

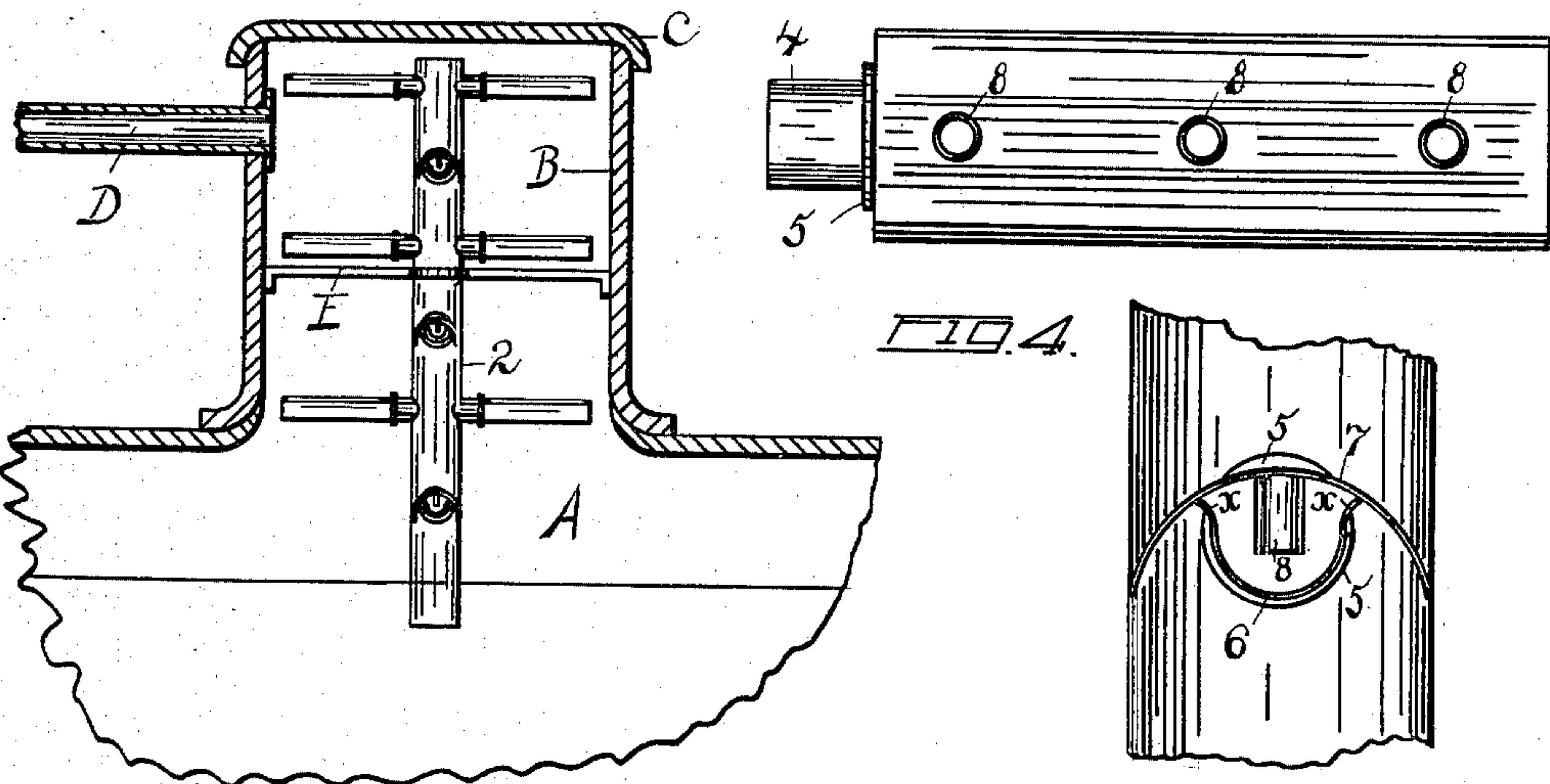
