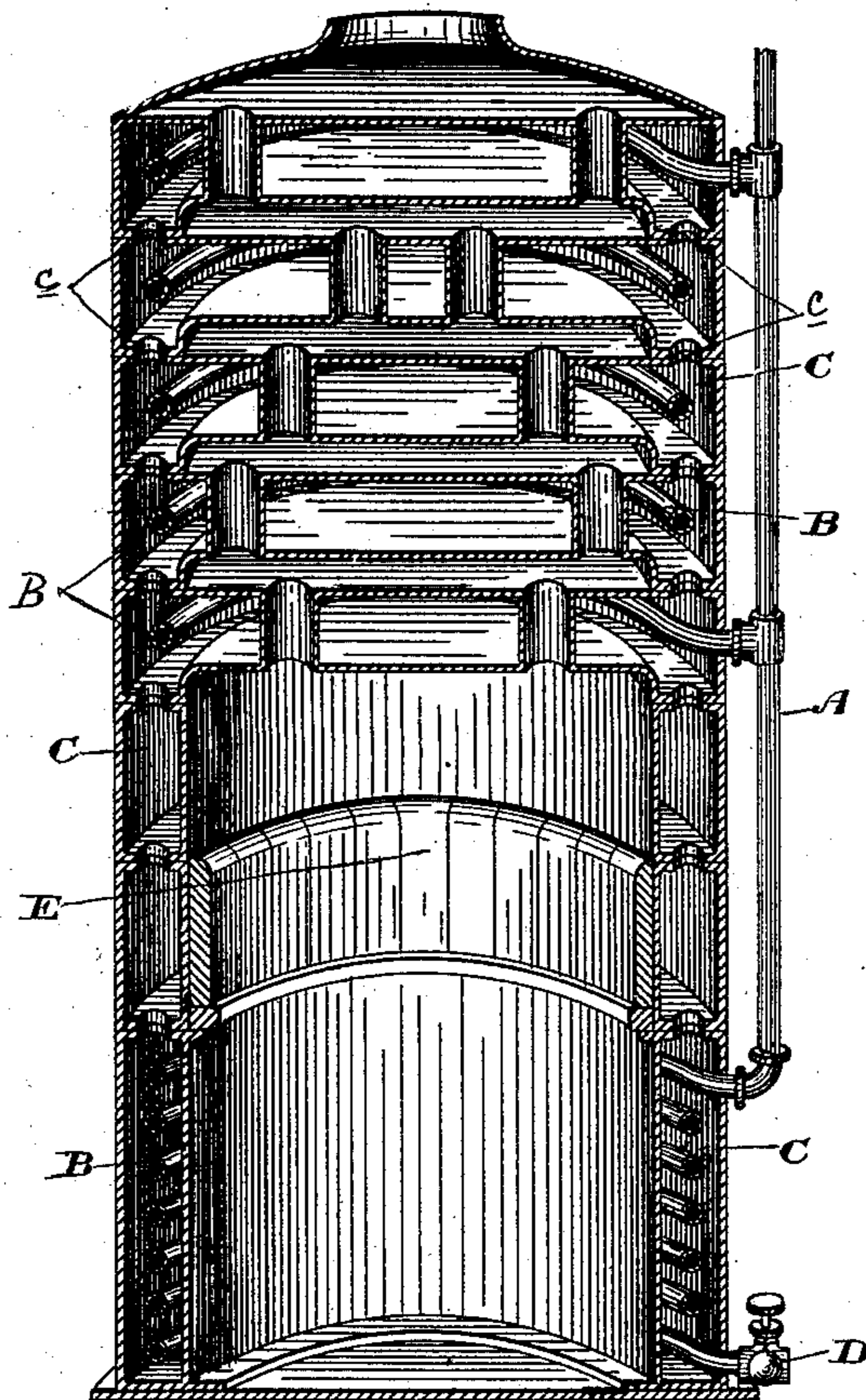


(No Model.)

E. GURNEY.
HEATER.

No. 389,459.

Patented Sept. 11, 1888.



Witnesses.

H. B. Hustonbaugh

J. M. Jackson

Inventor.

Edward Gurney

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Attys

UNITED STATES PATENT OFFICE.

EDWARD GURNEY, OF TORONTO, ONTARIO, CANADA.

HEATER.

SPECIFICATION forming part of Letters Patent No. 389,459, dated September 11, 1888.

Application filed March 17, 1888. Serial No. 267,501. (No model.)

To all whom it may concern:

Be it known that I, EDWARD GURNEY, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, manufacturer,
5 have invented a certain new and useful Improvement in Heaters, of which the following is a specification.

The object of the invention is to produce a hot-water heater in which the water may be
10 heated either by heat produced by fire in its fire-pot or by steam-heated pipes introduced into the water-spaces of the heater; and it consists of a hot-water heater in which a coil or coils of piping is introduced into the water
15 space or spaces of the heater, the whole being arranged substantially as and for the purpose hereinafter specified.

The figure is a sectional elevation of a hot-water heater constructed in accordance with
20 my invention.

The original object of my invention was to produce a hot-water heater for railroad-cars which would utilize the exhaust-steam from the locomotive for the purpose of heating the
25 water in the heater without in any way interfering with the fire-pot or effectiveness of the heater as an ordinary hot-water heater, so that should the supply of steam be accidentally cut off the fire might be immediately started in the
30 fire-pot and the furnace used in the ordinary way.

On examination of my invention it will be understood that a heater provided with my improvements may be used in any place where
35 exhaust-steam can be secured.

In the drawing, A represents a steam-pipe, and B coils of pipe inserted in each water-compartment C, and all connected with the vertical steam-pipe A, which extends to a point below the fire-pot grate, where it enters the water-space formed around the ash-pit, and is coiled therein, as shown, the steam in the pipe passing out through the cock D. The upper

portion of the steam-pipe A will of course be also provided with a suitable cock, so that the
45 supply of steam may be cut off when desired, or the pipe closed should the steam be cut off. Each water-compartment C is connected to the one above it by openings *c*.

It will be noticed that the ordinary fire pot,
50 E, remains in position and is always ready for use, and in applying my device I prefer to have all the water-spaces connected together, so as to insure perfect circulation.

From this description it will be seen that the
55 introduction of the pipes B will have no effect upon the satisfactory working of the furnace should it be necessary or desirable to utilize its ordinary fire-pot. Consequently by the introduction of my invention the exhaust-steam
60 of the locomotive may be used for warming the cars of a train, and should the supply of steam be accidentally or intentionally cut off the heater may be used in the ordinary way.

I do not herein claim a heater, a circulating
65 system in operative contact therewith, and a steam or other heater also in operative contact with the circulating system, as that is not my invention.

What I claim as my invention is—

A hot-water heater provided with an ordinary fire-pot and consisting of a series of water-compartments having their water-spaces all connected together, in combination with
70 pipes arranged within the water-spaces, substantially as described, whereby the steam may be introduced into the pipes and pass through the water while in said pipes for the purpose of heating the water by contact with said pipes, as set forth.

Toronto, March 10, 1888.

EDWARD GURNEY.

In presence of—

CHARLES C. BALDWIN,
DONALD C. RIDOUT.