No. 740,462. PATENTED OCT. 6, 1903.

T. PARKER.

HEATING APPARATUS FOR RAILWAY CARS.

APPLICATION FILED APR. 1, 1902.

NO MODEL.

Fig. 1.

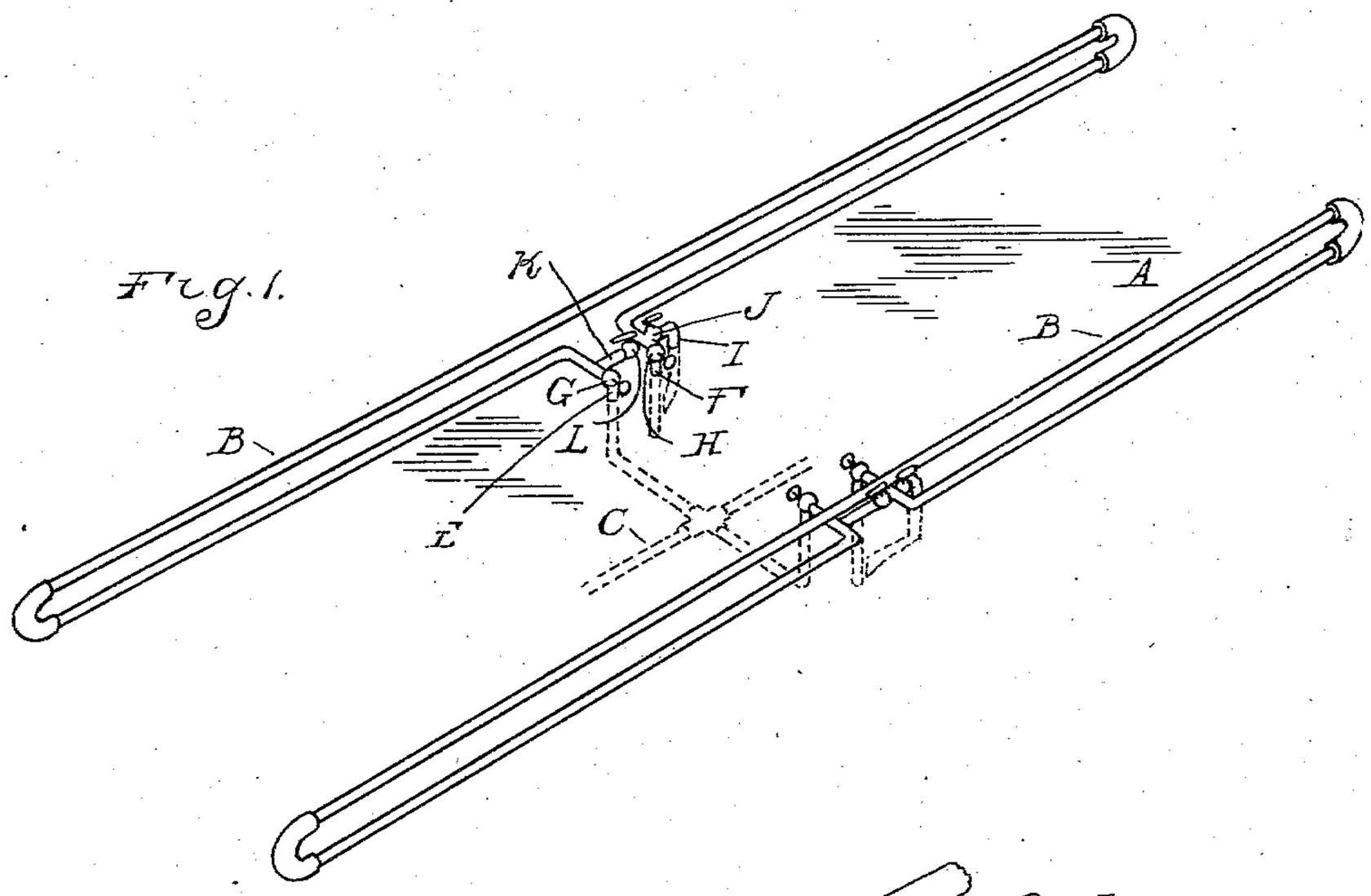


Fig. 2.

