W. S. SAMPSON.

VENTILATING GRAIN CARS.

No. 195,456. Patented Sept. 25, 1877.

Fig. 1.

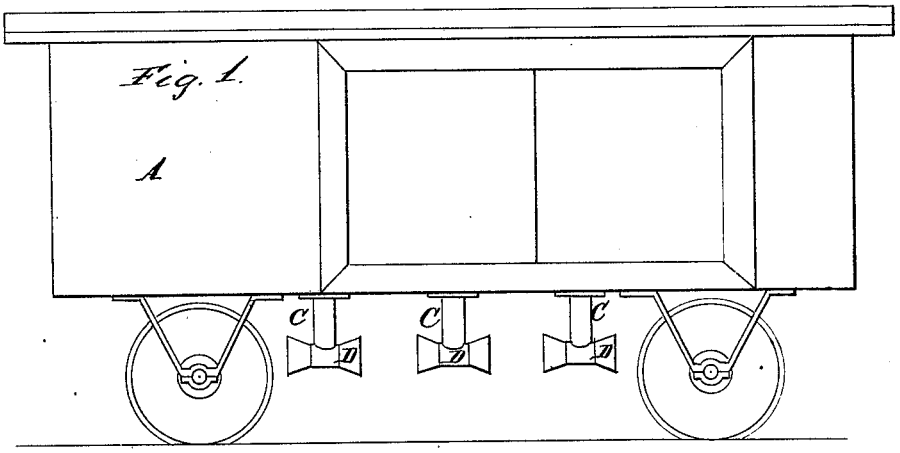


Fig. 2.

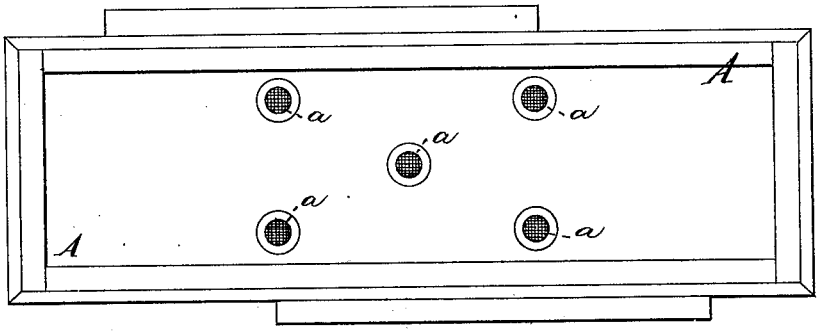


Fig. 3.

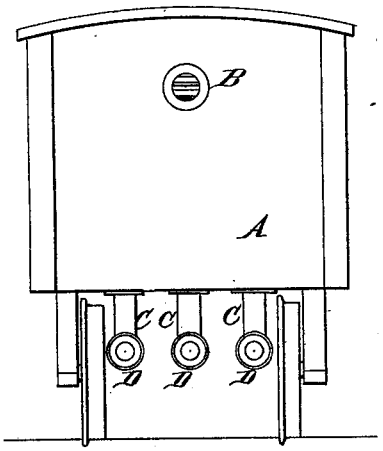
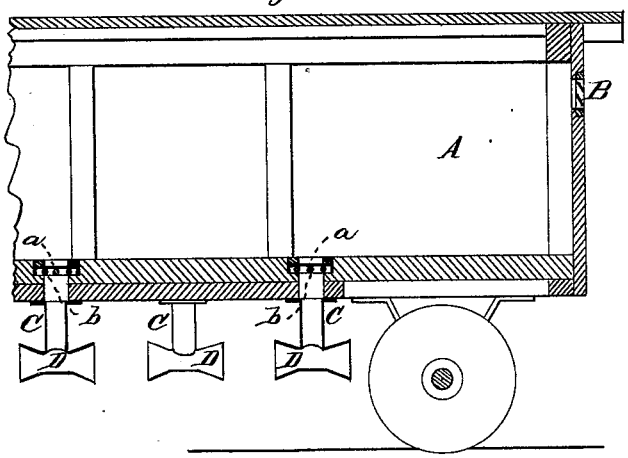


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM S. SAMPSON, OF NEW YORK, N. Y.

IMPROVEMENT IN VENTILATING GRAIN-CARS.

Specification forming part of Letters Patent No. **195,456**, dated September 25, 1877; application filed July 18, 1877.

