(No Model.)

W. C. BAKER.

HEATING APPARATUS FOR CARS OR BUILDINGS.

No. 476,972. Patented June 14, 1892.

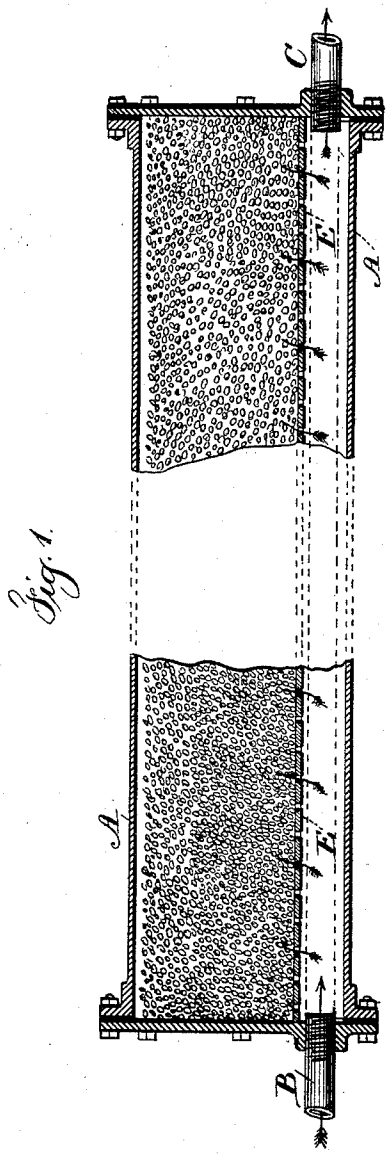

Fig. 1.

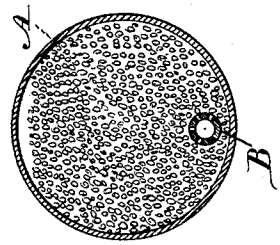

Fig. 3.

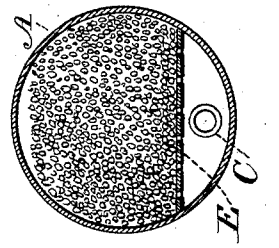

Fig. 2.

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UNITED STATES PATENT OFFICE.

WILLIAM C. BAKER, OF NEW YORK, N. Y.

HEATING APPARATUS FOR CARS OR BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 476,972, dated June 14, 1892.

Application filed July 27, 1891. Serial No. 400,833. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. BAKER, a citizen of the United States, residing in the city and State of New York, have invented an Improvement in Heating Apparatus for Railway-Cars or Buildings, of which the following is a specification.

In Letters Patent No. 209,793, granted to me November 12, 1878, there is a steam-pipe passing through a case, which case holds sand or similar material around the steam-pipe. Hence when steam is admitted through the pipe the sand receives the heat and gives the same off gradually, so as to prevent injury to the person or clothing in a car from direct contact with the steam-pipe, and the sand retains the heat, so that the car is not liable to sudden fluctuations of temperature. In this and similar instances the heat is conducted through the steam-pipe and by the sand or other materials in contact with the same, and such heat is radiated gradually.

My present invention is made with special reference to the reception of heat periodically and to the radiation of such heat gradually. In my apparatus the case or cases are made to contain pebbles of greater or less diameter or pieces of similar material, and the steam is caused to blow directly through the cases and in between the pebbles or similar articles, thereby coming into direct contact with the same and heating them up with great rapidity, the object being to apply heat during the time that the car may remain stationary at the end of the route or at such intermediate stations as may be arranged for. Thereby the source of heat is not required to be carried upon the car, and the steam passing in directly between the pebbles or pieces of similar material drives out the air before it and brings the highly-heated steam into direct contact with such particles of matter, so that the heating may be effected with great rapidity. Hot water or hot air may be forced in instead of steam, the object and mode of operation being the same.

In the drawings, Figure 1 is a vertical longitudinal section showing the end portions of an apparatus made according to the present invention, and Figs. 2 and 3 are cross-sections illustrative of the mode of construction.

The case A is to be of suitable size and length. For street-cars such case will usually extend from end to end beneath the seat at each side of the car, and to one end of the case a steam-supply pipe B is connected, and at the other end the pipe C may allow the steam to escape or pass onto the next car, or there may be an automatic or other air valve or cock by which the escape of steam is either prevented or regulated, and this case A should be constructed with reference to withstanding whatever degree of heat or pressure is to be employed in the steam or other heating fluid.

Where the pebbles or pieces of material—such as quartz, stone chips, pieces of glass, or analogous material—are sufficiently large, they may entirely fill the case, so that the steam will pass through the interstices between the pieces; but usually it is preferable to introduce a screen or grating at E, so that a steam-space is provided between the same and the bottom of the vessel A, as indicated in Figs. 1 and 2, or the steam-supply pipe may be of the desired length within the case, as shown by dotted lines in Fig. 1, and perforated with numerous holes of a proper size for the free escape of the steam between such material, as indicated in Fig. 3. In either instance the steam passing in rapidly heats up all the materials by direct contact with the same, and any atmosphere or gases that there may be between the particles or pebbles will be driven out in front of the steam through the exit-pipe, and, if desired, any character of automatic air-valve may be employed at the exit-pipe to close the same as soon as the steam heat reaches and expands the parts of such automatic valve, or the connections may be made in such a manner that the steam may blow through the apparatus from one end of the train to the other.

The coupling connections between one car and the other may be of any desired character where there are a number of cars in the train, or, where desired, separate connections may be made use of to supply steam to each car, and the radiators, constructed as aforesaid, may be located beneath the seats or car-body or in any convenient positions, according to the character of the car.

I am aware that in steam apparatus a case

has been used with pieces of lead or other material directly around the perforated inlet-pipes, so that noise will be prevented. This device, however, was not a radiator adapted to the storage of heat. In my aforesaid patent the heat was stored; but the steam did not come into direct contact with the pebbles or similar substances.

I claim as my invention—

1. The combination of a radiator-case having a perforated conduit extending through the lower portion of the same, and heat-absorbing material inclosed by the case and excluded from the conduit by the perforated bottom thereof, so that a clear passage for steam within the conduit is afforded, substantially as set forth.

2. The combination, in a radiator, of a case containing pebbles or similar substances, a perforated grating supporting such pebbles and leaving a space in the case below the grating, a steam-supply pipe opening into such space, and a pipe for the discharge of air and the water of condensation, substantially as specified.

3. The combination, in a radiator, of a horizontal case containing pebbles or similar substances, a perforated grating supporting such pebbles and leaving a space in the bottom part of the case below the grating, a steam-supply pipe opening into such space at one end, and a pipe at the other end for the discharge of air and the water of condensation, substantially as specified.

Signed by me this 23d day of July, 1891.

W. C. BAKER.

Witnesses:
GEO. T. PINCKNEY,
WILLIAM G. MOTT.