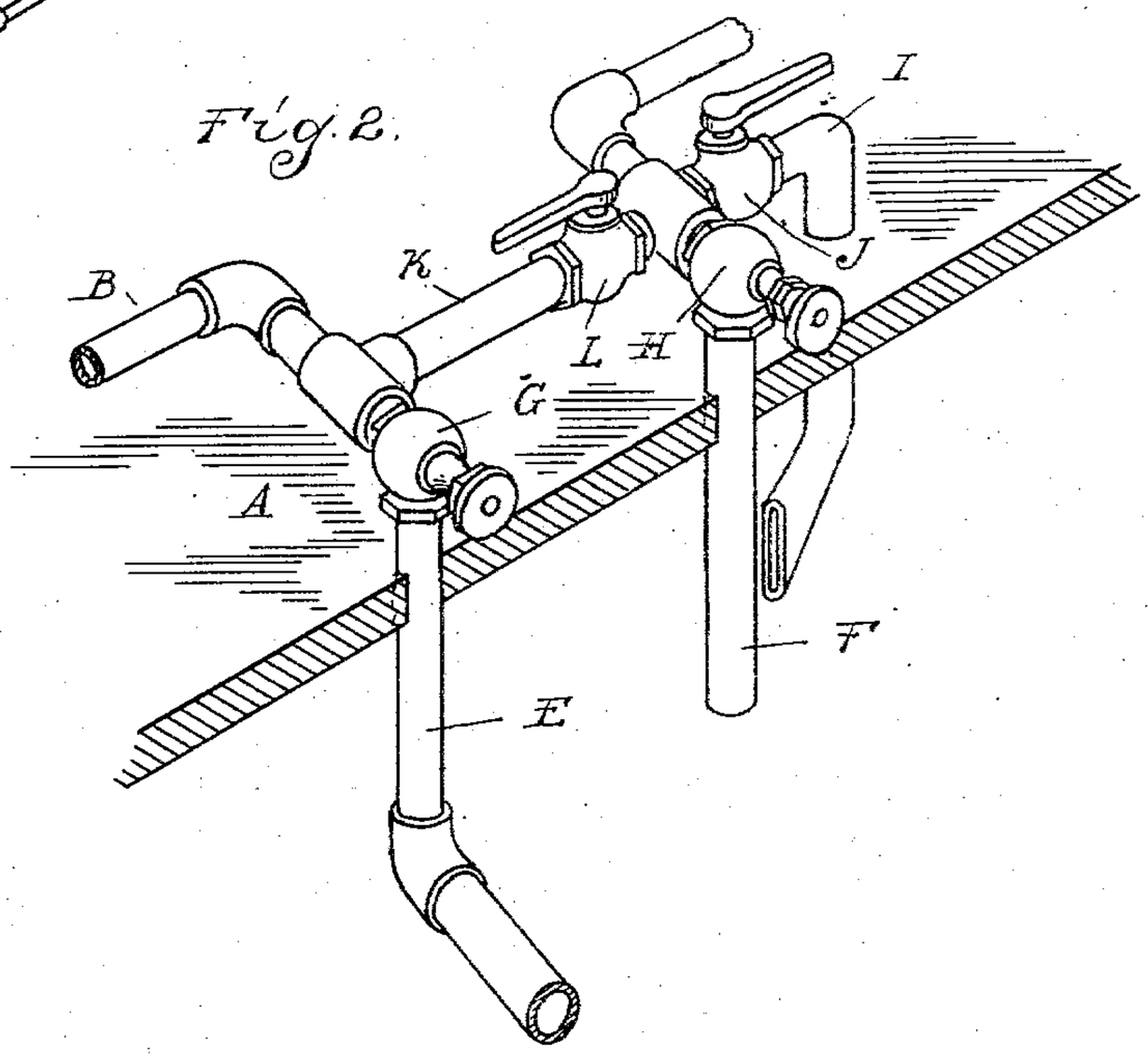
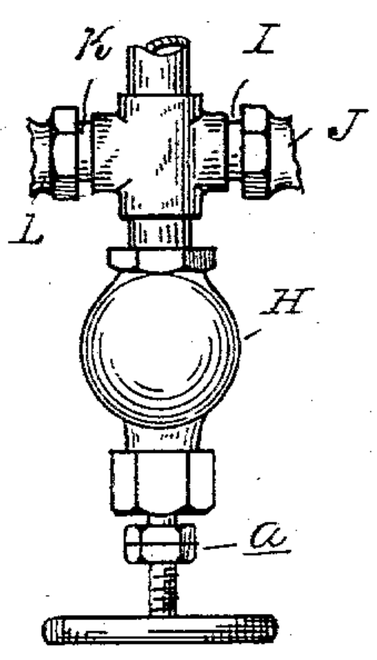


