

(No Model.)

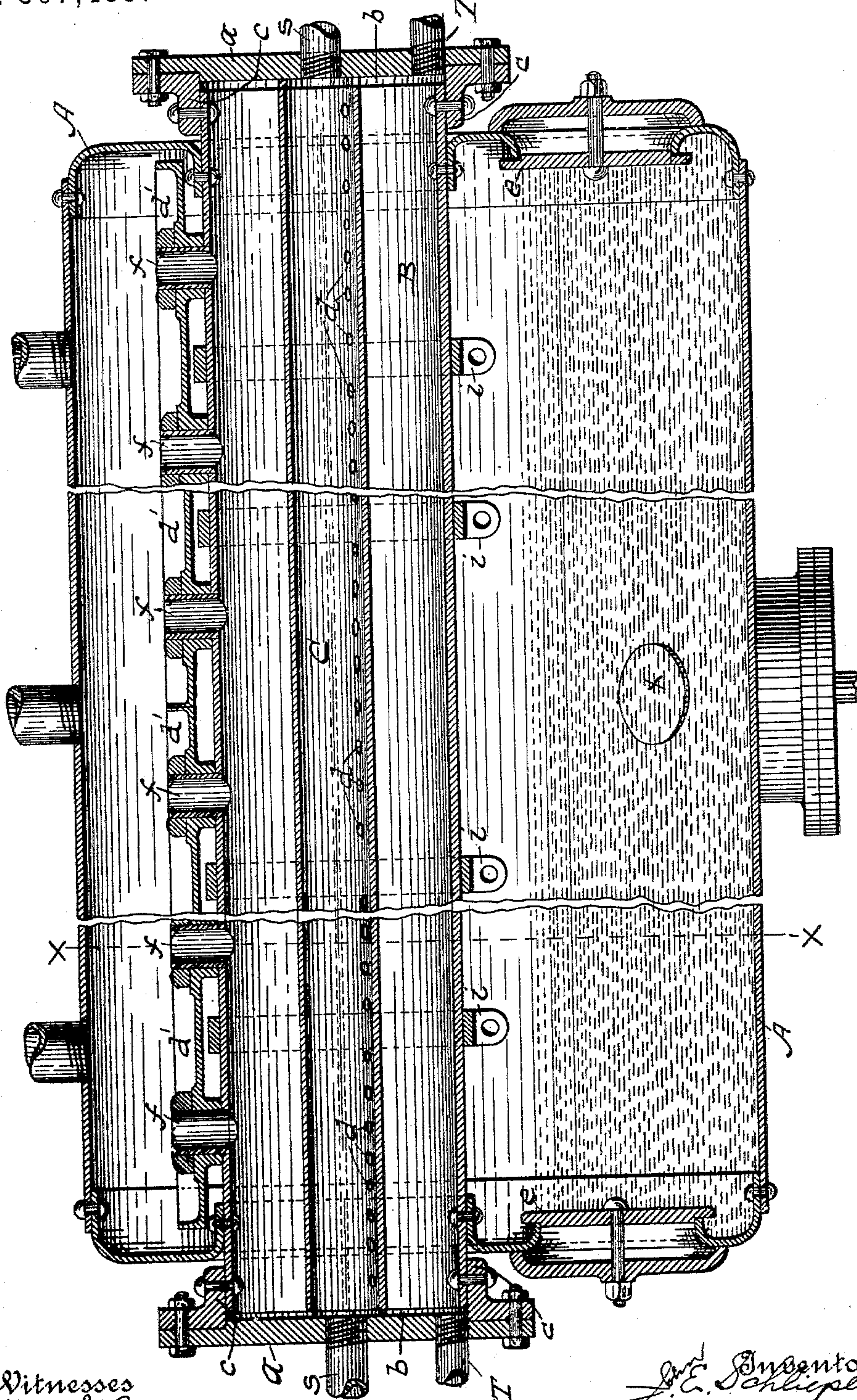
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J. E. SCHLIEPER.
LIVE STEAM HEATER AND PURIFIER.

