

(No Model.)

2 Sheets—Sheet 1.

E. P. BROWN.
CAR VENTILATION.

No. 412,913.

Patented Oct. 15, 1889.

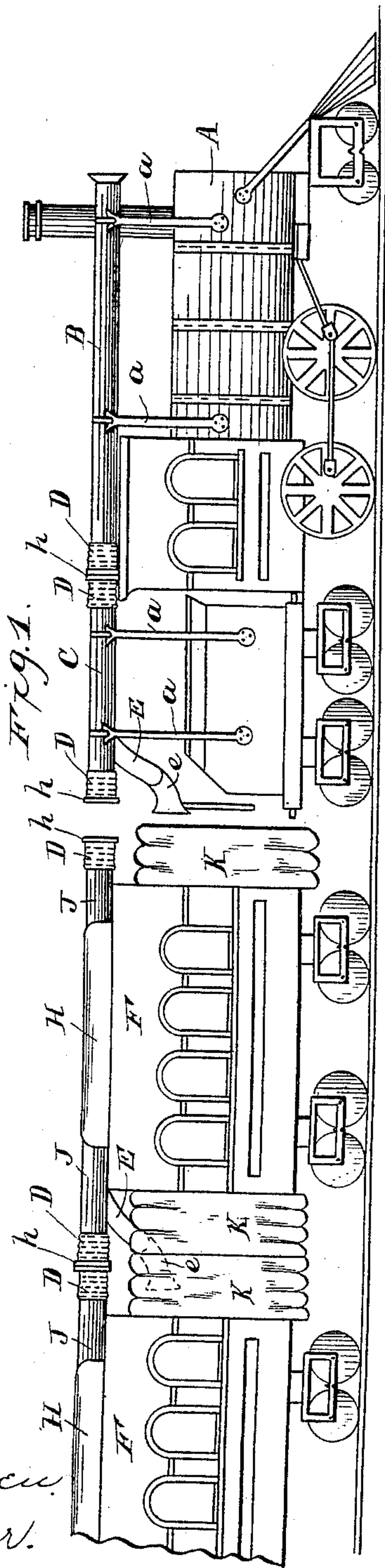
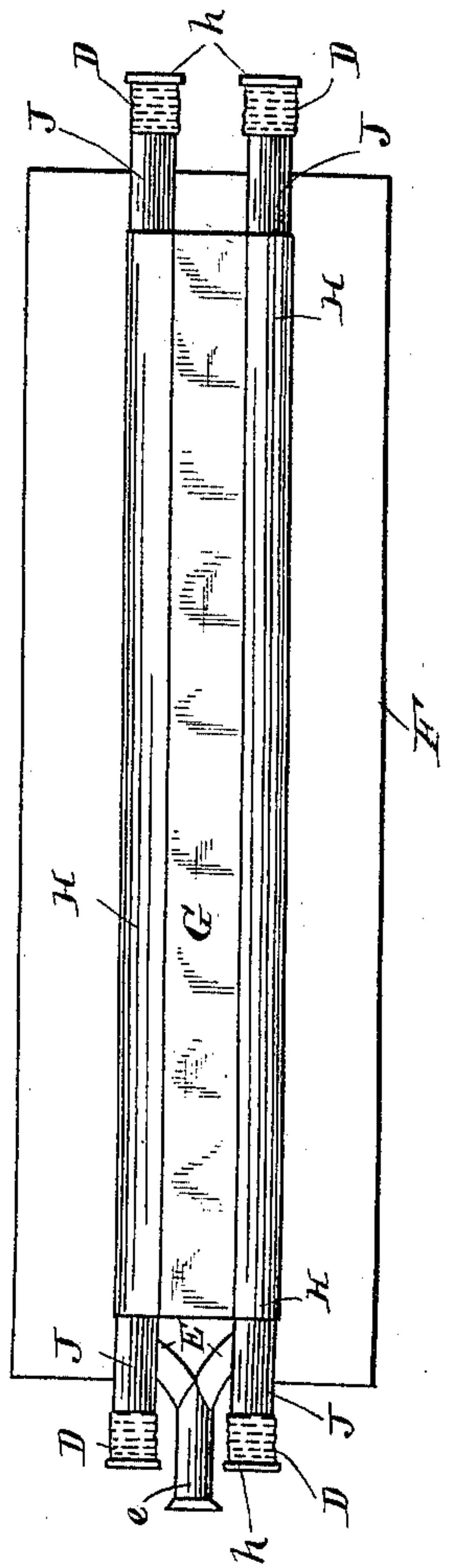


Fig. 2.



