

(No Model.)

J. H. ROSENTHAL.
SECTIONAL STEAM GENERATOR.

No. 538,047.

Patented Apr. 23, 1895.

Fig. 1.

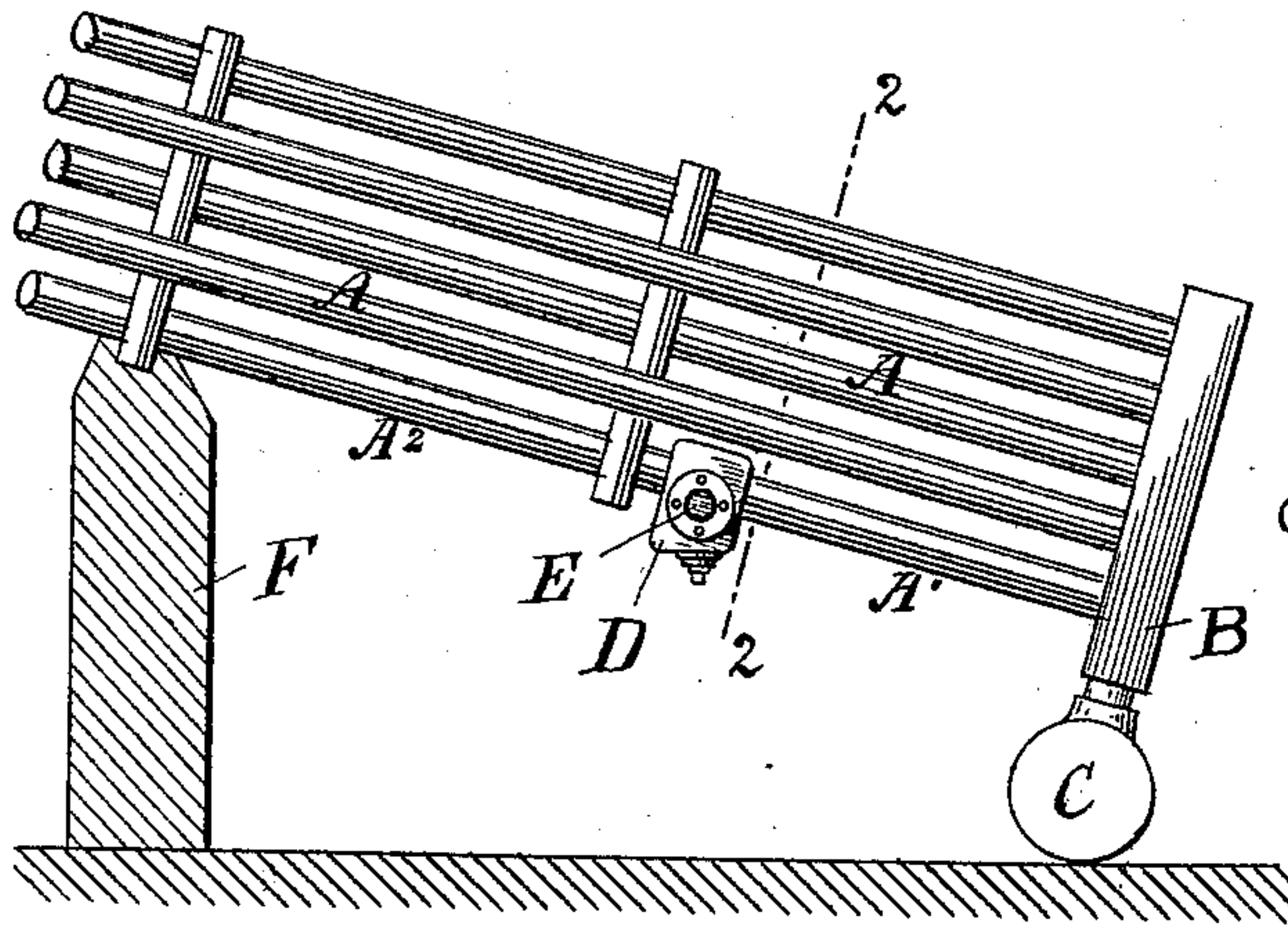


Fig. 2.

