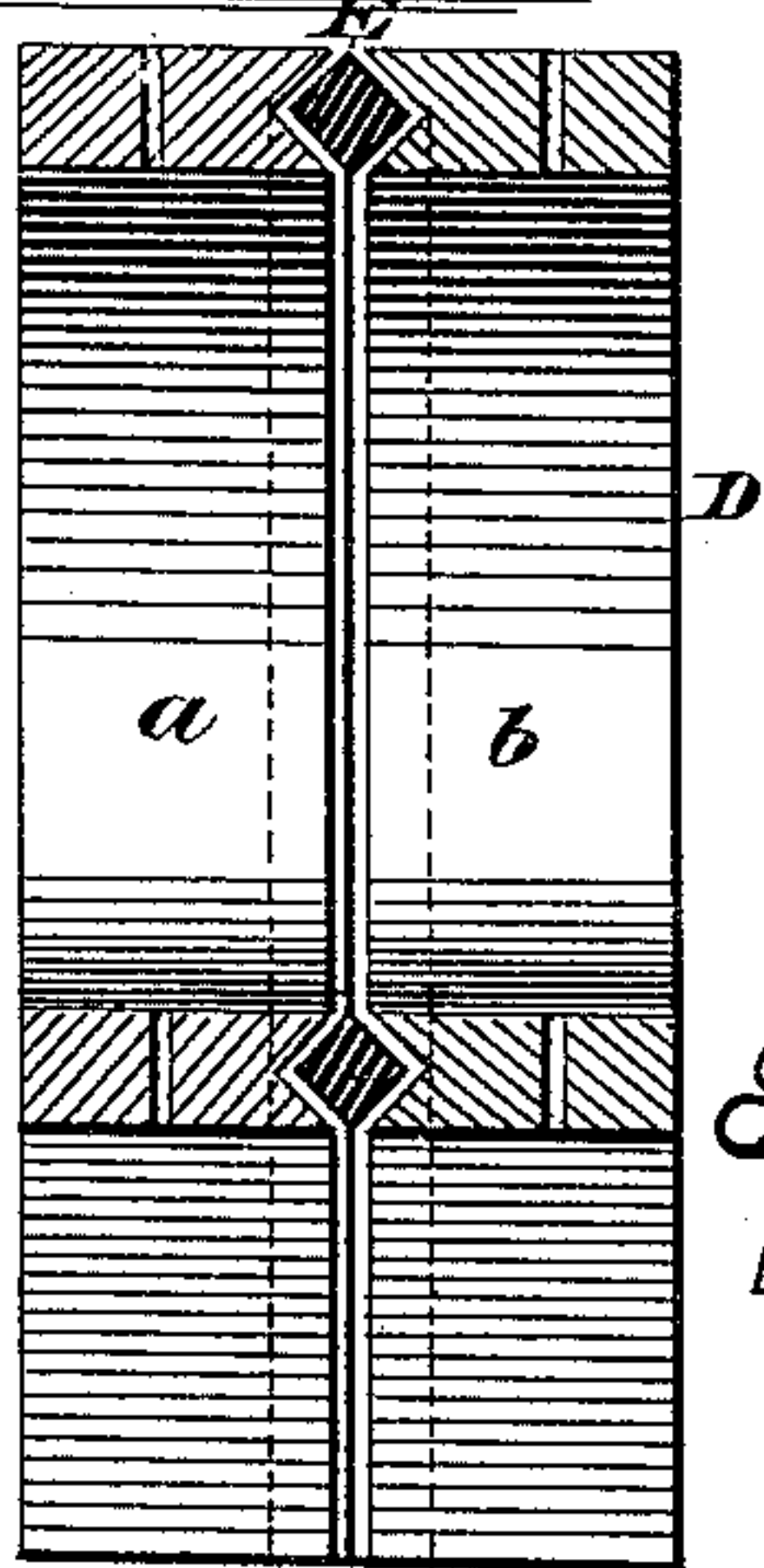
