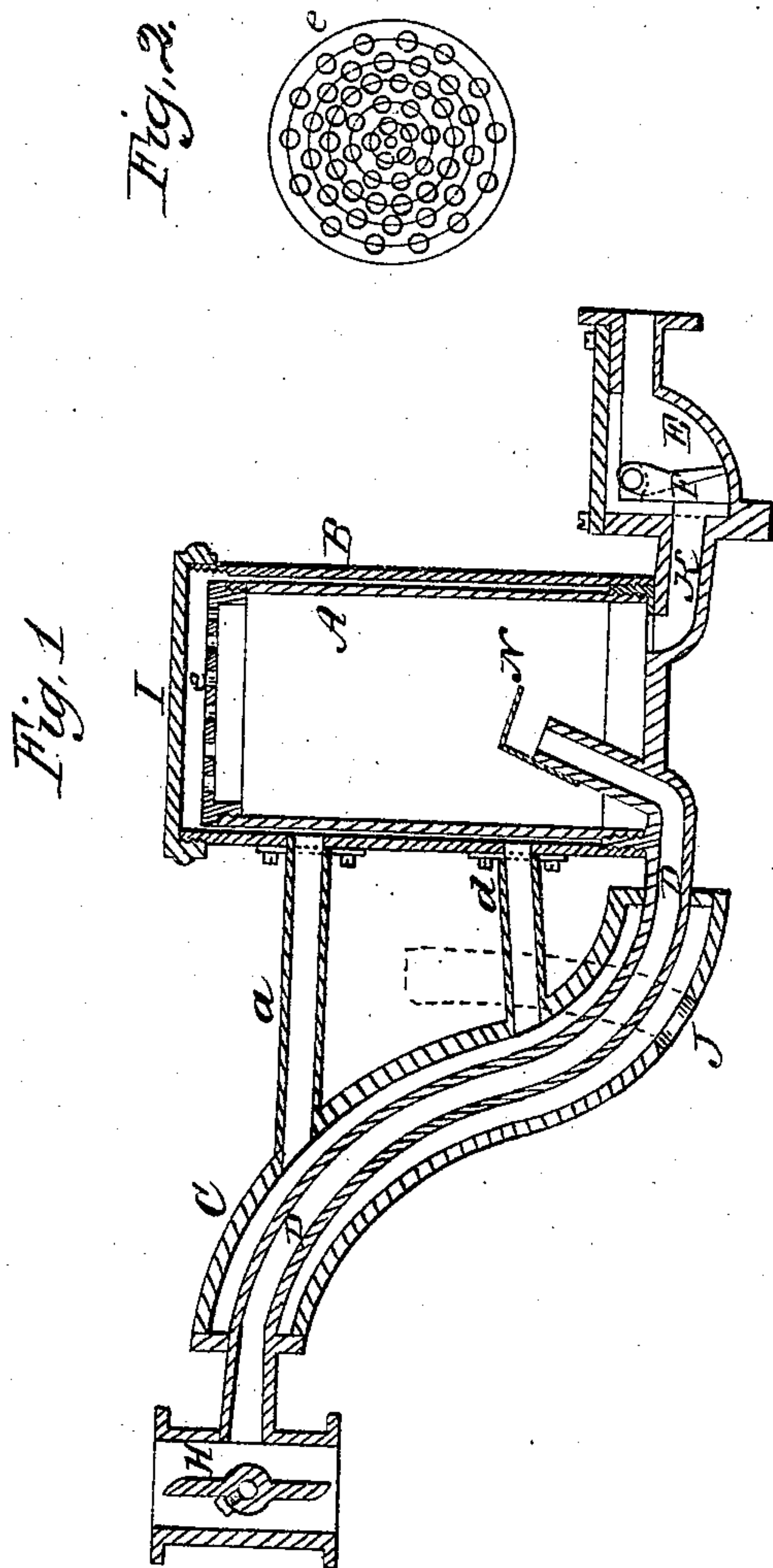


B. F. Lemmon,
Steam-Boiler Condenser.
No 29,499. *Patented Aug. 7, 1860.*



Witnesses
C. M. Alexander
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UNITED STATES PATENT OFFICE.

B. F. LEMMON, OF NEW ALBANY, INDIANA.

CONDENSER FOR STEAM-ENGINES.

Specification of Letters Patent No. 29,499, dated August 7, 1860.

To all whom it may concern:

Be it known that I, B. F. LEMMON, of New Albany, in the county of Floyd and State of Indiana, have invented certain new and useful Improvements in Condensers for Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in constructing and arranging those parts which will be particularly described substantially in the manner hereinafter specified.

In the annexed drawings Figure 1 represents a longitudinal vertical section; Fig. 2 is a top view of the condensing chamber.

In the figures, A, represents a condensing chamber, which is provided at its bottom with an inlet, and an outlet opening, the pipe D forming an inlet and the pipe K forming an outlet to said chamber at its bottom. The top of this condensing chamber, is perforated with small holes for the purpose of allowing water to pour down into said chamber in small jets or streams.

D, is a steam pipe, which forms a steam inlet to the chamber, A. This pipe D, is surrounded a portion of its way with a jacket C.

B, represents a casing which fits over the condensing chamber A, leaving an annular opening between the two. *a*, and *d*, are pipes which connect the jacket to the casing B.

J, represents a water pipe which connects with the jacket, and conducts water into it.

K, is an outlet pipe connecting the chamber A, to a water trap E. This water trap is provided with a valve F, and is so constructed that it will retain water, thus forming a water joint around the valve to prevent the escape of steam through the said valve.

H, represents the valve which admits steam to the pipe D.

Steam passes from the cylinder after having been used, and entering the pipe D is

admitted to the condenser A. A stream of cold water is admitted to the jacket C, through the pipe J, said water surrounding the pipe D, within the jacket. The water passes on through the pipes *a*, and *d*, and filling the space between the casing and the condenser, pours down through the small openings in the top of the condenser upon the steam within it. By this means the steam is readily condensed. The steam first meets with a cooling surface in that portion of the pipe which is surrounded by the jacket C. It next meets with a cooling surface in the chamber A, which is surrounded with water and its condensation is thoroughly completed by the pouring of small jets of cold water through it from the top of the condensing chamber. After the steam is condensed it is carried away in the form of water and returned to the boilers in any of the known and convenient ways.

N, represents a cap which is placed over the mouth of the pipe D, to prevent said pipe from filling with water as it falls from the top of the condenser.

By this arrangement, the steam may be very easily condensed, the process being very simple and cheap and very effective.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent is—

1. The arrangement of the jacket C, covering the steam pipe D, with the pipes *a*, and *d*, the casing B, and the condensing chamber, A, provided with the perforated head, *e*, substantially as and for the purpose specified.

2. The arrangement of the water trap E, and the valve, F, with the condensing chamber, A, the whole being combined and used substantially as and for the purpose specified.

B. F. LEMMON.

Witnesses:

W. C. SHIPMAN,
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