

(No Model.)

2 Sheets--Sheet 1.

A. K. MANSFIELD.

Means for Heating and Ventilating Cars.

No. 235,265.

Patented Dec. 7, 1880.

Fig. 1.

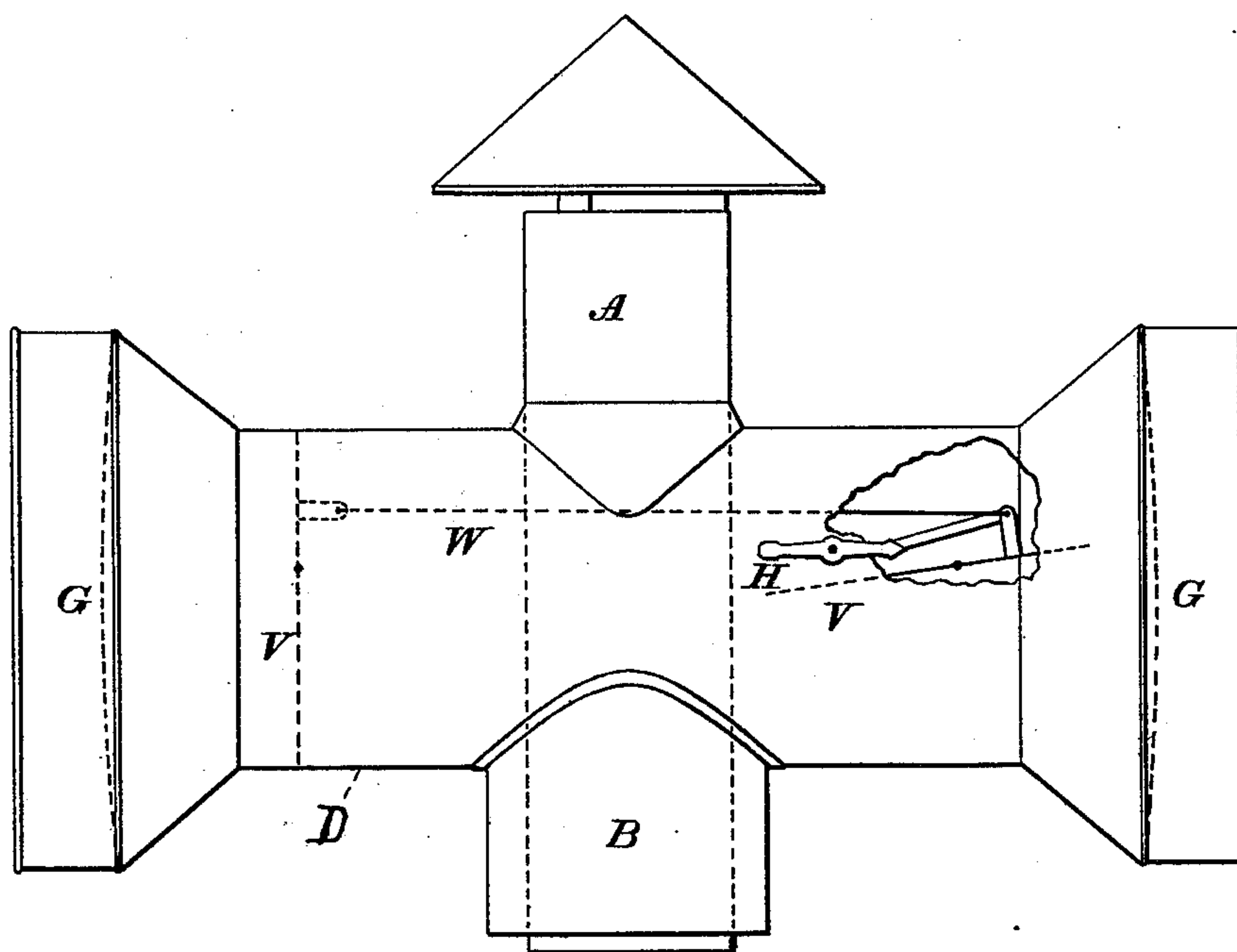
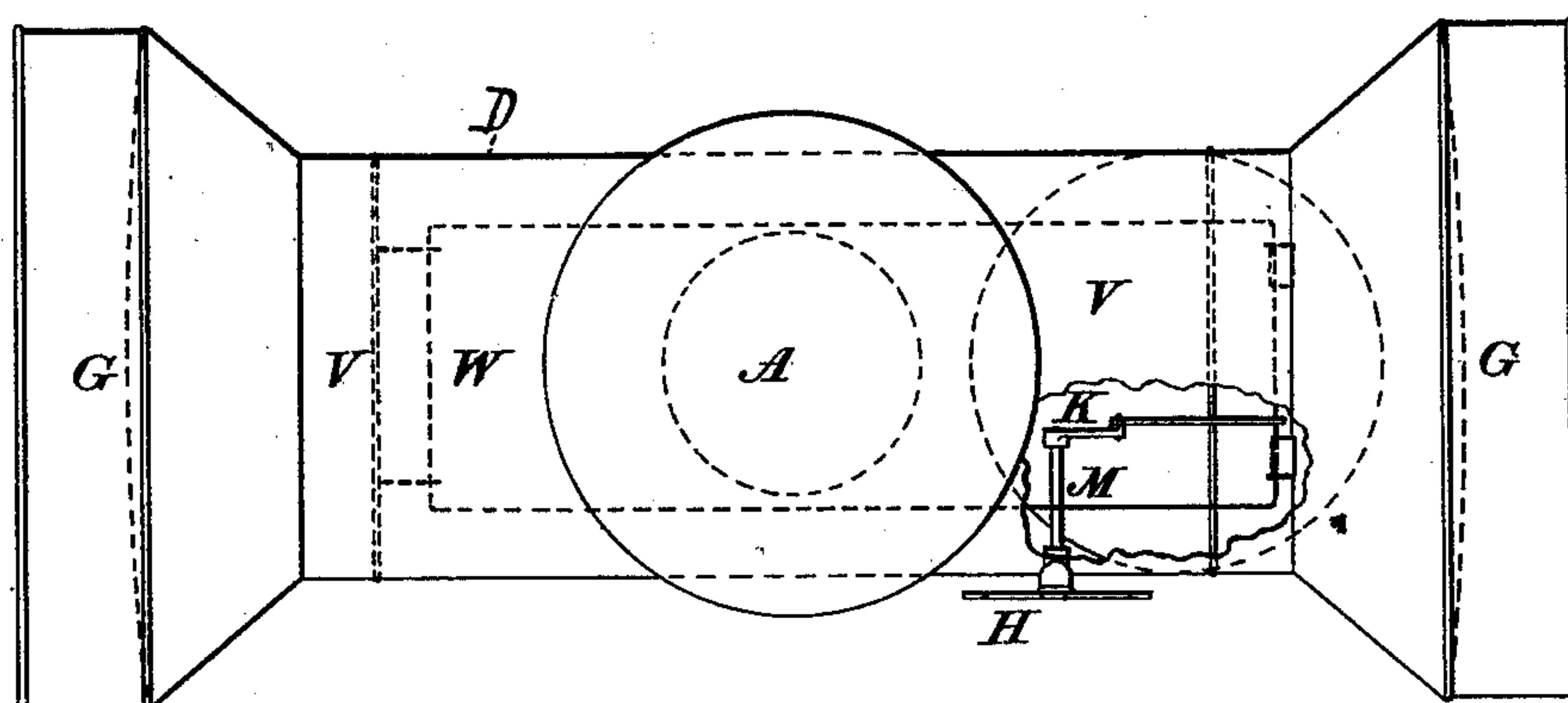


