2 Sheets--Sheet 1.

A. J. MORRISON.

Combined Car-Ventilator and Water-Cooler.

No. 163,513. Patented May 18, 1875.

Fig. 1

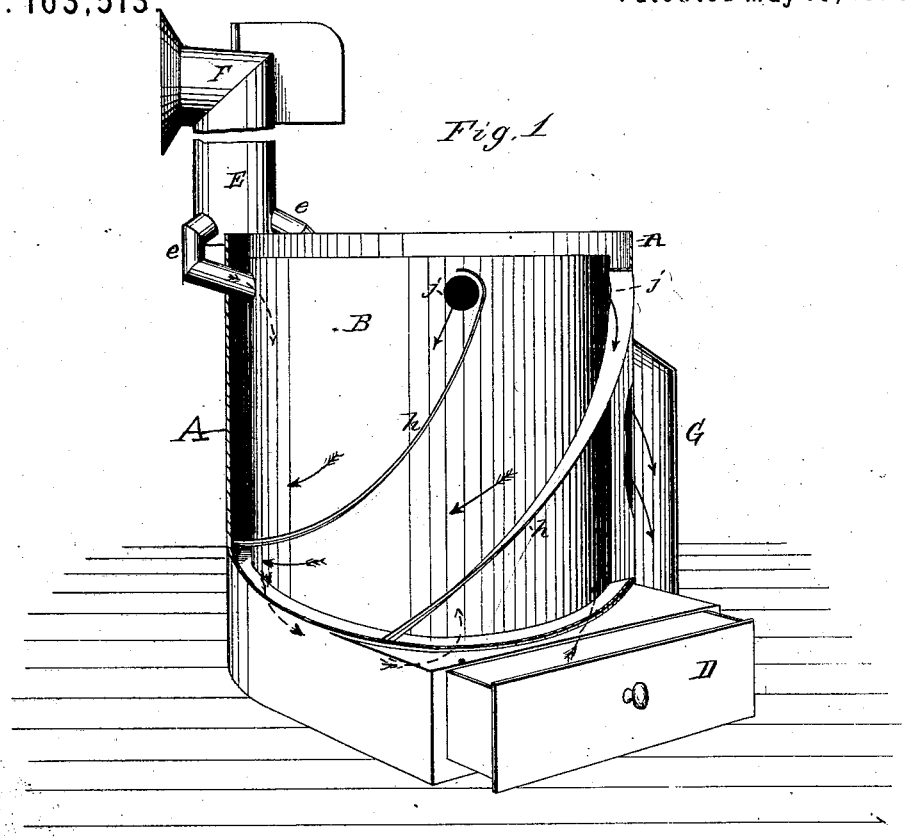
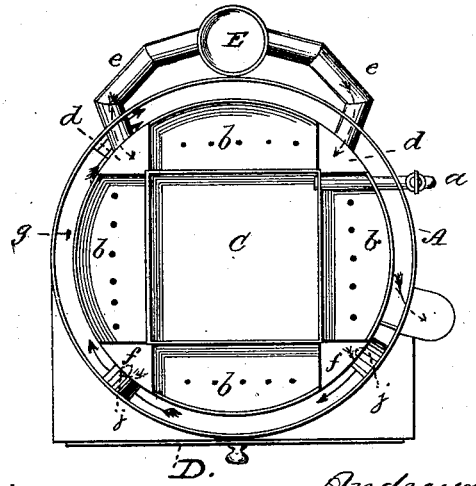


Fig. 2.



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2 Sheets--Sheet 2.

A. J. MORRISON.

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No. 163,513. Patented May 18, 1875.