No. 597,489.

Patented Jan. 18, 1898.

Fig. 1



Witnesses
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Inventor
J. E. Schlieper
By his Attorney John H. Roney

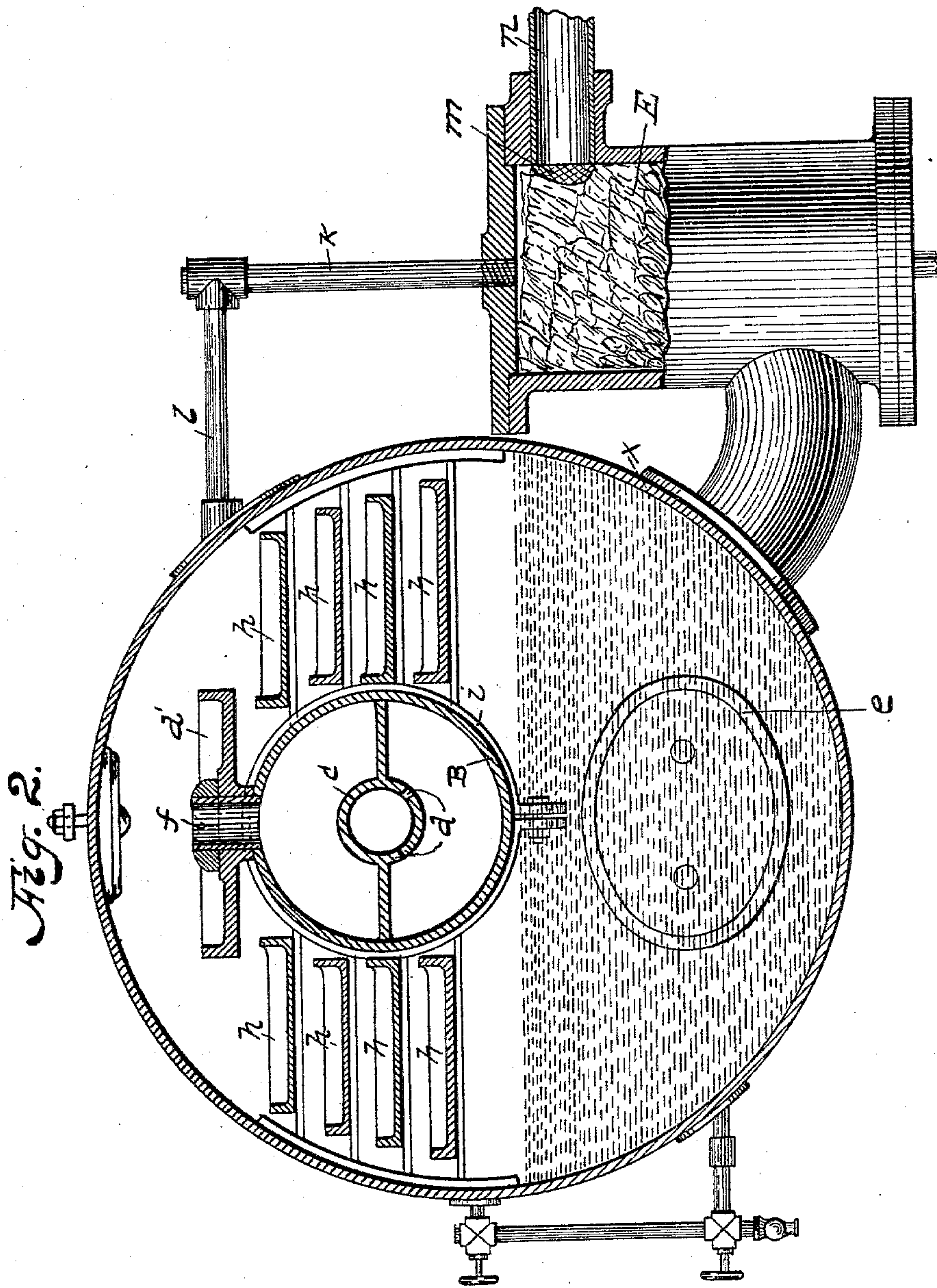
