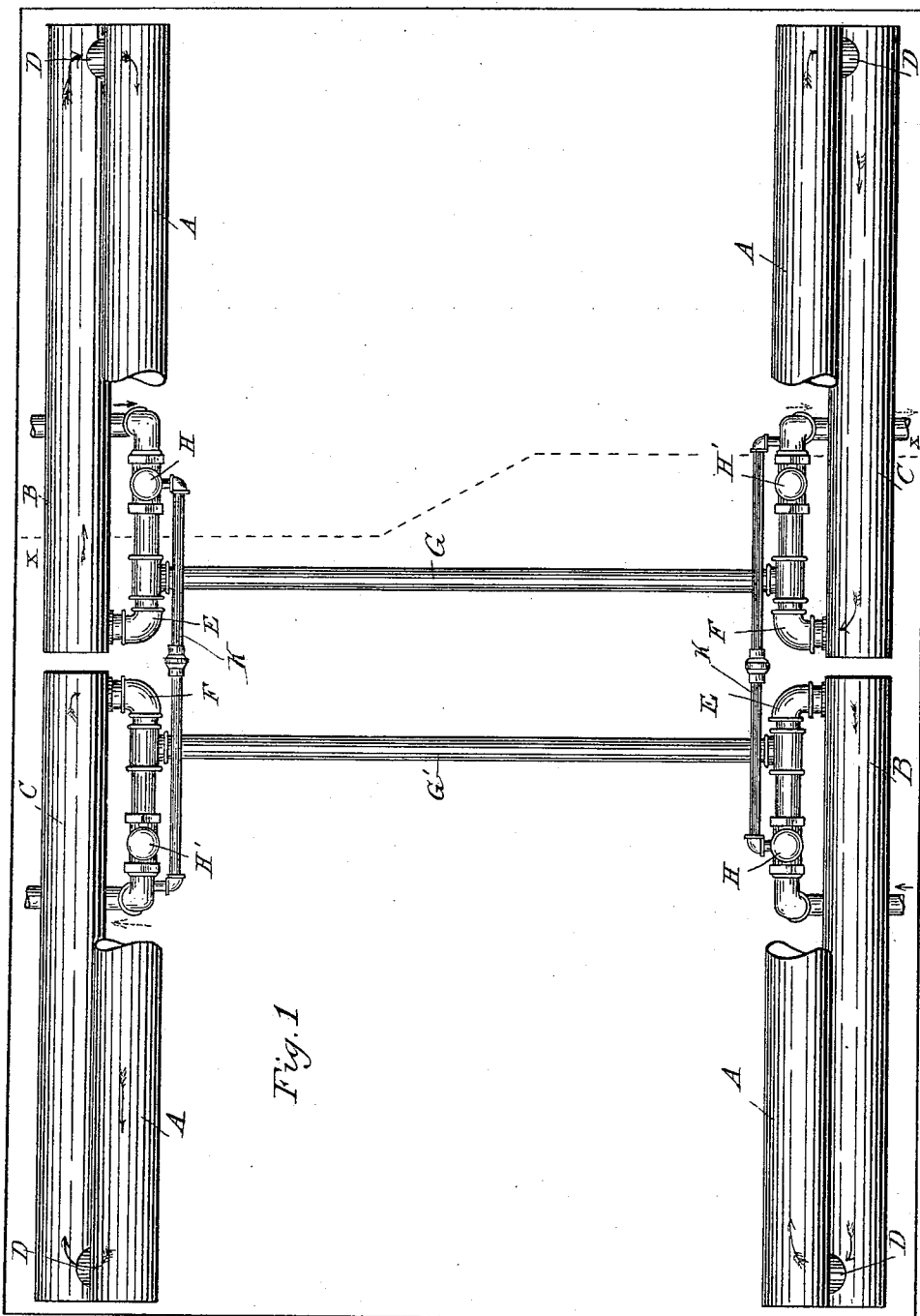


J. F. McELROY.
STREET CAR HEATING APPARATUS.

No. 471,316.