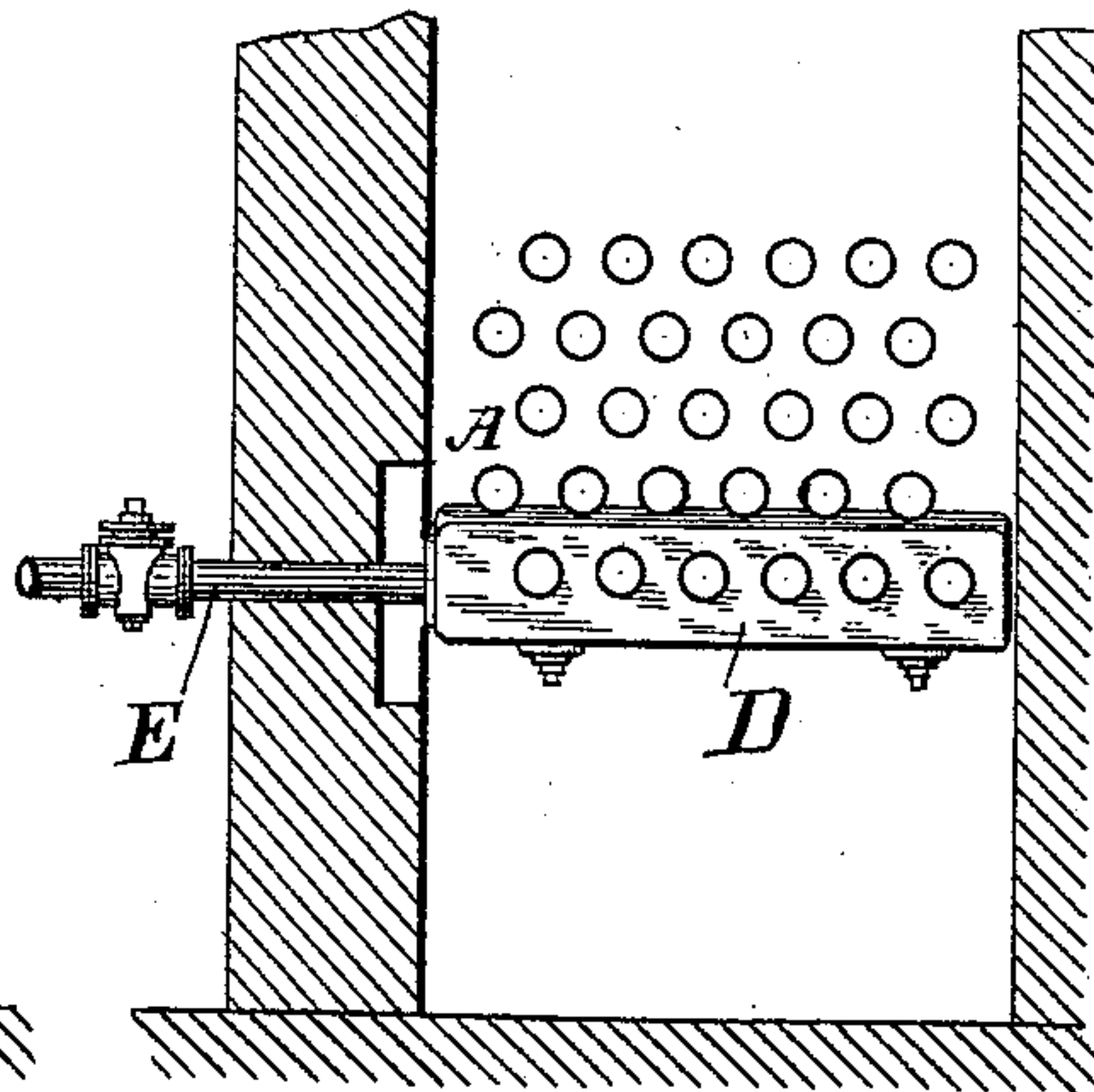
