

*J. S. Hooton,
Steam-Boiler Condenser.*

Patented Mar. 5, 1861.

Fig. 1.

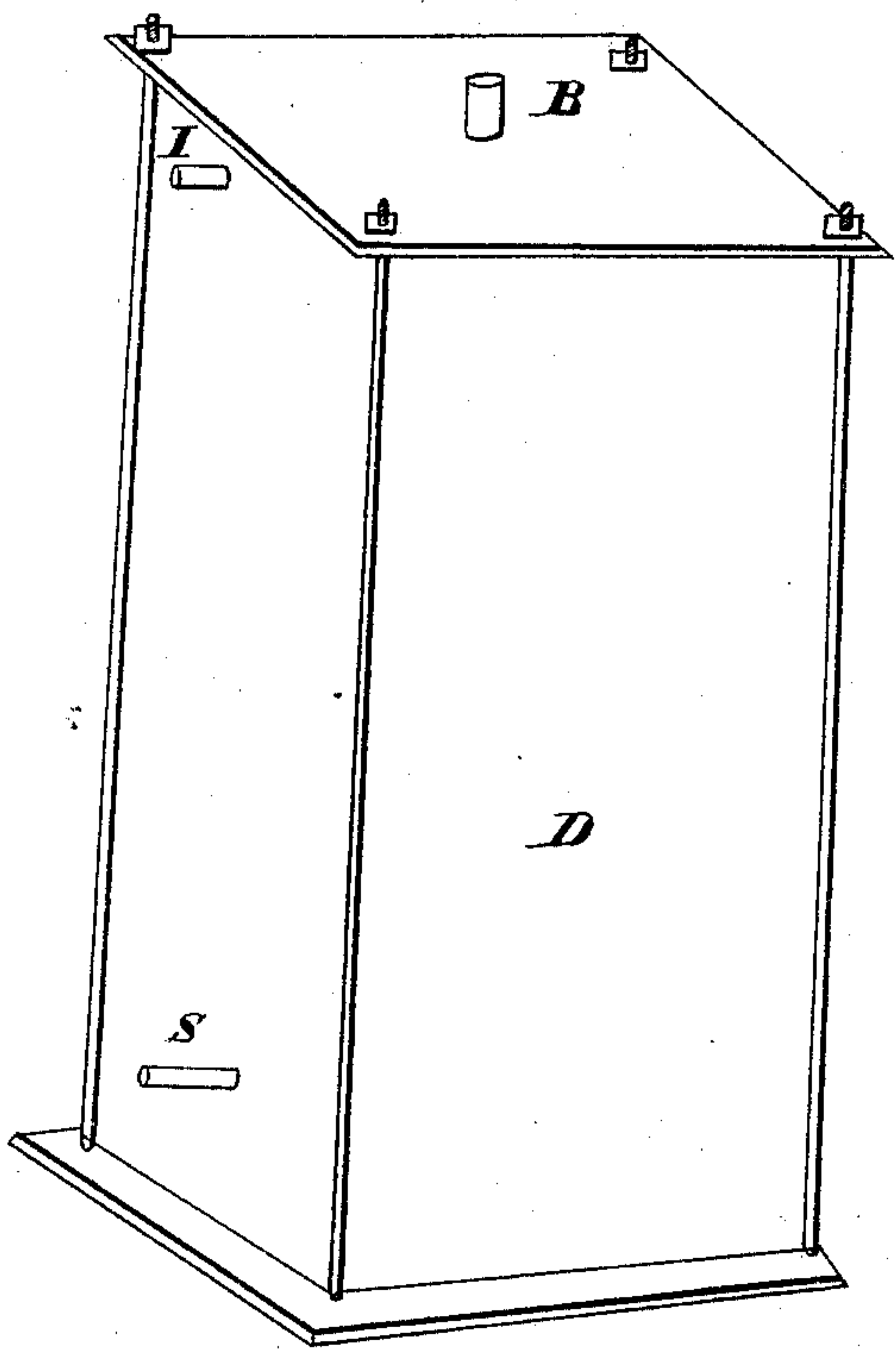
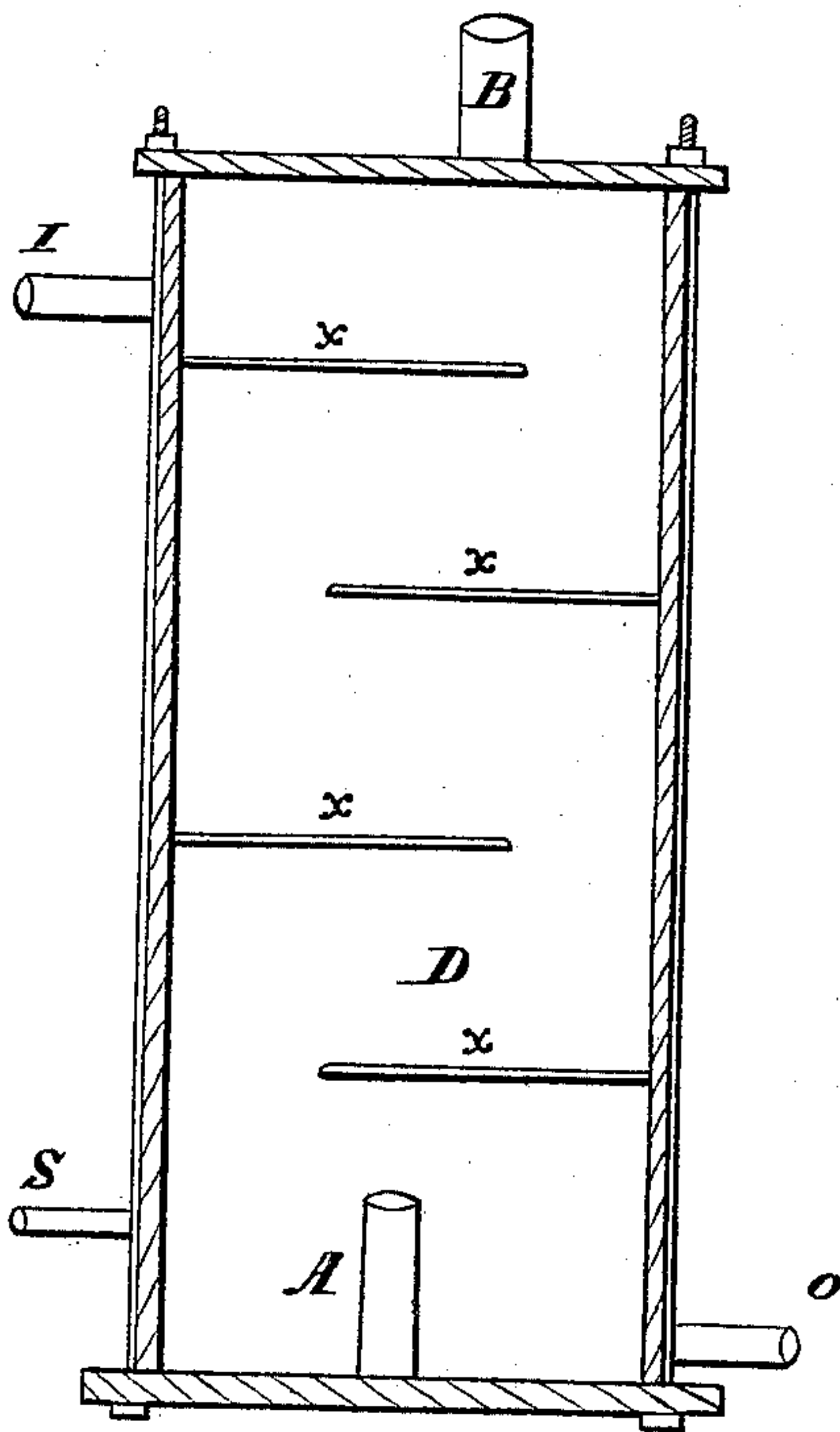


