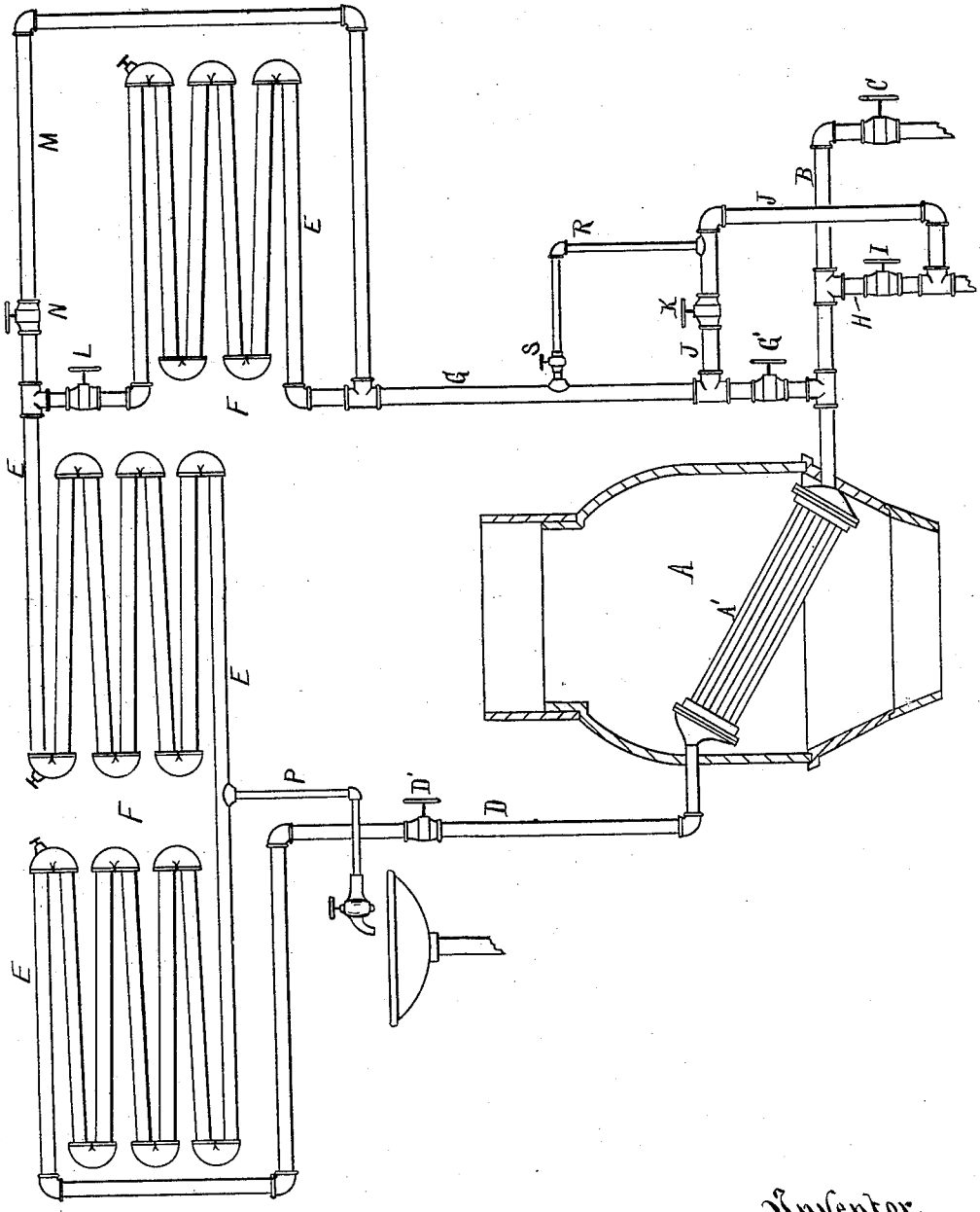
(No Model.)

R. BOTTSFORD.

HOT WATER CIRCULATION APPARATUS FOR HEATING PURPOSES.

No. 452,504. Patented May 19, 1891.



Attest:
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UNITED STATES PATENT OFFICE.

RUSSELL BOTTSFORD, OF CLEVELAND, OHIO.

HOT-WATER CIRCULATION APPARATUS FOR HEATING PURPOSES.

SPECIFICATION forming part of Letters Patent No. 452,504, dated May 19, 1891.

