

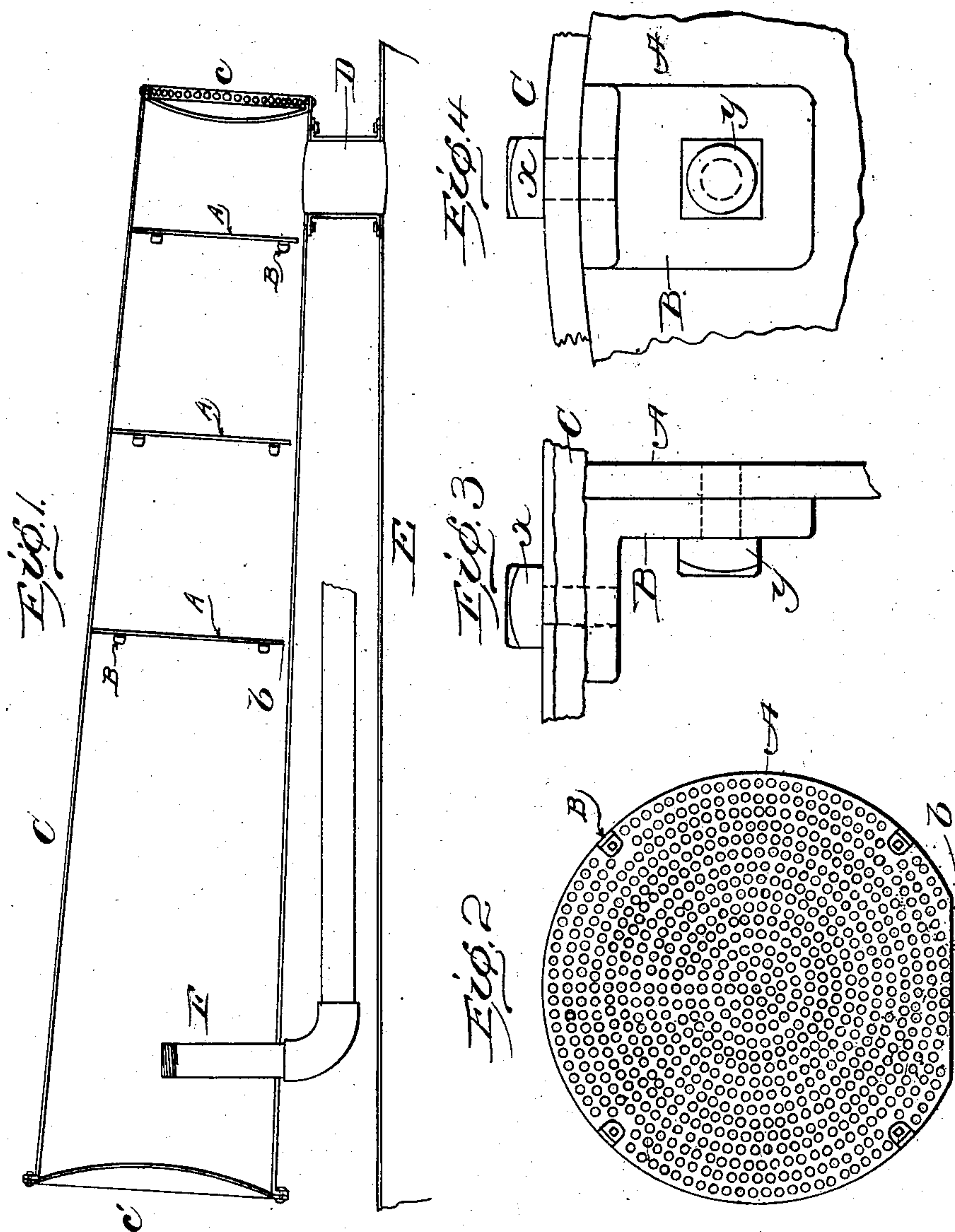
No. 724,925.

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T. J. NELSON.
APPARATUS FOR DRYING STEAM.

APPLICATION FILED SEPT. 6, 1902.

NO MODEL.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR DRYING STEAM.

