

(No Model.)

2 Sheets—Sheet 1.

R. J. MALCOLM.

STEAM OR HOT WATER GENERATOR.

No. 365,347.

Patented June 21, 1887.

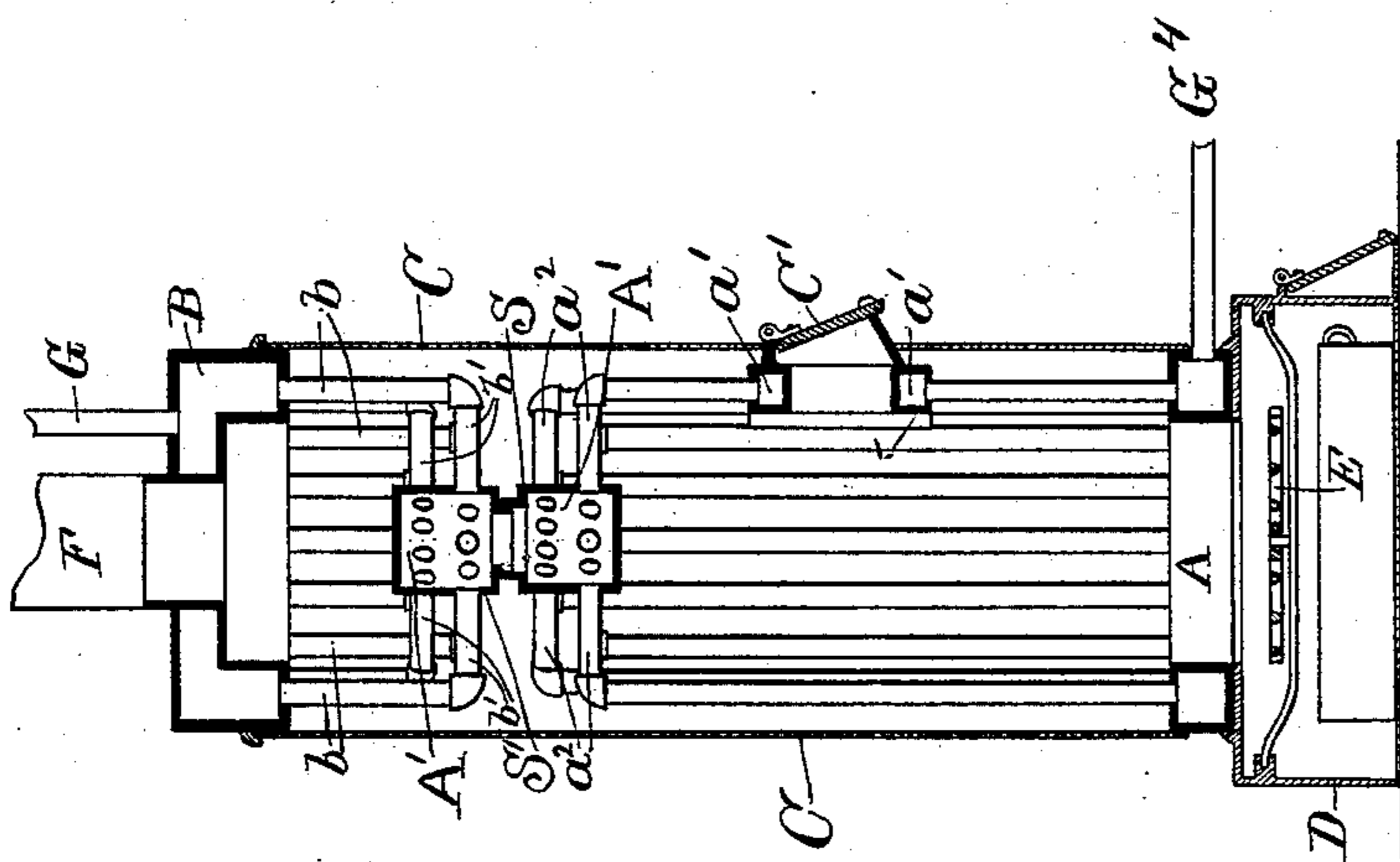


Fig. 1.

