

J. L. CREVELING.  
 METHOD OF OPERATING PNEUMATICALLY DRIVEN FANS.  
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905,291.

Patented Dec. 1, 1908.

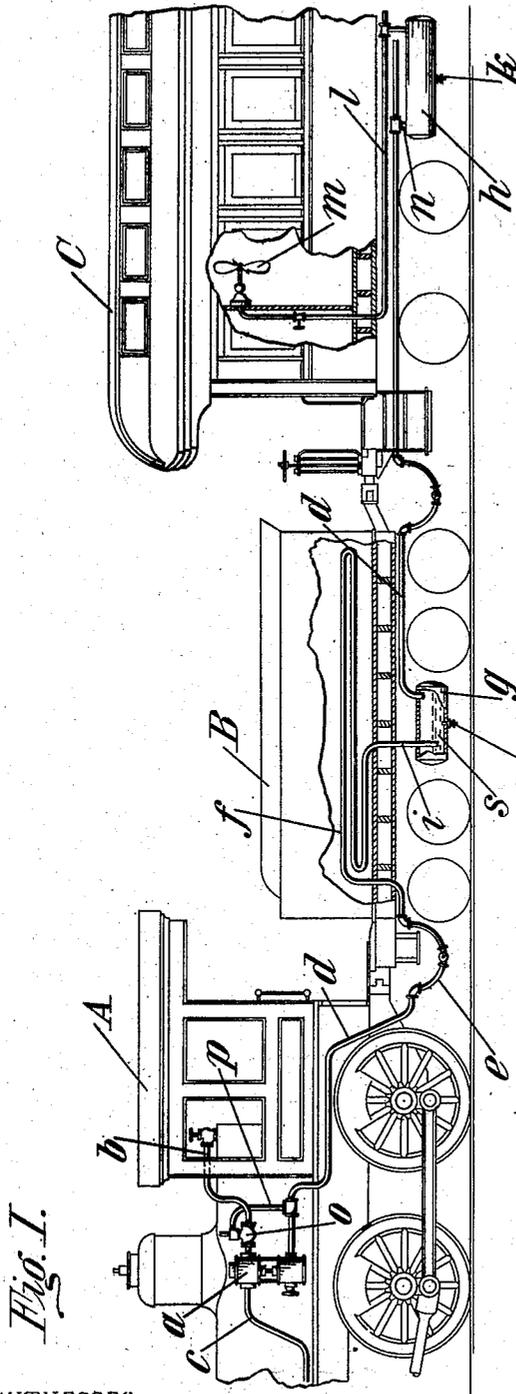


Fig. I.

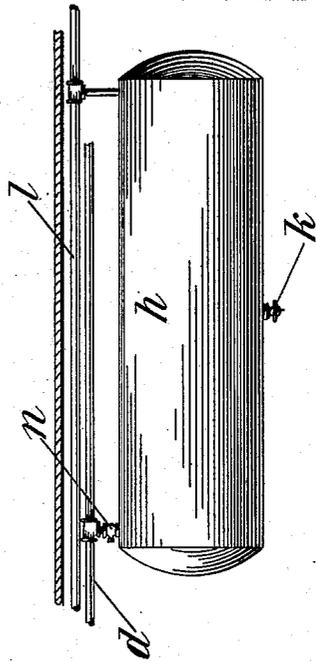


Fig. II.

WITNESSES:  
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# UNITED STATES PATENT OFFICE.

JOHN L. CREVELING, OF NEW YORK, N. Y., ASSIGNOR TO SAFETY CAR HEATING & LIGHTING COMPANY, A CORPORATION OF NEW JERSEY.

## METHOD OF OPERATING PNEUMATICALLY-DRIVEN FANS.

No. 905,291.

Specification of Letters Patent.

Patented Dec. 1, 1908.

Application filed October 3, 1901. Serial No. 77,371.