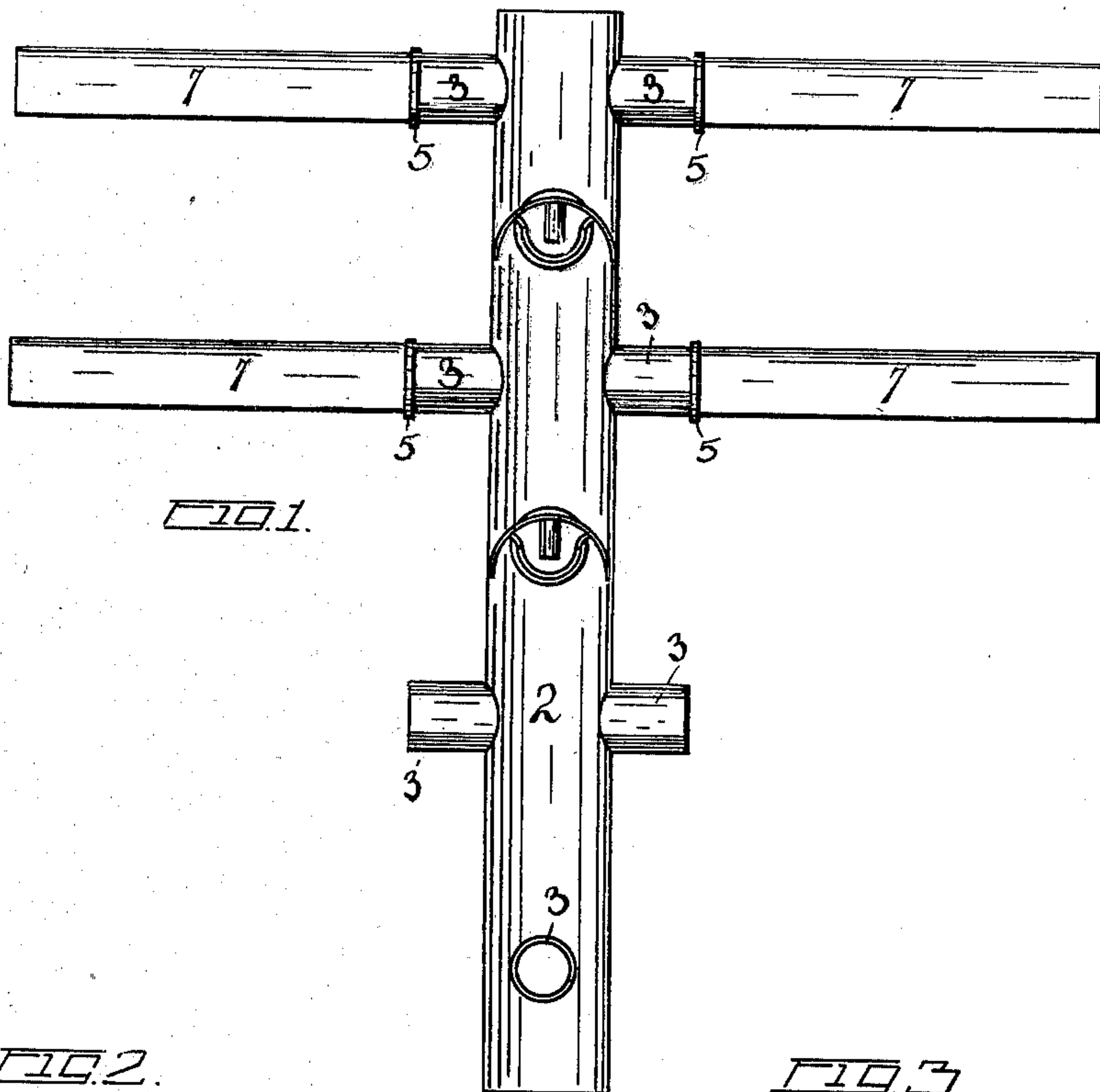
No. 736,429.

