

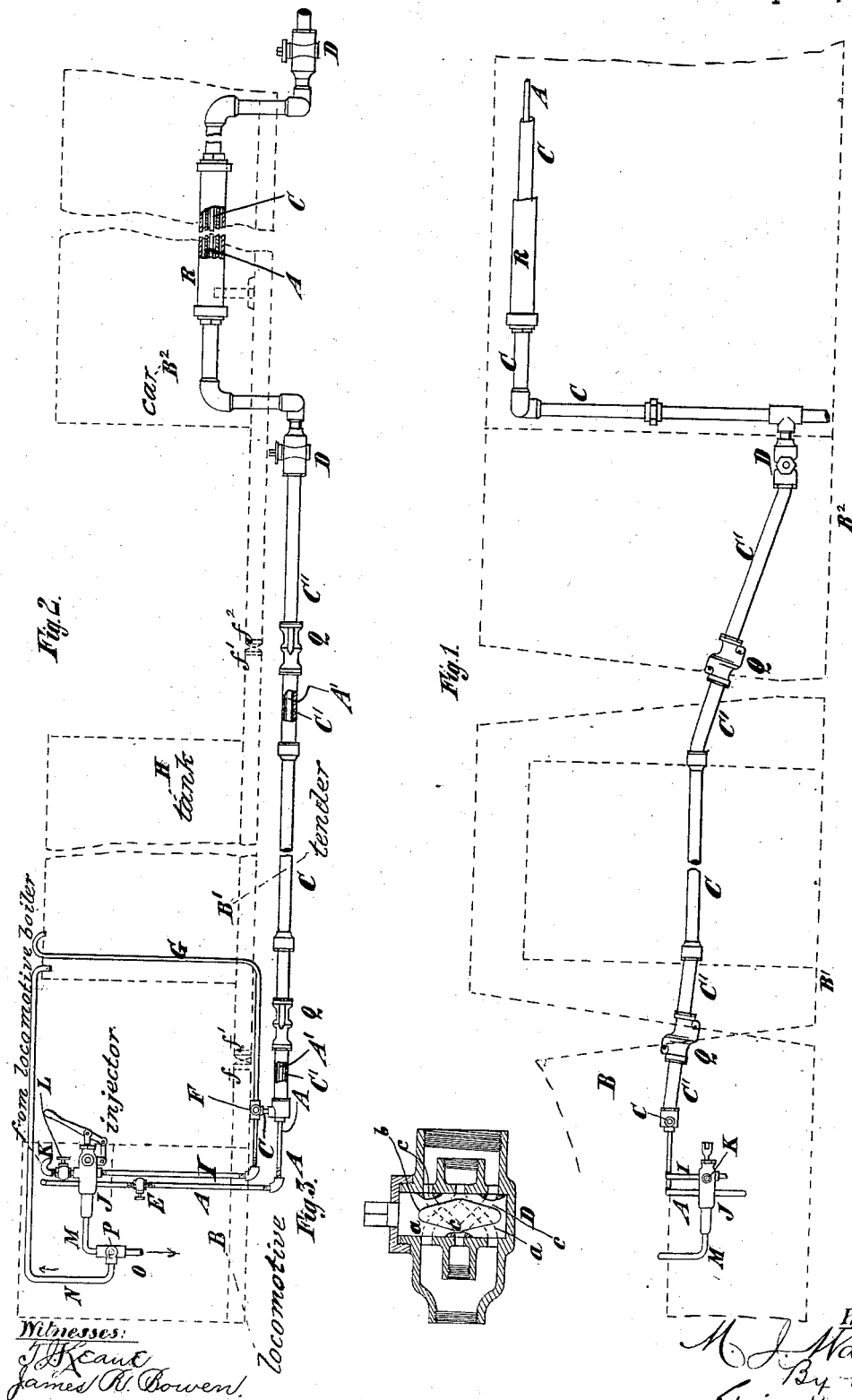
(No Model.)

M. J. WALSH.

# APPARATUS FOR HEATING CARS.

No. 264,050.

Patented Sept. 5, 1882.



# UNITED STATES PATENT OFFICE.

MAURICE J. WALSH, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO LOUIS FITZGERALD, OF SAME PLACE.

## APPARATUS FOR HEATING CARS.

SPECIFICATION forming part of Letters Patent No. 264,050, dated September 5, 1882.

Application filed May 23, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, MAURICE J. WALSH, of New York, in the county and State of New York, have invented a certain new and useful Improvement in Apparatus for Heating Cars, of which the following is a specification.

My improvement relates to apparatus for heating cars, comprising pipes which extend from the boiler of the locomotive through the train, and which return the water of condensation to the said boiler or to the tender-tank.

The improvement consists in certain novel combinations of parts comprised in such an apparatus, and hereinafter fully described.

In the accompanying drawings, Figure 1 is a plan of an apparatus embodying my improvement, a portion of a locomotive-tender and a portion of a car being represented in dotted outline. Fig. 2 is an elevation of the same, and Fig. 3 is a sectional view of a cock employed in the apparatus.