Fig. 3

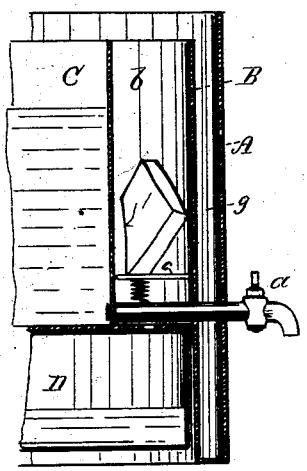


Fig. 4

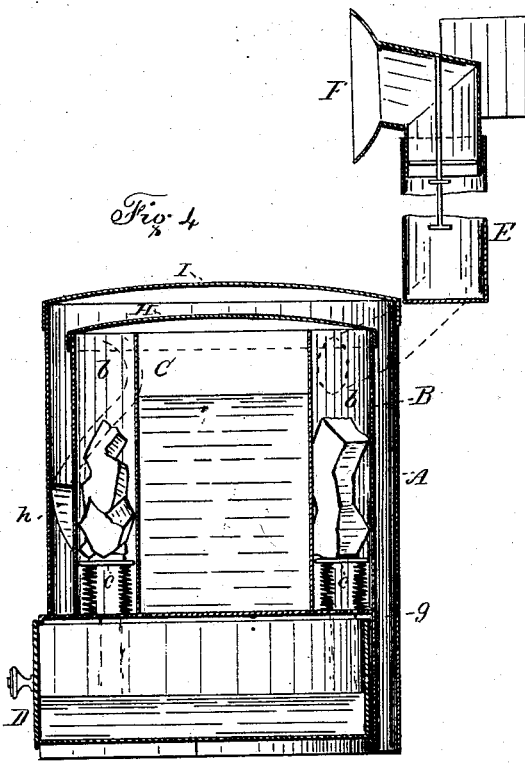
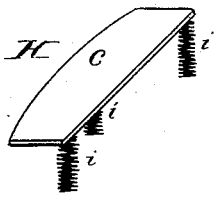


Fig. 5



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UNITED STATES PATENT OFFICE.

ANDREW J. MORRISON, OF TROY, NEW YORK.

IMPROVEMENT IN COMBINED CAR-VENTILATORS AND WATER-COOLERS.

Specification forming part of Letters Patent No. **163,513**, dated May 18, 1875; application filed February 6, 1875.

To all whom it may concern:

Be it known that I, ANDREW J. MORRISON, of Troy, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Railroad-Car Ventilators and Water-Coolers; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 is a perspective view of my invention, with a portion of the outer wall or cylinder removed, and without the covers of the cylinders. Fig. 2 is a plan or top view of the parts shown in Fig. 1, the ice-buffers being removed; Fig. 3, a part sectional elevation; Fig. 4, a sectional side elevation; Fig. 5, a detached view of the spring stool or buffer.

This invention relates to a means for ventilating railroad-cars; and consists in combining, with a tank or reservoir for drinking-water and suitable ice-chambers, a series of air chambers, compartments, or passages, arranged in such a manner in relation thereto as to cause the air to be brought in contact with the walls of the ice-chambers and water-tank, and be cooled previous to entering the car, and also freed from any impurities by coming in contact with the waste-water in a pan or drawer placed beneath the ice-chambers to receive the drippings from the ice, as will be hereinafter more fully described.