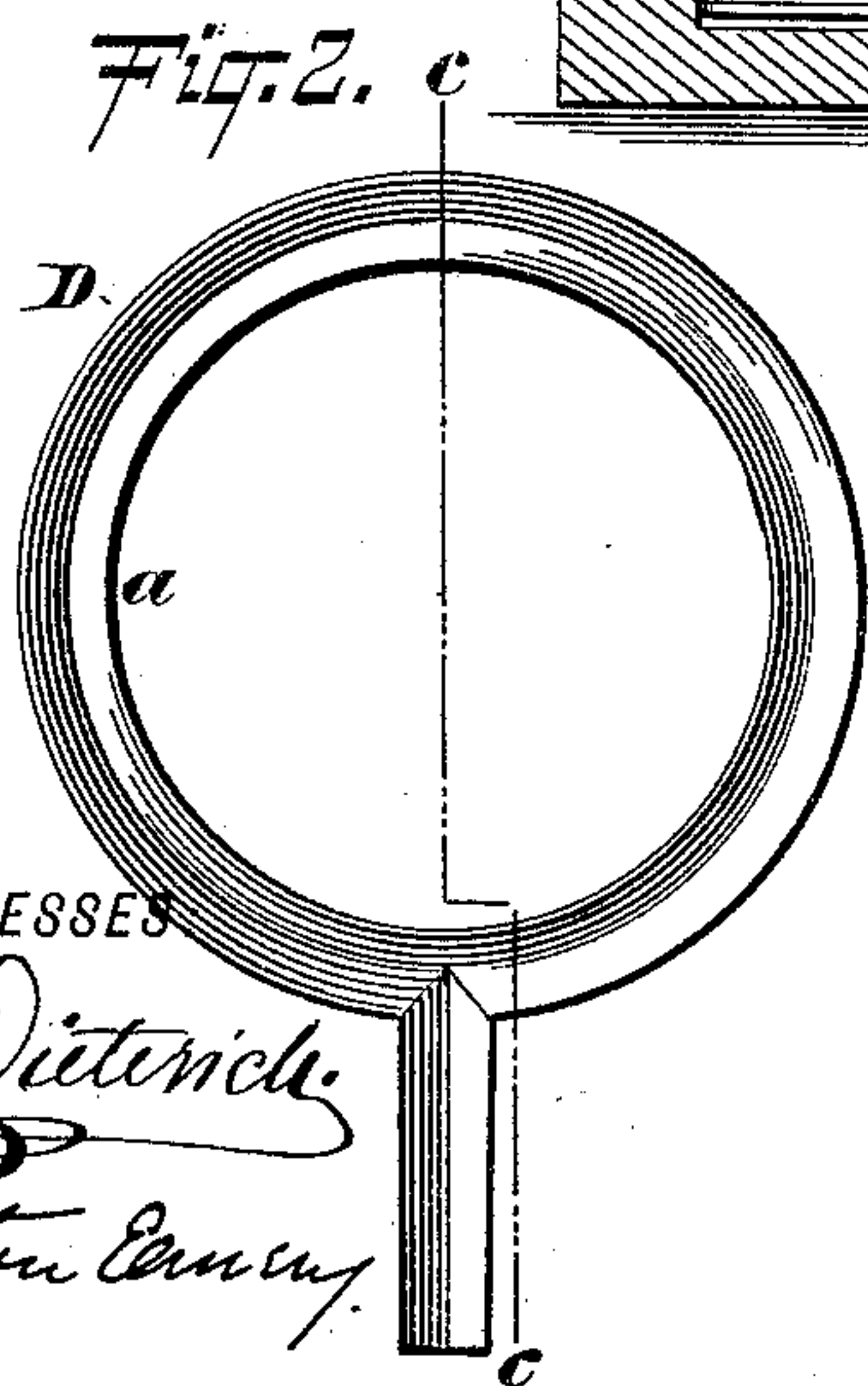
