(No Model.)

G. F. HIGGINS.

CAR HEATER.

No. 373,185. Patented Nov. 15, 1887.

Fig. 1.

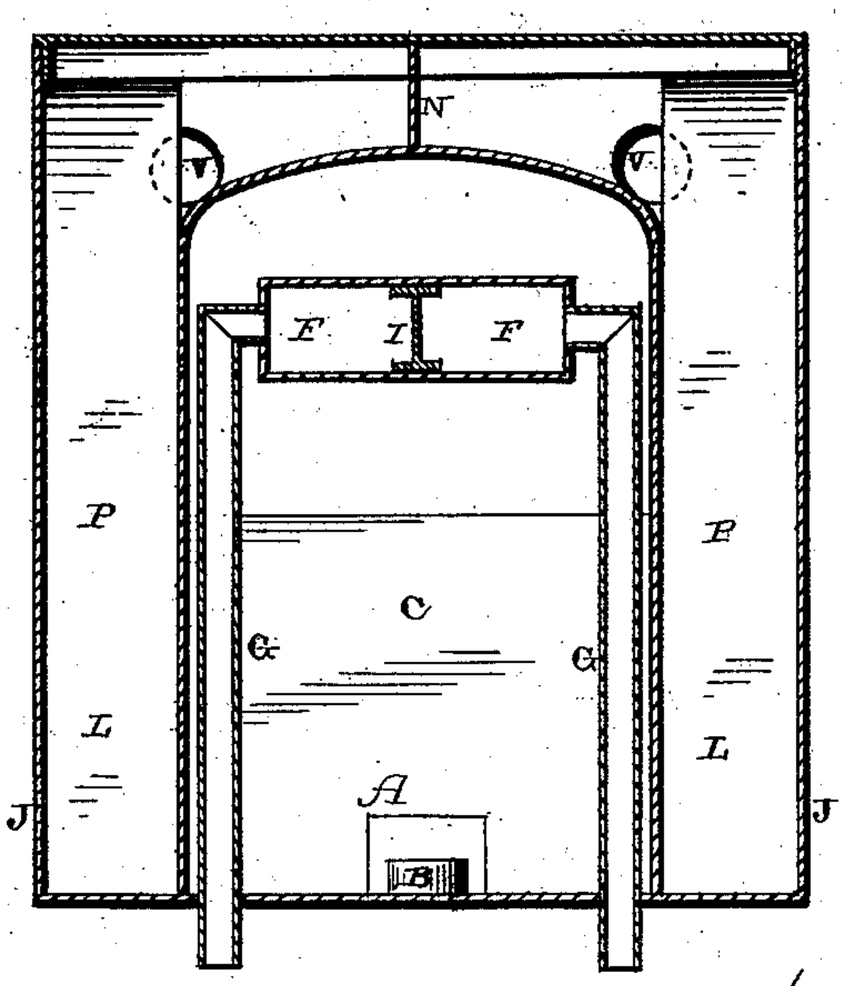


Fig. 2.