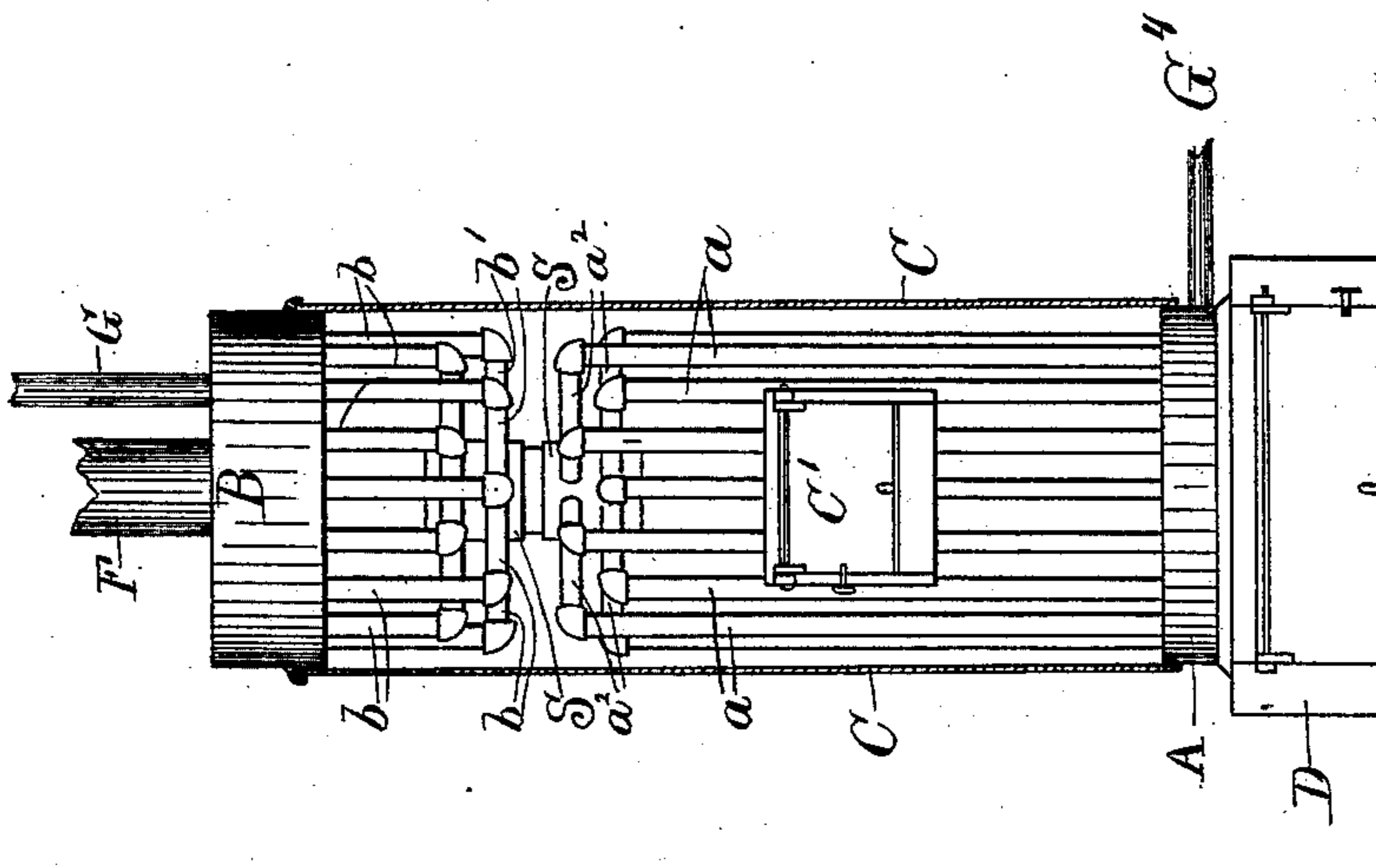


Fig. 10.

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Fig. 2.

