(No Model.) 2 Sheets—Sheet 1.

J. A. STEPHAN & J. GIERIET.

APPARATUS FOR VENTILATING RAILROAD CARS.

No. 259,938. Patented June 20, 1882.

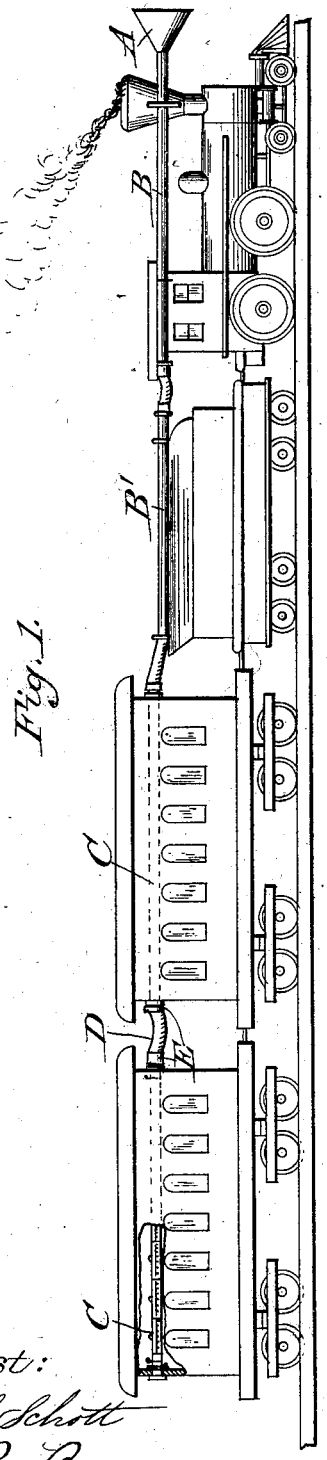

Fig. 1.

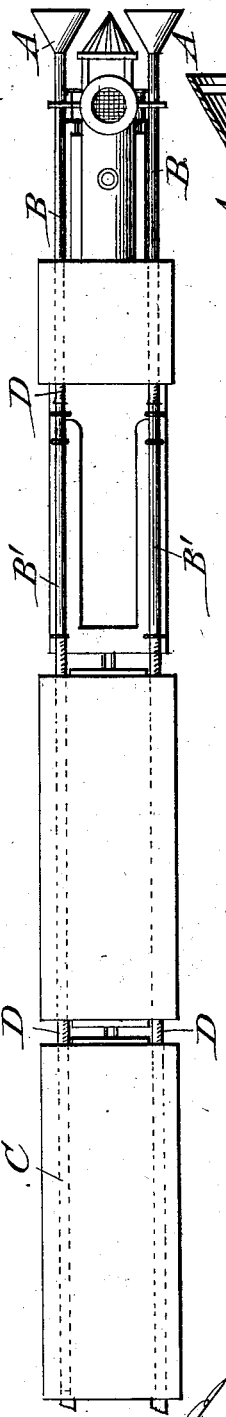

Fig. 2.

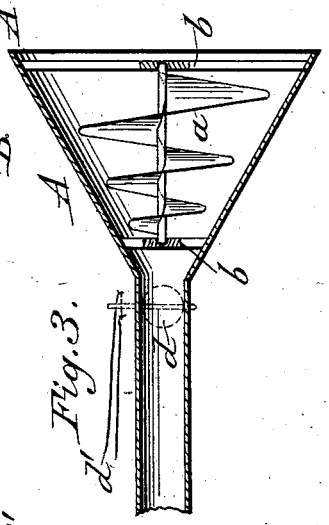

Fig. 3.

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Fig. 4.

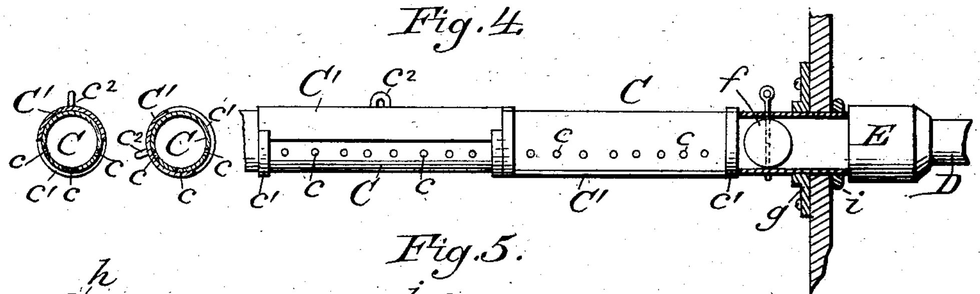


Fig. 5.

