No. 616,827. Patented Dec. 27, 1898.

J. R. DEISHER.

STEAM DISTRIBUTING SYSTEM FOR HEATING RAILWAY CARS.

(Application filed Mar. 19, 1895.)

(No Model.) 2 Sheets—Sheet 1.

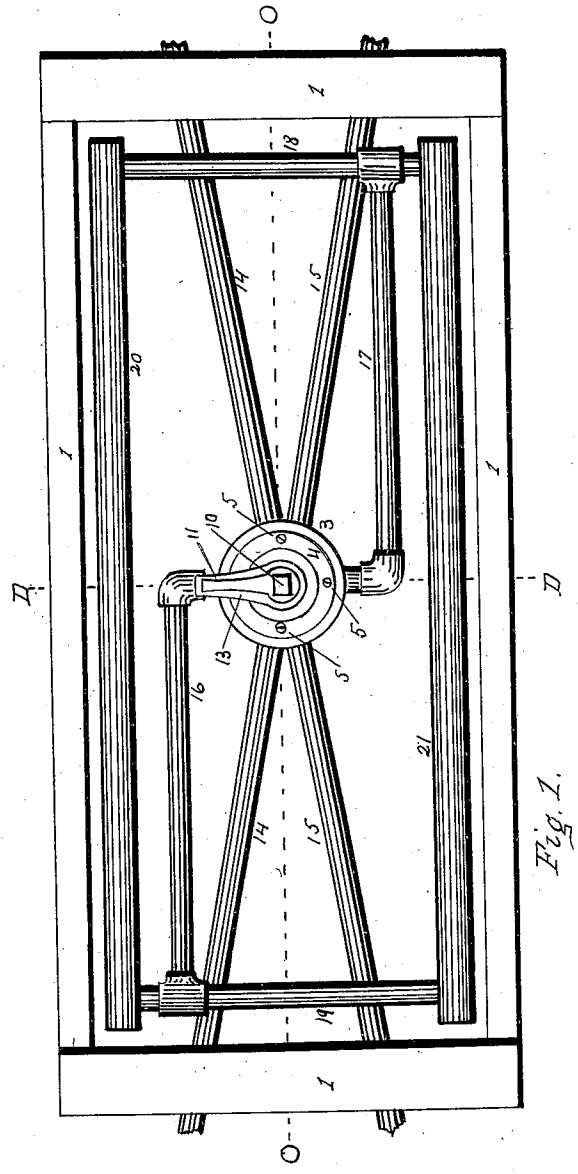


Fig. 1.

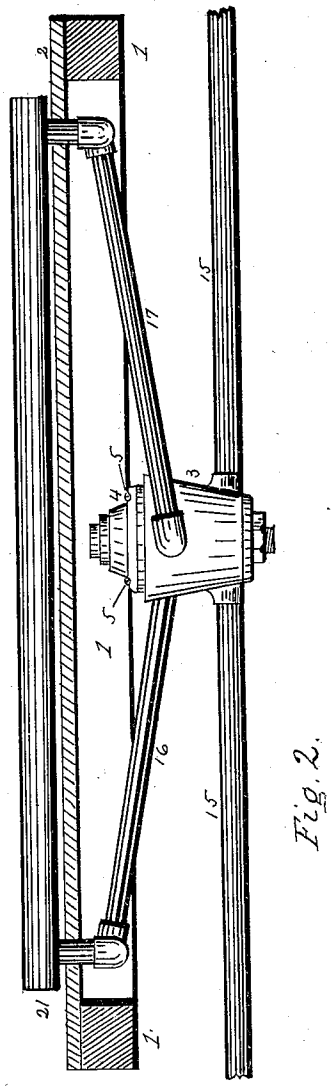


Fig. 2.

Witnesses
John R. Fosler
Wm. Affleck

John Robert Deisher Inventor

By Attorneys Wm. B. McCoy

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 616,827. Patented Dec. 27, 1898.

J. R. DEISHER.

STEAM DISTRIBUTING SYSTEM FOR HEATING RAILWAY CARS.

(Application filed Mar. 19, 1895.)

(No Model.) 2 Sheets—Sheet 2.