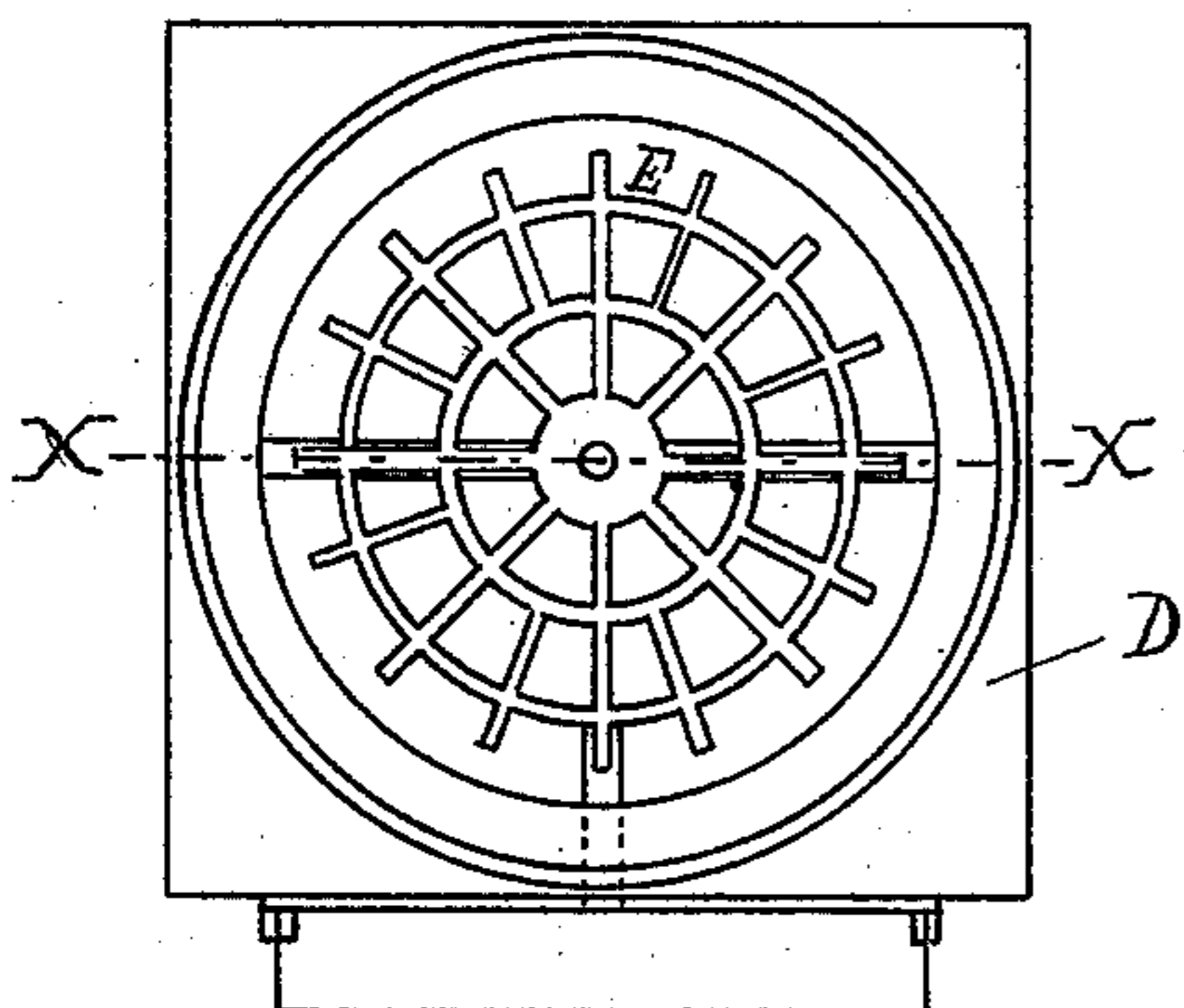


Fig. 3.