Patented Mar. 22, 1892.



Witnesses
A. Lindop.
M. J. Fogarty.

Inventor:
James F. McElroy
by M. Sprague & Son
Attys.

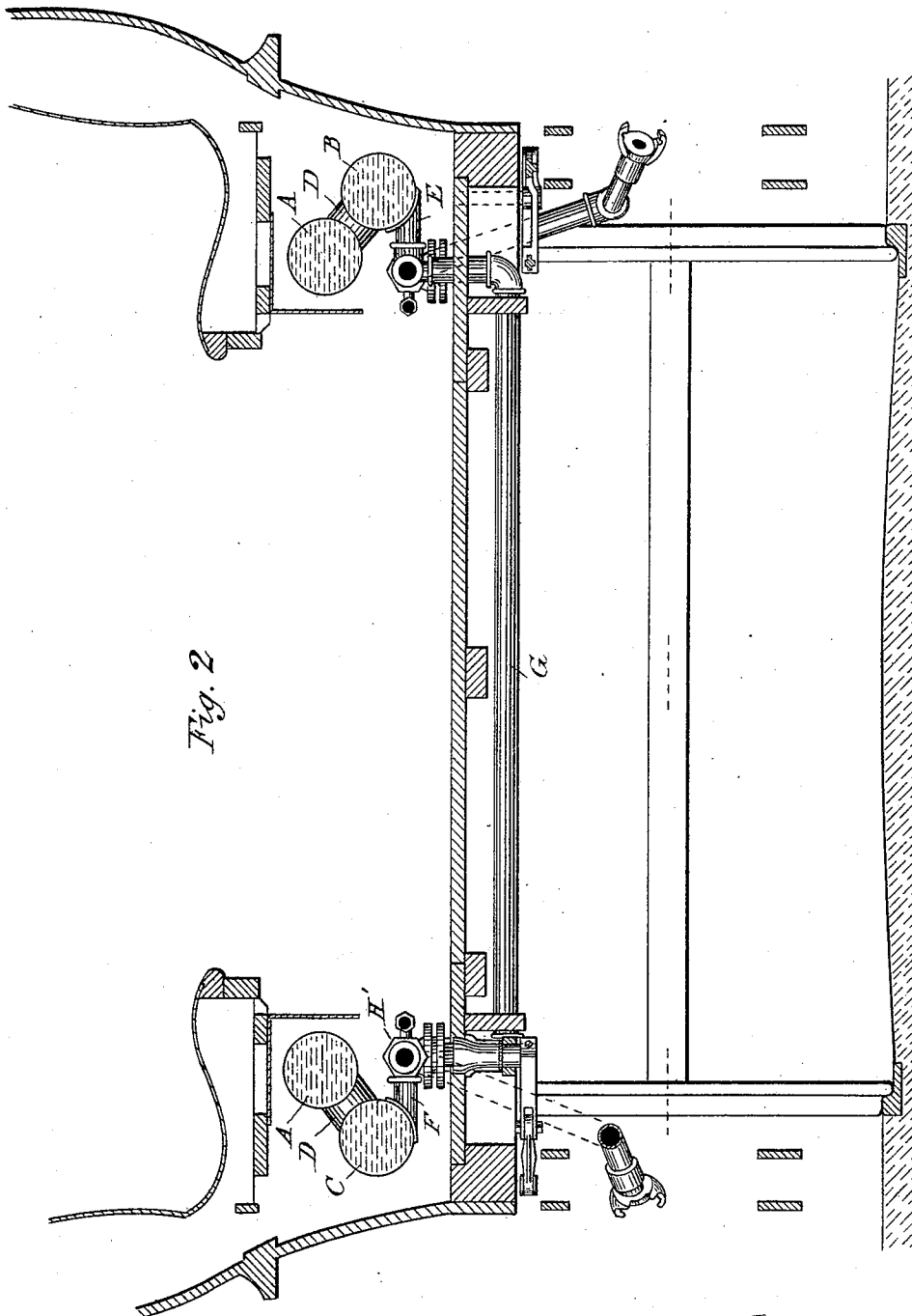
(No Model.)

