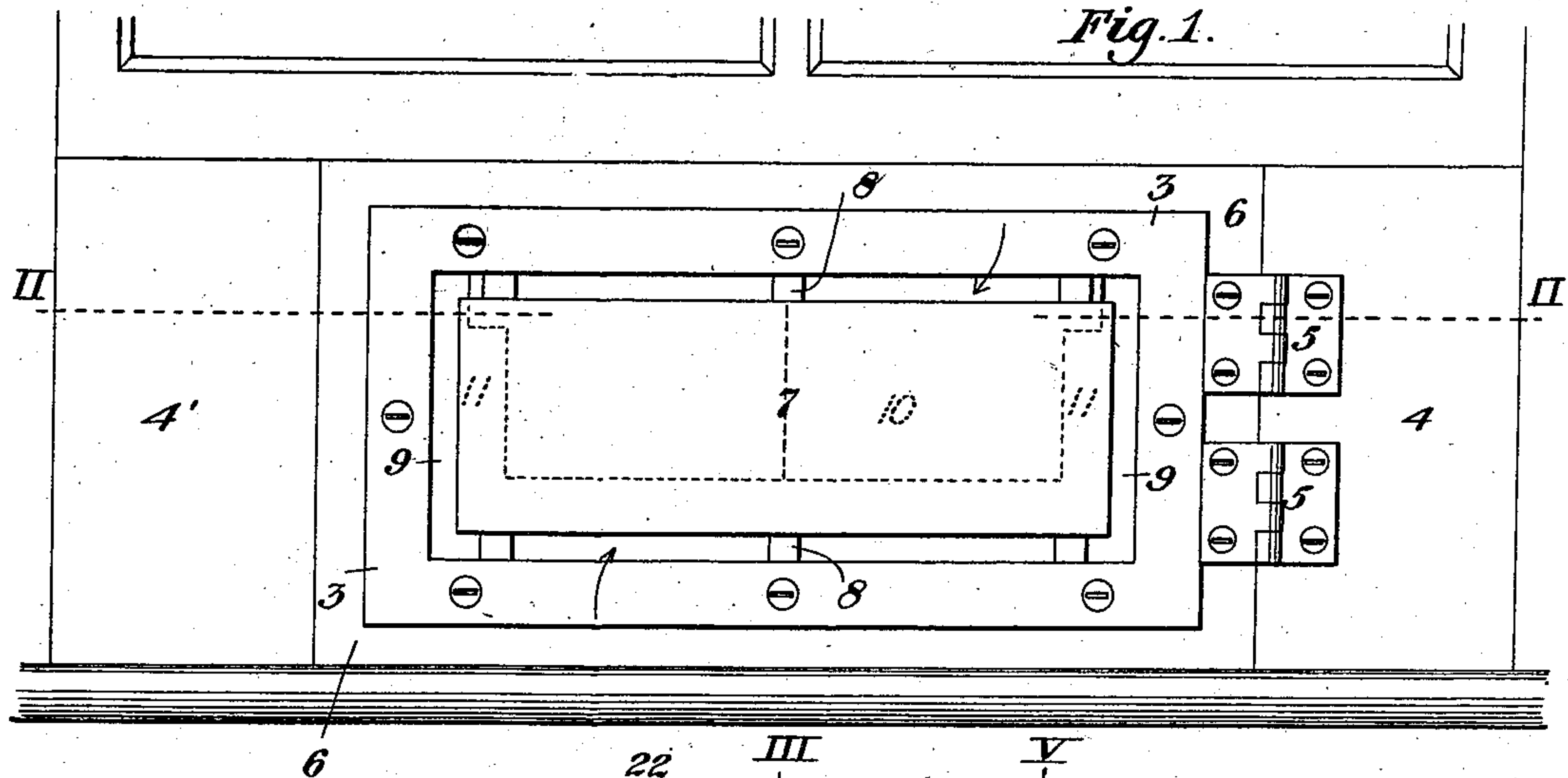


J. T. DARKINS.
VENTILATOR.

No. 534,322.

Patented Feb. 19, 1895.



WITNESSES
L. M. Clarke
H. Cooper Seibert.