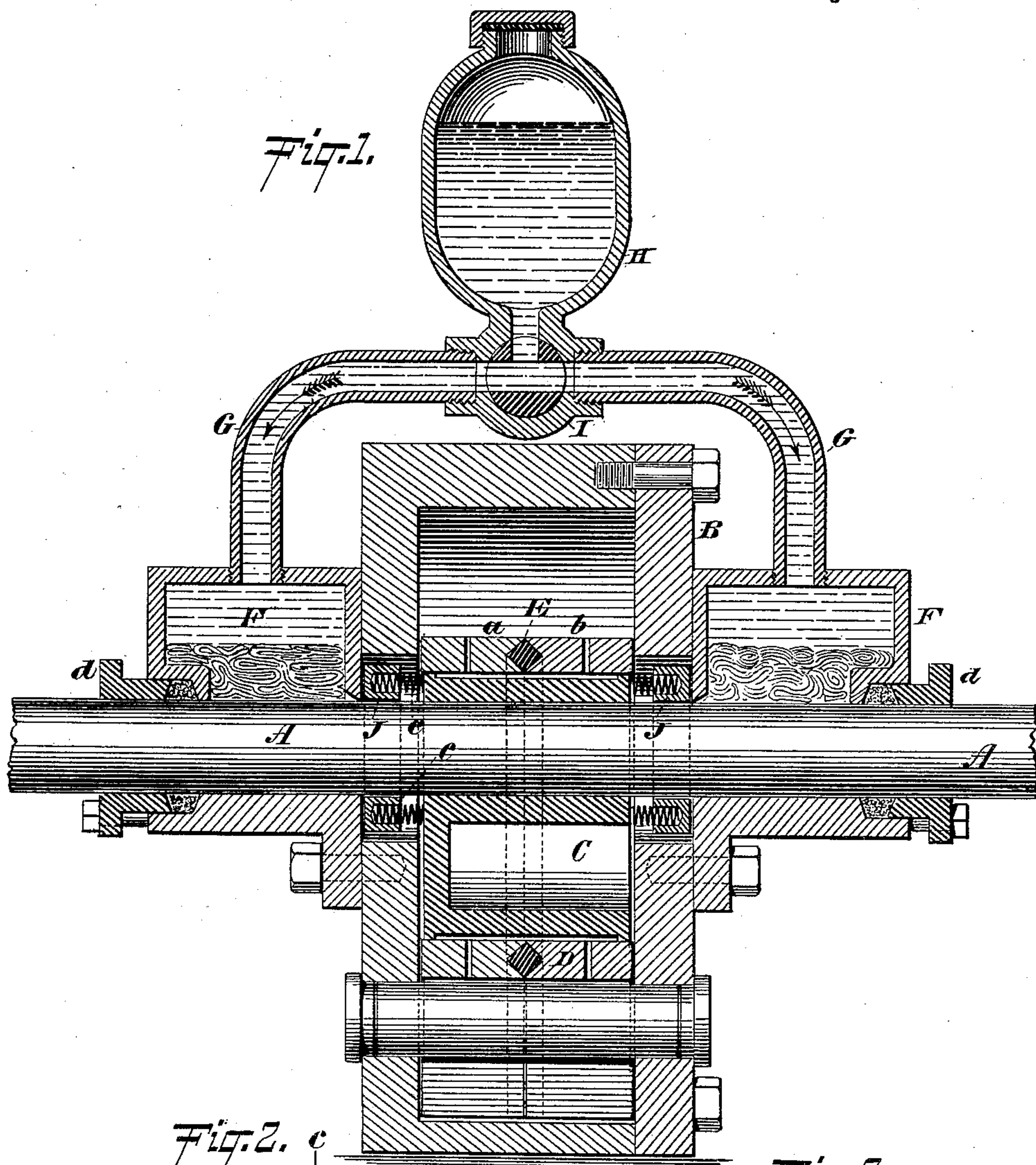