SPECIFICATION forming part of Letters Patent No. 724,925, dated April 7, 1903.

Application filed September 6, 1902. Serial No. 122,400. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. NELSON, a citizen of the United States, residing at Fort Smith, in the county of Sebastian and State of Arkansas, have invented certain new and useful Improvements in Apparatus for Drying Steam, of which the following is a specification.

As is well known, serious accidents often occur, such as the knocking out of cylinder-heads and the breaking of wrist-pins, by the reason of the entrance of water into the cylinders of steam-engines.

The object of my invention is to provide improved means for drying the steam on its way from the boiler to the cylinder, whereby such accidents are avoided.

In carrying out my invention I provide a box or chamber in which I arrange a series of perforated plates through which steam from the boiler passes and which arrest the water and deposit it in the box, from which it returns to the boiler, the steam in a comparatively dry condition being allowed to pass on to the engine-cylinder.

By my improved apparatus there is large economy in the consumption of fuel and water and foaming of the water is prevented.

In the accompanying drawings, Figure 1 shows one form of my invention applied to a steam-boiler. Only so much of the apparatus as is necessary to illustrate my invention is shown, the view being a longitudinal section. Fig. 2 shows a front elevation of one of the perforated plates employed. Figs. 3 and 4 are detail views of the brackets employed for securing the perforated plates within the condensing-chamber.

The condensing-chamber C is preferably arranged horizontally, or nearly so, as indicated in Fig. 1. It is closed at all points except at D, where it connects with the steam-boiler E, and at F, where it connects with the pipe for conveying steam to the steam-engine or other point where the steam is desired for use. The heads c and c' may be made removable in the manner indicated, and the connection D between the condenser and the boiler E is preferably also made detachable

in the manner indicated. The cylinder tapers from c' to c, its bottom gradually inclining toward the connection D. Within the cylinder are arranged a series of perforated plates A, preferably of the shape and construction shown in Fig. 2, being of the same diameter as the interior of the cylinder except at the bottom b, where they are cut away in order to leave a passage in which the water of condensation may flow to the connection D. The plates vary in size, as indicated, to correspond with the taper of the cylinder. Any suitable number of plates arranged at proper distances apart may be used. Preferably I employ from three to five such plates. The length and diameter of the cylinder should be suitable for the particular boiler upon which it is placed.

Of course I do not confine myself to the precise arrangement shown, as the cylinder may be of different shape or construction and the perforated plates may be otherwise disposed.

The plates A may be attached to the inside of the cylinder in any suitable way, preferably by means of brackets B, such as shown in Figs. 3 and 4. These are merely L-shaped brackets attached by means of bolts x to the cylinder and by bolts y to the plates.

I claim as my invention—

1. The combination of a steam-boiler, a cylinder arranged outside the boiler and having an inclined bottom, a series of plates formed with numerous small perforations and arranged transversely in the cylinder at suitable distance apart, and which are cut away at the bottom to form a passage for the water of condensation, an outlet-pipe for the dry steam at the end of the series of perforated plates, and a pipe connecting the cylinder with the boiler through which steam is conveyed from the boiler to the cylinder and through which the water of condensation from the cylinder is returned to the boiler.

2. The combination with a steam-boiler, of a tapered horizontally-arranged casing, an outlet for dry steam at the larger end thereof, a series of vertically-arranged plates having numerous small perforations and arranged at

suitable distances apart within the casing and which have a passage below them for the water of condensation, and a pipe connecting the smaller end of the casing with the boiler through which steam passes from the boiler to the casing and through which the water of condensation passes from the casing to the boiler.

3. The combination of a steam-boiler, a tapered horizontally-arranged casing outside the boiler, an outlet for dry steam at the larger end of the casing, a series of vertically-arranged perforated plates located at suitable distances apart within the casing and having

a passage below them for the water of condensation, and a pipe connecting the smaller end of the casing with the boiler through which the water of condensation passes from the casing to the boiler and through which steam passes from the boiler to the casing.

In testimony whereof I have hereunto subscribed my name.

THOMAS J. NELSON.

Witnesses:

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