

A. R. McDONALD.
Steam-Generators.

No. 135,236.

Patented Jan. 28, 1873.

Fig 1

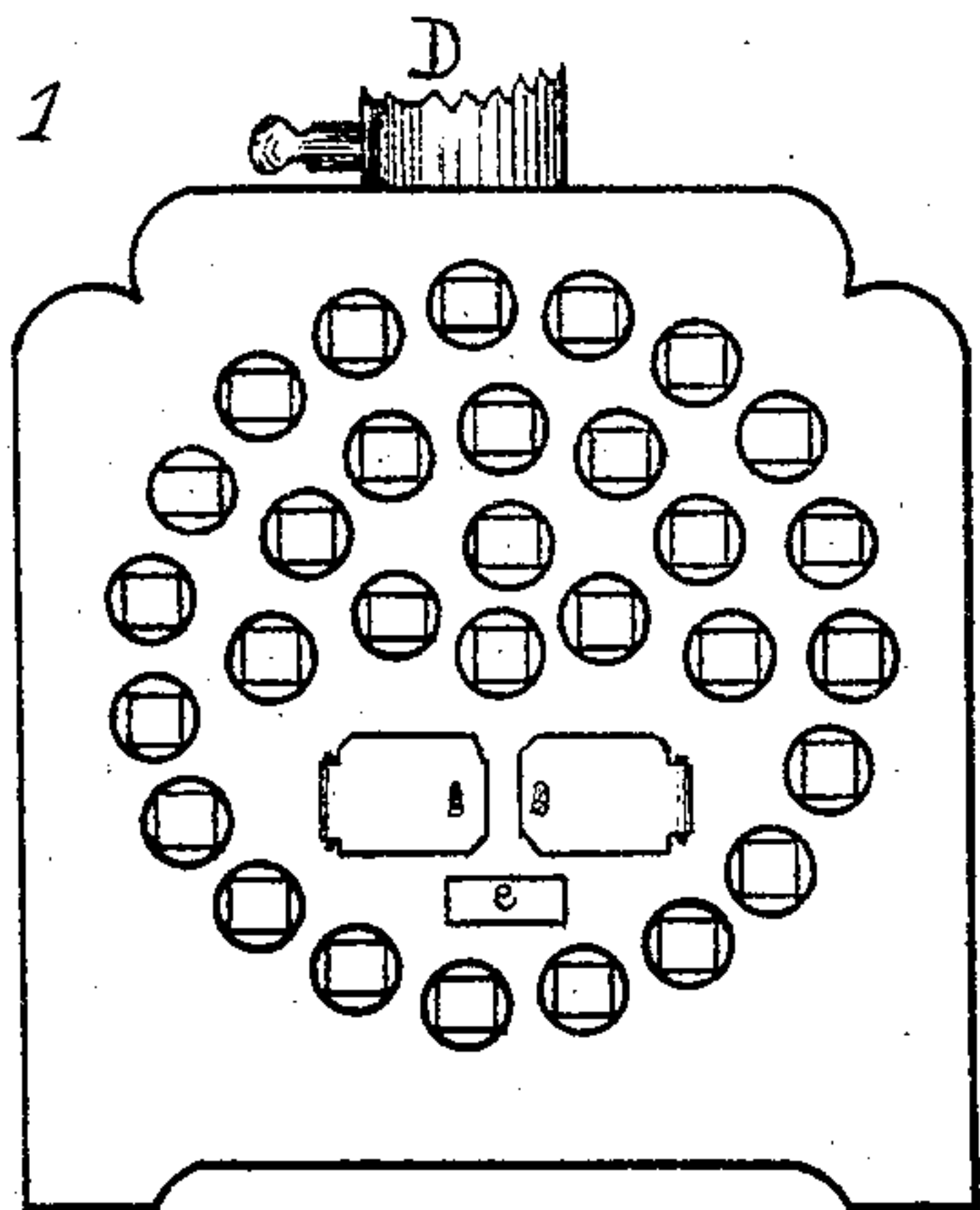


Fig 3

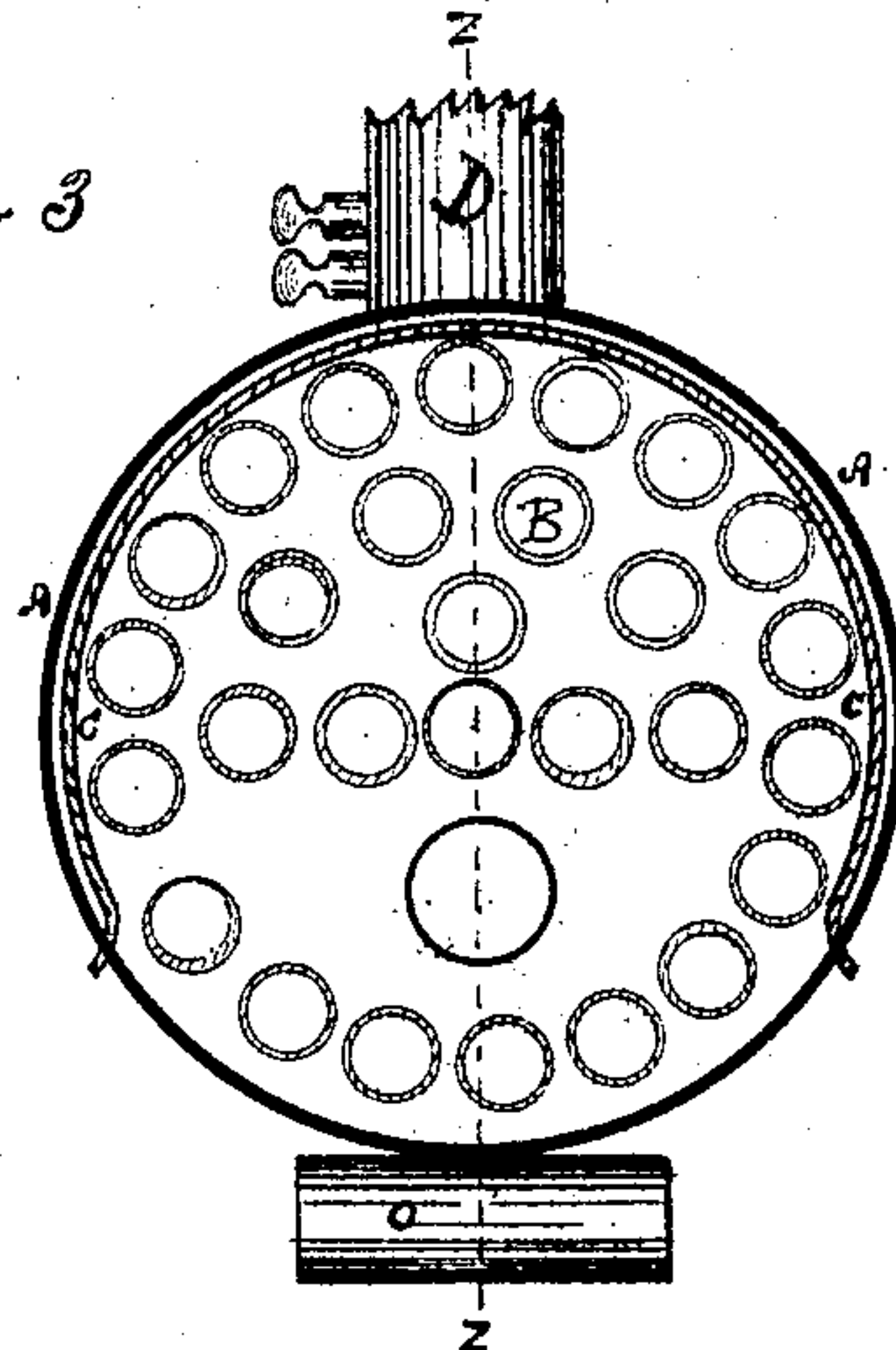