In the drawings, A represents the outer wall or cylinder of the apparatus, the same being placed in one corner of the car; and B, the inner cylinder, having a central reservoir or tank, C, for drinking-water, and provided with a suitable faucet, *a*, for drawing off the water when required. Surrounding the tank C are ice-chambers *b*, in the bottom of which are small perforations or leak-openings, to allow the water from the ice to pass down into a removable drip-pan or drawer, D. At the bottom of these chambers are placed spring stools or buffers H, consisting of a flat plate, *c*, provided with suitable springs *i* upon its under side, the purpose of which is to deaden the shock upon the dropping in of the ice, and thereby prevent any injury to the bottom or sides of the ice-chambers. The two compartments or air-passages *d d* (the sides of which form the walls of the ice-chambers) are closed at the top, and communicate with branch tubes *e e*, connected to a main pipe, E, leading out through the roof or top of the car, and to which is attached a suitable cowl, F. Diagonally opposite the compartments or air-passages *d d* are similar air-passages *f f*, open at bottom, and through which the air passes upward after leaving the compartments or air-passages *d d*, and after being relieved from all impurities by coming in contact with the waste-water in the drip-pan or drawer D. These air-passages *f f* have openings *j* near the top, by means of which communication is made between said passages and the annular space *g*, formed by the inner cylinder B and the outer wall or cylinder A of the apparatus. Within the annular space *g* are inclined partitions *h h*, as illustrated in Fig. 1, causing the air to pass, previous to its being distributed into the car, around the outer side of the inner cylinder B, and thereby coming again in contact with the walls of the ice-chambers. An outlet-pipe, G, is connected to the outer cylinder A near its base, communicating with the annular space *g*, the air passing from the same into the outlet-pipe, after which it may be distributed in any suitable manner throughout the car. A cover, H, as seen in Fig. 4, Sheet 2, of the drawings, is placed over the inner cylinder B, confining the air within the compartments or air-spaces, and also keeping the drinking-water clean and pure. An outer cover, I, closes the entire top of the apparatus, and prevents the air, as it passes into the annular space *g*, from escaping.

The operation of my ventilator is as follows: As the car is in motion the mouth of the cowl faces the wind, the air passes down through the main pipe E into the branch tubes *e e*, and thence into the compartments or air-passages *d d*, coming in contact with the sides or walls of the ice-chambers *b b*, passing out into the bottom of the apparatus, where it is brought in contact with the waste-water in the drip-pan or removable drawer D, and the natural jarring motion of the cars, keeping the water in a continual state of agitation, filters and

relieves the air from any impurities or particles of dust and cinders, after which it is again brought in contact with the sides of the ice-chambers by taking a course up through the compartments or air-passages *f f*, from whence it passes out through suitable openings *j* therein into the annular space *g*, and, by means of the two inclined partitions *h h*, is carried down and around the outer side of the inner tank B, coming a third time in contact with the sides of the ice-chambers, and is thereby thoroughly cooled before entering the car, after which it may be distributed at different points in the car by means of suitable pipes and registers.

It will be seen that the ice in the ice-chambers serves the double purpose of keeping the drinking-water in the tank cool, and at the same time cooling the air before it passes out into the car, and also the waste-water in the drip-pan or drawer serving to purify the air by being brought in contact therewith.

With this apparatus the ordinary ventilators at the top of the car must always be sufficiently opened to allow the foul gases or vitiated air to escape, while a fresh supply of pure air is constantly introduced from below; and, to secure the best results, the windows and doors should be closed whenever the car is in motion.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A combined water-cooler and ventilator, substantially as described, wherein the air to be cooled is caused to pass through suitable passages in contact with ice-chambers, as specified, and afterward filtered from all impurities by coming in contact with water in a drip-pan arranged below a centrally-located water-tank to receive the drippings therefrom, as set forth.

2. The inner cylinder B, provided with air-passages *d d* and *f f*, ice-chambers *b*, and central water-tank C, in combination with the outer cylinder A, substantially as and for the purpose specified.

3. In combination with the inner cylinder B, constructed substantially as described, the outer cylinder A, annular space *g*, and inclined partition *h*, for the purpose set forth.

4. In combination with the inner cylinder B, constructed, as described, with suitable air-passages and ice-chambers, the drip-pan or drawer D, for the purpose set forth.

5. The combination, with the outer cylinder A and annular space *g*, having inclined partitions *h h*, of the inner cylinder B, provided with air-passages *d d* and *f f* and ice-chamber *b*, as and for the purpose set forth.

6. The water-cooler and ventilator herein described, consisting of the outer cylinder A, with cover I, inner cylinder B, provided with central water tank or reservoir C, ice-chambers *b*, air-passages *f f* and *d d*, and cover H, tubes *e e*, main pipe E, and drip-pan or drawer D, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

A. J. MORRISON.

Witnesses:
J. F. CALDER,
JAS. H. DAVIS, Jr.