

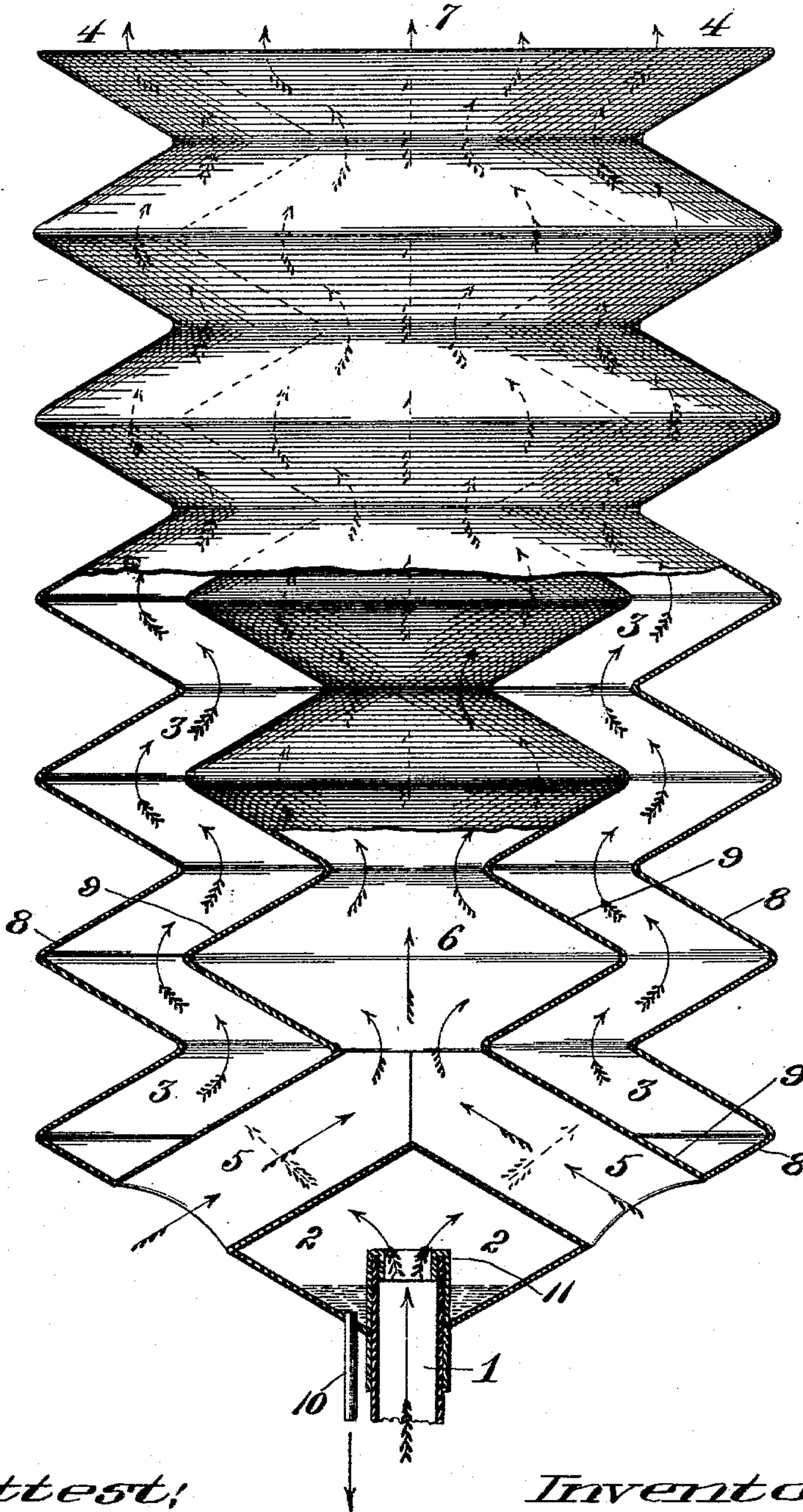
(No Model.)

H. A. WHEELER.
STEAM CONDENSER.

No. 551,299.

Patented Dec. 10, 1895.

Fig. 1.



