

(No Model.)

M. B. STAFFORD.

VENTILATION.

No. 294,820.

Patented Mar. 11, 1884.

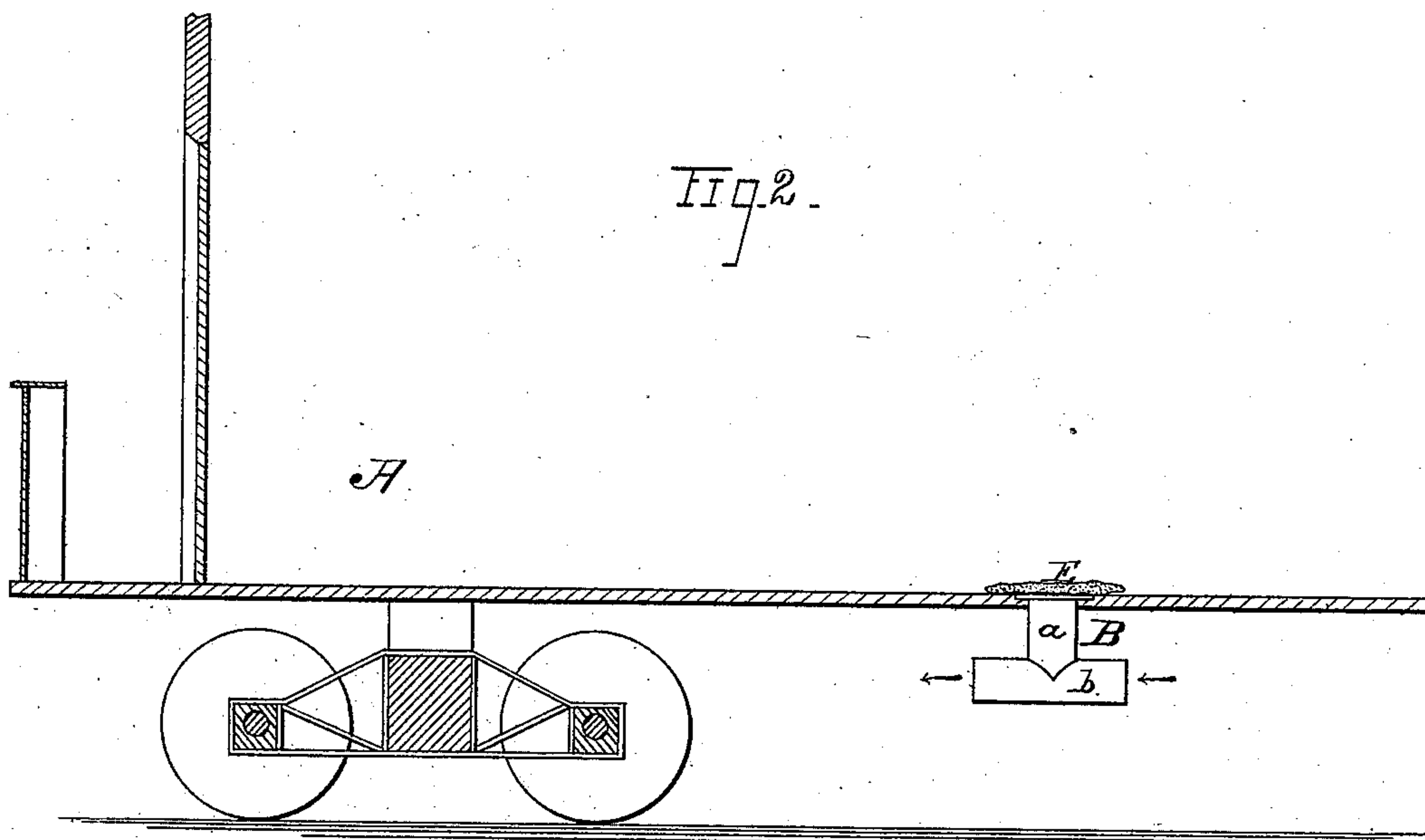
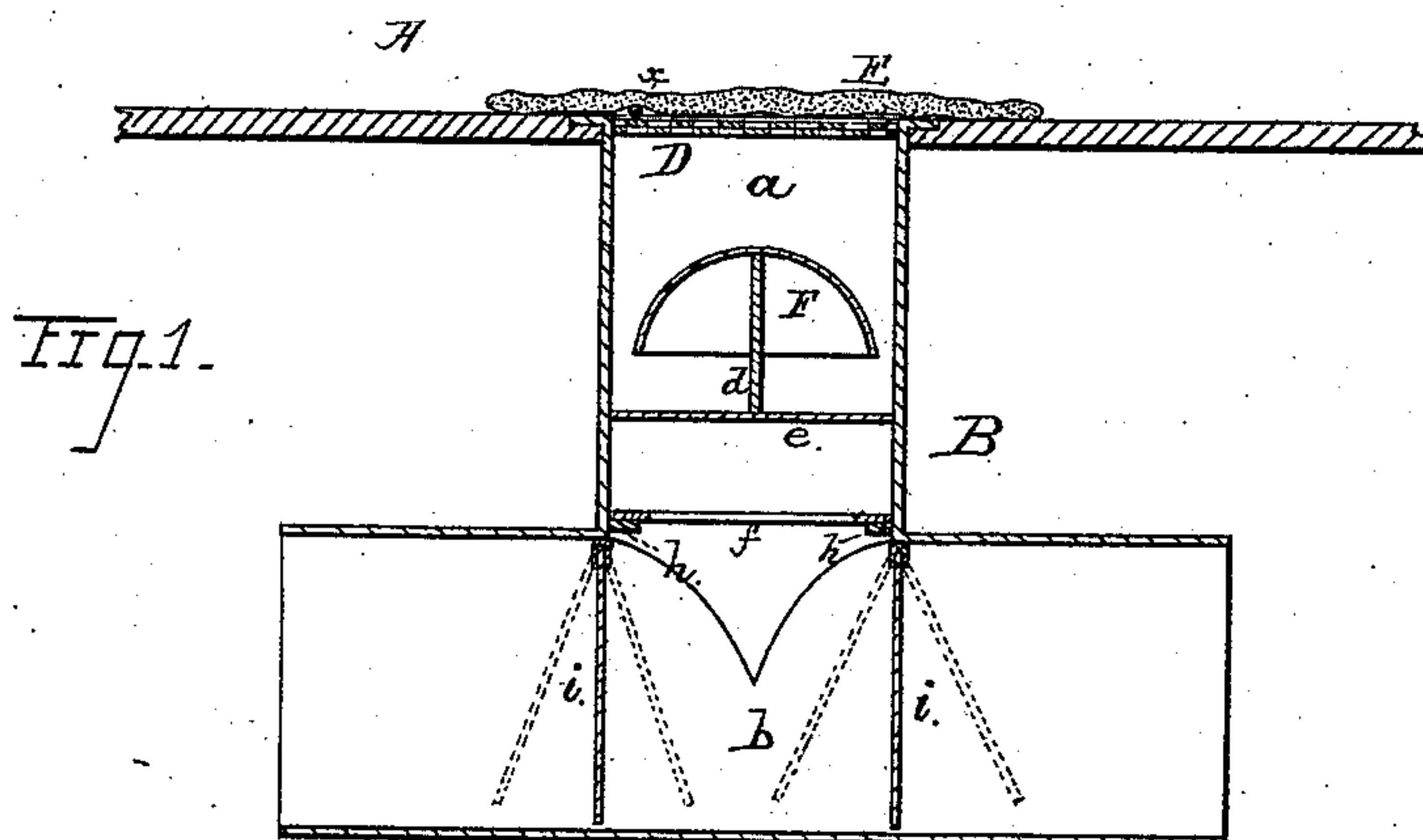