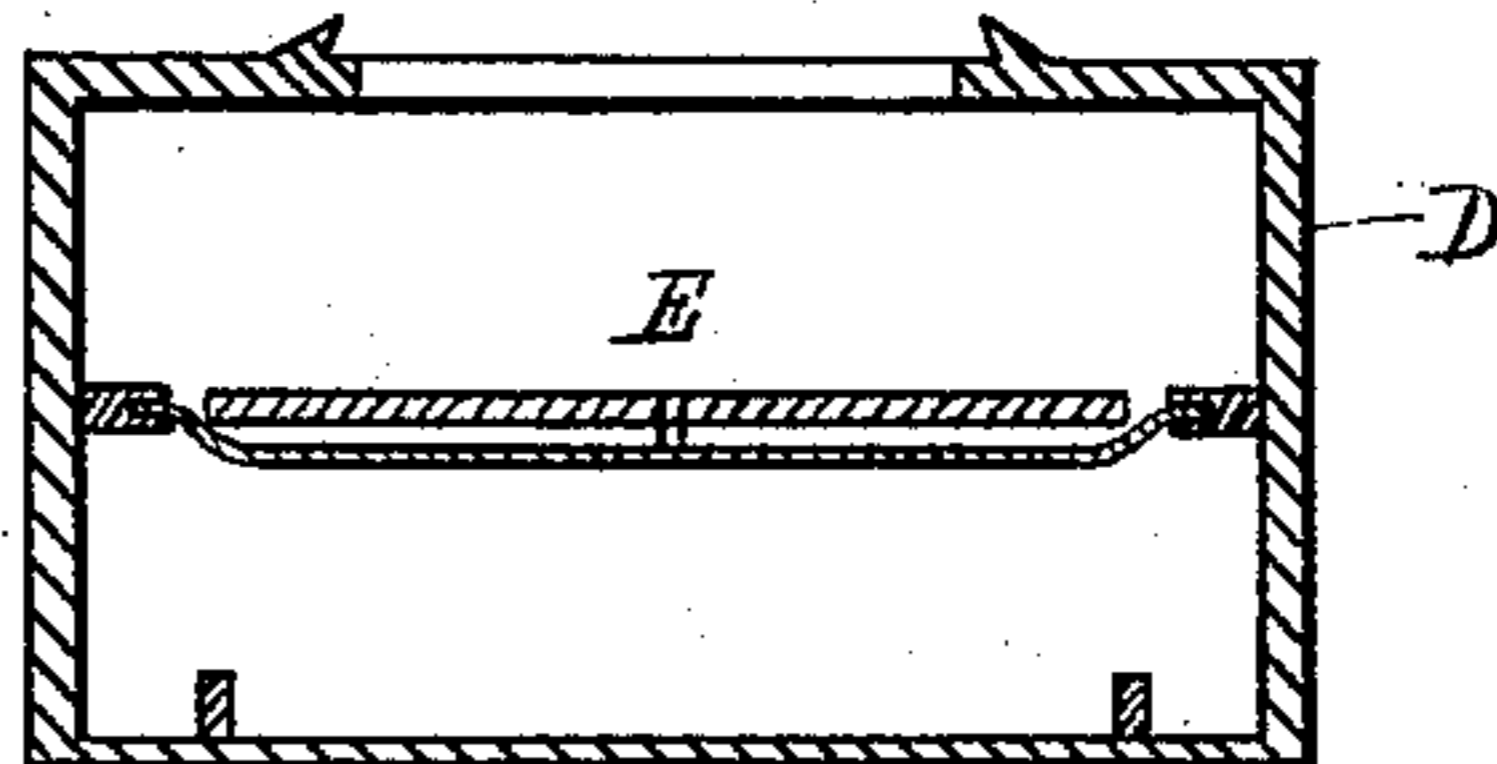


Fig. 4.

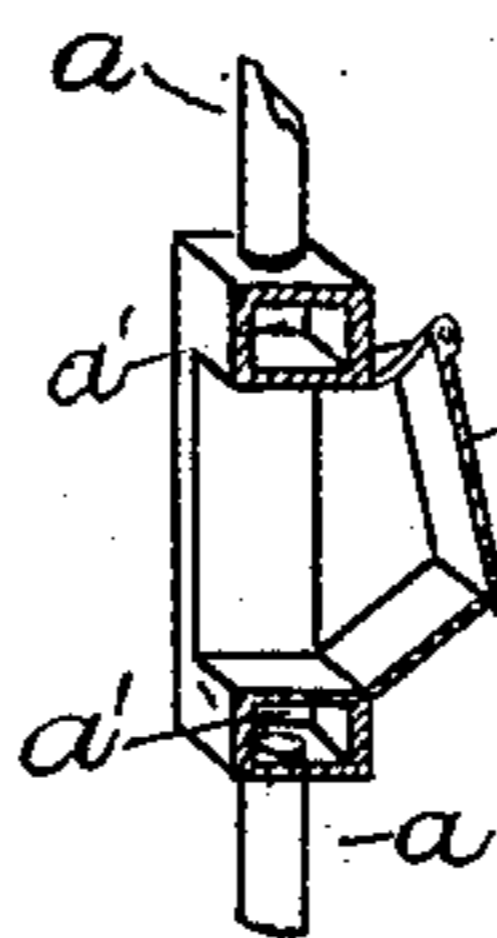


Fig. 5.