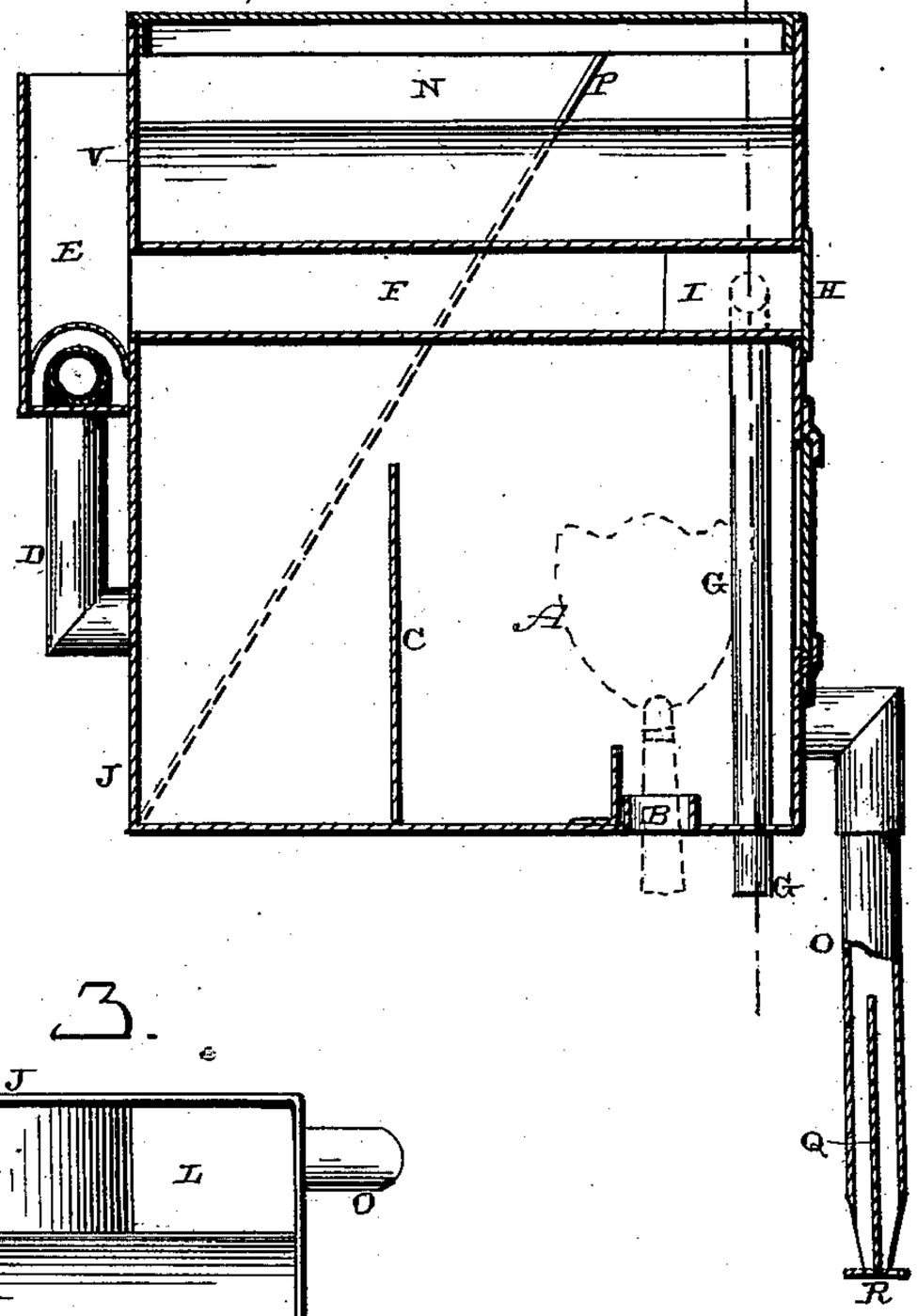
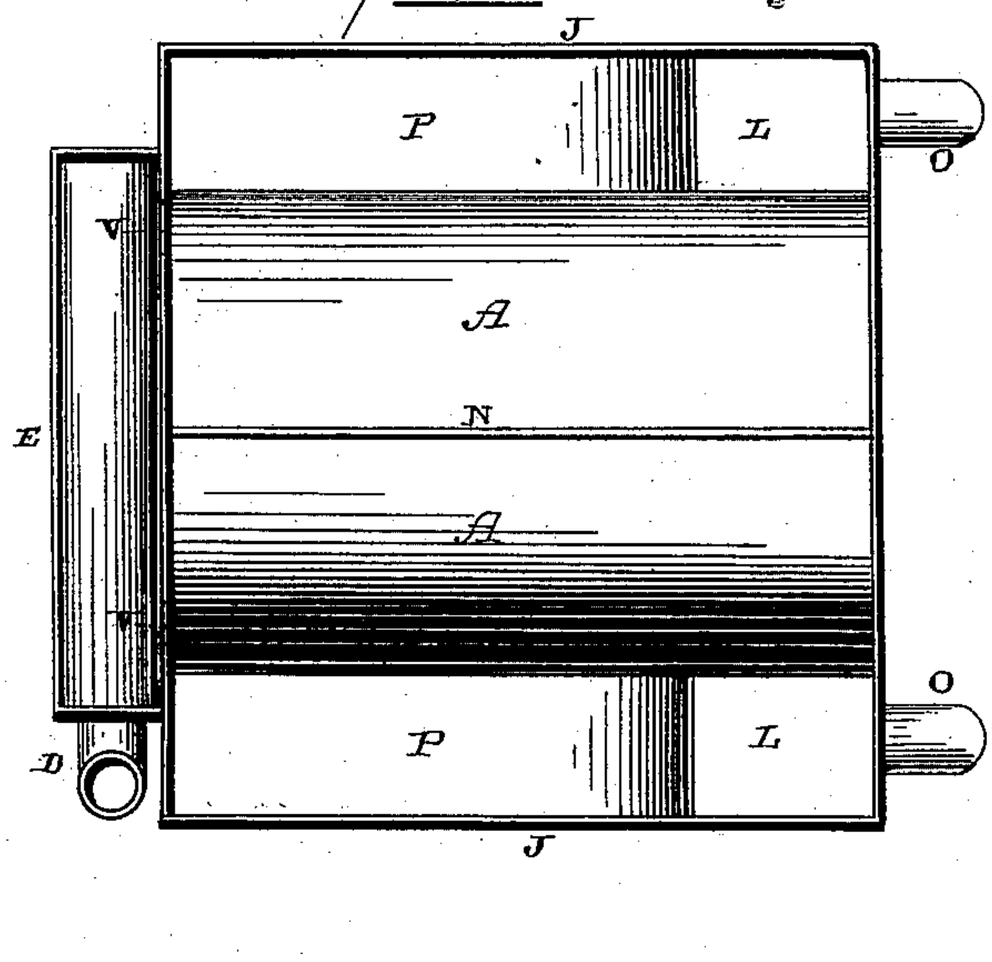


Fig. 3.