Fig. 2.



Witnesses:
 Chas B. Stewart
 Mc Ginnis Sandy.

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UNITED STATES PATENT OFFICE.

JAMES S. HOOTON, OF NEW CARLISLE, INDIANA.

IMPROVED CONDENSER AND WATER-HEATER FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. 31,600, dated March 5, 1861.

To all whom it may concern:

Be it known that I, JAMES S. HOOTON, of New Carlisle, in the State of Indiana, have invented a new and Improved Apparatus for Condensing Steam and Heating Water for the Supply of Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view, and Fig. 2 is a vertical section.

The nature of my invention consists in so commingling the water in the form of spray, shower, or subdivision with the exhaust-steam from an engine that a considerable portion of said steam is condensed and unites with the crude water from the well or cistern, and at the same time raising the temperature of the feed-water to nearly the boiling-point, thus saving fuel and also using much condensed steam or distilled water, whereby much less incrustation of the boilers takes place.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

I construct my apparatus or condensing-heater of wood or metal, or of both wood and metal, of a cylindrical shape or in shape of an upright oblong square box, D, of suitable strength, and supply it with any desired number of shelves or plates secured to the two opposite sides, one above another and overlapping each other, as seen in Fig. 2, *xxxx*. The box or heater D is made steam and water tight on all sides and at top and bottom, except where it is perforated for pipes. The ex-

haust-steam is let in at or near the bottom through the pipe A. The steam passes upward, coming in contact with the plates *xxxx*, by which it is compelled to take a zigzag course, and finally escapes through the pipe B at the top of the heater. The cold water is let in through the pipe I and spreads out and falls in thin sheets and showers over the plates *xxxx* successively until, after becoming heated by and condensing part of the ascending steam, it falls into the bottom of the heater, whence it is drawn off through the pipe O to supply the boiler.

S is a stop-cock or faucet, designed as waste-pipe when desired.

I do not claim the mere passing the steam through water for the purpose of heating it.

Having thus fully described my improved apparatus for condensing steam and heating water, what I claim therein as my invention, and desire to secure by Letters Patent, is—

The arrangement of the induction and education pipes A and B, the induction and education pipes I and O, the waste-water pipe S, and the alternating opposite plates or shelves *xx* with each other and with the vertical box or tube D of the apparatus, when the said plates or shelves are placed at such distances from each other that the water can be made to fall in succession from one shelf to another in broadly-expanded and thin sheets, and while thus falling be acted upon by the ascending steam within the apparatus, in the manner herein set forth.

J. S. HOOTON.

Witnesses:

J. HARRIS,

J. C. SLATER.