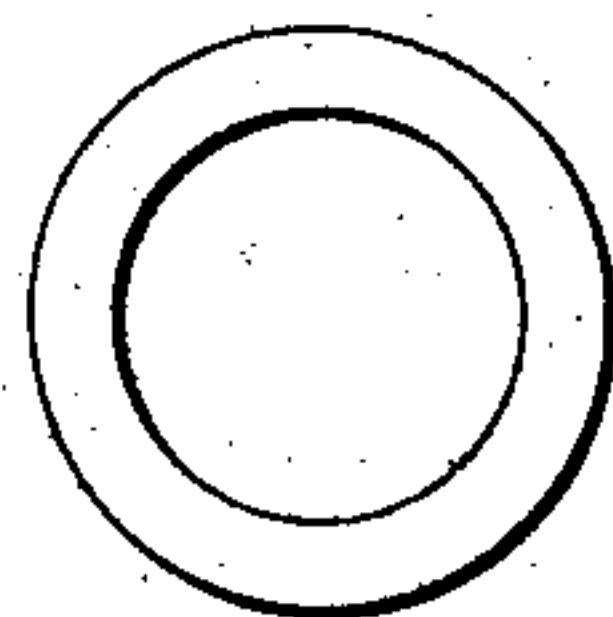


Fig. 3.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

MARSHALL B. STAFFORD, OF NEW YORK, N. Y.

