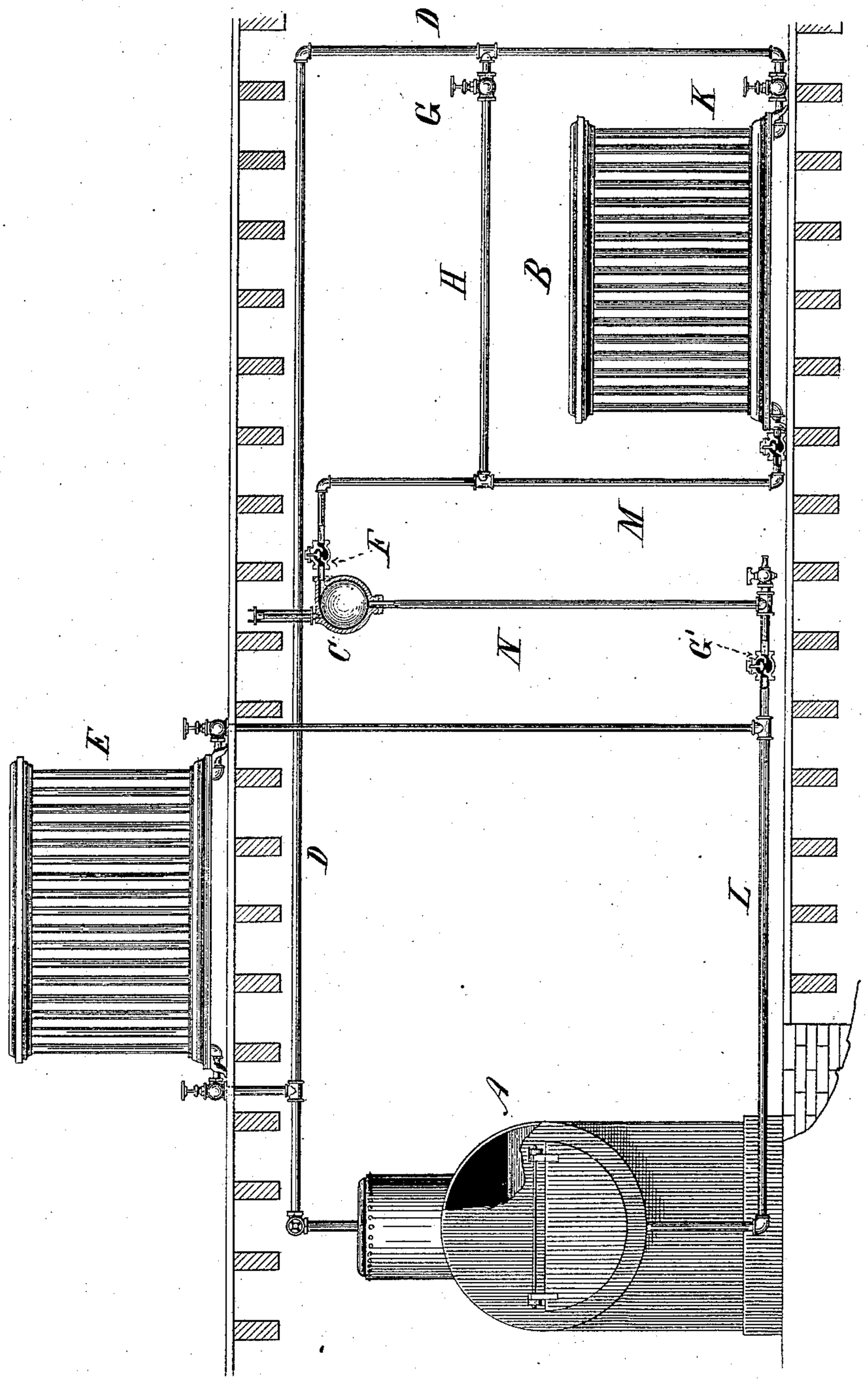
(No Model.)

J. H. BLESSING.

STEAM HEATING APPARATUS.

No. 290,662. Patented Dec. 25, 1883.



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UNITED STATES PATENT OFFICE.

JAMES H. BLESSING, OF ALBANY, NEW YORK.

STEAM-HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 290,662, dated December 25, 1883.

Application filed August 25, 1883. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. BLESSING, of the city of Albany, county of Albany, State of New York, have invented a new and useful Improvement in Steam-Heating Apparatus, of which the following is a full, true, and exact description, reference being had to the accompanying drawing, which shows a general view of the apparatus, partly in section.

My invention is designed to enable a heating-coil, which may be placed below the water-level of the boiler, to be readily cleared of condensed water without the necessity of the use of an automatic return-steam trap.

My invention will be readily understood from the accompanying drawing, in which A represents the boiler; B, a coil below the water-level of the boiler; E, a coil above the water-level of the boiler; D, the main steam-supply pipe; L, the return-pipe.

In the return-pipe M, from the coil B, is placed the receiver C, which must be above the water-level of the boiler, and as high above it as it can be conveniently located.

Between the steam-pipe D and the return-pipe M is placed the by-pass or connection H, provided with valve G, which pipe should be above the water-level of the boiler. The circulation of water or steam to and fro from the receiver C is controlled by check-valves F and G.

The operation of my apparatus can now be readily understood. Supposing at the time of starting the apparatus in the morning the radiator B to be filled with water. The valve G, which is normally closed, is then opened, and the valves K closed. Thereupon the water will flow back through the tube N and check-valve G′, emptying the receiver C, and will finally stand in the tube N at or about the water-level of the boiler. The valve G is then closed and the valve K opened. A vacuum will then be formed in the receiver C by condensation, and the check-valve G′ closing, the receiver will be filled with water from the radiator B. Then, by closing K and opening the valve G again, the water in C will be returned once more to the boiler, and this operation can be repeated until the radiator B is clear. When the water has been substantially removed from the radiator B, the valve G is permanently closed and the valve K left open. Then the chamber C will continue to automatically keep the radiator B clear of water.

A slight vacuum forming in the chamber C will cause the water to flow into it from the receiver B until the height of the column in N is sufficient to open the check-valve G′, when it will flow to the boiler, and a vacuum then ensuing, a slight additional amount of water will be returned into the vessel C.

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

The combination of the boiler, the steam-supply and return pipes, the radiator B, connection M, vessel C, check-valves F and G′, and by-pass H, provided with valve G, substantially as described.

JAMES H. BLESSING.

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