Attest:
W. Finley.
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By Wright & Bro. Attys

UNITED STATES PATENT OFFICE.

HERBERT A. WHEELER, OF ST. LOUIS, MISSOURI.

STEAM-CONDENSER.

SPECIFICATION forming part of Letters Patent No. 551,299, dated December 10, 1895.

Application filed March 4, 1895. Serial No. 540,398. (No model.)

To all whom it may concern:

Be it known that I, HERBERT A. WHEELER, residing at the city of St. Louis, State of Missouri, have invented a new and useful Improvement in Steam-Condensers, of which the following is a specification.

My invention has especial reference to that class of steam-condensers in which the steam is passed through a chamber, the walls of which are so constructed as to expose a maximum amount of surface to the circulating air, thus keeping the temperature reduced to a minimum.

The object of my invention is to facilitate the condensation of the steam by providing a device that will do its work effectively, that can be economically constructed, and that can be easily kept in repair, and the said device possesses features of novelty hereinafter pointed out and claimed.

Referring to the drawing, which forms a part of this specification, I have shown a side view of the device, said view being part in elevation and part in section.

The steam is introduced through the supply-pipe 1. This pipe extends a short distance into the shell of the condenser. There is at this bottom portion of the shell a chamber 2 in the form of an inverted cone which is adapted to catch the dripping water. In direct communication with this chamber 2 is the passage 3 immediately within the outer portion of the shell, the exit from which is numbered 4.

5 represents air-inlets placed near the bottom of the shell. They may be two or more in number, as desired. They are preferably of circular form, and lead to a central chamber 6, through which the air passes to its exit 7.

8 represents the outer wall or shell of the exhaust-head.

9 represents the inner wall or shell, separating the inner air-chamber from the outer steam-chamber.

10 is a discharge-pipe, placed at the bottom of chamber 2, adapted to carry off the water.

11 is the joint by means of which the shell of the exhaust-head is attached to the supply-

pipe 1. It consists of a circular sleeve adapted to snugly fit over the projection of pipe 1 into the chamber 2, said sleeve having its upper end bent inwardly and downwardly to fit over the end of the said pipe 1.

The operation of my device is as follows:

The steam entering through the pipe 1 passes first into the chamber 2 and thence into the chamber 3, situated just within the exterior

shell 8. It passes in the direction indicated by the double-winged arrows. The exhaust-head

instead of being cylindrical in form is fluted or corrugated, as shown in the drawing, principally to present angular deflecting surfaces,

and also to give an increased amount of cooling-surface for the condensation of the steam.

The air enters at the openings 5 in the bottom of the shell, and is introduced directly to the central chamber 6. The wall or shell

of this chamber is also fluted or corrugated, and the air passes in the direction indicated

by the single-winged arrows. The corrugations give an increased amount of surface

with which the cool air comes in contact, thus aiding in the condensation of the steam passing through the chamber 3. The heat of

the steam in chamber 3 will cause the air in chamber 6 to be heated, thus creating an up-draft through said chamber 6. The action

of the wind will also add to the draft, and as the cool air is drawn into entrances 5 the

temperature of the interior shell 9 is kept reduced thereby. The steam passing through

the chamber 3 consequently comes in contact with cool surfaces on both the outer and

inner walls. The space in chamber 3 being so much greater than the space within the

supply-pipe 1, friction is consequently kept at a minimum. The corrugations of the shell

are shown to be angular, which gives a down-slant for the condensed steam to run into the

chamber 2, and thence out through drain-pipe 10. It is obvious, however, that these

corrugations may be curved as well as angular, or of any other desired form.

I prefer to construct the device of sheet-copper, but any other suitable material may be used.

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

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The combination in a steam condenser of
a steam pipe opening into the base of a steam
chamber, said chamber being formed by an
outer and inner shell, the walls of said cham-
5 ber being formed of alternate deflector offsets
and recesses adapted to render the chamber
circuitous, an opening at the top to the air,

and said inner chamber opening to the air at
both the top and bottom, substantially as set
forth.

HERBERT A. WHEELER.

In presence of—

W. FINLEY,
STANLEY STONER.