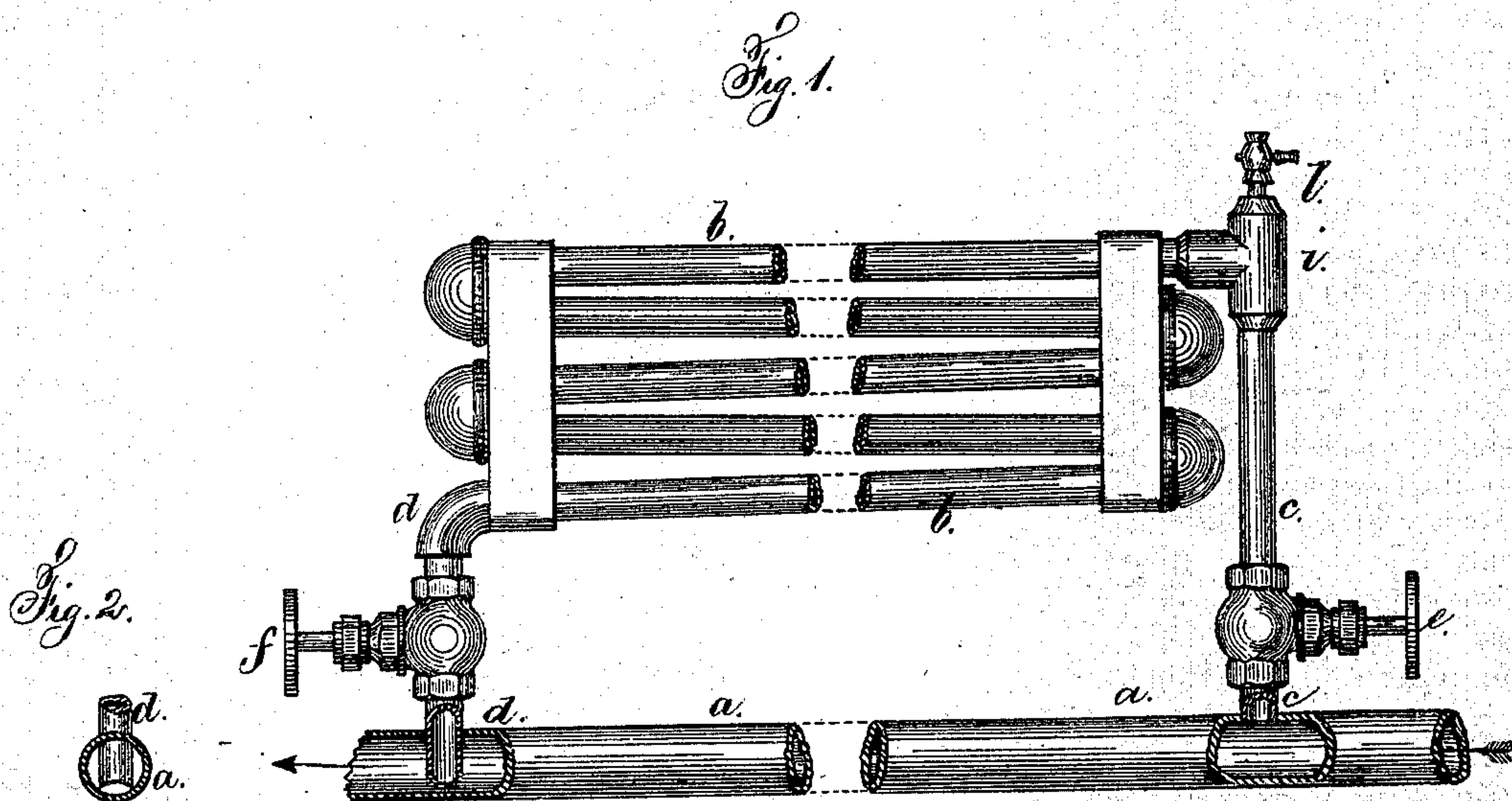


W. C. BAKER.
Heating Apparatus.

No. 144,650.

Patented Nov. 18, 1873.



Witnesses,

Chas. H. Smith
Harold Ferrell

Inventor

William C. Baker

per Lemuel W. Ferrell
att'y.

UNITED STATES PATENT OFFICE.

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

IMPROVEMENT IN HEATING APPARATUS.

Specification forming part of Letters Patent No. **144,650**, dated November 18, 1873; application filed July 3, 1873.

To all whom it may concern:

Be it known that I, WILLIAM C. BAKER, of the city and State of New York, have invented an Improvement in Hot-Water Heating Apparatus, of which the following is a specification:

Water is often employed for heating purposes, the same circulating from a boiler and furnace through pipes.

An example of this character may be seen in the patent No. 75,345, granted to me, and in which the heating apparatus is especially intended for railway-cars. In apparatus of this general character it is often important to provide for regulating the heating capacity in particular locations without disturbing the action of the hot-water-circulating apparatus in other locations. Heretofore it has generally been considered necessary to have the entire circulation pass through all the pipes without interruption. I have discovered that the circulating hot water can be subdivided and directed through a radiator, and back to the primary circulating-pipe, without interfering with the general circulation.

My invention consists in a means for dividing the circulating hot water, and directing it through a radiator and returning it to the primary circulation-tube.

In the drawing, Figure 1 is an elevation, partially in section, of the radiator and its connections; and Fig. 2 is a cross-section of the primary circulating-tube and the return-pipe from the radiator.

The pipe or tube *a* represents a portion of the circulation coil or tubes, extending from the boiler and returning to the same, as usual. *b b* represent the pipes of a coil or radiator, of any usual construction; and I remark that a flat chamber may take the place of the coil, or any other suitable form of radiator may be employed. The rising pipe *c* connects with the upper part of the radiator, and the return-pipe *d* connects with the lower part of the radiator. The cocks *e* and *f* serve to close the pipes *c* *d*, so as to allow the radiator to be removed or

repaired; but in use only one of the cocks is required to stop the circulation of water through the radiator, or to allow a regulated quantity to pass. The globe or vessel *i* allows air to accumulate without checking the circulation, and the air-cock *l* is to be opened from time to time. I remark that in filling the radiator it is preferable to keep the cock *e* closed until the main portion of the radiator is filled, the air blowing out at the cock *l*, and then to open the cock *e*, which operation finally insures the entire filling of the radiator and pipes without risk of confining therein any atmospheric air.

Upon reference to the drawing, it will be seen that the pipe *c* starts from the upper part of the primary circulating-pipe *a*, and the pipe *d* passes down into the pipe *a*, so as to obtain as much difference as possible in the relative levels between the inlet and outlet pipes of the radiator. The circulating water being hottest at the upper part of the circulating pipe *a*, as the water moves along through said pipe *a* the heated portion ascends through the tube *c*, and descends as it becomes cooler, and circulates through *b*, and back to the pipe *a*, passing out at the lowest end through the pipe *d*. The circulation in the pipe *a* is not materially impeded by the pipe *d*; but there might be an enlargement or connection for bringing in the pipe *d* low down.

Two or more coils or radiators may be placed side by side, and the water will subdivide and pass into the respective radiators.

I claim as my invention—

A radiator for circulating hot water connected to the primary circulating-pipe by two independent pipes, one at the upper part of such primary circulating-pipe, and the other at a lower level, in combination with a cock to regulate or stop the secondary circulation in the radiator, substantially as set forth.

Signed by me this 27th day of June, A. D. 1873.

Witnesses:

W. C. BAKER.

GEO. T. PINCKNEY,
CHAS. H. SMITH.