To all whom it may concern:

Be it known that I, WILLIAM S. SAMPSON, of the city, county, and State of New York, have invented certain Improvements in Grain-Cars, of which the following is a specification:

This invention relates particularly to cars for transportation, but may also be used for other analogous purposes.

The said invention consists in the combination, with the car, of a series of tubes attached to the bottom, or at least below the load-line thereof, and a series of double funnel-shaped air-tubes or air-flues connected therewith, and extending longitudinally of the car, and open at both ends, by which an efficient current of air is made to descend from the interior of the car through the bottom thereof, and to pass through the grain or other analogous substance with which the car is loaded, substantially as hereinafter more fully set forth; and also in auxiliary devices, hereinafter described, for carrying the principal feature of the invention into full and complete effect.

In the accompanying drawing, Figure 1 is a side view of a grain or freight car embodying my invention. Fig. 2 is a plan of the same with the top removed. Fig. 3 is an end view of the car. Fig. 4 is a vertical longitudinal section of a portion of the car, showing more clearly the details of construction.

A is the body of the car, constructed in most respects as grain and freight cars are usually constructed.

B B, Figs. 3 and 4, are ventilators in the ends of the car, near its top, to admit air into it.

C C are tubes, which extend below the car, and open downward from the interior thereof, as shown in the drawings. The openings through the bottom of the car for these tubes are protected by wire-gauze *a* or its equivalent, supported on bars *b*, to protect the gauze from the crushing effect of the pressure of the grain or other loose load.

The tubes C C terminate at the outer end in double funnels D D, opening toward each end of the car, which funnels gather a current of air from the motion of the car in either direction, and by the draft through them thus created cause a downward current of air through the tubes C C, which air, being supplied by the ventilators B B, ventilates the grain which may be contained in the moving car, and takes from it the pernicious gases which may be contained therein. It is essential that the tubes C C shall open from the car in the lower part thereof, partly to cause a circulation of air through the load, and partly for the more easy discharge of the gases heavier than air which may be contained in the grain or lower part of the car, and which will be best discharged downward through the bottom of the car. It is, at least, decidedly preferable, if not indispensable, that these tubes shall extend downward through the bottom of the car, partly for the reasons already stated, and partly for the reason that, in that position, they are out of the way, and do not involve any inconvenience.

In the drawings, the tubes C C are attached by flanges resting against and fastened to the under side of the car; but in actual construction I rather prefer to place the flanges of these tubes immediately under the bars *b b*, and extend them down through the remainder of the floor of the car, as the latter is a stronger construction.

It is obvious that a larger or smaller number of tubes C C and funnels D D may be used; but the number shown in the drawings, or even four tubes, C C, with their corresponding funnels, located one near each side of the car in the positions shown, and about one-third of the length of the car from the end, give very good results, and will generally be found sufficient.

It is also obvious that the end ventilators B B may be varied in their construction without departing from my invention, so long as the air is admitted at the end of the car and in the upper part thereof.

The combination of the double funnel-shaped tubes with the other elements which are combined with them in the construction hereinbefore described, for the purposes stated, gives a very great advantage in result over the combination of parallel or cylindrical tubes with those devices, whether such parallel tubes are closed at one end or open at both ends, and a great advantage over the combination with those devices of tubes or pipes of any form

open at only one end, for the reasons, among others, that the front end of the double funnel-shaped tube gathers the air into a diminished size of stream in the middle of the pipe, while the funnel at the rear end of the tube allows the stream of air to expand and freely escape, thus producing an efficient current, which could not be relied on in either of the other constructions mentioned.

I claim as my invention—

1. The combination, with the car, of the ventilators B B, tubes C C, and double funnel-shaped longitudinal tubes D D, open at both ends, substantially as and for the purpose hereinbefore set forth.

2. The combination, with a grain-car, or car adapted to the transportation of equivalent freight, of the ventilators B B, tubes C C, longitudinal tubes D D, and wire-gauze *a*, substantially as hereinbefore set forth, for the purpose stated.

3. The combination, with a grain-car, or car adapted to the transportation of equivalent freight, of the ventilators B B, tubes C C, longitudinal tubes D D, wire-gauze *a*, and bars *b b* or their equivalent, substantially as hereinbefore set forth.

WM. S. SAMPSON.

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