Fig. 2:



Witnesses:

G. L. Mansfield.
L. Fauce.

Inventor:

A. K. Mansfield.

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Fig. 3.

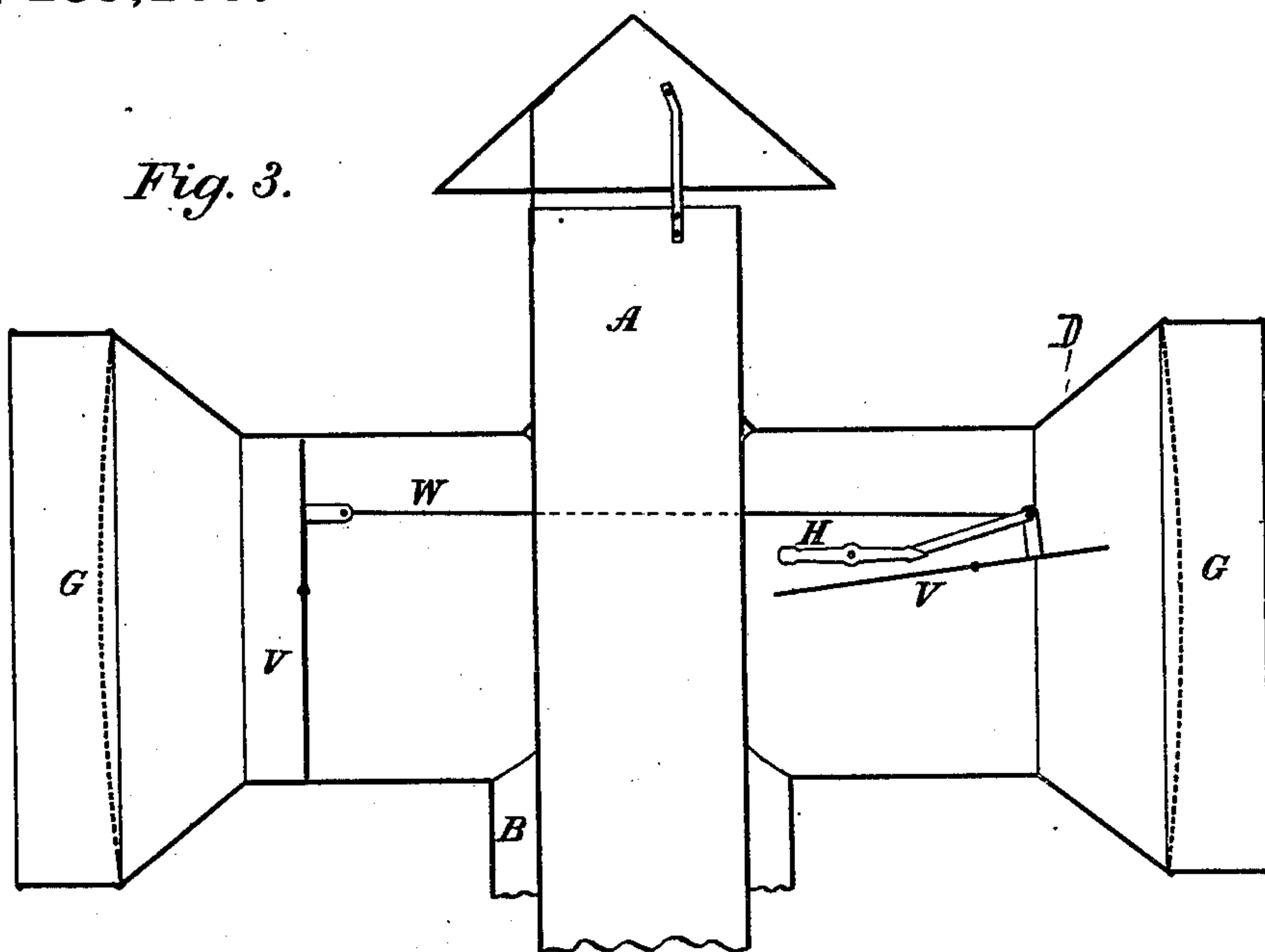
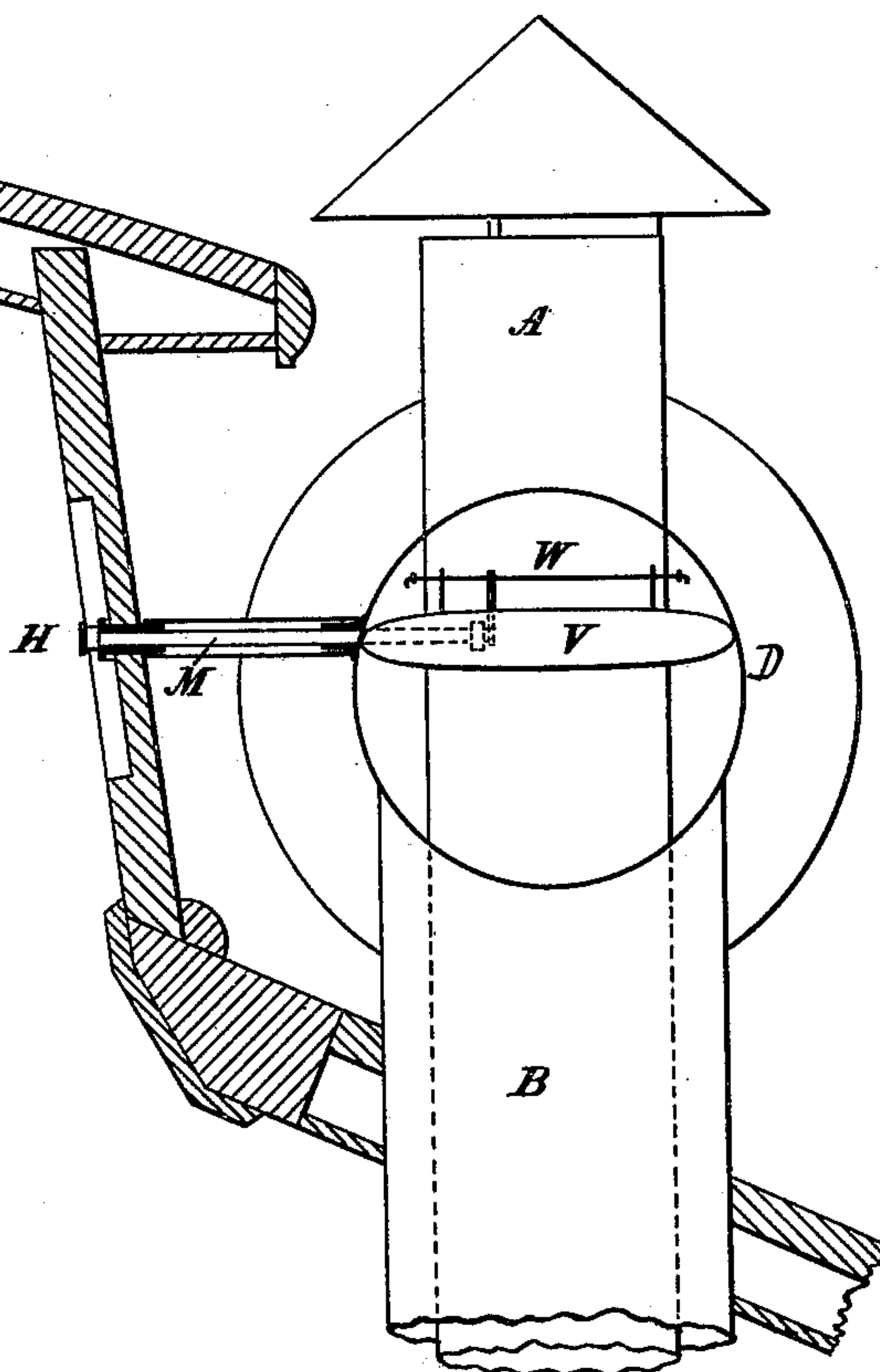