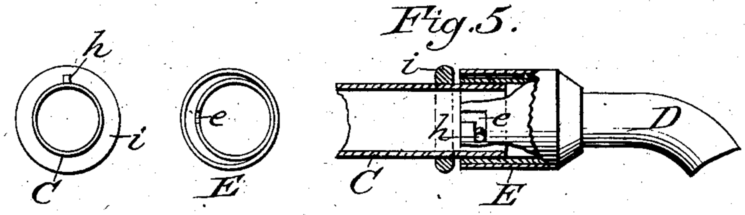


Fig. 6.

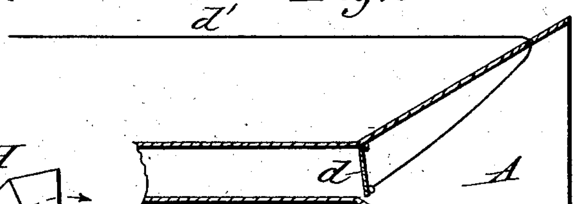
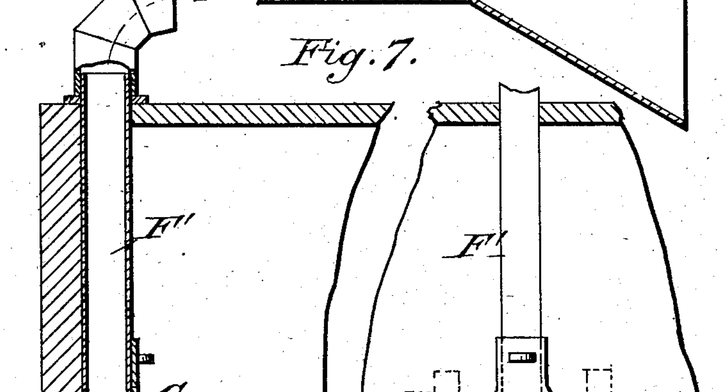


Fig. 7.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR VENTILATING RAILROAD-CARS.

SPECIFICATION forming part of Letters Patent No. 259,938, dated June 20, 1882.

Application filed March 13, 1882. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH A. STEPHAN and JOHN GIERIET, citizens of the United States, residing at Fargo, in the county of Cass and Dakota Territory, have invented certain new and useful Improvements in Apparatus for Ventilating Railroad-Cars; and we do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to an improved apparatus for ventilating railway-cars and dwellings; and it consists in certain novel features in the construction and arrangement of parts, as hereinafter more fully described and claimed.

In the annexed drawings, which illustrate the invention, Figure 1 is an elevation of a railway-train, showing the manner of applying our improved ventilating devices thereto. Fig. 2 is a plan of the same. Fig. 3 is a sectional view of a flaring funnel-shaped mouth, by means of which the fresh air is collected, and showing the manner of arranging therein a spirally-flanged or conical screw-conveyer for forcing said air into a car or apartment. Fig. 4 represents detail views of a perforated conveying and distributing pipe. Fig. 5 represents detail views, showing the manner of connecting such pipes. Fig. 6 is a modification of the air-collecting funnel or mouth, and Fig. 7 shows a front vertical section of a device for collecting and removing impure air from a car or apartment.

Like letters designate like parts in the several views.

In the application of this invention to the purpose of ventilating railway-cars, the letter A denotes a funnel, which is attached to the end of a pipe, B, that is supported in any suitable manner at the side of a locomotive smoke-stack, said pipe being also attached to the locomotive-cab, as shown in Figs. 1 and 2. A similar pipe, B′, is also attached to the tender.

Within the funnel A is preferably arranged a conical spirally-flanged or screw conveyer, *a*, the shaft of which is journaled in bearings *b*, as shown in Fig. 3. As the train moves forward the funnel A collects the fresh and pure air from ahead of the locomotive, and the conical screw *a* forces the same back through the pipes B′ B′, in order that it may be distributed to the cars, as hereinafter described. The stem of the funnel A may be provided with a suitable valve, *d*, to which is attached a cord, *d′*, by means of which the said valve may be operated by the engineer, so as to cut off the passage of air when desired.