Witnesses.
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Edm. P. Ellis.

Inventor.
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UNITED STATES PATENT OFFICE.

GEORGE FRANKLIN HIGGINS, OF CHICAGO, ILLINOIS.

CAR-HEATER.

SPECIFICATION forming part of Letters Patent No. 373,185, dated November 15, 1887.

Application filed May 13, 1887. Serial No. 238,054. (No model.)

To all whom it may concern:

Be it known that I, GEORGE FRANKLIN HIGGINS, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Heaters; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in car-heaters; and it consists in a heater designed for use in cars, and which is to be heated by gas, and which is provided with air-chambers, into which fresh air is taken, heated, and then discharged into the register-box, as will be more fully described hereinafter.

The object of my invention is to produce a heater for cars in which gas is burned for the purpose of heating the air which is introduced into the car, and to produce a substitute for the ordinary stoves which are the source of so much danger in case of an accident to the cars.

Figure 1 represents a vertical cross-section of a heater embodying my invention. Fig. 2 is a vertical section taken at right angles to Fig. 1. Fig. 3 is a plan view, the top of the case being removed.

A represents the fire-chamber, which has an opening, B, through its bottom, for the introduction of the pipe which conducts the gas which is to be burned. At a suitable distance in the rear of the burner is placed a partition, C, which rises to any suitable height in the combustion-chamber, and prevents the products of combustion from escaping too freely through the pipe D, which leads from the rear end of the combustion-chamber. This pipe D projects upward at a suitable angle, and then passes horizontally through the bottom of the register-box E, and thence up through the top of the car. Placed in the top of the combustion-chamber is the hot-air chamber F, into which fresh air is conducted by means of the two pipes G, which pass up through the bottom of the car and through the combustion-chamber, and have their upper ends connected to opposite sides of the hot-air chamber F. The cover H for the mouth of the hot-air chamber is provided with a vertical flange or partition, I, which extends any suitable distance inward into the chamber, for the purpose of preventing the two currents of air from the pipes G from mingling together when they first enter the chamber. After the two currents of air introduced by the pipes G into the hot-air chamber F have once started backward, they will continue to move toward the register-box, and thus are prevented from interfering with each other in any manner, or from entering one pipe and passing down into the other. The air in the hot-air chamber F is discharged directly into the box E and rises upward into the car.

The fire-chamber A does not extend entirely across the inclosing frame or case J, and thus there is left a space or air-chamber, L, upon each side thereof. These two chambers L are separated from each other by means of a vertical partition, N, which extends along the top of the fire-chamber A and reaches up to the top of the inclosing-frame. To prevent the currents of air, which are introduced into the front ends of these chambers L through the pipes O, which pass up through the car, from passing too rapidly through the chambers, there are placed in the chambers the inclined partitions P, which serve to deflect the rising currents of air upward toward the top of the frame, and thus compel them to pass along over the top of the hot-air chamber in its passage toward the openings V, through which the air escapes into the register-box. The air which is introduced into these side chambers, L, is brought in contact with opposite sides of the fire-box, and hence is heated as it rises to the top of the inclosing-frame. In the bottom of the register-chamber is placed a false bottom, so as to cover the top of the pipe D, which passes through it.

The lower ends of the pipes extend through the bottom of the car, and are provided with vertical partitions Q, which extend any suitable distance upward in them, and with the bottom pieces, R, to which the lower ends of the partitions are fastened. The ends of the pipes are cut away upon opposite sides, so as to form an air-opening upon each side of each partition, and thus insure a current of air passing upward into the pipe no matter in

which direction the car is moving. This construction prevents a downward suction of air when the cars are in rapid motion.

Having thus described my invention, I claim—

1. In a car-heater, the combination of the fire-chamber, provided with a partition, C, and a pipe for carrying off the products of combustion, with a hot-air chamber located in the fire-chamber and provided with an opening for the escape of the hot air, the air-pipes, which conduct fresh air to this chamber, and the cover H, provided with a partition for separating the currents of air and located at the junction of the pipes leading to the inner hot-air chamber, substantially as shown.

2. The combination of the fire-chamber, the hot-air chamber, located in the fire-chamber and provided with an opening for the escape of the hot air, the pipes which extend up through the bottom of the car and introduce fresh air into the hot-air chamber, and the side chambers, L, arranged on opposite sides of the fire-chamber and provided with openings for the escape of the hot air, and having the inclined partitions and a vertical partition, N, which separates the two chambers, substantially as described.

3. A car-heater composed of the combustion-chamber provided with a vertical partition, the hot-air chamber placed in the top of the combustion-chamber, the pipes which introduce fresh air into this chamber, the side chambers, the vertical partition which separates the side chambers, the inclined partitions placed in the side chambers, and the register-box, substantially as set forth.

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

GEORGE FRANKLIN HIGGINS.

Witnesses:
H. A. HIGGINS,
H. E. FINCH.