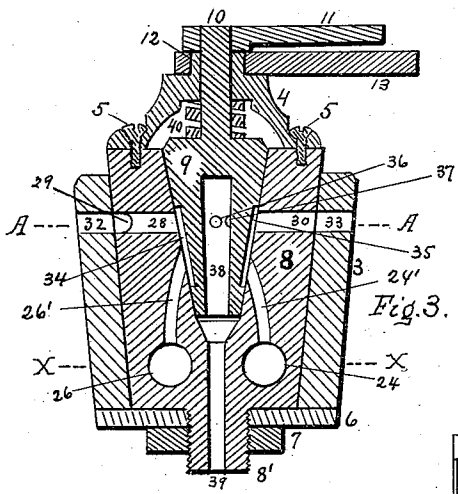


Fig. 3.

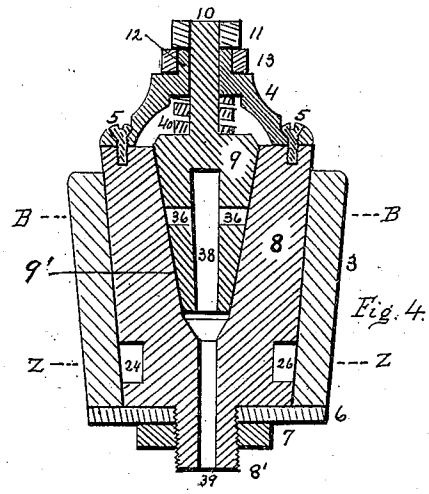


Fig. 4.

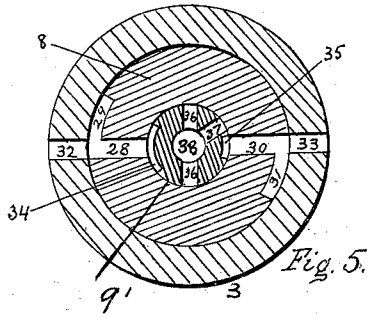


Fig. 5.

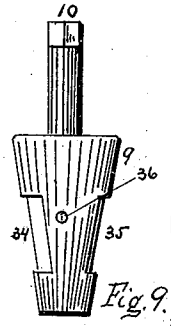


Fig. 9.

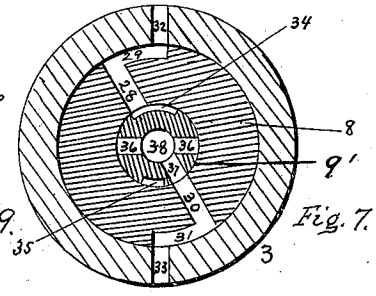


Fig. 7.

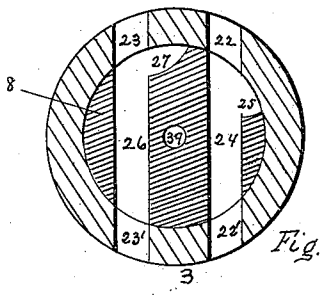


Fig. 6.

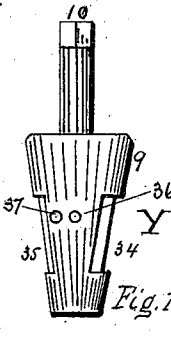


Fig. 10.

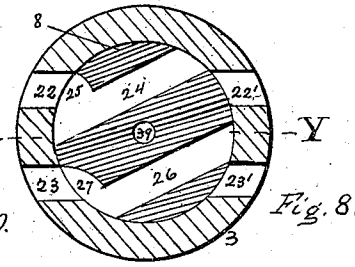


Fig. 8.

Witnesses
John R. Hosler
Wm. Affleck

John Robert Deisher Inventor

By Attorney Horace P. W. Toof.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN ROBERT DEISHER, OF POTTSVILLE, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO ALBERT CABLE AND RUFUS L. PRICE, OF SAME PLACE.

STEAM-DISTRIBUTING SYSTEM FOR HEATING RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 616,827, dated December 27, 1898.

Application filed March 19, 1895. Serial No. 542,331. (No model.)