Instead of employing a valve in conjunction with the screw-conveyer, as shown in Fig. 3, the conveyer may be dispensed with, if desired, and the valve or damper be placed at the junction of the funnel and its stem, as shown in Fig. 6.

In the upper portion of the passenger or freight cars, on each side and within the same, is arranged a pipe or series of pipes, C. These pipes are perforated, as shown in Fig. 4, for the passage of air in currents to the interior of the car, thus supplying the same with pure and wholesome air, as required. The perforations *c c*, that are formed in the pipes C, may be governed so as to cut off the supply of air when desired by means of the exterior slides, C′ C′, which are attached to the pipes C by means of the loops or bands *c′ c′*. The slides C′ are provided with handles c^2, by means of which they are turned so as to cover or uncover the perforations *c c*, and thus regulate the passage of air to the car or other apartment in which the pipes C may be located. When the pipes C are made in sections the various pipes may be connected in any suitable manner. It is preferable to have a large number of the slides C′, in order that the passage of air through the perforations may be cut off or allowed to pass uninterruptedly at any desired points.

At various points in the pipes C may also be placed dampers *f* for controlling the passage of air through said pipes. In practice, however, it will be preferable to employ these dampers only at or near the points where the pipe enters or leaves the car or apartment, as shown in Fig. 4. The pipe is supported at these points by rings or brackets *g*, and, if necessary, any suitable supports may also be employed at other points. A ring or shoulder, *i*,

may also be formed on the end of the pipe, to assist in holding it in place and prevent it from slipping back into the car.

The ventilating-pipes C C are connected between the cars by means of flexible pipes D, composed of rubber or other suitable material. These pipes are provided at each end with couplings E, the interior of each coupling being provided with a bayonet-slot, *e*, adapted to engage with a pin, *h*, on the end of the pipe C; or said pipe may be provided at each end with a spring, by which it can be connected with the coupling.

The impure air is collected and removed from the car or apartment by means of the boxes F, which are preferably funnel-shaped at their lower ends and terminate in pipes F′, that pass upward through the roof. These boxes may be composed of any suitable material, and are located in the walls at proper intervals, so as to insure a thorough removal of the vitiated air contained in the apartment. The front of the box F is perforated or provided with a foraminous wall, *k*, through which the outward currents of air are permitted to pass.

A slide, G, is attached to the wall in front of the box F, and is adapted to be moved up and down in front of the same, so as to govern the openings in the wall *k* of said box, and thus regulate the passage of air from the apartment or car in which the box is placed. This slide G is provided on its rear side with lugs that move in grooves *m*, formed in the wall of the apartment, the lugs fitting in the grooves in such a manner as to retain the slide in any desired position by means of the frictional contact of its lugs with the interior of the grooves.

At the top of the exit-pipe F′ is a hood, H, which is adapted to turn with the wind, so as to prevent currents of air from being forced back into the exit-box.

From the foregoing description the operation and advantages of our improved ventilating apparatus will be apparent. It is obvious that the perforated ventilating-pipes for introducing fresh air and the exit boxes and pipes for removing impure or vitiated air may be applied in the various apartments of dwellings and other buildings with equally good results, as when used for the purpose of ventilating cars.

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

1. In a ventilating apparatus, a perforated ventilating-pipe provided with an exterior sliding section having bands or loops by which it is connected with said pipe, and adapted to be moved thereon for the purpose of covering or uncovering the perforations, substantially as described.

2. In a ventilating apparatus for railway-cars, the combination, with the horizontal pipes C C, having perforations *c c* for the passage of air into the car, and slides C′ and dampers *f* for regulating the passage of air through said perforated pipes, of the flexible tubes or pipes D, having couplings E E, adapted to connect the opposite ends of the ventilating-pipes, substantially as described.

3. In an apparatus for ventilating railway-cars, the combination of the funnel A, having screw-conveyer *a* and valve *d*, provided with cord *d′*, conveying-pipes B′ B′, perforated ventilating-pipes C C, having slides C′ and dampers *f*, and the flexible connecting-pipes D, having couplings E E for connecting the conveying and ventilating pipes, substantially as shown and described.

In testimony whereof we affix our signatures in presence of two witnesses.

JOSEPH A. STEPHAN.
JOHN GIERIET.

Witnesses to signature of J. A. Stephan:
N. C. MORGAN,
W. F. USTICK.

Witnesses to signature of John Gieriet:
PHILIP MAURO,
F. H. SCHOTT.