

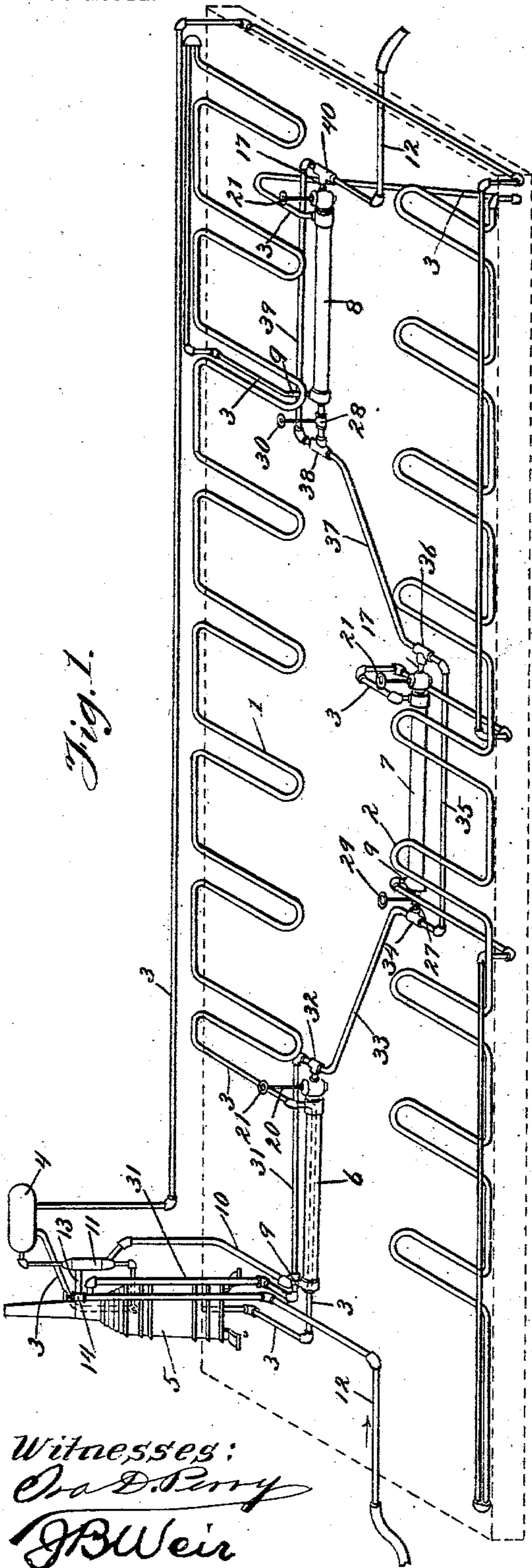
No. 743,726.

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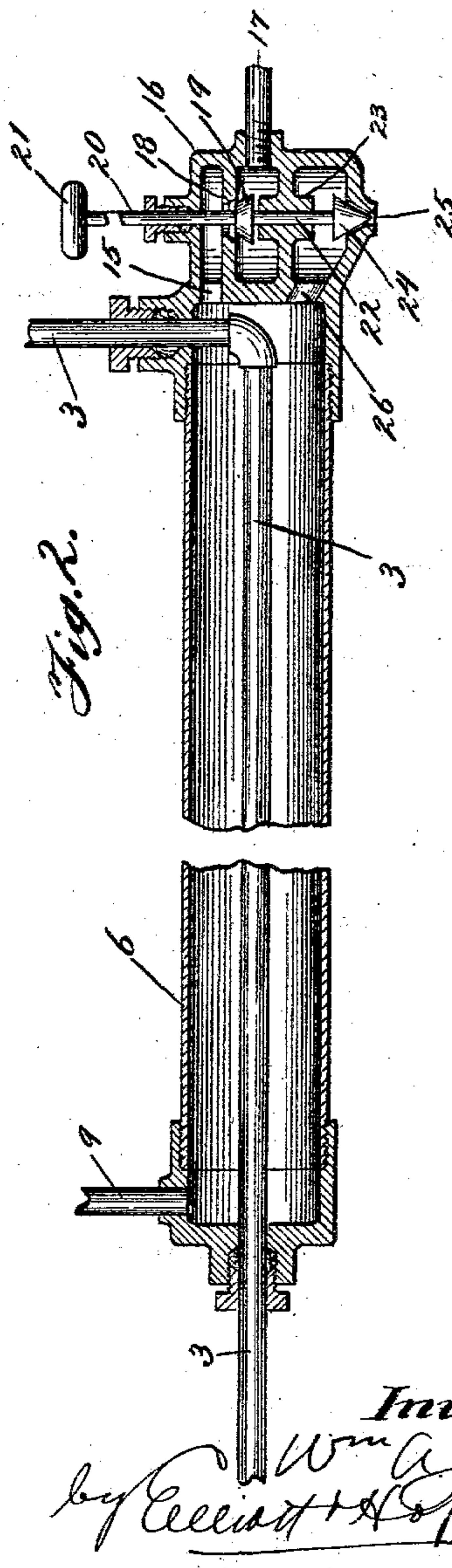
W. A. JOSEPH.
CAR HEATER.