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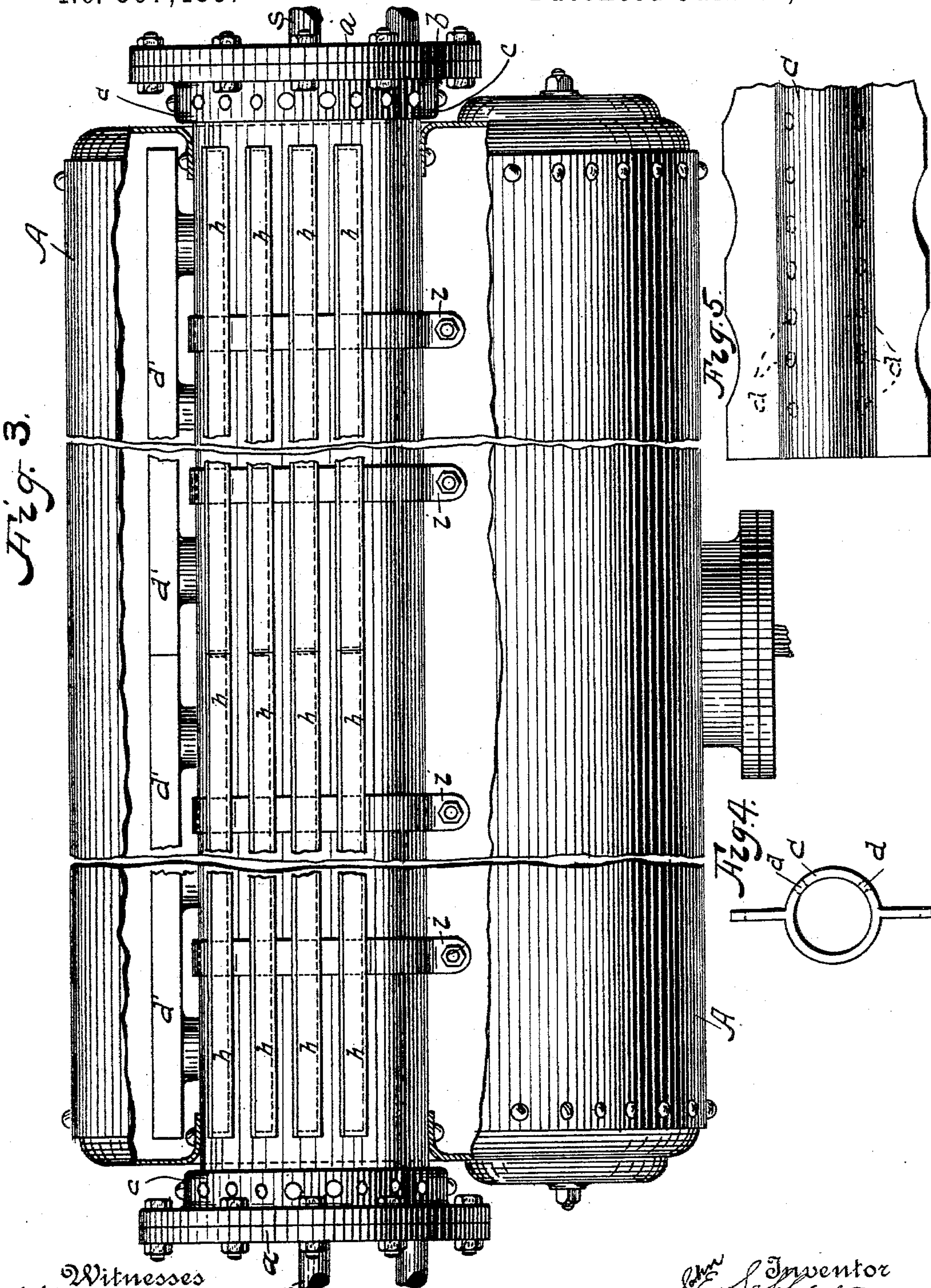
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UNITED STATES PATENT OFFICE.

