

(No Model.)

2 Sheets—Sheet 1.

A. F. CLINCH.

BOILER.

No. 328,189.

Patented Oct. 13, 1885.

Fig. 1.

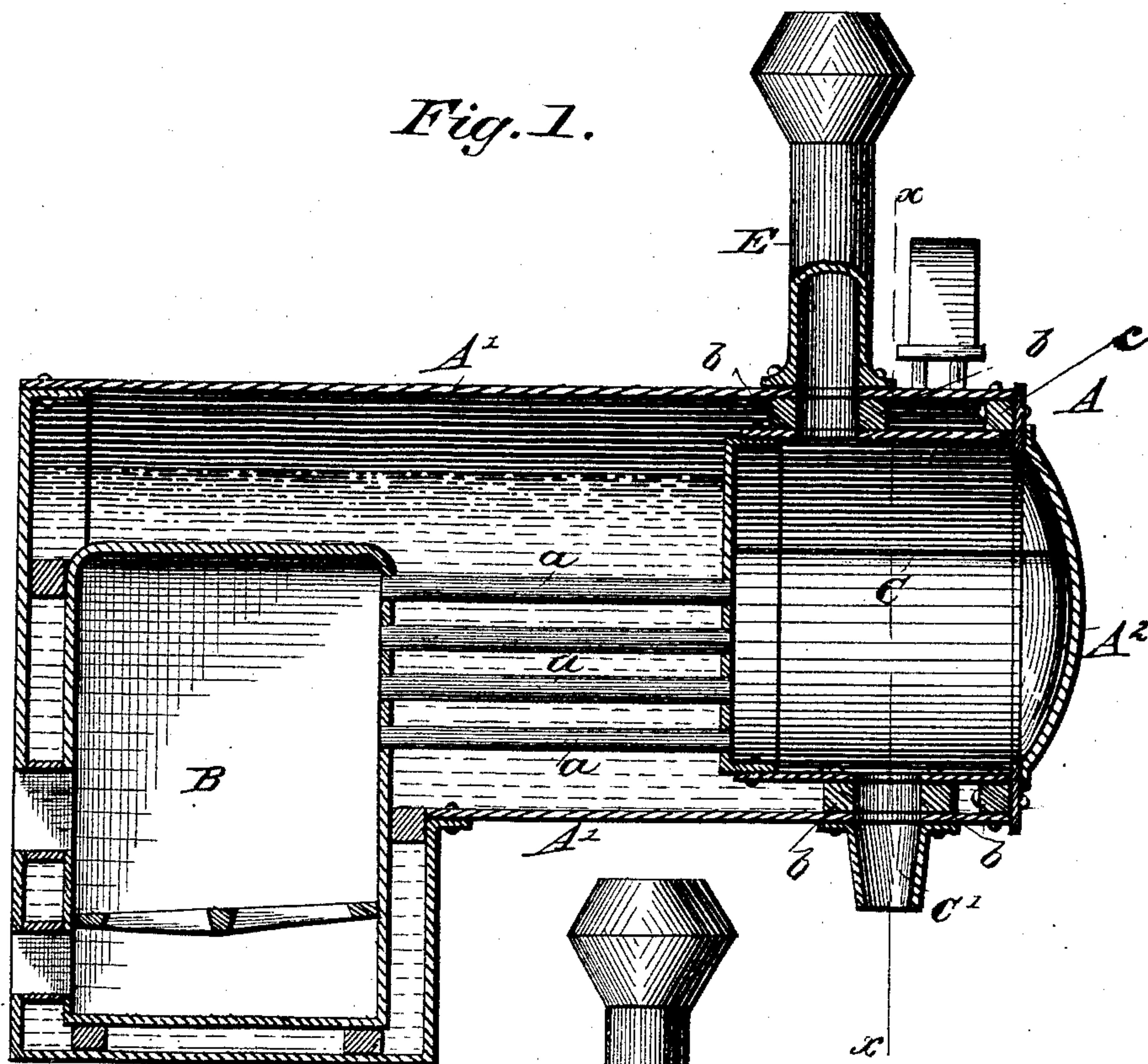
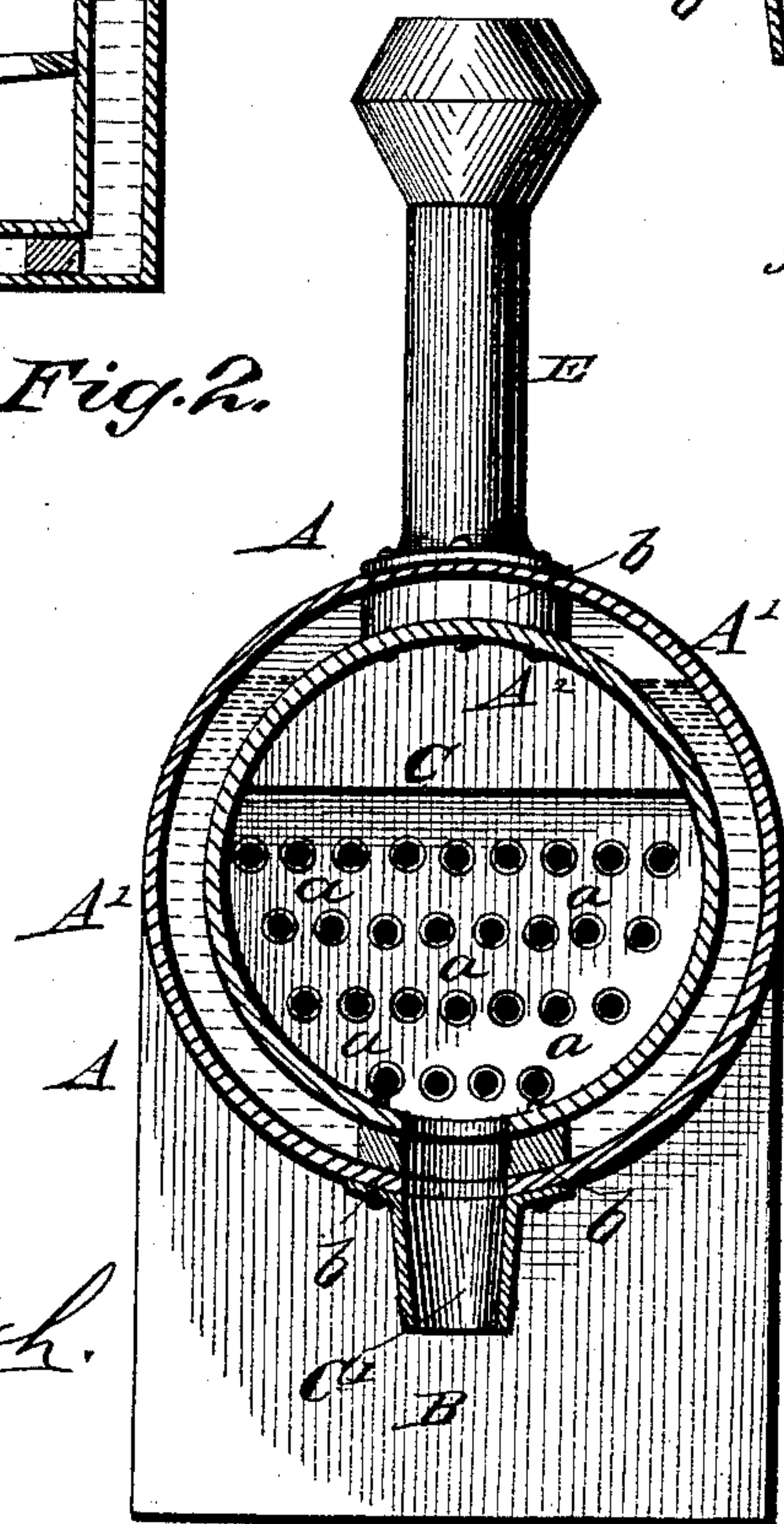


Fig. 2.



