

(No Model.)

J. J. BURWELL.

HEATING AND VENTILATING RAILWAY CARS.

No. 491,468.

Patented Feb. 7, 1893.

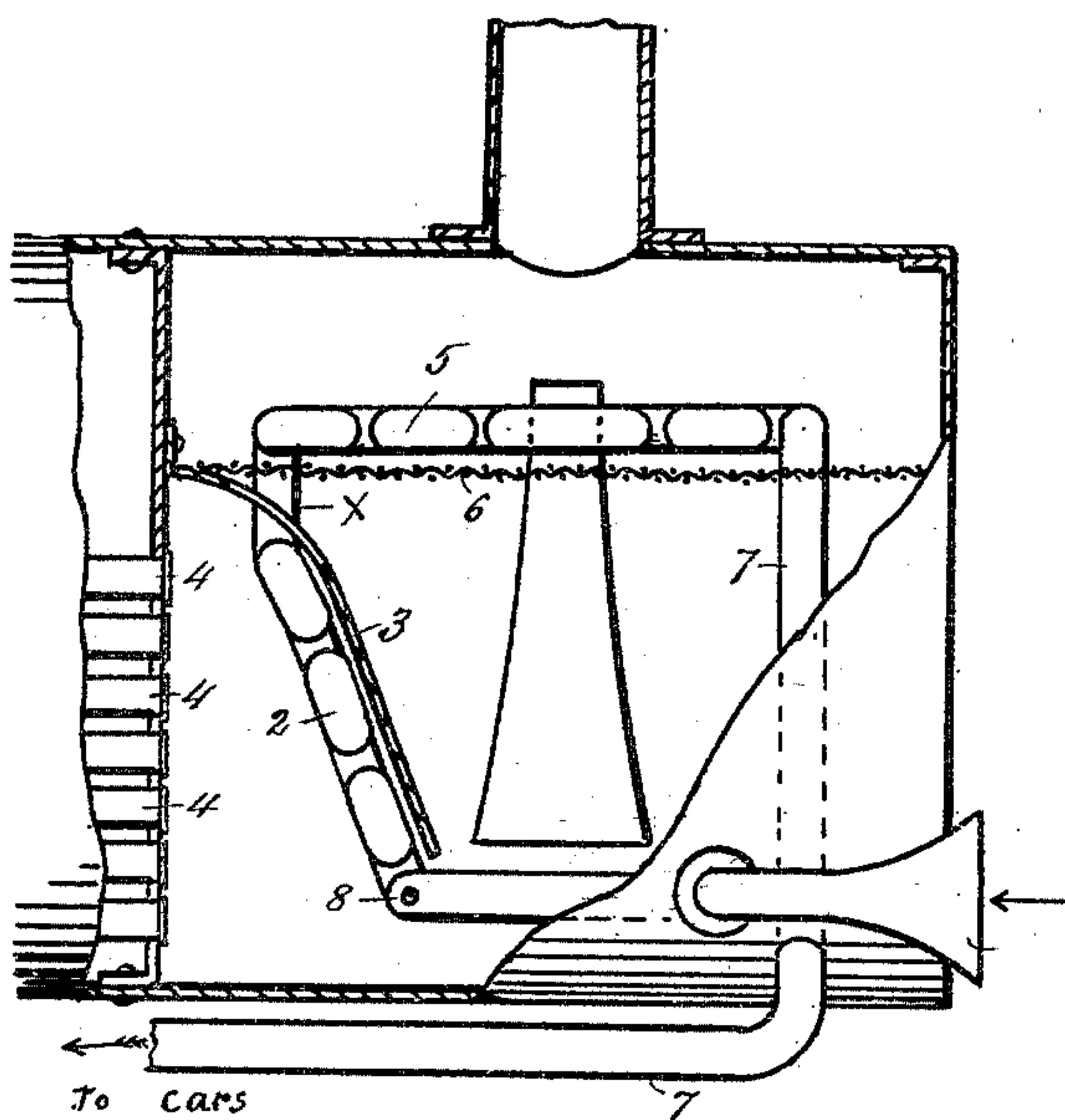


Fig. I.