JOHN E. SCHLIEPER, OF ALLEGHENY, PENNSYLVANIA.

LIVE-STEAM HEATER AND PURIFIER.

SPECIFICATION forming part of Letters Patent No. 597,489, dated January 18, 1898.

Application filed May 11, 1897. Serial No. 636,125. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. SCHLIEPER, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Live-Steam Heaters and Purifiers; and I do declare the following to be 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, and to the letters of reference marked thereon, which form a part of this specification, in which—

Figure 1 is a longitudinal section of my improved live-steam heater and purifier. Fig. 2 is a vertical transverse section on line X X of Fig. 1. Fig. 3 is a side elevation, a portion of the shell being broken away to show the inner cylinder.

My invention relates to that class of feed-water heaters in which the water admitted thereto falls onto and from a series of pans arranged therein on different horizontal planes and eventually passes from the heater through a purifying-chamber; and my invention consists in the novel construction and arrangement of parts hereinafter specifically described, reference being had to the accompanying drawings, forming part hereof, in which like letters indicate like parts wherever they occur.

Referring to said drawings, A is the shell of the heater, in the heads *a a* of which is secured the cylinder B, the said heads having large openings *b b*, surrounded by inwardly-projecting flanges *c c*, to which said cylinder is riveted near the ends thereof, respectively. Immediately below said cylinder the heads of said shell are also provided with the manheads, closed by the plates *e e*. Said cylinder B is provided with a similar but smaller cylinder C, extending longitudinally of the same, in the sides of which, near the bottom, are formed a series of perforations *d d*, the ends of said last-mentioned cylinder having water-inlets *s s*. The said cylinder is also provided with a number of ver-

tical pipes *f f*, around which are secured a number of pans, preferably formed in two sections to permit of their ready removal. A series of pans *h h*, supported on the bands *i i*, which surround the cylinder C and are secured thereto, are arranged on either side and below said pans *d' d'* and on different horizontal planes for the purpose hereinafter set forth. A chamber E, in which any suitable purifying agent, as charcoal or the like, may be charged, is connected with said shell at X, and a vertical pipe *k*, extending from the upper end of said chamber, connects with the horizontal pipe *l*, which enters the shell in the upper side. The same serves to maintain equal pressure in said shell and chamber. A pipe *n*, which may be provided with a strainer *m*, serves to connect said chamber with a pump. (Not shown.)

The operation of my device is as follows: Water being admitted thereto through the inlet-pipes *s s* enters the small cylinder and passes therefrom through the perforations *d d* into the larger cylinder, wherein and in the small cylinder the carbonates contained in the water are deposited. When said large cylinder is full, it overflows therefrom through the pipes in the upper side thereof onto the top series of pans, and thence it descends from one series of pans to the other into the bottom of the shell, and from thence it passes through the purifier into the pump. Steam is introduced through pipes T T, which communicate with the ends of cylinder B at the bottom thereof.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of the inner cylinder C, having perforations *d* and water-inlet pipes *s*, with the concentric inclosing cylinder B having steam-inlet pipes T and outlets *f*, and the casing A having heads which close said cylinders and in which the said inlet-pipes are fixed substantially as and for the purpose set forth.

2. The inner cylinder C having water-inlets at its ends and perforations in its under side,

in combination with the concentric cylinder
B having steam-inlets in its ends at the bot-
tom thereof and outlets at its top, a series of
pans arranged on the outside of the said outer
5 cylinder to receive successively the overflow
from its interior, and a casing or shell inclos-
ing the said cylinders and pans, and provided
with heads that close the cylinders and have

the said inlets fixed in them, substantially as
set forth.

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

J. E. SCHLIEPER.

In presence of—

ALBERT J. WALKER,

W. J. BROWN.