Fig 2

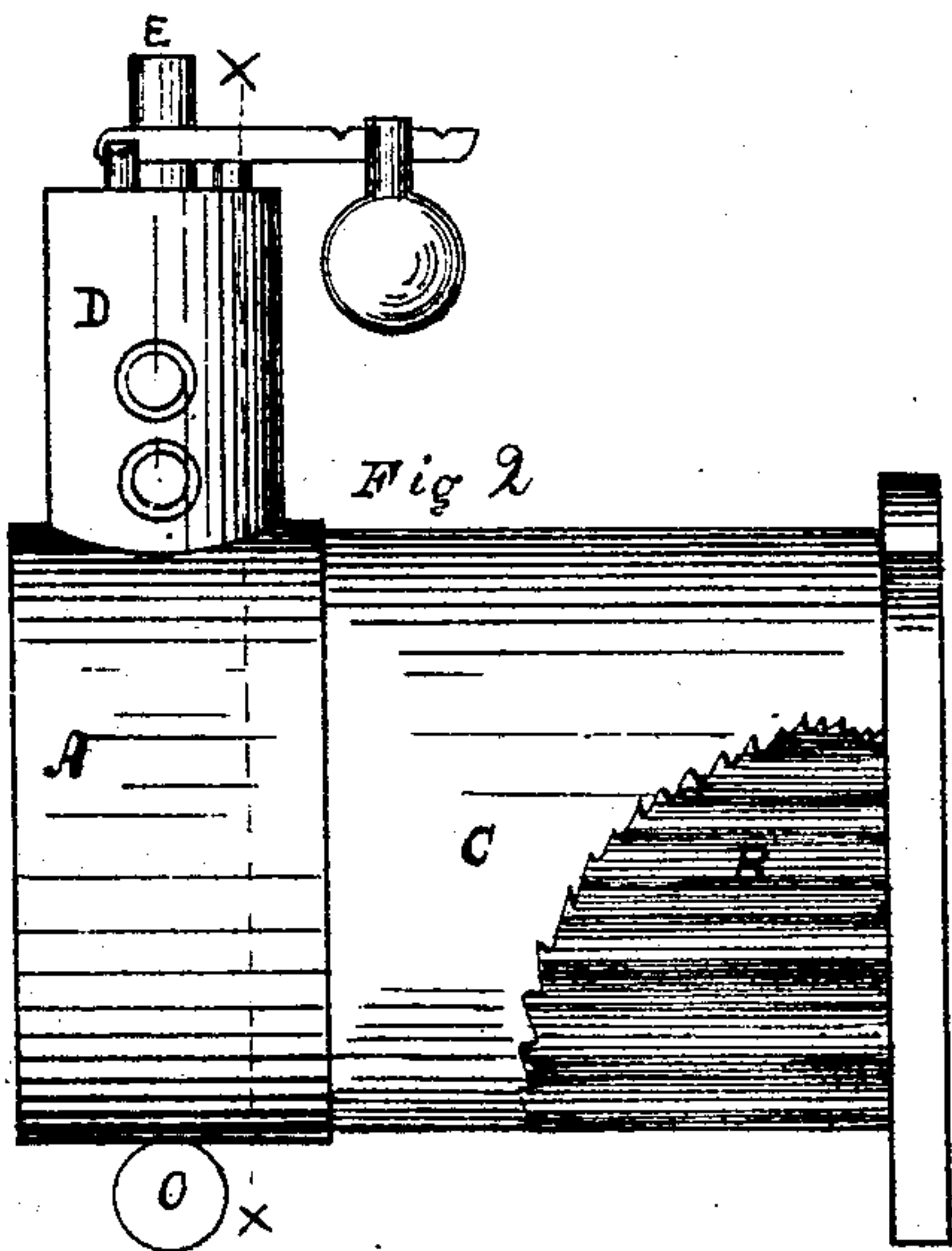


Fig 4