To all whom it may concern:

Be it known that I, JOHN L. CREVELING, citizen of the United States, residing at the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in the Methods of Operating Pneumatically-Driven Fans, of which the following is a specification.

10 My invention relates to a method of operating pneumatically driven fans and has for its object to effect the operation of pneumatically driven fans in fan systems in a cleanly and efficient manner.

15 I am aware that it has been proposed to drive fans by compressed air, but I have found by experiment, especially where high pressures are employed, that the compressed air is liable to contain an enormous percentage of moisture when allowed to remain at the temperature resulting from the compression, and when the air is delivered to the pneumatically driven fans, the moisture will be scattered about and do considerable damage. In order to avoid this I provide means whereby this moisture will be caught or condensed.

20 In the accompanying drawings I have shown one form of the apparatus in which my invention is embodied, it being understood that this drawing is illustrative merely, and that a train pneumatic fan system is shown for the reason that my experiments and investigations have been principally conducted in train-ventilation, and my reduction to practice of the invention has taken this form.

25 In the drawing,—Figure I represents a railroad train equipped with an apparatus for carrying out my invention; and Fig. II is a detail view of the auxiliary reservoir under each car.

30 In the drawing A represents a locomotive, B the tender, and C the first car of the train of which there may be several. Mounted upon the locomotive is a suitable air-pump *a* receiving steam from the locomotive boiler through the connection *b* and preferably exhausting into the stack through the exhaust *c*. Leading from the air-cylinder of the compression pump *a* is a train line *d*, which communicates through suitable couplings and flexible connection *e* with a coil of piping *f* herein shown as located in the tender

B. Carried upon the tender is a reservoir *g* having a fluid seal *s* beneath which the delivery pipe *i* of the coil *f* dips. Leading from the upper portion of the reservoir *g* is a continuous train-pipe *d* which leads to auxiliary reservoirs *h* provided with check-valves *n* shown beneath the floor of the car and carried by the respective cars. The reservoirs *g* and *h* are preferably provided with drip-cocks *k*; leading from the respective auxiliary reservoirs *h* are pipes *l* on each car which lead to pneumatic fans carried upon the car.

A suitable regulator *o* is interposed in the steam connection *b* of the pump *a* and is connected by pipe *p* with the train-pipe *d*. The function of this regulator is to control by means of the air-pressure the admission of steam to the air-compressor *a* so that when the air pressure falls in the system the regulator *o* will operate to open a valve to admit steam to the air-compressor so that the pressure will be pumped up.

The air from the air-compressor passing through the train pipe *d* traverses the coil or condenser *f* and is thereby cooled and deposits its moisture in the condenser *f* and the reservoir *g*. The air passes through the water-seal in the reservoir *g* and is thereby scoured or cleansed. The air passes from the reservoir *g* to the auxiliary reservoirs *h* in each car and thence is supplied to the fans *m* in the cars. The reservoir *g* serves to trap the moisture in a very efficient manner and the air passes to the auxiliary reservoirs clean and dry, it being quite essential that the exhaust shall be clean and dry, otherwise the air discharged into the cars by the fans will scatter dirt and moisture and thereby ruin the furnishings.

The heat given off by the air when it is cooled in the tender is useful in that it tends to heat the feed-water of the locomotive.

It will be understood that the location of the various parts is not essential. For instance, the reservoir *g* might be carried in the tender.

Having described my invention what I claim and desire to secure by Letters Patent is:

The herein described method of ventilating railway cars, which comprises the compressing of air, simultaneously cooling said air and condensing therefrom the moisture contained therein by passing said air through

a cooling medium out of contact therewith, scouring said air to remove any impurities therein, storing said air, and finally distributing said air through said cars through  
5 the medium of a mechanical distributor.

In testimony whereof, I have signed my name to this specification in the presence of

two subscribing witnesses, this 12th day of September, 1901.

JOHN L. CREVELING.

Witnesses:

F. E. KESSINGER,  
GEO. E. MORSE.