WITNESSES

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2 Sheets—Sheet 2.

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Fig. 3.

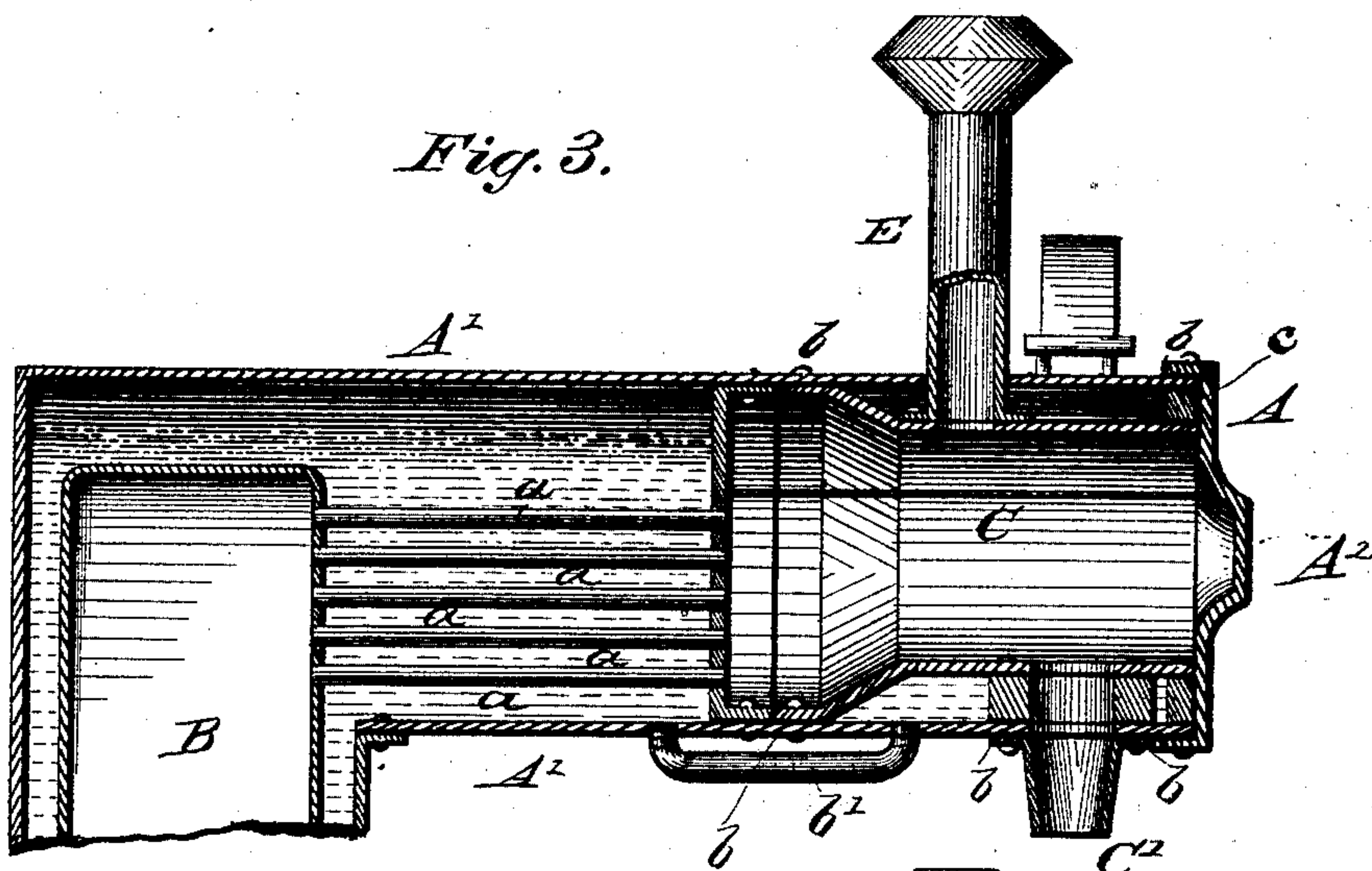


Fig. 4.