To all whom it may concern:

Be it known that I, JOHN ROBERT DEISHER, a citizen of the United States, residing at Pottsville, in the county of Schuylkill and State of Pennsylvania, have invented certain new and useful Improvements in Steam-Distributing Systems for Heating Railway-Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to steam-distributing systems for heating railway-cars of that class or description in which steam is supplied to radiators located in the cars and returned to a vacuum-pump or other device on the locomotive, by which it is returned to the boiler; and its object is to provide an improved construction of valve mechanism located beneath the car and connected with the radiators and locomotive-boiler and with the vacuum-pump, whereby I secure superior advantages with respect to efficiency in operation.

The invention consists in the novel construction and combination of parts hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a plan view showing the lower portion of a car, the floor being removed to show the valve mechanism and connections. Fig. 2 is a side elevation of the same, the car-floor being shown in section. Fig. 3 is a central vertical section of the valve mechanism on the line D D, Fig. 1. Fig. 4 is a similar view taken on the line Y Y, Fig. 8. Fig. 5 is a horizontal section on the line A A, Fig. 3. Fig. 6 is a similar view on the line X X. Fig. 7 is a horizontal section on the line B B, Fig. 4, showing the valves in position to exhaust to the atmosphere instead of returning the steam to the vacuum-pump. Fig. 8 is a similar view on the line Z Z, showing the main valve turned so as to close the ports of the valve mechanism of the rear car of a train to prevent the steam from escaping to the atmosphere. Fig. 9 is an elevation of the supplemental valve. Fig. 10 is a similar view showing the same in a different position.

In the said drawings, the reference-numeral 1 designates the frame or lower portion of a railway-car, and 2 the floor thereof.

The numeral 3 designates a valve-casing located underneath the car and having a tapering bore, and located therein is a rotatable main valve 8, provided with a screw-threaded boss 8′ at the lower end. The numeral 6 designates a washer at the lower end of said casing held in place by a nut 7, fitting on said boss. Secured to the upper end of said valve by screws 5 is a cap 4, having an angular portion 12, with which engages a handle 13 for rotating the valve. Said valve is formed with a tapering recess in its upper end for receiving a rotatable supplemental valve, hereinafter described.

Formed in the casing 3 near the lower end are four ports 22 22′ and 23 23′, the ports 22 22′ being opposite and in line with each other, and the ports 23 23′ being also similarly arranged or opposite each other. (See Fig. 6.) Near the upper end of the casing are two opposite ports 32 and 33 in a plane at a right angle to said ports 22 22′ and 23 23′.

Formed in the valve 8 are two parallel steam-passages 24 and 26, which extend horizontally therethrough and which are adapted to coincide with the ports 22 22′ and 23 23′, respectively. At one end these passages are cut away, forming branch passages 25 and 27. Intersecting these passages and communicating with the recess 9′ in said valve are upwardly-extending passages 24′ and 26′, and above these passages are horizontal passages 28 and 30 at a right angle to the passages 24 and 26 and provided at the outer ends with branch passages 29 and 31.

The numeral 9 designates a rotatable supplemental valve having a shank 10 at the upper end provided with a handle 11. This valve, which is seated in the recess 9′ in valve 8, is formed with a wide peripheral port 34 and an opposite narrow port 35, with which the passages 28 and 30 and 26′ and 24′ are adapted to communicate. Said supplemental valve is formed with a central chamber 38 in its lower end, which communicates with a vertical passage 39 in valve 8. It is also

formed with two opposite ports 36 and a port 37, communicating with said chamber 38.

The numeral 40 designates a coiled spring interposed between the supplemental valve and the cap 4 to hold said valve in its seat.

The numerals 14 and 15 designate two series of steam-pipes, either series of which may be used as the supply and the other as the return pipes, as may be desired. These pipes are connected, respectively, with the ports 22 22′ and 23 23′, and the pipes of one car are connected with those of an adjacent car by flexible couplings (not shown) similar to the train-pipes of ordinary air-brakes. Located in the car is a radiator consisting in the present instance of two horizontal parallel pipes 20 and 21, but which may be of any other construction found convenient or desirable. These pipes are connected near their ends by transverse pipes 18 and 19. Connected with pipe 19 is a pipe 16, leading to port 33 of the casing 3, while a similar pipe 17 connects pipe 18 with port 32 of said casing.