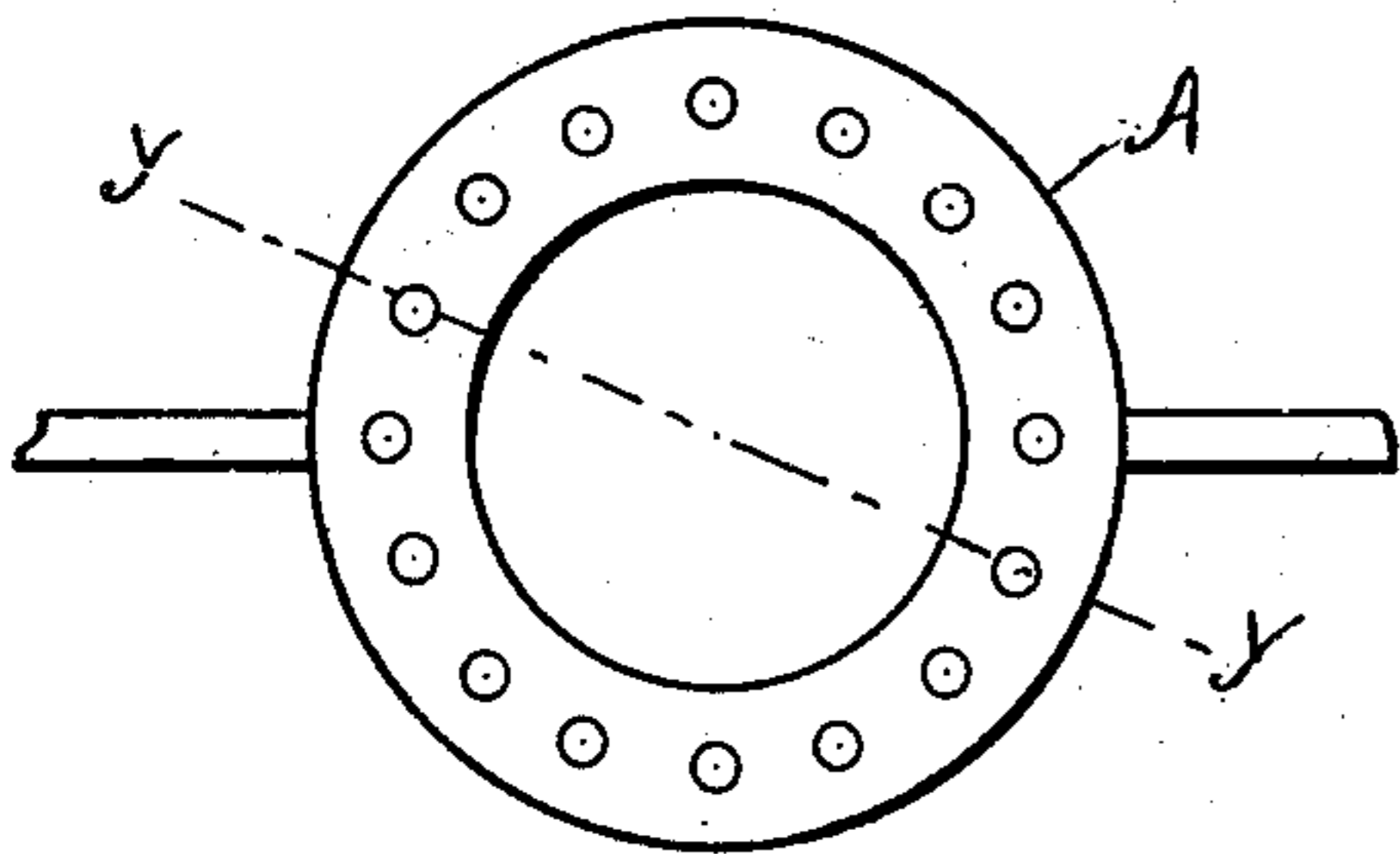


Fig. 6.

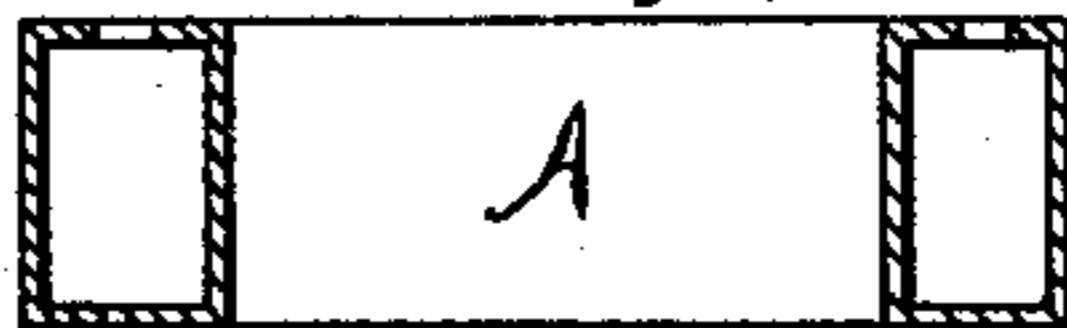


Fig. 7.