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Inventor:

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By J. M. Bowen,
Attorney.

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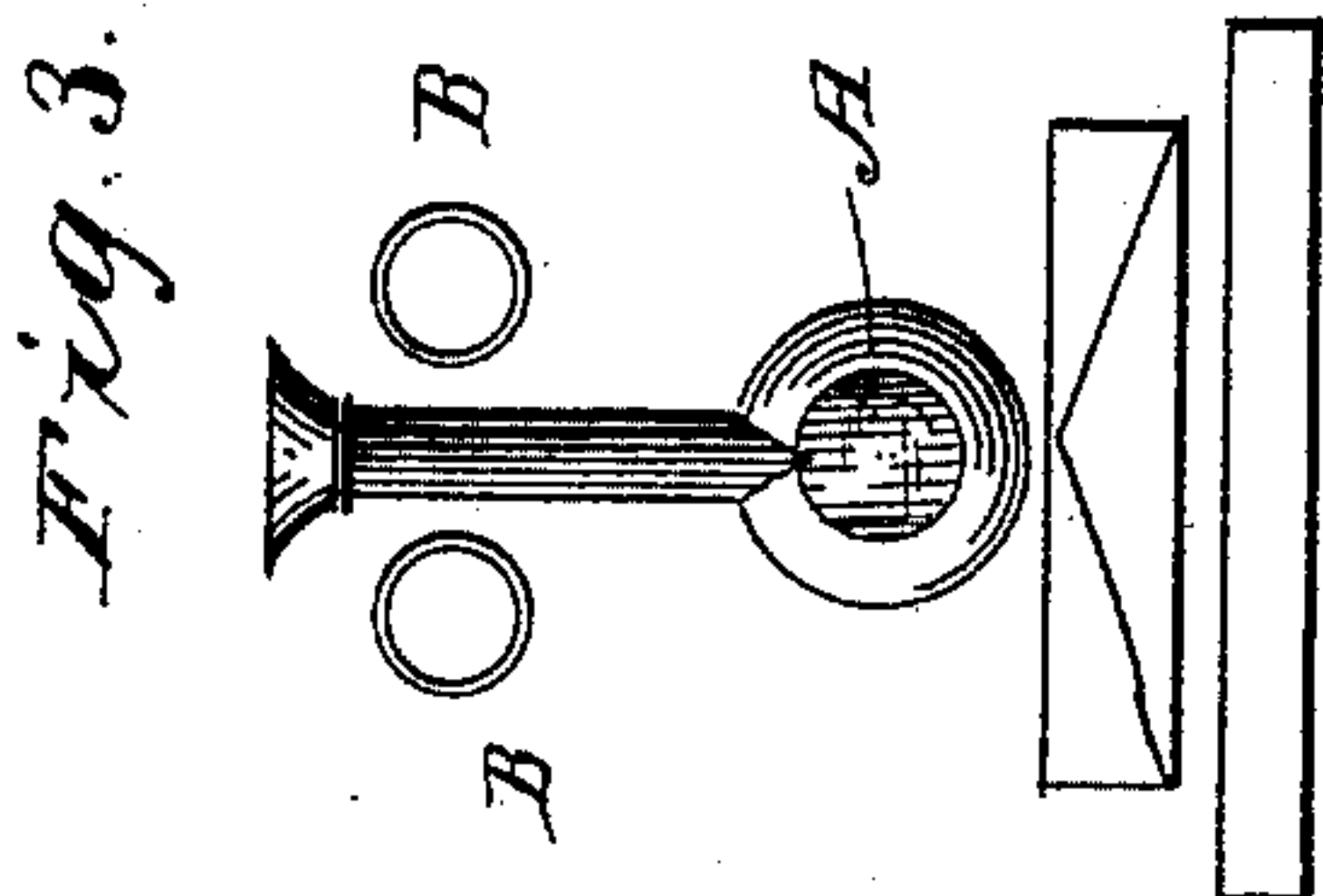