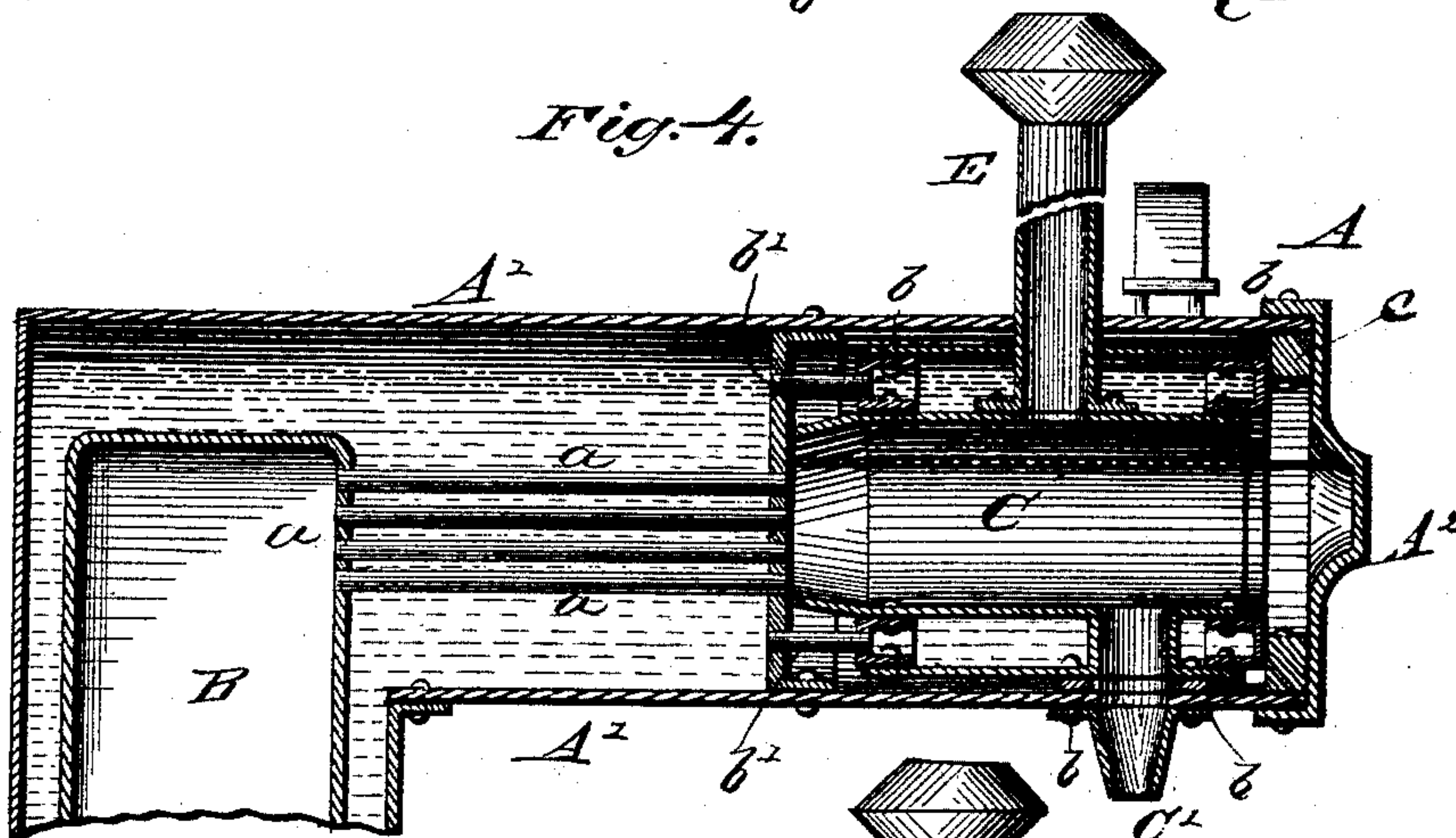