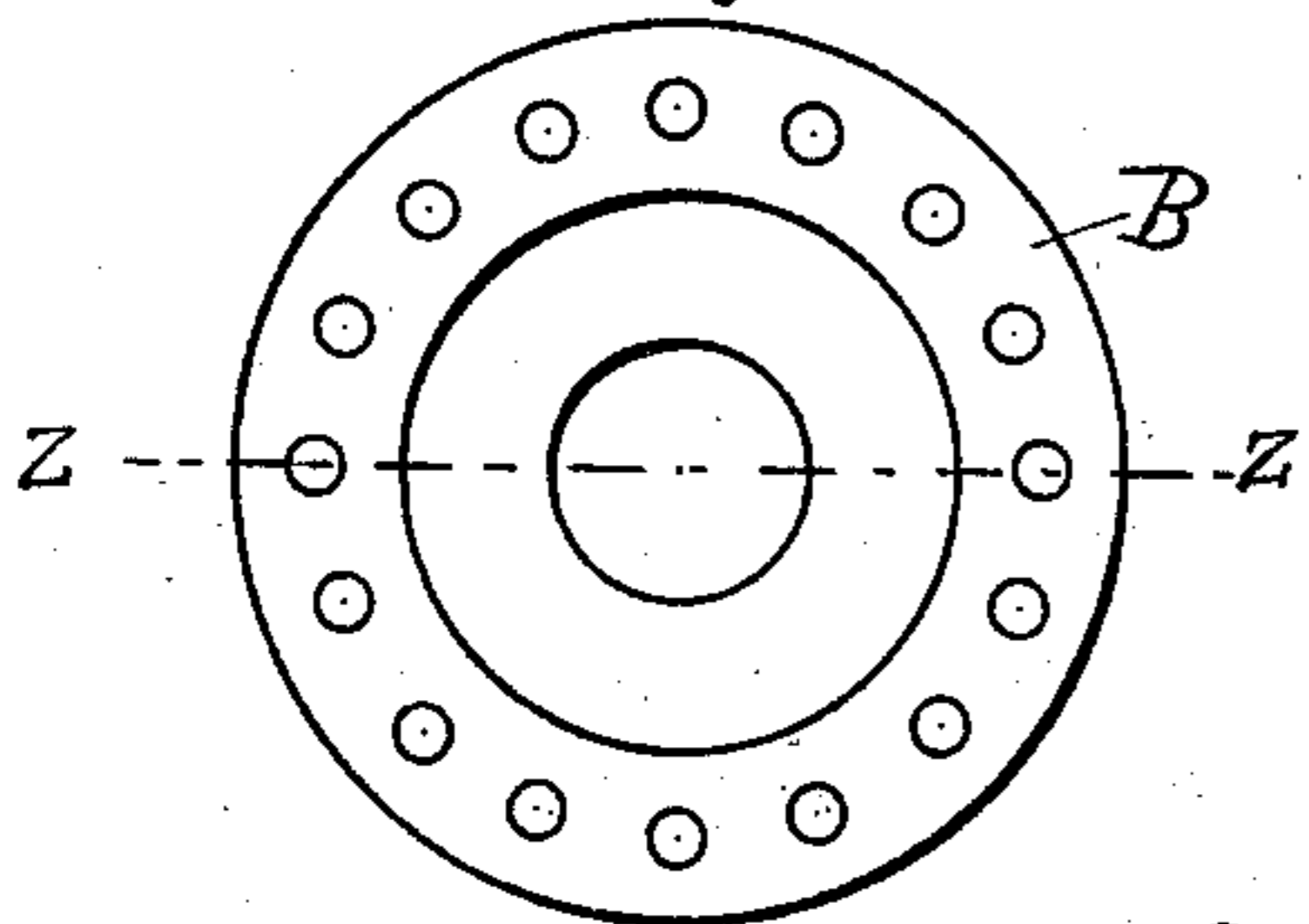


Fig. 8.