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

ALBERT K. MANSFIELD, OF STEUBENVILLE, OHIO.

MEANS FOR HEATING AND VENTILATING CARS.

SPECIFICATION forming part of Letters Patent No. 235,265, dated December 7, 1880.

Application filed March 26, 1880. (No model.)

To all whom it may concern:

Be it known that I, ALBERT K. MANSFIELD, of Steubenville, in the county of Jefferson and State of Ohio, have invented a new and useful Improvement in Means for Heating and Ventilating Apparatus for Railway-Cars, of which the following is a specification.

The invention relates to the arrangement of valves and pipes in the air-receiver over a car-stove. Heretofore these valves have been disconnected and allowed to act independently. This is objectionable for the reason that when the car is at rest the valves both close by gravity, and the heat accumulates about the stove and injures the car.

The object of my invention is to provide an arrangement by which heated air may not only be distributed through the car near the floor when the car is in motion, but when the car is too warm the heated air may be drawn off out of the car; also, when the car is at rest, to allow a large part of the heated air to pass off into the atmosphere to avoid injuring the car.

The invention consists in connecting the two valves together which regulate the admission or emission of air to or from the space between a car-stove and its inclosing-case in such a way that one of the valves shall always be open, and in the combination, with these valves, of mechanism which enables them to be operated by hand from the interior of the car.

In the accompanying drawings, Figure 1 is a side elevation, Fig. 2 a plan, and Fig. 3 a vertical longitudinal section, of the air-receiver, showing the stove-pipe passing through it and the arrow-handle for operating the valves. Fig. 4 is a transverse section of the air-receiver and a portion of the car-roof, showing how the arrow-handle H is brought into the interior of the car.

It will be seen that the receiver is placed on the lower or side roof of the car, while the shaft M, containing the arrow-handle, passes through the upright wall between the upper and lower roofs.

B is the air-pipe, which incloses the stove-pipe, leaving a space between the pipes, through which the air descends.

G G are partitions, of wire-gauze, through

which the cold air enters the receiver when the car is in motion.

V V are the valves, and W the connecting rod or wire, which connects the valves together in such a way that when either is closed the other is open. At M is a shaft with an arrow-handle, H, at one end, and a crank, K, at the other. A connecting-rod connects the crank with one of the valves. This combination allows the valves to be worked from the inside of the car by the arrow-handle, the arrow showing when the proper valve is open. When the arrow is pointed in the direction in which the car is moving, the forward valve is open and the rear valve closed. The air is forced into the receiver and down between the pipes into the space between the stove and its case, where it becomes heated. Thence it passes into a hot-air box or conductor which runs along under the seats, with openings at intervals, from which the hot air escapes into the car. If the car becomes too warm, the arrow may be reversed, which closes the forward valve and opens the rear valve. Closing the forward valve prevents air from being forced into the receiver, and opening the rear valve allows the heated air to rise and escape. This escape is assisted by the partial vacuum which is formed at the rear end of the receiver by the forward motion of the car. The current is therefore reversed from its former direction, air entering the openings under seats, becoming heated at the stove, and escaping through the rear valve of the receiver. When the car is at rest the heated air rises and escapes whichever valve be open.

The connected valves may be used without the arrangement for operating them by hand, in which case they work automatically, the pressure of air opening the forward and closing the rear valve when the car is in motion. In this case, however, the valves cannot be reversed in order to cool the car. When no fire is in the stove cool air may be forced into the car.

I am aware that prior to my invention ventilators for exhausting air from cars and dwelling-houses have been constructed with opposite valves opening outward, connected so that the pressure of air closes one, thereby opening the other; also, that such valves have been

made so as to be operated by handles inside the cars; also, that valves opening inward, but operating independently, have been used in air-receivers over car-stoves. I do not, therefore, claim either of these arrangements.

What I do claim is—

1. The combination of the two valves V V, opening inward and connected together, substantially as set forth, so that the air acting against one of them opens it, thereby closing the other, and so that both can never be closed at the same time, with the air-receiver D,

stove-pipe A, leading to the stove, and air-pipe B, communicating with the space between stove and stove-case.

2. The combination of the two connected valves V V, air-receiver D, stove-pipe A, air-pipe B, and operating-handle H, substantially as set forth.

ALBERT K. MANSFIELD.

Witnesses:

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