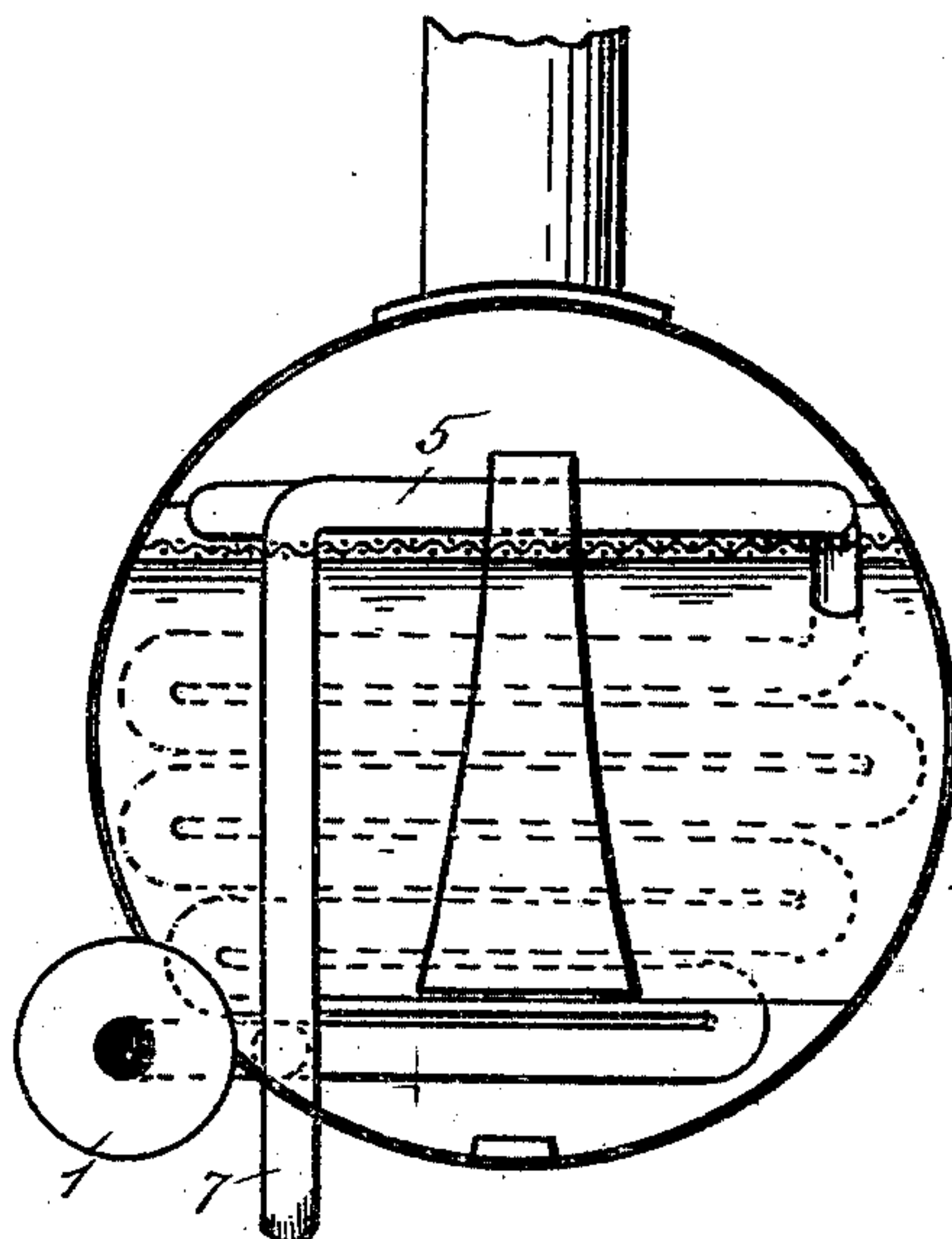


Fig. III.