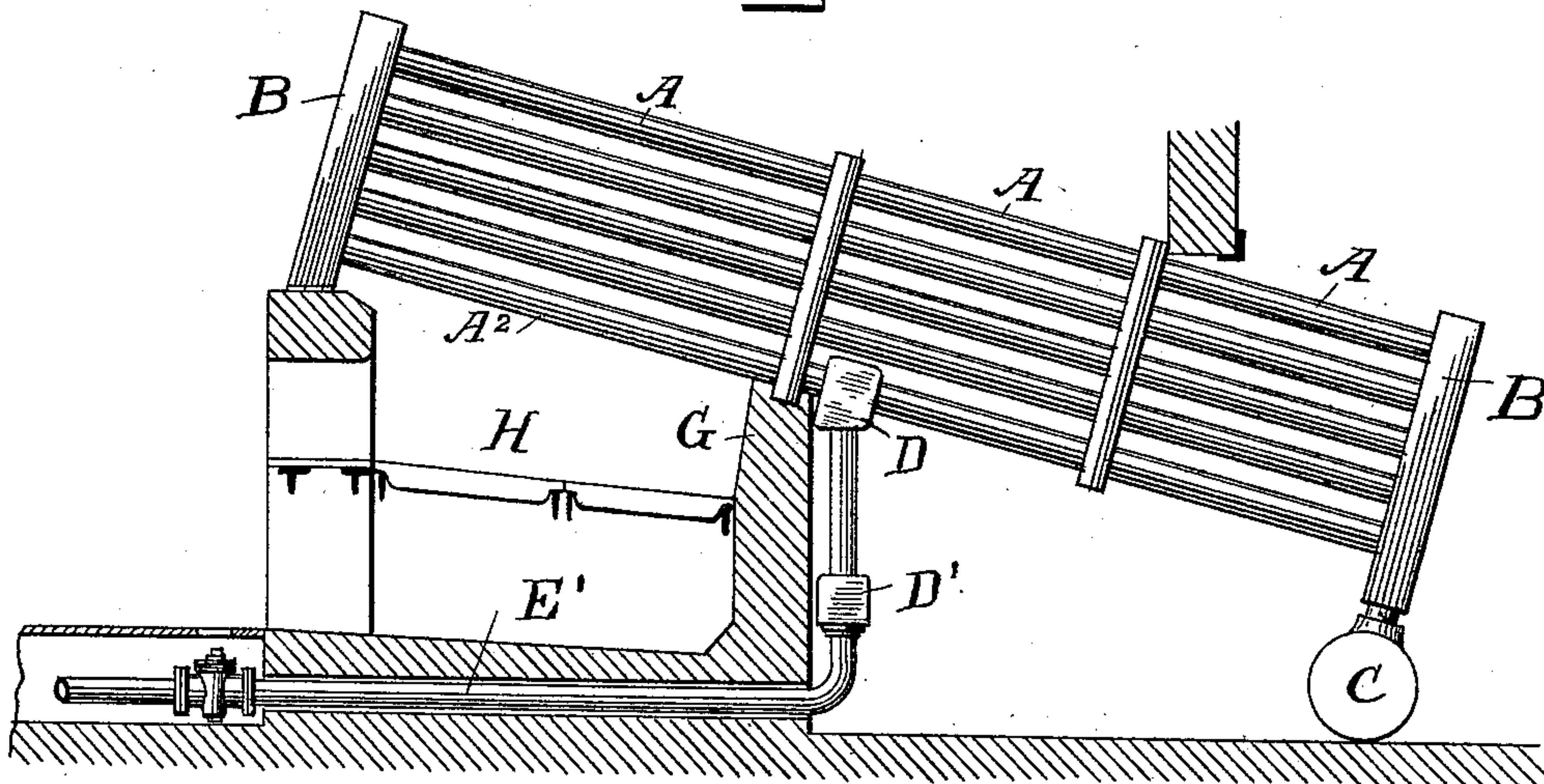