PATENTED AUG. 18, 1903.

C. H. NOYES.
STEAM DRIER.

APPLICATION FILED APR. 9, 1902.

NO MODEL.



Witnesses:

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UNITED STATES PATENT OFFICE.

CHARLES H. NOYES, OF DECATUR, NEBRASKA.

STEAM-DRIER.

SPECIFICATION forming part of Letters Patent No. 736,429, dated August 18, 1903.

Application filed April 9, 1902. Serial No. 102,120. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. NOYES, residing at Decatur, in the county of Burt and State of Nebraska, (post-office box 136,) have invented certain useful Improvements in Steam-Driers; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to a new and novel means to dry steam.

The aim of my invention is to provide an ordinary steam-boiler with a simple device by means of which the steam may be dried before entering the service-pipe.

In the accompanying drawings I have shown in Figure 1 an elevation of one of my steam-driers. Fig. 2 shows my drier positioned within the dome of an ordinary steam-boiler. Fig. 3 shows a top view of one of the precipitating-tubes, while Fig. 4 shows an end view disclosing the position of one of these precipitating-tubes.

The object of my invention is to provide a device adapted to be placed within the dome of an ordinary steam-boiler, so that the steam in escaping to the service-pipe will encounter a number of precipitating-tubes in such a manner that the moisture within the steam will be condensed upon the service of these precipitating-tubes, so that the steam as it finally enters the service-pipe will be dry, or almost so. The waters of condensation collected and gathered upon the precipitating-tubes are again directed into the boiler, where they are added to the body of water in the boiler, so that this water is condensed within the boiler itself instead of within the tubes leading from the boiler, as is usual.

In carrying out the aim of my invention I provide an ordinary steam-boiler A with the dome B, secured thereto by any suitable means, the dome B being provided with the usual top C and the service-pipe D, leading to the engine or other point where the steam-power is to be used.

At a suitable point within the dome I provide the brace-bar E, which supports a vertical main drain-tube 2, which tube is provided

at a suitable number of points with the extending shoulders 3 in the form of stub-tubes, freely communicating with vertical main tube 2. This main tube is open-ended and is provided with any suitable number of these stub-tubes 3.

Removably secured to each stub-tube is a precipitating-tube comprising the collar 4, adapted to slip into one of the stub-tubes 3, and this collar for the sake of convenience is provided with the ring 5 to strengthen the same, and below, extending from this collar 4, is the semicircular tube 6, which extends forward a suitable distance. Spanning this lower half-section of tubing 6 is an upper hood 7, which curves downward a considerable distance and is positioned above the lower semicircular tube-section 6, so as to provide the escape-way α between these tube-sections 6 and 7.

In Fig. 4 is disclosed an end view, and it will be noticed that the upper semicircular tube-section 7 is very much larger than the lower tube-section 6 and is arranged reversely to the latter. Extending downward from this upper tube-section 7 are a plurality of stub-tubes 8, which extend downward and end a suitable distance above the bottom of the pipe 6. Any suitable number of these precipitating-tubes comprising the sections 6 and 7 are used, so that the dome B of the boiler is provided with a metallic tree, as it were, the branches of which radiate outward and against which the steam comes in contact in passing into the service-pipe D. Now the waters of condensation are precipitated upon and against the tube-sections 6 and 7 and are drained through the tube 6 to the vertical tube 2. Of course a considerable portion of the moisture will drip off of the lower portions of these tubes 6 and 7 and drop through into the boiler again. This hot water as it flows back is of course utilized and converted into steam again, so that there is really a saving in fuel, as so much coal is saved as would be required to raise the collected water to the temperature at which it is returned to the steam-boiler.

The device may be inserted into the boiler through a suitable handhold, as all of the precipitating-tubes are removed from the vertical drain-tube, and this vertical drain-tube

may be secured to the brace-bar E by any suitable means. It is also immaterial how many arms or precipitating-tubes branch from the main tube, though the greater the number the better the results.

5 Having thus described my said invention, what I claim as new, and desire to secure by United States Letters Patent, is—

1. In a device of the character described, the
10 combination with a main drain-tube, of a plurality of precipitating-tubes connected to said main drain-tube and radiating therefrom, each of said precipitating-tubes comprising reversely-arranged substantially semicircular
15 lar sections.

2. In a device of the character described, the combination with a main drain-tube, of a plurality of precipitating-tubes connected to said main drain-tube and radiating therefrom,
20 each of said precipitating-tubes comprising reversely-arranged substantially semicircular sections, one of said sections being of larger dimensions than the other section to overlap and inclose the smaller section.

25 3. In a device of the character described, the combination with a main drain-tube, of a plurality of precipitating-tubes connected to said main drain-tube and radiating therefrom, each of said precipitating-tubes comprising
30 reversely-arranged substantially semicircular

lar sections, and vertical drain-tubes connected to one of said sections and discharging into the other section.

4. In a device of the character described, the combination with a main drain-tube, of a plurality of precipitating-tubes connected to said main drain-tube and radiating therefrom, each of said precipitating-tubes comprising reversely-arranged substantially semicircular sections, one of said sections being of
40 larger dimensions than the other section to overlap and inclose the smaller section, and vertical drain-tubes connected to one of said sections and discharging into the other section.
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5. The combination with a main drain-tube, of a plurality of precipitating-tubes branching from said main tube, each precipitating-tube comprising two half-sections, the upper half-section hooding the lower tube-section,
50 and a plurality of vertical drain-tubes projecting from each hooded section as and for the purpose set forth.

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

CHARLES H. NOYES.

Witnesses:

CLYDE H. FULLER,
ALICE E. ASHLEY.