2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

JAMES F. McELROY, OF ALBANY, NEW YORK, ASSIGNOR TO THE CONSOLIDATED CAR HEATING COMPANY, OF WHEELING, WEST VIRGINIA.

STREET-CAR-HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 471,316, dated March 22, 1892.

Application filed June 4, 1891. Serial No. 395,138. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. McELROY, a citizen of the United States, residing at Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Street-Car-Heating Apparatus, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to new and useful improvements in street-car-heating apparatus; and it relates to that class of heaters known as "storage-heaters," in which the heating-fluid is charged into tanks on the car and is renewed at intervals.

The invention consists in the peculiar construction and arrangement of the tanks and the connections, all as more fully hereinafter described.

20 In the drawings, Figure 1 is a plan view of my heating apparatus. Fig. 2 is a cross-section through a car and through the heating apparatus thereof on line X X in Fig. 1.

The radiator or storage-tank upon each side of the car consists of an open loop formed by an upper tank A, extending the entire length of the heating apparatus, and the two lower tanks B and C extend from the outer ends of the upper tank to near the middle thereof.

30 The upper and lower tanks are connected together at their outer ends by means of the connecting-pipes D. At the lower end of the pipe B is an inlet-pipe E. At the lower end of the tank C is an exit-pipe F, these parts

35 being alike upon both sides of the car. The pipes E and F, upon opposite sides of the car, are connected together by the cross-connecting pipes G G'. The pipes E and F are provided beyond the cross-connection pipes with suitable valves H H', which control the fluid through these pipes, which may be provided at their lower ends with suitable couplings to attach the supply and exit pipes to the heater. (Not shown.) The connection being made to the heater, the valves H and H' being open to fill the tanks, the inlet-pipe is supplied with hot water, while the cold water is drawn out through the exit-pipe. This may be done

by forcing the hot water in or drawing the cold water out. I preferably employ the latter course. The suction on the pipe F will draw the water from the tank C upon both sides of the car simultaneously and the incoming hot water will pass into the tanks B upon both sides of the car, flowing through the lower tanks B, the connecting-pipes D into the upper tank A through the entire length of that tank, out through the connecting-pipe D into the lower tank C, thus filling the entire system. By arranging the valves in the inlet and outlet pipes E and F outside of the cross-connecting pipes G G', I am enabled to place my coupling-pipes upon both sides of the car, so that no matter which side is presented to the supply and discharge pipes in the street or at the station I can fill the tanks from a single connection.

K K are by-pass pipes communicating with the inlet-pipes through the three-way valve H and crossing over to and communicating with the outlet-pipes beyond the valves H', so that by turning the three-way valves the heating medium is cut off from the radiators and carried through the by-pass pipes to the discharge-pipes, so that the heating medium, which has become cold in the conduit-pipes leading from the station, may be circulated without passing the same into the radiators, which would necessarily cool or chill the same. This construction I fully describe in my application, Serial No. 396,408, filed June 15, 1891.

What I claim as my invention is—

1. In a car-heating system, the combination of storage-radiators arranged on each side of the car, consisting, respectively, of upper and lower tanks connected at their outer ends, exit and inlet pipes at the inner ends of the lower tanks, cross-connections between the exit and inlet pipes of the respective radiators, and valves controlling the inlet and exit pipes outside the cross-connections, substantially as described.

2. In a car-heating system, storage-radiators on each side of the car, each consisting of an upper tank and two lower tanks con-

nected at their outer ends to the upper tank,
exit and inlet pipes at the inner ends of
the lower tanks, respectively, cross-connec-
tions between the exit and inlet pipes on op-
5 pposite sides of the car, and valves controlling
the inlet and exit pipes outside the cross-con-
nections, substantially as described.

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

JAMES F. McELROY.

Witnesses:

EDWIN A. SMITH,
JOHN B. BRAIDWOOD.