Fig. 3.



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JAMES HERMANN ROSENTHAL, OF LONDON, ENGLAND.

SECTIONAL STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 538,047, dated April 23, 1895.

Application filed March 17, 1892. Serial No. 425,212. (No model.) Patented in England January 20, 1892, No. 1,134.

To all whom it may concern:

Be it known that I, JAMES HERMANN ROSENTHAL, a citizen of the United Kingdom of Great Britain and Ireland, residing at 114 Newgate Street, in the city of London, England, have invented new and useful Improvements in Sectional Steam-Generators, (which have not been patented in any country except Great Britain by Letters Patent dated the 20th day of January, 1892, No. 1,134;) and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art or manufacture to which it relates to make and use the same.

This invention relates to sectional steam generators and has for its object the provision of means for intercepting and removing sludge or impurities from the water in the inclined tubes in which the water circulates, and for providing for the scouring or sludging of individual rows of these tubes in order to prevent incrustation.

In the accompanying drawings, Figure 1, is a sectional elevation showing part of the circulating tubes of a steam generator of the Babcock and Wilcox type; Fig. 2, a cross section of the same, and Fig. 3, a modification hereinafter particularly described.

The circulating tubes A are connected to headers B, at rear and in front in the usual way, and the ordinary mud drum C is connected to the rear header. The lower row or rows of tubes A', A², instead of extending from the front to the rear headers are under the invention divided in their lengths and a cross box or drum D is interposed by preference behind one of the flame bridges F. These tubes at A' extend from the rear headers to the said cross box or drum to which they are attached by expanding and at A² they extend from the front headers to the front side of said drum.

The cross box or drum D which may be of any cross section extends entirely across a row of tubes and constitutes an interceptor for such impurities as do not fall into the mud drum C, but are carried along with the water circulating in these tubes, the impurities being deposited as sludge in the bottom of the

drum D. To the bottom or end of the drum D a blow-off pipe or pipes E is or are connected, the said pipes being carried to any convenient point and fitted with a cock by opening which the sludge may be blown off to clear the deposit in the drum D, the tubes subject to the fiercest heat of the fire being thus kept free from liability of incrustation.

As shown at Fig. 3, the cross box or drum D may be interposed in the length of the circulating tubes A² at a point behind the bridge C of the boiler furnace H and the blow-off pipe E led down behind the bridges into a supplemental cross box or drum D', or directly to a lower cross pipe E', and thence through the ash box, the stop cock being either outside or as shown operated by a rod or lever passed through the ash box.

Having thus described the invention, what I desire to secure by Letters Patent is—

1. A sectional steam-generator composed of a series of rows of circulating tubes connected to, and in direct communication with headers at their respective ends, and having a mud-drum extending transversely across the lowermost row of such series of tubes, intermediate of their length, and in open connection with each tube of said row; and a blow-off pipe extending from said drum, substantially as and for the purposes specified.

2. In combination with a sectional steam-generator, composed of a series of rows of circulating tubes connected to, and in direct communication with headers at their respective ends, and having a mud-drum in open connection with the rear header, an auxiliary mud-drum extending transversely across the lowermost row of such series of tubes, intermediate of their length and in open connection with each tube of said row; and blow-off pipes extending from said drums, substantially as set forth.

In witness whereof I have hereunto set my hand and seal this 23d day of January, 1892.

JAMES HERMANN ROSENTHAL. [L. S.]

Witnesses:

WALLACE FAIRWEATHER,
JOHN ARMSTRONG, Jr.