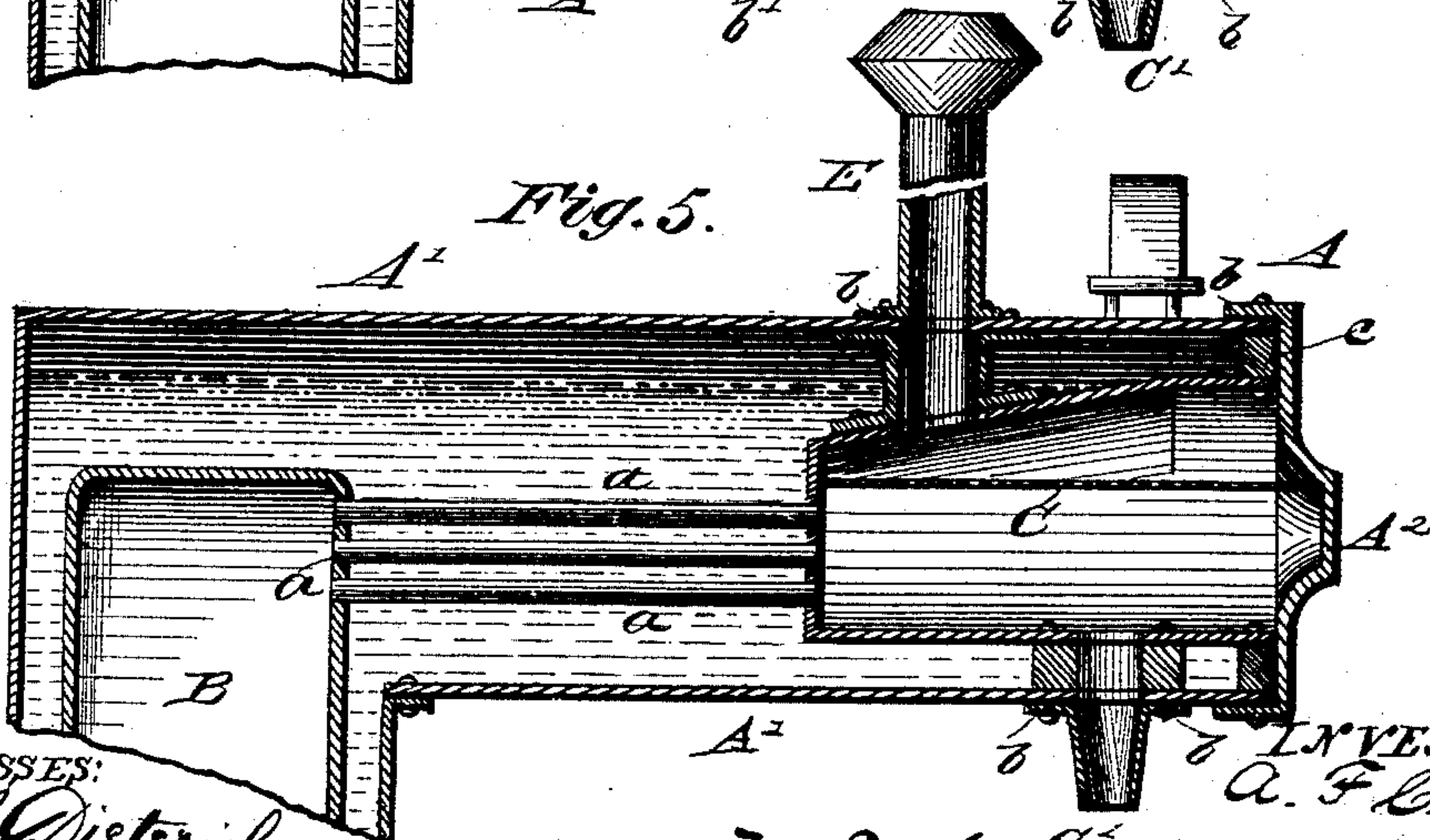