## VENTILATION.

SPECIFICATION forming part of Letters Patent No. 294,820, dated March 11, 1884.

Application filed November 2, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, MARSHALL B. STAFFORD, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in the Art of Ventilation; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to an improvement in the art of ventilation; and it consists in certain novel apparatus for effectuating the objects of the invention, which will be readily understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is an enlarged sectional view of the ventilating apparatus. Fig. 2 is a view illustrating the ventilators applied to the bottom of the car, and Fig. 3 is a detached plan view of the plate F.

Referring to the drawings, in which I have illustrated my invention as applied to a railroad-car, A denotes the compartment to be ventilated; B, the ventilating apparatus, consisting of the vertical flue *a* and the horizontal flue *b*. The flue *b* is connected with the flue *a*, and extends an equal distance on each side thereof. In the mouth of vertical flue *a*, leading into the car or other apartment, is provided a register, D, by means of which the draft through the car may be regulated at will, and the condition of the car thus controlled according to the state of the atmosphere and other circumstances. The register D consists simply of two slotted or perforated plates placed one on the other, and one being movable to close the slots in the other. A lug, *x*, is provided on the movable plate, to permit of its being conveniently operated.

In order to prevent any rattling of the parts of the register D, and to prevent the noise made by the running-gear of the car from passing through the register, I lay thereon a mat or other article of a shaggy or woolly nature, which will permit the passage through it of the air, but will exclude the noise. I have found the mat (lettered E) of great advantage,

and regard it of special importance, though in many cases its employment will be unnecessary.

Within the vertical flue *a* is appropriately arranged the sound-deadener F, which in the present instance is a concavo-convex or bell-shaped device mounted upon a rod, *d*, which is secured to the cross-bar *e*. The circumferential edge of the sound-deadener F will preferably correspond with the general contour of the flue *a* in its horizontal cross-section, and will be separated from the walls of the flue *a* a sufficient distance to permit the passage of the air. The sound-deadener will probably be made of zinc, and its size and general form will be matters of judgment which will rest largely with the manufacturer and the purposes to which the apparatus is to be applied.

The lower end of the flue *a*, which opens into the horizontal flue *b*, forms a mouth or outlet for the air in the car or other apartment to be ventilated, and the size of this outlet or mouth I propose to regulate according to the condition of the atmosphere and other circumstances by a plate or plates, *f*, which will at the proper time be placed into the said mouth and rest upon the flange *h*, supplied therein. The plate *f* is a thin piece of material having an opening or aperture of a size sufficient to permit only a current of the desired volume through it. In instances where a strong current is to be induced through the apparatus the regulator-plate *f* will not be employed; but where a lesser current is required (such, for example, as would be desirable in a passenger-car on a cold day) the plate *f* could be used with advantage. The employment of the plate *f* avoids any alteration in the construction of the apparatus when it is desired to secure varied results.

Within the horizontal flue *b* are swung the valves *i*, one being at each side of the mouth of the flue *a*. The valves *i* may be made of a piece of sheet metal, and will be of such size as to snugly fit the inner surface of the flue *b* and be capable of swinging freely in either direction.

When the apparatus above described is placed on the under side of a car and the car is set in motion, the current of air entering the flue *b* will open the valves *i*, as indicated in dotted lines, and, rushing through the flue,



will draw the air from the car downward through the register and flue *a* in a constant current, whereby the atmosphere of the car is kept in a wholesome purified condition. The  
 5 volume of the current of air passing from the car may be controlled by the register *D* or plate *f*, and the sound from the running-gear will be prevented from entering the car by the mat placed over the register or by the sound-  
 10 deadener *F*.

The apparatus hereinbefore described may be used for ventilating houses and for other purposes of ventilation which need not be specifically set forth.

15 What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a ventilating apparatus applied to the

bottom of a car, the vertical flue provided with means for deadening the sound, in combination with the horizontal flue, substantially as  
 20 set forth.

2. In a ventilating apparatus applied to the bottom of a car, the vertical flue and the horizontal flue, the former being supplied with a sound-deadening device, and the latter with  
 25 swinging valves, the whole being arranged substantially as and for the purposes set forth.

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

MARSHALL B. STAFFORD.

Witnesses:

CHAS. C. GILL,  
 HERMAN GUSTOW.