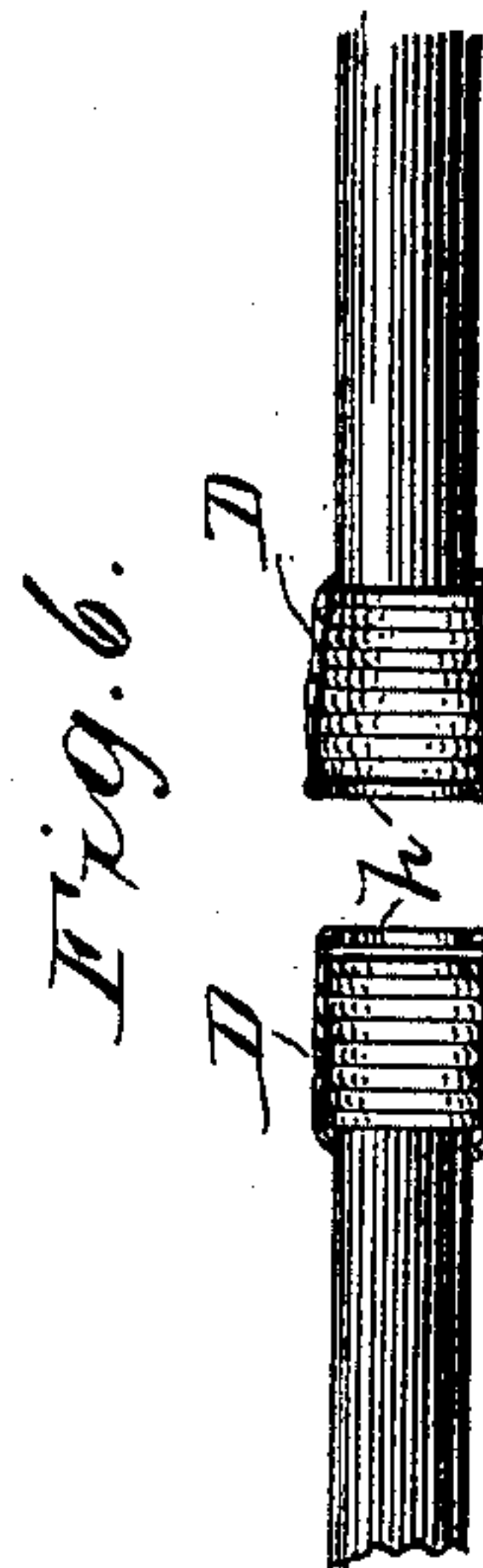
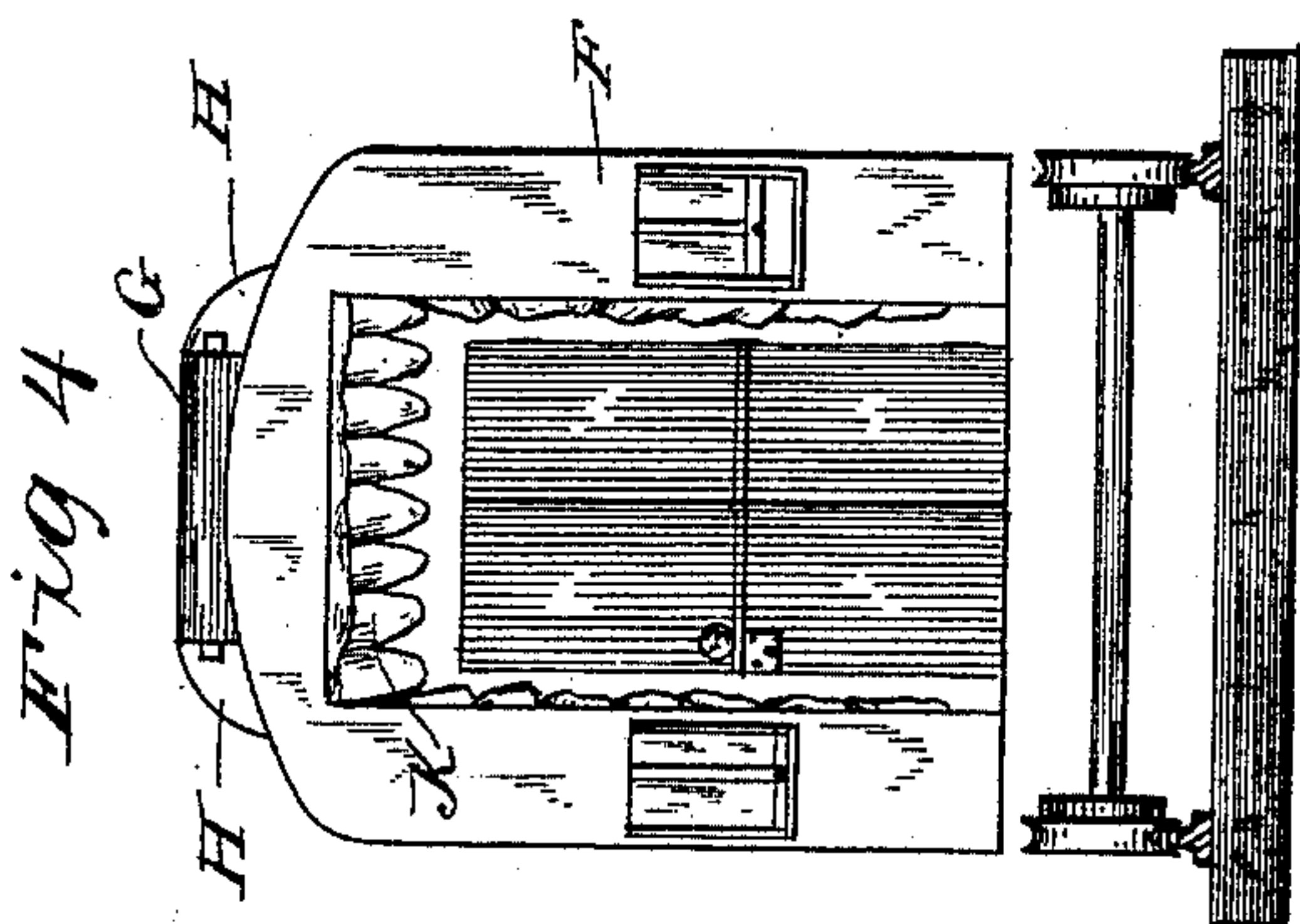
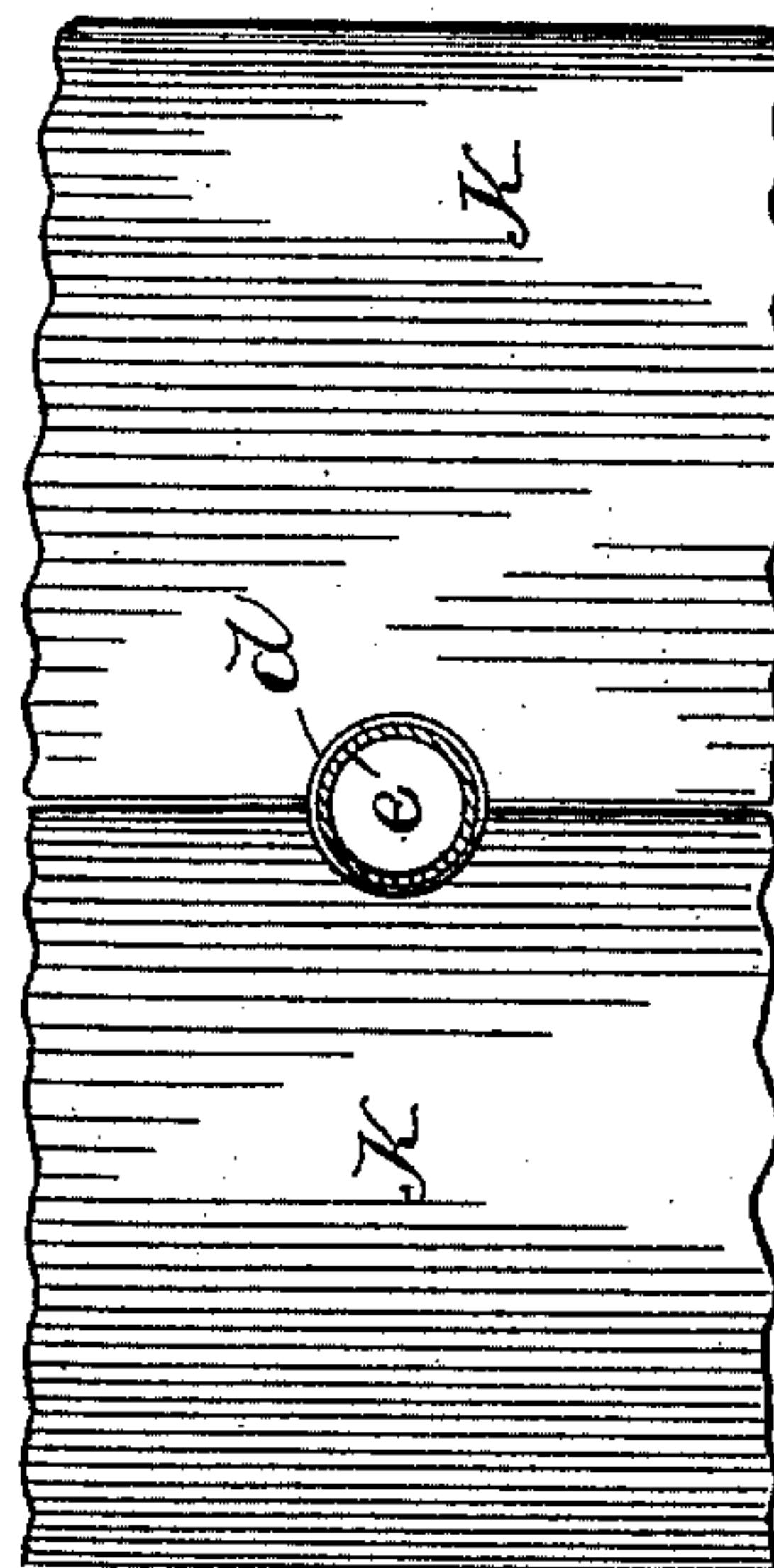