Fig. 5.



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UNITED STATES PATENT OFFICE.

ANDREW F. CLINCH, OF YORK, PENNSYLVANIA.

BOILER.

SPECIFICATION forming part of Letters Patent No. 328,189, dated October 13, 1885.

Application filed August 4, 1885. Serial No. 173,503. (No model.)

To all whom it may concern:

Be it known that I, ANDREW F. CLINCH, a citizen of the United States, residing at York, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Engines; 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 and figures of reference marked thereon, which form a part of this specification.

Figure 1 is a vertical central section through a locomotive-boiler, showing my improved box-extension surrounded by water. Fig. 2 is a vertical section taken transversely in the plane indicated by the dotted line xx ; and Figs. 3, 4, and 5 indicate diametrical sections through parts of locomotive steam-boilers, showing different modifications of my invention.

The object of this invention is to surround the smoke-box of a fixed or portable steam-boiler with water; also to use in combination therewith a perforated diaphragm.

Other features of my invention will be fully understood when taken in connection with the following description and the annexed drawings.

For the purpose of illustrating my invention, I have represented in the annexed drawings a locomotive-boiler; but it is obvious that this may be a stationary boiler constructed as follows:

A designates the front part of the boiler; A', the cylindrical shell thereof, and B is the fire-box having the usual well-known tubes, a . These tubes, like all well-known flue or tube boilers, are hermetically sealed in the fire-box sheet, and also in the tube-sheet of the smoke-box.

The smoke-box is arranged inside of a forward extension of the boiler-shell A', and it is sustained by rivets passed through eye-bearers b , so that it is isolated from the shell A' all around. This leaves a water-space about the smoke-box, which prevents it from being burned out, or, in other words, exposed to undue heat.

The annular bearer c serves, in connection with the rivets thereof, as the means for uniting the front end of the smoke-box to the

front end of the boiler-shell; and it also serves as the bearer for riveting the annular boiler-head to the two shells.

A² indicates the head of the smoke-box.

C' is the common man-hole or outlet for cinders.

Just above the highest gang of flues I employ a perforated or reticulated diaphragm, C, the object of which is to cut up and so distribute the live sparks that they will fall extinguished and will not escape through the uptake E.

It will be observed, first, that I keep the smoke-box comparatively cool by reason of having it surrounded by water, and also that I employ in combination therewith a spark-breaking diaphragm. Furthermore, I form an extension of the boiler-shell and make it a part of the boiler proper.

It is obvious that the head of the smoke-box may be shut and a tube, b' , used to form a water communication.

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

1. The combination, with the steam-boiler A', of a smoke-box surrounded by water within the extension of the boiler-shell, the eye-bearers b , the stack E, the outlet C', and a reticulated diaphragm between said stack and its bearer, and said outlet and its bearer, as shown and described.

2. The combination, with a horizontal boiler-shell and its fire-box and flues, of a smoke-box having a reticulated diaphragm above said flues, and isolated within the boiler by means of eye-bearers b , the annular bearer c , the outlet C' through the lower bearer, and the outlet E through the upper bearer, as shown and described.

3. The combination, with a flue steam-boiler, of the isolated smoke-box therein, the eye-bearers b , the bearers c , the outlets E' C' through the bearers b , the reticulated diaphragm between said outlets and above flues a , and the head A², all constructed and adapted to operate as described.

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

ANDREW F. CLINCH.

Witnesses:

WALTER B. WHITE,
J. JESSOP.