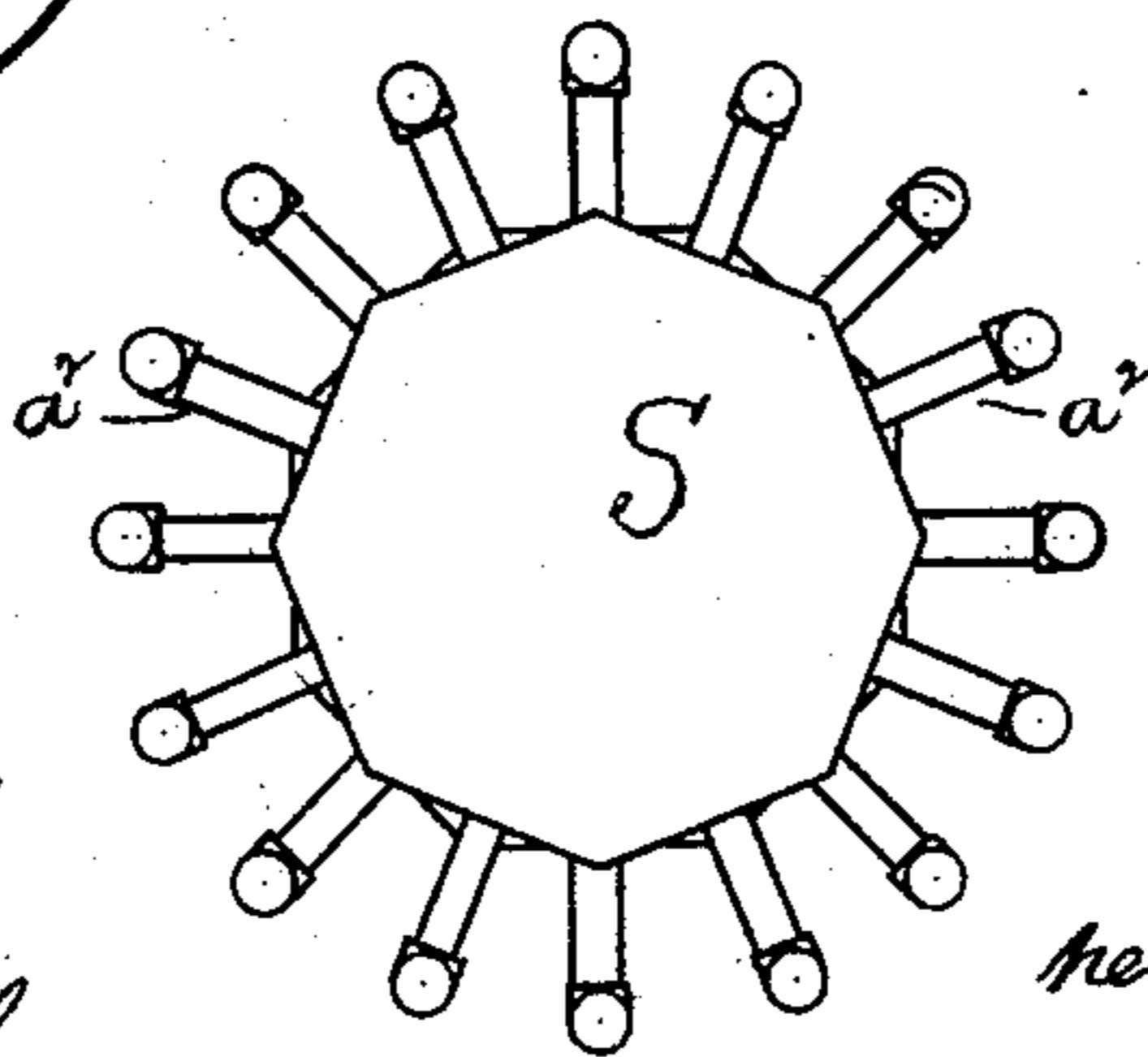
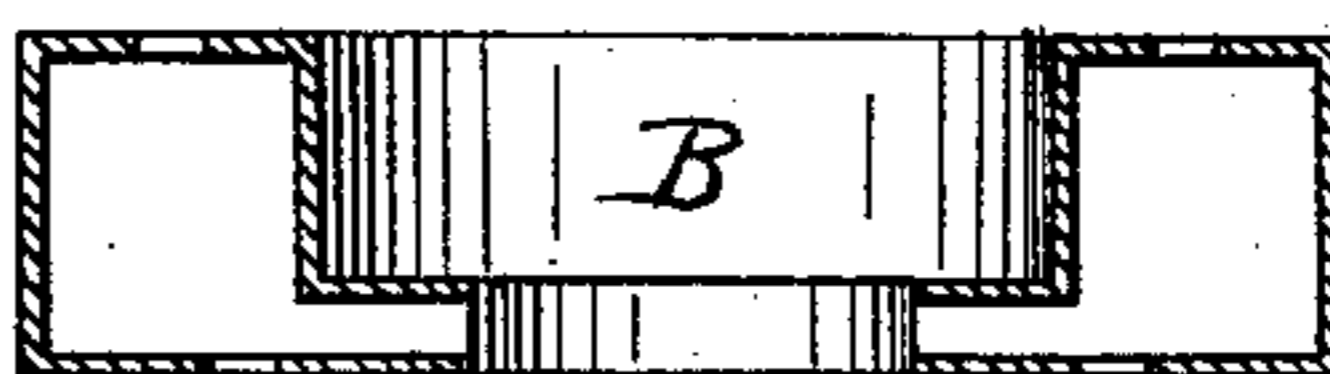


Fig. 9.

