

UNITED STATES PATENT OFFICE.

SAMUEL EDWARDS, OF COPENHAGEN, DENMARK, ASSIGNOR OF ONE-HALF
HIS RIGHT TO C. F. W. PETERSON, OF SAME PLACE.

IMPROVEMENT IN APPARATUS FOR LIGHTING AND HEATING RAILWAY-CARRIAGES.

Specification forming part of Letters Patent No. **150,010**, dated April 21, 1874; application filed
March 13, 1874.

To all whom it may concern:

Be it known that I, SAMUEL EDWARDS, of Copenhagen, in the Kingdom of Denmark, have invented an Improved Apparatus for Lighting and Heating Railway-Carriages, &c., of which the following is a specification:

This invention relates to an apparatus for lighting and heating by means of gas generated from hydrocarbon or other oils; and it consists in the combination of an oil tank or reservoir, a coil of pipe, a gasometer or receiver, and a series of burners, for purposes of illumination; and, further, in the combination of the gasometer, and a burner or burners with a water tank or reservoir, and supply-pipes for purposes of heating.

The accompanying drawing represents a side elevation, partly in section, of my improved lighting and heating apparatus.

The oil tank or reservoir B is preferably made of metal, and may be of any suitable form and dimensions, according to the shape and size of the car or apartment in which it is placed. It is provided with a feed-tube, *b*, by which it may be supplied with oil. From the upper portion of the tank B extends a pipe, C, which may have any desired number of coils, *c*, and which, after traversing the required distance, preferably in an upright position, returns and communicates with the tank. At a suitable point above the top of the tank a pipe, D, extends from the pipe C to a gasometer or gas-receiver, E, which may be of any ordinary suitable construction, and from which extends downward a pipe, G, having on its lower end a branch pipe, H, provided with a burner, *h*, at each end, surrounded by a cup, *f*, for holding oil. Below the gasometer a pipe, J, extends from the pipe G for the purpose of supplying gas for illuminating purposes. One of the burners *h* is located under the oil tank or reservoir B, and the other is located under a water tank or reservoir, K, which is constructed with a view to obtaining as large a heating-surface as possible, and is

provided with a supply-pipe, L, which conveys the water to distant parts of the car or apartment, and communicates with a return-pipe M. There may be any desired number of burners under the water-tank, according to its dimensions and the extent of pipe communicating with it.

When the apparatus is first started, the cups *f* are filled with oil, or with sponge or fibrous material saturated with oil, which is then ignited. The oil-tank B being supplied with oil, and the water-reservoir K supplied with water, gas is generated in the tank B, rising through the pipe C and passing through the pipe D to the gasometer or receiver E, the heavier oils descending through the pipe C and again entering the tank B. The gas leaves the receiver E by the pipe G, and is supplied for illuminating purposes through the pipe J, and, continuing downward, supplies the pipe H and burners *h h*, so that the use of the cups may be dispensed with.

The water in the tank or reservoir K is heated by the burner or burners under it, and is carried by the pipe L to any desired part of the car or apartment for the purpose of warming the same, returning by the return-pipe M, and thus being kept in circulation.

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

The combination of the oil tank or reservoir B, the coil of pipe C *c*, the gasometer or gas receiver E, and a series of burners, for purposes of illumination and heating, substantially as shown and described.

In testimony whereof I have hereunto signed my name before two subscribing witnesses this (6th) sixth day of January, 1874.

S. EDWARDS. [L. S.]

Witnesses:

JNO. R. CRIDLAND,
Copenhagen, Denmark.
JHN. CARDIKE,
Copenhagen.