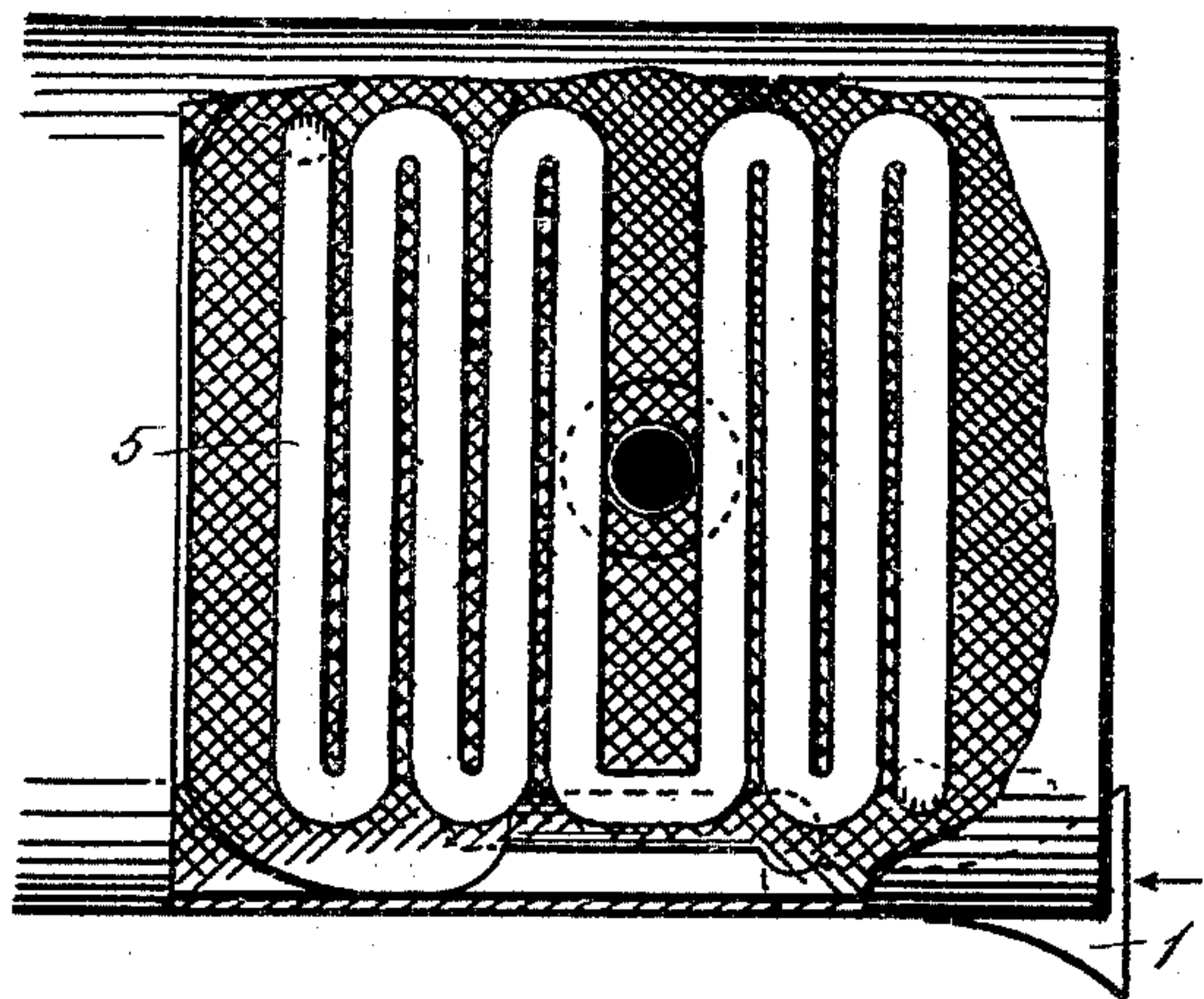


Fig. II.

Witnesses

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By

O. Bailey Atty.

# UNITED STATES PATENT OFFICE.

JOHN J. BURWELL, OF COVINGTON, KENTUCKY.

## HEATING AND VENTILATING RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 491,468, dated February 7, 1893.

Application filed March 30, 1892. Serial No. 427,135. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN J. BURWELL, a citizen of the United States, residing at Covington, in the county of Kenton and State of Kentucky, have invented a new and useful Improvement in Apparatus for Heating and Ventilating Railway-Cars, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a side elevation, partly in section, of the front end of a locomotive boiler provided with my improved apparatus. Fig. 2, a top view of the same and Fig. 3, an end view, partly in section.

My invention relates to improvements in apparatus for heating and ventilating railway cars and its object is to provide a simple, practical and inexpensive device whereby a train of cars may be effectively heated and ventilated by a current of air introduced at the front of the locomotive and conveyed through coils of pipe which are primarily exposed to the unutilized heat which escapes from the boiler flues and subsequently to the accumulation of hot air in the smoke box.

In the accompanying drawings, 1 designates a bell-mouthed induction tube extending in front of the locomotive, thence rearwardly through the shell of the smoke box to a connection with a serpentine coil of pipe 2 located in the rear of the diaphragm 3, and in front of the open ends of the boiler flues 4. A connecting pipe  $x$  passes upwardly through the diaphragm and unites said coil to a supplementary coil 5 which overlies the netting 6 in the smoke box. An eduction tube 7

extends downwardly through the shell and thence rearwardly to the cars as shown.

It will be observed that the air, being introduced at the front of the locomotive, is entirely free from smoke and dust and undergoes no contamination in its passage to the cars. It is also to be understood that only the waste heat is utilized in my apparatus and the furnace is not called upon to perform extra service in order to heat the coils nor is the boiler deprived of any portion of heat which it would otherwise obtain from the furnace.

This invention, slightly modified in the arrangement and location of the coils, may be readily adapted to my improved steam generator for locomotives patented December 23, 1889, No. 443,354.

What I claim as new, is:

In an apparatus for heating and ventilating railway cars, the combination of an induction tube located in front of the locomotive with the serpentine coil of pipe 2, located at the rear of the diaphragm 3, and in front of the open ends of the boiler flues 4, the connecting pipe  $x$ , passing upwardly through said diaphragm, the supplementary coil 5, and the netting 6, which it overlies, and the eduction pipe 7, extending downward and to the cars, all as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand, this 5th day of March, 1892, in the presence of witnesses.

JOHN J. BURWELL.

Witnesses:

P. J. CADWALLADER,  
R. S. MILLAR.