Fig. 3.



Witnesses
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No. 740,462. Patented October 6, 1903.

UNITED STATES PATENT OFFICE.

THOMAS PARKER, OF LONDON, CANADA.

HEATING APPARATUS FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 740,462, dated October 6, 1903.

Application filed April 1, 1902. Serial No. 100,918. (No model.)

To all whom it may concern:

Be it known that I, THOMAS PARKER, a subject of the King of Great Britain, residing at London, Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Heating Apparatus for Railway-Cars, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention has reference to a heating apparatus for railway-cars wherein the water of condensation is adapted to be discharged from the system as rapidly as it is formed. In heating systems of this character, which are the most general in use, the drain or drip pipe in cold weather very frequently freezes, and great difficulty is experienced in again establishing the steam circulation, it being very often necessary to hold the train a considerable period at a station in order to thaw out the pipes.

The object of the present invention is to provide means operable when the drain is frozen and clogged whereby live steam from the train-pipe may be brought directly into contact with the frozen pipe and its valve and the thawing of the latter rapidly effected while the car is in motion.

With this object in view my invention consists in the novel construction of a heating system of the type referred to and in the peculiar arrangement and combination of the various parts thereof, as will be more fully hereinafter set forth, and illustrated in the drawings, in which—

Figure 1 is a perspective view of the heating apparatus, and Fig. 2 is an enlarged sectional perspective view thereof. Fig. 3 is a plan showing the drip-valve.

In the drawings thus briefly described, A represents the floor of the car in which the heating system is installed.

B represents the radiators within the car, comprising, preferably, single coils of pipe arranged one on each side and along the wall of the car.

C designates the main steam-supply pipe, or, as generally termed, the "train-pipe," extending longitudinally beneath the car-floor, as shown.

E represents feed-pipes connecting the train-pipe with the radiators, and F represents the discharge or drain pipes for the coils, extending below the floor in the usual manner.

The system thus far described is of ordinary construction, and the sections of heating apparatus on the opposite sides of the car being identical in construction only one will be described.

The feed and drain or drip pipes are arranged in proximity to each other and are provided with valves G and H, respectively, above the flooring, preferably placed beneath the end of a centrally-located seat in the car in a convenient position for operation.

The reference-letter I designates an auxiliary drain-pipe, which communicates with the main drain-pipe F upon the feed side of and in close proximity to its valve H. The auxiliary pipe is provided with a valve J, located immediately adjacent to the main discharge-pipe, and the lower portion of said auxiliary pipe, which projects below the flooring, as shown, is flattened and bent so as to discharge a jet of steam directly against the main drain-pipe.

In the usual operation of the system the valve G, controlling the feed-pipe, is open, allowing steam from the train-pipe to enter the radiator or coil. The valve H is also partially opened, so that the water of condensation may be continuously discharged. When the freezing takes place, it extends in nearly all cases only to and including the discharge-valve, as by the time it reaches this point the temperature within the car has fallen to such a degree that attention is drawn to the condition of the heating system and steps are taken at once to thaw out the pipes. The operator opens the valve J in the auxiliary pipe and through the agency of said pipe discharges the water of condensation within the coil and in the main discharge-pipe up to its valve. Live steam is thus brought in contact with the frozen valve, and at the same time a jet of steam is discharged against the exterior of the main drain-pipe. The action of the live steam on the pipe, as set forth, very rapidly thaws the latter, and by a subsequent adjustment of the auxiliary valve the steam circulation may be reëstablished.