INVENTOR

John Thomas Darkins

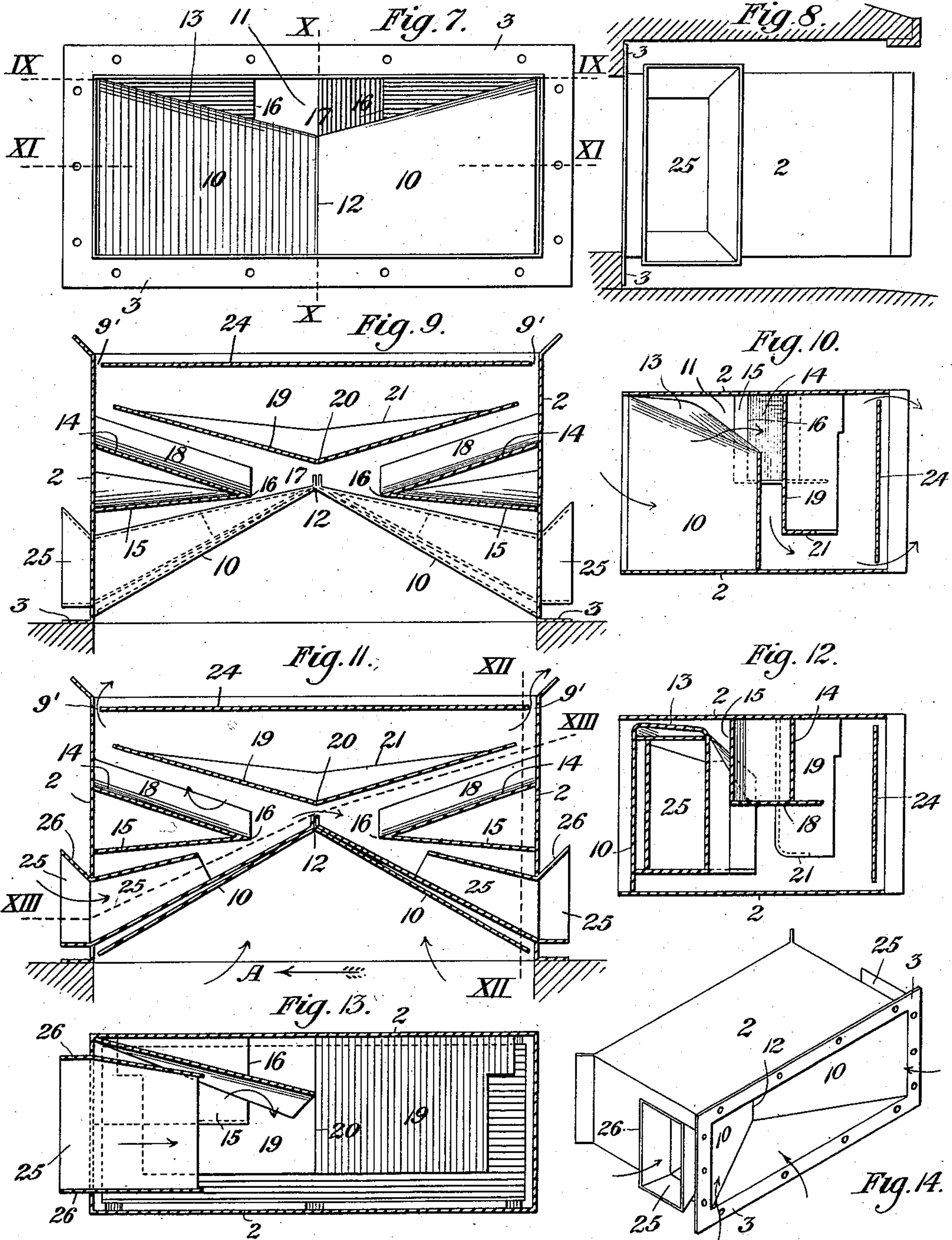
(No Model.)

2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

JOHN THOMAS DARKINS, OF ALLEGHENY, PENNSYLVANIA.

VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 534,322, dated February 19, 1895.

Application filed July 31, 1894. Serial No. 519,057. (No model.)

To all whom it may concern:

Be it known that I, JOHN THOMAS DARKINS, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented or discovered a new and useful Improvement in Ventilators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation of my device, applied to a window in position for operation. Fig. 2 is a horizontal sectional view, taken on the line II II of Fig. 1. Fig. 3 is a cross sectional view taken on the line III III of Fig. 2. Fig. 4 is a partial detail view showing the head in position. Fig. 5 is a cross sectional view taken on the line V V of Fig. 2. Fig. 6 is a perspective view of my device, ready for application to a window. Fig. 7 is a front elevation of the form of ventilator, preferably employed for railway service. Fig. 8 is an end elevation, as attached to a car. Fig. 9 is a horizontal sectional view on the line IX IX of Fig. 7. Fig. 10 is a cross sectional view taken on the line X X of Fig. 7. Fig. 11 is a horizontal sectional view taken on the line XI XI of Fig. 7. Fig. 12 is a cross sectional view taken on the line XII XII, of Fig. 11. Fig. 13 is a longitudinal sectional view taken on the line XIII XIII of Fig. 11. Fig. 14 is a perspective view, detached.