APPLICATION FILED NOV. 3, 1902.

NO MODEL.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM A. JOSEPH, OF CHICAGO, ILLINOIS.

CAR-HEATER.

SPECIFICATION forming part of Letters Patent No. 743,726, dated November 10, 1903.

Application filed November 3, 1902. Serial No. 129,820. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. JOSEPH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Heaters, of which the following is a full, clear, and exact specification.

My invention relates more particularly to that class of car-heaters in which the car is heated by water circulating through a suitable radiating-coil, which is heated by one or more drums per car, supplied with steam from a pipe common to all of said drums and usually designated as a "train-pipe;" and my invention has for one of its important objects to provide means whereby the hot-water coil may be heated by means of said drums at one or more points on each car, as desired, so that when conditions require the car may be heated at one end or in one locality independently of the other end or other localities or by using one or less than the entire number of the drums on each car the temperature of the car may be regulated as desired.

A further object of my invention is to provide means whereby the steam from the train-pipe may pass through one or more of the drums on each car in exclusion of the others.

A further object of my invention is to provide improved means whereby the steam which passes into any one of the drums for heating the hot-water coil or pipe passes on again into the train-pipe and is thus utilized for heating the next drum in the system, a still further object being to open the drip from the drum simultaneously with the closing of the steam discharge or outlet therefrom.

With these ends in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said objects and certain other objects hereinafter appearing are attained; all as fully described with reference to the accompanying drawings, and more particularly pointed out in the claims.

In the said drawings, Figure 1 is a perspective view of my improved car-heating system, showing its relation to the floor of a car, which is indicated in dotted lines; and Fig. 2 is an enlarged vertical longitudinal sec-

tional view of one of the drums and connected parts.

1 2 are the hot-water coils or radiators arranged along opposite sides of the car and constituting continuations of the same hot-water pipe 3, which is connected thereto in the usual or any suitable way. One end of this pipe usually connects with an expansion-drum 4 and the other end with a stove-heater 5, usually employed in connection with systems of this character, and from this heater the pipe 3 extends to the expansion-drum 4, as usual, all of these parts being of the ordinary and well-known construction and of any other suitable form and arrangement.

6 7 8 are the steam-drums, three of which are employed on each car in the example of my invention illustrated in the drawings and each of which surrounds the pipe 3 throughout a sufficient portion of its length to insure the heating of the water in the pipe 3, as heretofore. The drum 6, which is nearest the heater 5, is provided with a steam-inlet pipe 9, which is connected by pipe 10 to an anti-pounder 11, which in turn is connected to the train-pipe 12 by a short connection 13, which is governed by stop-cock 14 in the usual or any suitable way, so as to supply steam to the drum 6 for heating the portion of the pipe 3 inclosed thereby. The opposite end of the drum 6 and, in fact, the corresponding end of each of the other drums is provided with a steam-outlet port 15, which leads into a valve-housing 16, with which is connected a steam-outlet pipe 17, and between the pipe 17 and the port 15 is interposed a valve-seat 18, which may be closed by a downwardly-opening valve 19 on a threaded valve-stem 20, whose handles 21, if desired, may be extended upwardly through the floor of the car, so as to be accessible for operation from the inside. This valve-stem 20 is also provided with an extension 22, which passes through a suitable guide 23 and carries a valve 24, closing a drip 25, communicating with the bottom of drum 6 through a port 26, the valve 24 being a downwardly-closing valve, while the valve 19 is an upwardly-closing valve, and consequently when the latter is open for permitting the steam to pass from the drum into the outlet-pipe 17 the valve 24 will be simul-