In some cases—as, for instance, where a car has been standing on a siding—the freezing of the main discharge-pipe may extend beyond its valve to and including a portion of the radiator. I have therefore provided means for thawing the pipes when the auxiliary discharge cannot be used. As shown, the means referred to comprises, preferably, a short cross-pipe K, which is connected at its ends to the feed and discharge pipes of the system at points intermediate the valves in said pipes and the radiator. This cross-pipe is also provided with a valve L, located immediately adjacent to the main drain-pipe and preferably opposite the auxiliary pipe. When the freezing has extended to the radiator, the valve L may be opened and live steam brought into immediate contact with the valves controlling the main and auxiliary drain-pipes and also with the frozen portion of the coil. As soon as the valve J is thawed it may be opened and a jet of steam discharged in the manner described, the live steam acting within and upon the exterior of the main drain-pipe and also upon the ice formed within the coil. This rapidly thaws the parts, and the steam circulation may be again established without the necessity of throwing the car out of service.

It will be obvious from the construction that the cross and auxiliary pipes described form in connection with each other a continuous valve-controlled conduit between the steam-supply and the main drain and that by means of this conduit live steam may be discharged against the main drain-pipe to thaw the latter at any time and regardless of the condition of the radiator, as the conduit is independent of the latter and receives its supply of steam first.

To facilitate the setting of the main drain-valve so that the discharge of the condensation will be properly controlled and loss of steam prevented, I thread a check-nut *a* on the valve-stem. The nut is so adjusted that the operator is merely required to operate the valve until the nut abuts against the casing, when the proper size of opening will be formed for the drain.

While I have shown a particular construction of thawing means, it will be obvious from the description of my invention that various modifications may be made, particularly with relation to the location of the auxiliary and cross pipes, without in any manner departing from the spirit of my invention. While I deem the construction shown preferable in use, I do not desire to be limited to the same, for the reasons set forth.

What I claim as my invention is—

1. In a heating system for cars, the combination with a radiator, of a supply-pipe and a drip-pipe therefor extending below the car-flooring, a valve controlling the drip, and a valve-controlled pipe for establishing a temporary direct communication between said supply and drip pipes.

2. In a heating system for cars, the combination with a radiator, of a supply-pipe and a main drain-pipe therefor extending below the car-flooring, a valve for said drain-pipe operable from above the flooring, a valve-controlled auxiliary drain-pipe communicating with the main drain-pipe, and a valve-controlled pipe providing communication between said supply and main drain pipes.

3. In a heating system for cars, the combination with a supply-pipe, of a radiator with which said pipe communicates, a valve-controlled drain-pipe for the radiator extending below the car-flooring, and a valve-controlled conduit, independent of the radiator, communicating with the supply-pipe and leading therefrom to and adapted to discharge against the drain-pipe.

4. In a heating system for cars, the combination with a radiator, of a feed and a discharge pipe therefor arranged in proximity to each other and extending below the car-flooring, a valve for each pipe located above the flooring, a valve-controlled auxiliary drain-pipe communicating with the discharge-pipe upon the feed side of its valve, and a valve-controlled cross-pipe connecting said feed and discharge pipes and communicating with the latter at a point intermediate of its valve and the radiator.

5. In a heating system for cars, the combination with a supply-pipe, of a radiator with which said pipe communicates, a valve-controlled drain-pipe for the radiator extending below the car-flooring, a valve-controlled auxiliary drain-pipe, having its discharge end extending in operative relation to the main drain below the floor, and a valve-controlled conduit establishing direct communication between said supply-pipe and the auxiliary drain.

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

THOMAS PARKER.

Witnesses:

L. J. WHITTEMORE,

H. C. SMITH.