Like symbols of reference refer to like parts wherever used throughout this specification.

My invention relates to ventilators, and is designed particularly for use in windows of buildings, and in railway cars, vessels, or moving structures, requiring a constant supply of fresh air or a removal of foul air.

Primarily, it consists in a rectangular box or case, preferably constructed of light sheet metal and provided with openings and passages for the currents of air as indicated by the arrows, and deflecting plates or baffle walls set at different angles and positions for the purposes hereinafter described.

It has for its object the facilitating of the passage of the desired current of air, and at the same time preventing the entrance of solid substances such as dust, cinders, &c., and of rain, snow or hail. In the forms illustrated on Sheet 2 of the drawings I show means for

increasing the natural draft by inducing a current of air from the outside to enter and act on the foul air within the car by suction, due to the motion of the car.

Referring now to the drawings, 2 represents the outside casing forming the inclosing shell or box of the ventilator, which is provided with the flanges 3 for attachment to the framework of a car or other suitable or convenient structure.

In the form of the device illustrated on Sheet 1 of the drawings I have shown the ventilator applied to the under part of a window frame for admission of fresh air from the outside of the room to the interior, and when used in this way I have found that wherever practicable it is best to have a corresponding ventilator placed at the other side of the room, or at any convenient point where it will be in line with the draft, and preferably higher than the induction ventilator. Thus it will be seen that the same device will operate equally well as an induction and education ventilator by simply reversing the position as to the direction of the desired current of air. When used under a window sash as shown in Figs. 1 and 2 of the drawings I employ filling or partition blocks 4 and 4' to fill up the excess space under the sash, and to one of these blocks 4 is hinged the ventilator, by hinges 5 one flange of which is screwed to the block 4 and the other to swinging block 6 forming a frame to which is secured the ventilator by flanges 3. Thus it will be seen that the entire box is free to swing, and so the placing of it under the sash is readily effected, the partition block 4 being inserted first, after which the ventilator is readily swung into position as shown when it is ready for operation.

Fig. 1 may be taken as a face view of the ventilator, either from without looking inwardly or vice versa, the currents of air being always as indicated by the arrows, whether fresh air from without inwardly or foul air from within outwardly, as the case may be.

In the front of the ventilator as used for stationary service, I employ a diaphragm 7 secured to the case slightly back of its front face by the wings 8, a narrow space 9 being preserved around the four sides of the diaphragm for entrance of air. Back of the dia-

phragm is located a partition 10 secured at its top to the upper side of the case 2 and extending downwardly for something over two thirds of the distance to the bottom, the ends not extending quite to the sides of the case so as to leave a space 11. The two sides of this partition 10 are caused to recede at a slight angle toward the center 12 and the lower edge is curved under in a direction away from the diaphragm 7 as at 13 so as to offer no resisting edge to the currents of entering air. Projecting inwardly from each end toward the center are two sets of vertical walls 14 15 also secured to the top and extending downwardly, not quite as low as the partition 10. The walls 14 15 converge toward the center and meet at the point 16 equidistant from the ends and separated by a space 17 as shown in Fig. 2. The lower edges of these walls are also curved under as at 18 in the same manner as the partitions 10 and for the same purpose of presenting a rounded surface to the currents of air. Beyond these partitions is located a partition 19 extending clear across the full length of the case, secured to the bottom and extending inwardly to the point 20 located midway between the points of the projecting walls 14 15. At either end this partition 19 is of the full height of the inside of the case and the height is reduced toward the center, the surplus being bent over to form the curved flange 21 which like the others already described extend in the same direction as the currents of air and for the like purpose of offering a rounded corner to their passage. The opening across the side of the case is covered by a wire gauze 22, the purpose of which is to prevent the passage of foreign matter or insects. A hood 23 is hinged to the bottom of the case, and when desired, it may be swung up over the case as shown in Fig. 4 to prevent the passage of air. The purpose of the various cross partitions is to prevent the entrance of rain, dust, cinders or such other substances as might find entrance, and to throw them down on the bottom of the case, from which they may be very easily removed from time to time.