(No Model.)

T. R. ALMOND.  
ROTARY ENGINE.

No. 428,740.

Patented May 27, 1890.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

THOMAS R. ALMOND, OF NEW YORK, N. Y.

## ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 428,740, dated May 27, 1890.

Application filed February 15, 1890. Serial No. 340,503. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS R. ALMOND, a resident of the city of New York, in the county and State of New York, have invented an Improvement in Rotary Engines, of which the following is a specification.

This invention relates to certain improvements on the rotary engine patented to me on the 7th day of January, 1890, by Letters Patent No. 418,665; also on the rotary engine described in an application filed by me on the 15th day of June, 1889, Serial No. 314,411.

The invention mainly consists, first, in dividing the ring that surrounds the eccentric within the steam-chamber into two or more sections and combining these sections with interposed packing, thereby dispensing with an adjustable end plate in the steam-chamber. It also consists in combining the lubricating-boxes, placed over the main shaft at opposite sides of the cylinder, with a connecting supply-pipe and with an oil-reservoir placed upon said supply-pipe, and with a cock, all as hereinafter more fully described.

In the drawings, Figure 1 is a vertical central section of my improved rotary engine. Fig. 2 is a face view of the packing E between the sections *a b* of the ring D. Fig. 3 is a detail section on the line *cc*, Fig. 2, of the said packing and the adjoining sections of the ring.

In the accompanying drawings, the letter A represents the main shaft; B, the steam-cylinder; C, the eccentric, and D the ring around the eccentric, all arranged substantially as described in my aforesaid Letters Patent—that is to say, so that the ring D can be balanced by steam admitted between it and the eccentric C.

In my aforesaid Letters Patent No. 418,665 I showed, in addition to these parts, an adjustable end plate within the cylinder and means for moving the same toward one end of the ring D, so as to make a tight joint. Instead of this adjustable end plate, I now divide the ring D into two or more sections *a b*, and interpose between every two adjoining sections elastic packing E. This packing may be of suitable elastic material, and will tend to spread the sections *a b* apart and hold them in fair and proper contact with the cylinder-

heads, at the same time keeping the joint between the sections *a b* sufficiently tight, thereby rendering the adjustable end plate or head of the cylinder unnecessary, although the same may still be used.

F F are boxes placed over the shaft A at opposite sides of the cylinder B and containing lubricating and absorbent material. These boxes are united by a pipe G, as shown, said pipe communicating with the reservoir H, to a cock I. When this cock is open, as in Fig. 1, the oil or other lubricating matter in the vessel H flows through the pipes G into the boxes F F, and thus keeps the same supplied with the proper lubricating matter. At the same time these boxes F F are by minute channels in steam communication with the interior of the cylinder B, so that the steam-pressure within the cylinder B will to some extent be exerted upon the matter in the boxes F F, thereby retarding the flow of the lubricant. At the outer end each of the boxes F is hermetically sealed by a gland *d* or analogous means. The inner end of each box is in contact with a ring J, which is pressed by springs *ee* against the box F, said springs bearing also against the eccentric C or any analogous projection on the shaft A. The ring J revolves with the shaft and eccentric, and is placed in this position for the purpose of reducing the size of the communicating passage between the steam-cylinder and the lubricating-boxes to a substantial minimum, thereby serving to further retard the flow of the lubricating matter along the shaft toward the eccentric and to prevent an unduly large column of steam passing from the steam-cylinder B to the lubricating-box F.

Having now described my invention, what I claim is—

1. In a rotary engine, the combination of the shaft A and its eccentric C and steam-cylinder B with the ring D, placed around said eccentric, said ring being made in sections *a b*, and with the elastic packing E, placed between the adjoining sections of said ring, substantially as herein shown and described.

2. The combination of the steam-cylinder B, eccentric C, ring D, and main shaft A of a rotary engine with the two lubricating-boxes

F F, both communicating with the steam-cylinder B and with the pipe G, reservoir H, and cock I, as described.

3. The combination of the steam-cylinder  
5 B, eccentric C, ring D, and main shaft A of a rotary engine with the lubricating-boxes F F, and with the rotating spring-pressed rings J

interposed between the inner ends of the lubricating-boxes F, and the eccentric C, substantially as herein shown and described.

THOMAS R. ALMOND.

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