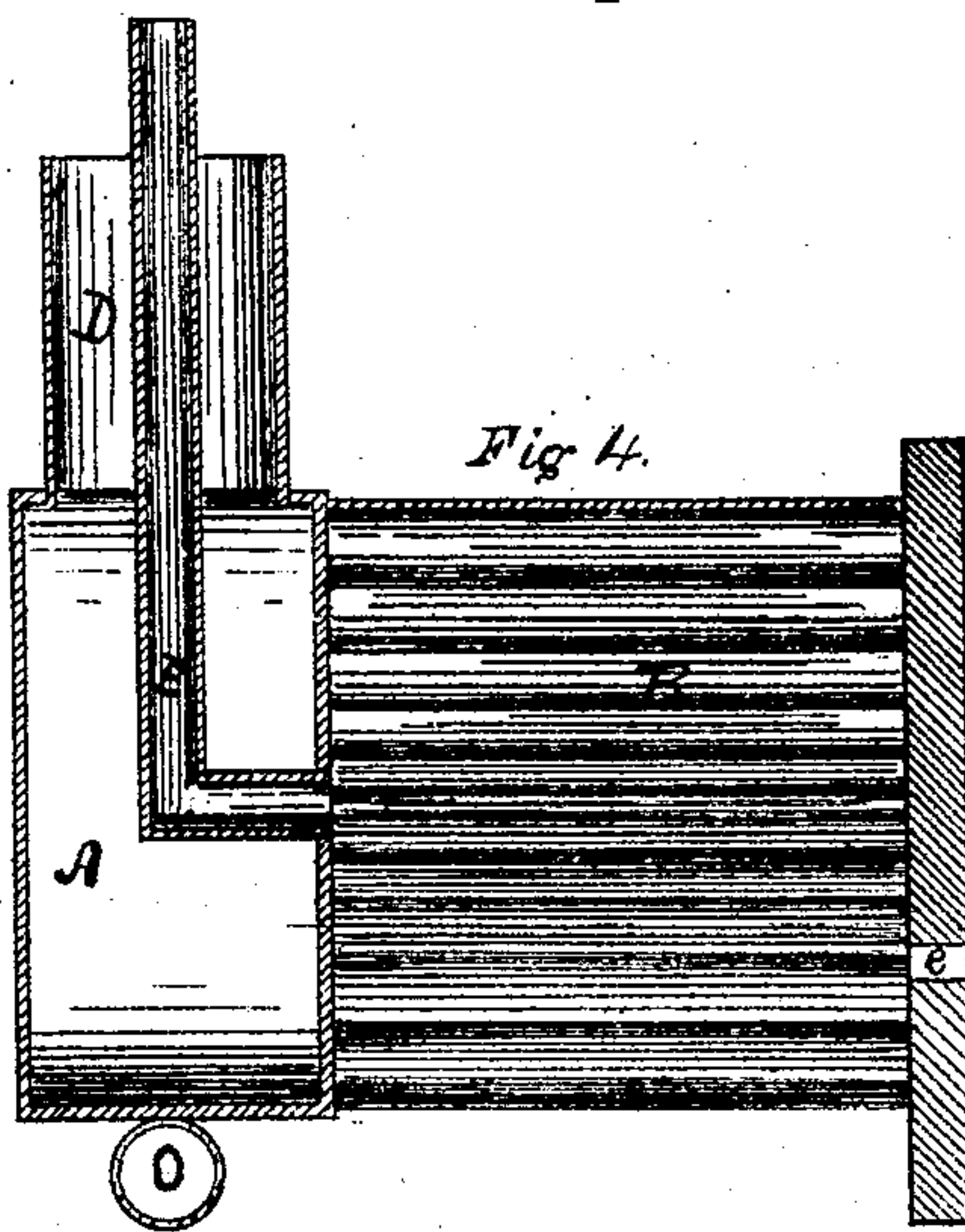
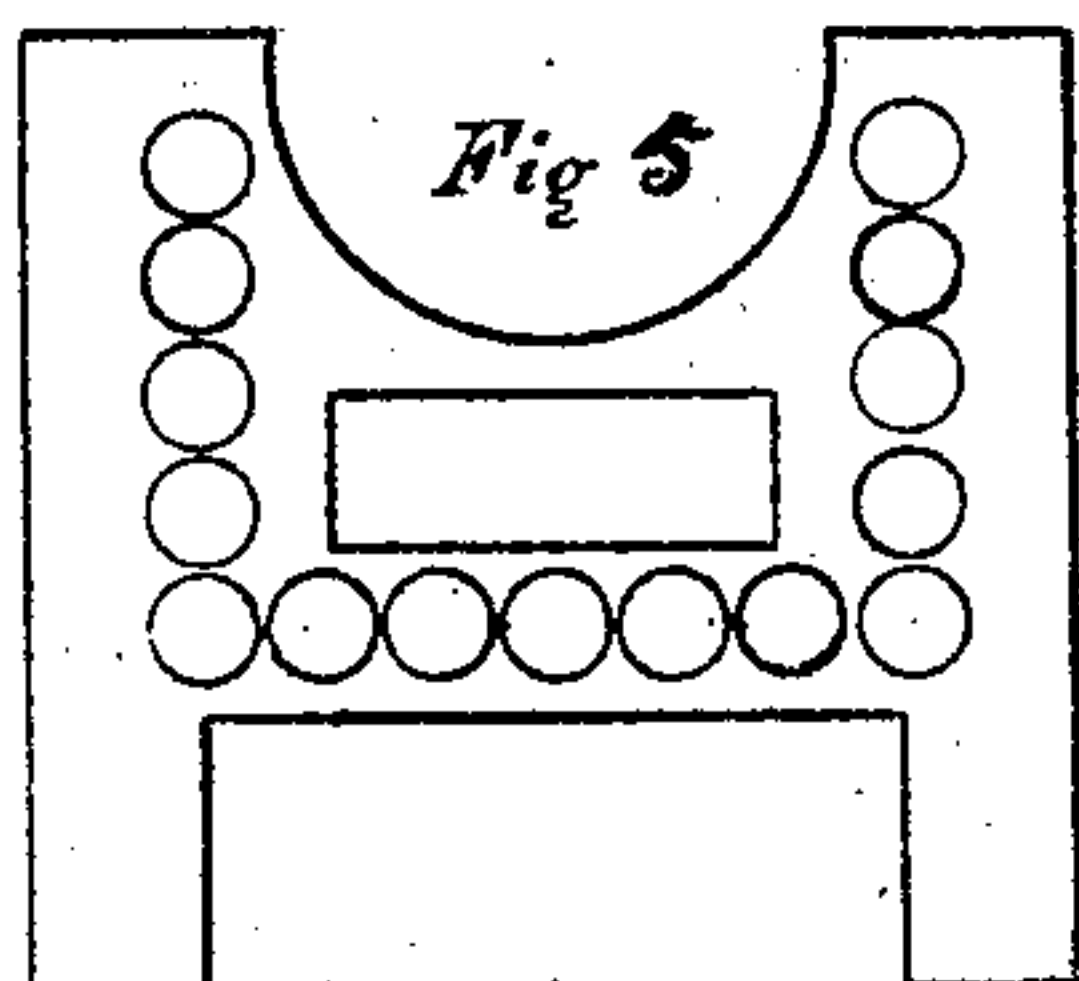