Fig. 5.



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UNITED STATES PATENT OFFICE.

E. PARMLY BROWN, OF FLUSHING, NEW YORK.

CAR-VENTILATION.

SPECIFICATION forming part of Letters Patent No. 412,913, dated October 15, 1889.

Application filed February 16, 1884. Renewed April 6, 1889. Serial No. 306,259. (No model.)

To all whom it may concern:

Be it known that I, E. PARMLY BROWN, a citizen of the United States of America, residing at Flushing, in the county of Queens and State of New York, have invented certain new and useful Improvements in Car-Ventilation, of which the following specification is a full, clear, and exact description.

My present invention relates to the art of ventilation as it affects passenger railway-cars; and its object is to devise a system of ventilation adapted for the purpose stated wherein atmospheric air may be supplied to the cars free from all dust, smoke, and cinders, and wherein the air may be introduced into the cars in such a manner as to avoid the objectionable drafts which so frequently subject travelers to serious colds.

My object is also to adapt a system of ventilation to the railway-car service so that its application will be comparatively inexpensive, and the cars need not be disfigured, and no material alterations are required to be made in their construction.

The above-mentioned objects I aim to accomplish by the improvements set forth in the following description, and illustrated in the drawings hereto annexed, and which form a part of said description.

Referring to the drawings, in which like parts are indicated by like letters, Figure 1 is a side elevation of a locomotive, tender, and two passenger-cars, showing the general plan of my invention. Fig. 2 is a top plan view of a car, showing the arrangement of the pipes. Fig. 3 is a diagram showing a front view of the locomotive and the air-inlet pipes. Fig. 4 is an end view of a passenger-car, illustrating certain features of my improvements. Fig. 5 is a plan view of the awnings which guard the entrances into two adjacent cars; and Fig. 6 is a detail elevation, partly in section, of the flexible ends of the air-duct.

The letter A shows the locomotive, over the top of which are two independent air-supply pipes B B. These pipes are held in position by suitable supports *a a*, and project beyond the smokestack, in order to take in air in advance of the point where there may be liability of its being impure. The mouths of the pipes B B may be enlarged sufficiently to insure an ample supply of air.