In the construction of ventilators illustrated on Sheet 2 of the drawings, the same general arrangement of partitions prevails, except that the diaphragm 7 is dispensed with, and in place of the screen 22 I employ a partition 24 arranged and secured to the case in the same manner as the diaphragm 7 having a space 9' around it for the passage of the escaping air. A further additional feature is a funnel 25, provided with flaring outwardly projecting lips 26 the funnel extending within the case as shown, and serving to conduct into the interior of the case the air that will rush into it during the passage of the car. A ventilator of this kind is located usually on the upper part of the car, just under the upper deck and roof, a position best adapted to serve the purpose of withdrawing the foul and heated air that will rise to that point.

In Fig. 11 the currents of air are clearly indicated by the arrows, the arrow A indicating the direction of travel of the car. In this case the partition 10 is open at the top, the opening being greatest at the center as shown in Fig. 7 and the upper edges are flanged over being somewhat rounded and serving to cover the funnel 25.

The construction and operation of my device will be readily understood by those skilled in the art. The arrangement and angle of the various partitions may be altered by the skilled mechanic without departing from my invention, although in service a ventilator constructed as I have illustrated it and conforming to the general proportions, dimensions, angles and parts will be found to give most satisfactory results in practice.

The advantages are obvious since I am enabled to secure perfect ventilation, and absolutely prevent the entrance of all solid or foreign matter by my system of interfering partitions and baffle walls.

Having described my invention and in what manner it is constructed and operates, what I claim, and desire to secure by Letters Patent, is—

1. In combination with a window, a ventilator comprising a rectangular box or case provided with a diaphragm and a perforated screen, on the receiving and delivery sides respectively, and intervening flanged baffle partitions located between them, the ventilator being secured to a swinging block 6, hinged to a partition block 4, and fitting against a similar partition block 4', the swinging block 6, ventilator case 2, and partition blocks 4 and 4' entirely filling the space between the window sash and the sill, substantially as set forth.

2. In combination with a ventilator comprising a rectangular box or case provided with a diaphragm and a perforated screen on the receiving and delivery sides respectively, and intervening flanged baffle partitions located between them; a hinged hood 23 secured to the screen side of the ventilator case, for the purposes and in the manner set forth.

3. A ventilator comprising a rectangular box or case provided with a diaphragm 7 suspended within the case and having an intervening surrounding space 9; a partition 10 suspended back of the diaphragm open at the ends and bottom and receding toward the center; partitions 14 and 15 similarly suspended and converging toward the center to an apex 16; a partition 19 extending upwardly from the bottom of the case for the full length, projecting outwardly toward the center of partition 10, and diminishing in height from the top of the case at each side toward the center, the open edges of all of the partitions being bent under and over in a direction away from the diaphragm 7, a screen 22 extending across the outer face of the case, and a head 23 hinged to the bottom for the purpose of closing the opening, substantially as set forth.

4. In combination with a moving vehicle, a ventilator consisting of a rectangular box or case secured upon an opening in the vehicle provided with funnels 25 at each end extending within the case; partition 10, extending across the case open at the top and receding toward the center; partitions 14 and 15 suspended from the top of the case and converging toward the center to an apex 16; a partition 19 suspended from the top of the case, open at the ends projecting inwardly toward the center of partition 10, and a diaphragm 24 suspended within the case and having an in-

tervening surrounding space 9'; the points and angles of the various partitions being so located as to offer an obstruction to the circulation of foreign matter, and their various flanges being bent under and over in a direction away from the opening in the vehicle, substantially as set forth.

In testimony whereof I have hereunto set my hand this 19th day of June, 1894.

JOHN THOMAS DARKINS.

Witnesses:

GEO. I. WHITNEY.

C. M. CLARKE.

Correction in Letters Patent No. 534,322.

Affidavits having been filed showing that the name of the patentee in Letters Patent No. 534,322, granted February 19, 1895, for an improvement in "Ventilators," should have been written and printed *John Thomas Dorkins* instead of "John Thomas Darkins," it is hereby certified that the proper correction has been made in the files and records pertaining to the case in the Patent office, and should be read in the Letters Patent that the same may conform thereto.

Signed, countersigned, and sealed this 12th day of March, A. D., 1895.

[SEAL.]

JNO. M. REYNOLDS,
Assistant Secretary of the Interior.

Countersigned:

JOHN S. SEYMOUR,
Commissioner of Patents.