Fig 5



WITNESSES.

E. H. Hart
J. M. Shanker

INVENTOR.

A. R. McDonald
Per G. H. Frost & Co.
Attorneys

UNITED STATES PATENT OFFICE.

ALEXANDER R. McDONALD, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN STEAM-GENERATORS.

Specification forming part of Letters Patent No. 135,236, dated January 23, 1873.

To all whom it may concern:

Be it known that I, ALEXANDER R. McDONALD, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Steam-Generators; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is an end view of my invention; Fig. 2 is a side view of the same with a portion of the casing removed to show the position of the flues; Fig. 3 is a vertical cross-section taken on dotted line *x x*, Fig. 2; Fig. 4 is a vertical cross-section taken on dotted line *z z*, Fig. 3; and Fig. 5 is an end view of my furnace to be used in connection with an ordinary boiler.

Similar letters of reference indicate corresponding parts in the several figures of the drawing.

The object of my invention is to provide an improved steam-generator, at greatly reduced cost of production, that will furnish the necessary amount of power with a very small amount of fuel, and which will, by reason of the small amount of steam retained within the boiler, render explosions almost impossible; and to that end it consists in the employment of a very small boiler, in connection with a series of flues, so arranged as to generate steam as rapidly as it is required for use, by that means

obviating the necessity of storing large quantities for future use.

In the accompanying drawing, A represents the boiler, and B the flues connected therewith at one end, the opposite end being stopped with screws, as shown in Fig. 1. C is a metallic sheeting extending over the top of the flues and about three-quarters of the way around the same. D represents the dome, and E the smoke-stack, the latter passing immediately through the boiler to utilize the heat therefrom that would otherwise be lost.

In using my invention about three-quarters of the ordinary steam-boiler is dispensed with, the difference being supplied with the flues, which are composed of ordinary wrought-iron pipe, the water being upon the inside instead of the outside thereof, and the flame and heat passing all around them, by which construction the filling up of the flues with soot and cinders is entirely done away with.

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

Boiler A, in combination with dome D, smoke-stack E, and flues B, the whole arranged to operate substantially in the manner and for the purposes herein set forth.

The above specification of my invention signed by me this 1st day of June, 1872.

ALEXANDER R. McDONALD.

Witnesses:

A. J. SMITH,
W. C. HUNTINGTON.