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UNITED STATES PATENT OFFICE.

ROBERT J. MALCOLM, OF CINCINNATI, OHIO, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF TWO-THIRDS TO JOHN D. ABRAHAM AND NICHOLAS K. AYLWARD, BOTH OF SAME PLACE.

STEAM OR HOT-WATER GENERATOR.

SPECIFICATION forming part of Letters Patent No. 365,347, dated June 21, 1887.

Application filed April 19, 1886. Serial No. 199,293. (No model.)

To all whom it may concern:

Be it known that I, ROBERT J. MALCOLM, a resident of Cincinnati, county of Hamilton, and State of Ohio, have invented certain new and useful Improvements in Steam or Hot-Water Generators, of which the following is a specification.

The several features of my invention and the various advantages resulting from their use, conjointly or otherwise, will be apparent from the following description.

In the accompanying drawings, forming part of this specification, Figure 1 is a central vertical sectional elevation of my improved generator. Fig. 2 is a top view of the base of the generator. Fig. 3 is a cross section taken at the line *x x*, Fig. 2. Fig. 4 is a sectional perspective of the door and door-frame of the generator. Fig. 5 is a top view of the annular base of the generator. Fig. 6 is a cross-section taken at the line *y y*, Fig. 5. Fig. 7 is a view of the under side of the annular top of the generator. Fig. 8 is an inverted cross-section taken at the line *z z* of Fig. 7. Fig. 9 is a top view of the upper spider. Fig. 10 is a front elevation of the generator with the front half of the casing removed.

The hollow ring A is provided with a number of pipes, *a*, which communicate with the space within the ring A and extend upwardly from the ring. The spider S consists of a central chamber, A', from which pipes *a*² project radially. These pipes *a*² connect with the vertical pipes *a*. The inverted spider S' is similar in construction to the spider S, being provided with radial pipes *b*' and vertical pipes *b*. The spider S' rests upon the spider S and communicates with the spider S. The vertical pipes *b* from the spider S' extend upwardly and enter the hollow ring B. The steam-pipe G leads out from the hollow ring B. The generator rests on the base D and is surrounded by the casing C. The base D supports the grate E under the opening in the annular pipe A.

The casing is provided with the door C', and the opening opposite the door C' is sur-

rounded by the hollow frame *a'*, with which the pipes *a* communicate. The smoke-pipe F leads from the top of the generator to an adjacent flue. The feed-pipe G¹ enters the ring A of the generator and derives its feed-water from any convenient source.

The mode of using the generator is as follows: Water is fed through the feed-pipe G¹ into the pipes of the generator. Fire is now started in the generator on the grate E, fuel being fed through the door C'. The fire, coming in direct contact with the tubes or pipes *a*, soon raises the contained water to any desired temperature, or converts it into steam. The use for which I have especially intended this generator is as the heater in a system of hot-water heating. It may also be employed as a steam-generator, either for use in a system of steam-heating or to supply steam for other purposes.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a hot-water or steam generator, the combination of the annular pipes A and B, the vertical pipes *a* and *b*, and the spiders S and S', provided, respectively, with the radial pipes *a*² and *b*', substantially as and for the purposes specified.

2. In a hot-water or steam generator, the combination of the annular pipes A and B, the vertical pipes *a* and *b*, the hollow frame *a'*, communicating with pipes *a*, the spiders S and S', provided, respectively, with the radial pipes *a*² and *b*', and casing C, substantially as and for the purposes specified.

3. In a hot-water or steam generator, the combination of the annular pipes A and B, the vertical pipes *a* and *b*, the hollow frame *a'*, communicating with pipes *a*, the spiders S and S', provided, respectively, with the radial pipes *a*² and *b*', casing C, and base D, having grate E, substantially as and for the purposes specified.

ROBERT J. MALCOLM.

Attest:

JNO. W. STREHLI,
M. M. SMITH.