

WATSON, HARDIKER & TOYE.

Car Heater.

No. 30,996.

Patented Dec. 18, 1860.

Fig. 1.

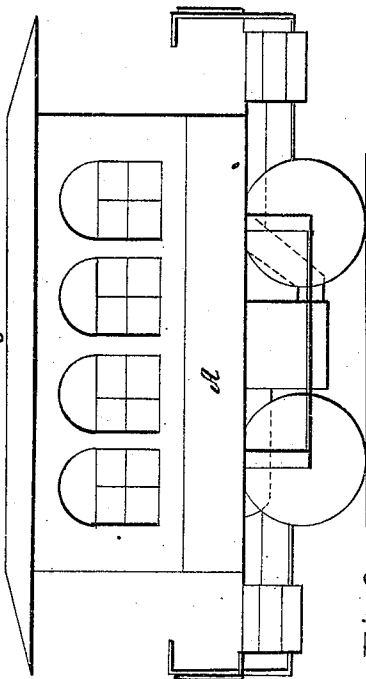


Fig. 3.

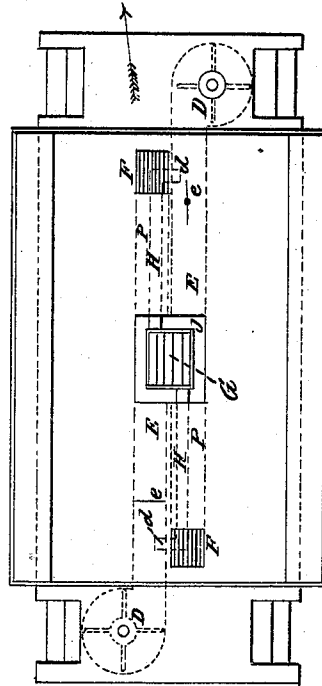
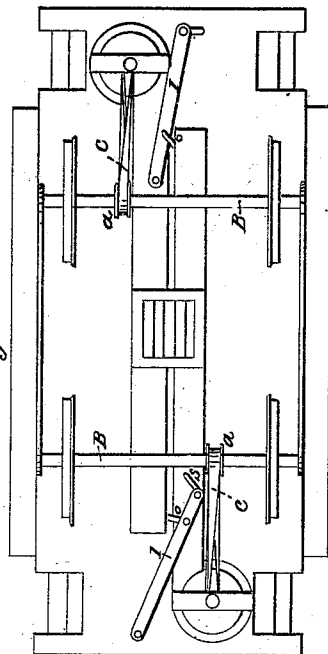


Fig. 2.



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UNITED STATES PATENT OFFICE.

JNO. J. WATSON, W. HARDIKER, AND THO. TOYE, OF BUFFALO, NEW YORK.

APPARATUS FOR VENTILATING AND WARMING RAILROAD-CARS.

Specification of Letters Patent No. 30,996, dated December 18, 1860.

To all whom it may concern:

Be it known that we, JOHN J. WATSON, WILLIAM HARDIKER, and THOMAS TOYE, of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Ventilating and Warming Railroad-Cars; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of our invention consists in constructing and arranging the several parts of our apparatus in the manner hereinafter set forth.

In the annexed drawings Figure 1 is a side elevation of our car. Fig. 2 is a bottom view. Fig. 3 is a plan of the floor of the car.

In the figures, A represents the car body, which is constructed in any of the known and usual ways, and which rests upon axles supported upon the usual car wheels.

B, B, represent the car axles, upon which are formed pulleys *a, a*. On the under side of the car body are secured two air pipes E, E, whose inner ends open into an air chamber J, formed around a square furnace G, at the center of, and beneath the car body. In the outer ends of these pipes are secured fans D, D, which are made in the ordinary way and secured in proper bearings, and which serve to catch air and force it into the chamber around the furnace and thence into the car.

H, H, represent pipes which are smaller than the pipes (E) and which open into them as shown in Fig. 3, passing through the hot air flues P, P, as seen.

P, P, are hot-air flues which conduct the air from the chamber around the furnace to the registers F, F, in the car floor.

I, I, are rods or bars which connect with the crank rods *o, s*, which operate and govern the dampers *d*, and *e, d*, being a damper in the smoke flue H, and *e*, being one in the air flue or pipe E.

c, c, represent bands which pass around the pulleys *a, a*, upon the car axles and

thence around the pulleys upon the fan shafts for the purpose of conveying motion from the axle to the fans.

In using this invention we will suppose that the car is moving in the direction indicated by the arrow Fig. 3. In this case the forward damper *e*, in the pipe E, is opened and the forward damper *d*, in the smoke pipe is closed, as is represented in Fig. 3, while the rear damper *e*, is closed and the rear damper *d*, is open. This allows the air to pass through the forward fan to the furnace or around the furnace in the chamber J, and thence after being heated to the registers F, F, while it also allows air to pass into the bottom of the furnace and through the fire out at the rear of the car through rear pipe H and damper *d*. When the car changes direction the dampers are reversed. It will be understood, generally that in whichever direction the car is moving the forward damper *e*, is open and the rear closed, while the forward damper *d*, is closed and the rear open, so as always to supply air to the car from the front and allow the smoke to escape at the rear of the car. This arrangement may be used for ventilating and heating purposes both, for the fans will be constantly supplying fresh supplies of air when the car is in motion.

The furnace may be fed from the inside of the car, as it is provided with a suitable cover which may be removed for that purpose.

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

The employment of the fans D, D, pipes (E) and (H) flues P, P, registers F, F, dampers (*d*) and (*e*) together with furnace G. and air space J. around said furnace arranged as set forth for the purpose of supplying heat, and for ventilating the car substantially as is herein fully described.

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