Similar letters of reference designate corresponding parts in all the figures.

A designates a pipe in a locomotive of which I give an arbitrary representation, marked B, the rear end of which is lettered *f*. Similar pipes extend along a tender of which there is an arbitrary representation, B', and along a car of which there is an arbitrary representation, B<sup>2</sup>. The ends of the tender are lettered *f'*, and the front end of the car is lettered *f*<sup>2</sup>.

C designates pipes extending outside the pipes A. Flexible pipes A' C', arranged one within the other, extend beyond the ends of the locomotive tender and car from the sections of the pipes A C, which are respectively located in the locomotive, the tender, and the car. At the ends of the pipes A C, which extend through the car, cocks D are arranged. The plug of each of these cocks has two ports, *a* *c*, which, when the plug is properly turned, will establish communication between the pipes A A' and C C'. The plug also has a port, *b*, which, when the plug is properly turned, may establish communication between the ends of the pipes A C, which are at the rear end of the car, for the purpose of conducting into the latter the contents of the former. The upper

end of the pipe A arranged in the locomotive is intended to communicate with the boiler thereof, and this pipe is provided with a cock, E, whereby the amount of steam passing through it may be regulated. The steam passes along this pipe A through the flexible pipes A' which extend between the locomotive and its tender, thence along the pipe A of the tender, thence along the flexible pipes A' which extend between the tender and the car. The cock D at the front end of the car is turned so that the steam passes through the flexible pipe A' between the tender and car into the outer pipe, C, of the car, through which it passes to the cock D at the rear end thereof. This cock is turned so that the steam passes into the pipe A of the car, whence it passes to the cock D at the front end of the car. From said cock the steam passes through the pipes C', that extend between the car and the tender. Entering the pipe C of the tender, it passes to the flexible pipes C' that extend between the tender and the locomotive, and thence it passes to the pipe C of the locomotive. The pipe C of the locomotive communicates under control of a cock, F, with a pipe, G, which leads to a tank, H, on the tender B'. The cock F is an ordinary three-way cock, and ordinarily it is turned to allow of the contents of the pipe C of the locomotive passing into the pipe G. By the time the steam reaches the pipe C of the locomotive it is condensed into water, and this water flows into the tank H, where it may be utilized for supplying the boiler of the locomotive.

I designates a pipe leading from the cock F to an injector, J, arranged on the locomotive. A pipe, K, leads from the boiler of the locomotive to the injector and supplies it with steam under control of a cock, L. A pipe, M, leads from the injector, and from it leads a branch pipe, N, to the tank H of the tender, and a branch pipe, O, leads to the boiler of the locomotive, a three-way cock, P, being employed to control communication between the pipe M and the branch pipe N, or between said pipe M and the branch pipe O.

When it is desired to draw off any water

formed by condensation of steam in the pipes A A' C C' the three-way cock F is turned so as to cut off communication between the pipe C of the locomotive and the pipe G, which leads to the tank H, and establish communication between the said pipe C and the pipe I, leading to the injector J. The cock L is also turned to permit steam to pass through the pipe K to the injector, and the three-way cock P is manipulated to establish communication between the pipe M and the pipe N, which leads to the tank H of the tender, or with the pipe O, which leads to the boiler of the locomotive. The injector is then rendered operative, whereupon all the water will be drawn out of the pipes A A' C C', either into the tank H or into the boiler of the locomotive, according to the way the cock P is turned. The water, being drawn off the pipes A A' C C', can do no damage therein, as it might do if allowed to remain and freeze. This is important, as owing to the train sometimes stopping on a grade it may often be impossible to drain the pipes by gravity. The flexible pipes A' C' are employed to allow of the motion which necessarily occurs between the different parts of a train. Sections of these pipes are furnished the locomotive, the tender, and the car, and are united by couplings Q, which may be of any suitable construction. The pipes A C of the car preferably extend around within the car close to the side walls, as indicated in

Fig. 1, where but little more than one longitudinal half of a car is represented. The pipes are for a portion of their length surrounded by a jacket, R, containing a mixture of two parts, by weight, of caustic soda, eleven parts of acetic acid, and thirteen parts of water. This compound retains a large amount of heat latent, and gives it off slowly, wherefore it is very desirable in a car-heating apparatus. It is much more desirable when comprising water as an element than if it lacked this element, for it is then much more effective.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with the pipes A A' C C', extending along a train and provided with the cocks D, of the pipes G I, the tank H, cock F, injector or pump J, the pipe K, and a pipe or pipes leading from the injector or pump to the said tank H, all arranged and adapted to operate substantially as specified.

2. The combination, with the pipes A A' C C', extending along a train and provided with cocks D, of the pipes G I, the tank H, cock F, injector or pump J, the pipe K, the pipes M, N, and O, and the valve or cock P, all arranged and adapted to operate substantially as specified.

MAURICE J. WALSH.

Witnesses:

T. J. KEANE,

JAMES R. BOWEN.