Application filed May 17, 1890. Serial No. 352,167. (No model.)

To all whom it may concern:

Be it known that I, RUSSELL BOTTSFORD, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Hot-Water Circulation Apparatus for Heating Purposes, of which the following, with the accompanying drawings, is a specification.

This invention relates to certain new and useful improvements in hot-water circulation for heating purposes, and is especially designed as an improvement upon a system for heating by hot-water circulation, for which I have made an application for Letters Patent, said application bearing even date herewith.

The invention has for its object the providing of means for gradually withdrawing the water of the system and replacing the same during the time the device is in operation as a heating agent without destroying its efficacy as a heater.

The invention consists in the peculiar arrangement and combinations of parts, all as more fully hereinafter described, and pointed out in the claim.

The drawing is a diagram showing the arrangement of parts.

In the drawing, A represents a heater, which is provided with a multiple manifold located within said heater and adapted to conduct the water to be heated into close proximity to the heating agent and to be connected to the system of piping through which the circulation is carried on.

B represents the water-supply pipe, one end of which in cities is connected to the city water-supply, the opposite end of which is connected to the manifold. This pipe is provided with a valve C.

D represents the riser-pipe of the system, which is connected to the upper end of the manifold. This riser connects with the system of piping E and radiators F, forming a continuous or hoop circuit from the riser D to the return-pipe G, which in turn connects with the supply-pipe B, as shown, and it is also provided with a valve G′.

H is a waste-pipe connecting the supply-pipe B with the sewer, and this waste-pipe is provided with a valve I.

J represents a shunt-pipe connecting the return-pipe G with the waste-pipe H, communication with the latter being outside of the valve I, and this pipe J is also provided with a valve K.

R represents a small pipe communicating between the return-pipe G and the shunt-pipe J, outside of its valve K, or such pipe R may communicate directly with the waste-pipe H, outside of its valve I, if preferred. This pipe R is provided with a suitable valve S.

It will readily be seen that by closing the valve C in the feed-pipe B, the valve G′ in the return-pipe G, and the valve K in the shunt-pipe J, and opening the valve I in the waste-pipe H, and the valve in the riser-pipe D, I am able to draw the water from the system down through the manifold and thus flush the same. Again, by closing the valve G′ in the pipe G, the valve in the pipe D, and the valve C in the feed-pipe B, and opening the valve K in the shunt-pipe J, the water in the system may be drawn off in the opposite direction, discharging through the waste-pipe. During both of these operations the valve S in the pipe R remains closed.

In a practical use of the system of piping herein described I have found that the shunt-pipe J very materially aids in creating a circulation, as it enables me to "shunt" the return water to the waste-pipe around the point of intersection between the return and the supply pipe.

When the water of the circulation becomes fouled from any cause to such a degree as to throw off offensive odors when drawn for domestic purposes, I open the pet-cock or valve S of the pipe R. This admits of a small jet of water to pass from the return-pipe through the pipe R to the shunt-pipe or waste-pipe, and in the course of a few hours the foul water in the pipes will be displaced by fresh water entering through the supply, and it will be found to be free from smell and obnoxious gases, the change taking place so gradually as not to interfere with the heating. After the water has become purified by means of this pipe R, I then close the valve S and the circulation goes on uninterrupted through the system of piping.

What I claim as my invention is—

In a system for hot-water circulation, the

combination of a stove A, a manifold A′, located within the combustion-chamber of said stove, a primary system of piping E, terminating in a return-pipe G, which communicates with a supply-pipe B, a shunt-pipe J, communicating with said return-pipe G, and with the waste-pipe H, which latter communicates with the supply-pipe B, a valve G′, located in said return-pipe G between the supply-pipe B and the shunt-pipe J, a valve I, located in the waste-pipe H between the supply-pipe B and the point of intersection of said shunt-pipe J with the said waste-pipe H, a valve K in said shunt-pipe, and a valve C in said supply-pipe B, located outside the point of intersection between said supply-pipe B and said waste-pipe H, and a pipe R, provided with a valve S, said pipe R communicating at one end with the return-pipe G, and at its opposite end with the shunt-pipe J, outside of its valve K, the parts being constructed, arranged, and operating substantially in the manner and for the purposes described.

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

RUSSELL BOTTSFORD.

Witnesses:
H. S. SPRAGUE,
O. L. BAKER.