C is an air-pipe supported above the locomotive-tender by suitable devices *a a*. There are two of these pipes, and they are so arranged on the tender as to coincide with the pipes on the locomotive. The rear ends of pipes B B and both ends of pipes C are provided with flexible end pieces D, constructed as hereinafter explained and operating to keep the several pipe-sections in proper contact with one another while the train is in motion. The rear ends of the pipes C are provided with branches E, which project down toward the adjacent car-door, the two branches preferably terminating in a single pipe *e*, which rests against the canvas door K, thereby keeping it closed, and whose mouth is in close communication with the car-door, or which may under some circumstances be arranged to project into the car-door.

F represents passenger-cars provided with the usual ventilating-roof G, having transom-windows operated in the usual way to admit or exclude atmospheric air. I roof over the sides of the ventilating-roof G by means of any suitable material H, which can be readily secured in position without impairing the car structure. The transom-ventilators are of course within these coverings. Extending from the ends of the coverings H past the ends of the car-body are short pipes J, which are also provided with the flexible end pieces D. By this arrangement I utilize the ventilator-roof as an air-duct, which insures the purity of the air admitted through the transom-ventilators, since it comes directly from in front of the locomotive, and hence from the same source as that admitted into the interior of the cars through the branch pipes E, as more fully explained hereinafter. At the back end of the car the short pipes J are furnished with branches E E *e*, similar to those connected with the pipe C.

K K represent awning-connections attached over the doorways of adjacent cars and over the doorway of the car back of the tender, after the manner of window-awnings, whereby a continuous passage-way through the train is provided, permitting the doors of the cars to be kept open and furnishing, aside from their advantage as an important adjunct to the scheme of ventilation, a feature of safety in passing from one car to another. These

connections need not be of any special design to accomplish the purpose in view. One form of constructing them is shown in Fig. 5, wherein the front top bar supporting the canvas, which must be of a length sufficient to serve the end in view, is curved in the center, as at *d*, in order to fit snugly over the pipe *e*, which receives the air from the branches *E E* and terminates in close contact with the car-door to supply the car with fresh air, as already explained.

When it is desired to enter or leave the car, the connections *K* are pushed or sprung back against the end of the car, and there they fit up around the outside facing of the door in manner similar to a window-awning.

In utilizing this feature of my invention economy and simplicity of construction will of course be considered of prime importance. The flexible ends *D* are composed of spiral springs covered with canvas or other suitable flexible material, the terminations thereof being stiffened by a ring of wood or metal *h*. By this simple construction, the pipes being of the requisite lengths, the ends of the ventilator-pipe sections when the cars are coupled in a train are kept in close contact, thereby making a continuous air-duct extending from in front of the locomotive back to the end of the train. Suitable dampers or valves may be employed at any point in this air-duct, especially at the end of the shaft in order to control the air-currents. These flexible end pieces also act to maintain a continuous air-duct when the cars are rounding a curve and during the rapid movements of the train.

The operation of my invention is plain from the foregoing description. The fresh, uncontaminated air enters the pipes *B* in advance

of the locomotive and increases in effective power as the speed of the train increases. It may be admitted to the cars through the transom-ventilators; but the bulk of it is intended to pass into the cars through the branch pipes *E E e*. When the train is in motion and the canvas connections are drawn together or closed and the car-doors opened, there is an unbroken passage from one end of the train to the other, through which passage a continuous and regular flow of pure air passes. The windows will ordinarily be kept closed, but if they should be opened the draft, instead of being inward, will be outward, this being due to the compressed state of the atmosphere within the cars, which condition will effectually prevent the entrance through the windows of the air surrounding the exterior of the car, which is generally charged with dust and impurities from the engine.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A passenger-car provided with the usual ventilating-roof, in combination with the inclosing-pieces *H*, whereby air-ducts are formed at the sides of said roof, the pipes *J* and branch pipes *E E e*, connecting with said air-ducts, and means whereby pure air is supplied to said air-ducts, substantially as set forth.

2. The ventilating air-duct having a flexible end consisting of canvas or like material, a spiral spring, and a stiffening-ring, substantially as and for the purpose set forth.

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Witnesses:

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