The operation is as follows, supposing the pipes 15 to be the supply-pipes and the pipes 14 the return-pipes: The main and supplemental valves are turned so as to occupy the positions shown in Figs. 5 and 6, when steam from the locomotive-boiler will pass through the first pipe 15 to port 23, through passage 26 and port 23′ to the other pipe 15, and through the flexible coupling (not shown) to the next car, and so on throughout the train. The steam will also pass from passage 26 up through passage 26′, and from thence through port 34 in the supplemental valve to passage 28, through port 32 to pipes 17 and 18, to radiator-pipes 20 and 21, and from thence through pipes 19 and 16 to port 33, through passage 30, port 35, passage 24′, and port 22 to return-pipe 14, and from thence to the vacuum-pump.

To prevent the steam from escaping to the atmosphere at the rear car of the train, the main valve 8 of the mechanism connected with such car is turned to the position shown in Fig. 8, closing the ports 22′ and 23′, but allowing steam to enter passage 26 through branch passage 27, from whence it will pass to the radiator, as before described, and returning therefrom will enter passage 24 through branch passage 25.

In case of derangement or injury to the vacuum-pump or for any other reason which renders it impossible or undesirable to return the steam to the pump the main and supplemental valves are turned to the positions shown in Fig. 7, closing communication between the narrow port 35 and passage 30 and bringing port 37 into coincidence with passage 30 and chamber 38. The steam will now pass from the supply-pipe to passage 26, passage 26′ to port 24, which being wider than port 35 will not be closed, and from thence through passage 28, branch passage 29, and port 32 to the radiator, as before described. Returning from the radiator the steam will pass through branch passage 31, passage 30, port 37, and chamber 38 and will escape through passage 39 to the atmosphere.

To cut out the radiator of any or all the cars, the supplemental valve is turned so as to bring ports 36 into alinement with passages 28 and 30, which will cause ports 34 and 35 to be closed, cutting off communication between the same and the passages 24′ and 24. Any water of condensation in the radiator will now escape through pipes 16 and 17, passages 33 and 32, ports 36, chamber 38, and out through passage 39, thus preventing freezing.

As before stated, either of the series of pipes 14 or 15 may be used as the supply-pipes, and it will be obvious that the steam may be supplied from either end of the car.

Having thus fully described my invention, what I claim is—

1. The combination with the valve-casing provided with opposite ports 22, 22′ and 23, 23′, near the lower end, the steam-pipes connected therewith, and with opposite ports 32 and 33 near the upper end connected with a radiator located in a car, of the rotatable main valve located in said casing provided with parallel horizontal passages 24 and 26 adapted to coincide with said lower ports and with upwardly-extending passages 24′ and 26′, and with horizontal passages 28 and 30 adapted to coincide with said upper ports, and the rotatable supplemental valve seated in a recess in said main valve and provided with opposite peripheral ports 34 and 35, substantially as described.

2. The combination with the valve-casing provided with opposite ports 22, 22′ and 23, 23′, near the lower end and the steam-pipes connected therewith, and with opposite ports 32 and 33 near the upper end connected with a radiator located in a car, of the rotatable valve located in said casing provided with parallel horizontal passages 24 and 26 adapted to coincide with said lower ports, cut away at one end forming branch passages 25 and 27, and with upwardly-extending passages 24′ and 26′, and with horizontal passages 28 and 30, and the rotatable supplemental valve seated in a recess in said main valve and provided with peripheral ports 34 and 35, substantially as described.

3. The combination with the casing provided with opposite ports 22, 22′ and 23, 23′, near the lower end, the steam-pipes connected therewith and also provided with opposite ports 32 and 33 near the upper end connected with a radiator located in a car, of the rotatable main valve in said casing formed with a recess in its upper end and with a vertical passage 39 communicating therewith, and said valve formed with parallel passages 24 and 26, upwardly-extending intersecting passages 24′ and 26′, and horizontal passages 28 and 30 adapted to communicate with ports 32 and 33, and cut away at the outer ends

forming branch passages 29 and 31, of the rotatable supplemental valve formed with a central chamber 38 at the lower end and a radial port 37 communicating therewith and provided with a wide and a narrow peripheral port opposite each other, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

JOHN ROBERT DEISHER.

Witnesses:
WM. APPLECK,
J. G. SMITH.