taneously closed, and vice versa. The extension 22 of the stem is preferably made of considerable length and composed of copper or some other material capable of rapid expansion and contraction under change of temperature, so that, if desired, the valve 24 may be allowed to remain slightly away from its seat when the valve 19 is entirely open, but will subsequently find its seat and close as the heat of the steam causes the extension 22 to expand.

It will of course be understood that the construction of double valve 19 24 with the ports 15 26 and double-valve seats are provided at the outlet end of each of the drums; but while the steam-inlet to the first drum 6 is controlled by the stop-cock 14 the inlet ends of the other drums 7 8 are controlled by independent stop-cocks 27 28, respectively, having suitable handles 29 30, which may be extended through the floor of the car, so as to be capable of operation from the inside.

At a point in the train-pipe 12, between the stop-cock 14 and the source of supply, which is at the left-hand end of the system, as illustrated in the accompanying drawings, the train-pipe is connected to a branch 31, which leads past the drum 6 to a T 32, or other suitable fitting, which connects it with steam-outlet pipe 17 of the drum 6, and thence to a crossover branch or pipe 33 to a T 34 or other suitable fitting, which connects the train-pipe to the inlet stop-cock 27 of the drum 7 and also to a branch 35, which continues past the drum 7 and connects with a T 36 or other suitable fitting, which places branch 35 in communication with the outlet-pipe 17 of drum 7 and also in communication with a crossover pipe or branch 37, which connects with a T 38 or other suitable fitting, for establishing communication between pipe 37 and inlet-cock 28 of the drum 8 and also with a pipe 39, which extends past drum 8 to the after end thereof, where it is connected with outlet-pipe 17 of drum 8 by a T 40 or other suitable fitting, which is also connected with the main train-pipe 12, leading from the discharge end of the system. The various branches 31, 33, 35, 37, and 39, however, are merely continuations of a single train-pipe deflected from side to side of the car to connect with the different drums.

With the system thus constructed it will be seen that any one of the drums may be utilized in exclusion of the others, for when the valve 19 is closed against its seat 18 the steam can no longer circulate through the drums 6, 7, or 8; but the train-pipe, nevertheless, is not obstructed by the closing of the valve 19,

and consequently any one of the drums beyond the valve 19 which is closed may receive the full supply of steam. The drums 7 and 8 are each provided with the independent inlet-valves 29 and 30, as before explained, and while the drum 6 is not shown as provided with an independent inlet-valve in its inlet 9 the steam may, nevertheless, be entirely shut off from said inlet 9 by means of the stop-cock 14, which prevents the steam from passing into the antipounder, whence it passes into the inlet 9 through the branch 10.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. In a car-heating system, the combination of a train steam-pipe, a continuous water-circulatory pipe, a plurality of steam-drums surrounding said water-pipe at intervals throughout its length on each car and each having a drain leading directly from the lower side of one end and direct connection at both ends with said train steam-pipe, valves arranged in close proximity to the ends of said drums for controlling the said steam connection with the train-pipe at one end of each, and double valves arranged contiguous to the other ends of said drums for controlling the said drain and steam connection with the train-pipe at the other end of each.

2. In a car-heating system, the combination of a train steam-pipe, a continuous water-circulatory pipe, a plurality of steam-drums surrounding said water-pipe at intervals throughout its length on each car and each having a drain leading directly from the lower side of one end and direct connection at both ends with said train steam-pipe, valves arranged in close proximity to the ends of said drums for controlling said steam connection with the train-pipe at one end of each, double valves arranged contiguous to the other ends of said drums for controlling the said drain and steam-pipe connection at the other end of each, an additional steam-drum surrounding said water-pipe at another point and having a drain and a direct connection with said steam-pipe at one end, a double valve controlling the last said drain and direct connection, an antipounder, a pipe connecting said antipounder with the other end of said additional drum, and a valve interposed in the train-pipe between the source of steam-supply and said antipounder.

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