

UNITED STATES PATENT OFFICE.

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STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 748,400, dated December 29, 1903.

Application filed April 14, 1902. Serial No. 102,825. (No model.)

To all whom it may concern:

Be it known that I, THOMAS F. MORRIN, a citizen of the United States, and a resident of Jersey City, Hudson county, New Jersey, have invented certain new and useful Improvements in Steam-Boilers, of which the following is a specification.

My invention relates to steam-boilers of the inclined - water - tube type now commonly known as the "Babcock & Wilcox" type, and has for its particular object to improve the construction of serpentine headers employed for the purpose of establishing and maintaining communication between the different sets of water-tubes.

In the accompanying drawings I have shown a section of a serpentine header in which my invention is embodied.

In the drawings, Figure I is a face or front view of a header embodying my invention. Fig. II is a transverse section thereof. Fig. III is a plan view, and Fig. IV is a side view, of the same.

In all of the figures mentioned I have shown the interior construction by dotted lines, as is usual in such drawings.

In the drawings, *a* indicates the casing of the serpentine header, formed of two recessed castings fitting together face to face. Number of columns of said serpentine headers fit together side by side.

b indicates tubes or thimbles which project slightly inwardly and serve as expansion-faces, against which the ends of the generator-tubes are expanded. These thimbles are arranged in pairs, and the pairs are staggered, so as to produce the serpentine form. The serpentine headers terminate in uptakes and downtakes in the form of trunks *c* of a tubular form on the exterior, which for the purposes of strength are united by a web *d*. The inside diameter of the uptakes and downtakes is greater than the inside diameter of the individual tubes fitting in the tubes *b* of

the headers. For this reason when the uptake of one serpentine-header section is brought into communication with the downtake of another header-section a very efficient circulation is provided for. Opposite each pair of tubes *b* is a hole *e*, closed by suitable hand-hole plate *f*, having a brace *g* and a bridge *h*, united by a suitable bolt *i* or other fastening means. The meeting faces of the plate and hole are preferably recessed, as shown, by a peripheral recess which receives a strip *j*, of fusible packing, such as lead or other metal. The advantages of such construction are obvious. In the interior of the header I provide suitable ribs or baffle-strips *k*. These ribs or baffle-strips strengthen the walls of the header and aid in maintaining the circulation.

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

1. As a new and useful article of manufacture, a serpentine-header section made in two sections and divided on a longitudinal plane and provided with superposed staggered pairs of tube-receiving apertures and terminating at each end in a plurality of trunks of general tubular form, united by the web *d*, and suitable ribs or strips *k* in the interior of the header.

2. As a new and useful article of manufacture, a serpentine-header section made in two sections or parts divided on a longitudinal plane and comprising undulated side walls, superposed staggered pairs of tube-openings and terminating at each end with a pair of trunks of general tubular form, united by the web *d*, a hand-hole opposite each pair or set of tubes and hand-hole plates *f* covering the hand-holes substantially as described.

THOMAS F. MORRIN.

Witnesses:

D. M. ANDERSON,
JOHN P. HART.

No. 748,400.

PATENTED DEC. 29, 1903.

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STEAM BOILER.

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NO MODEL.

Fig. II.

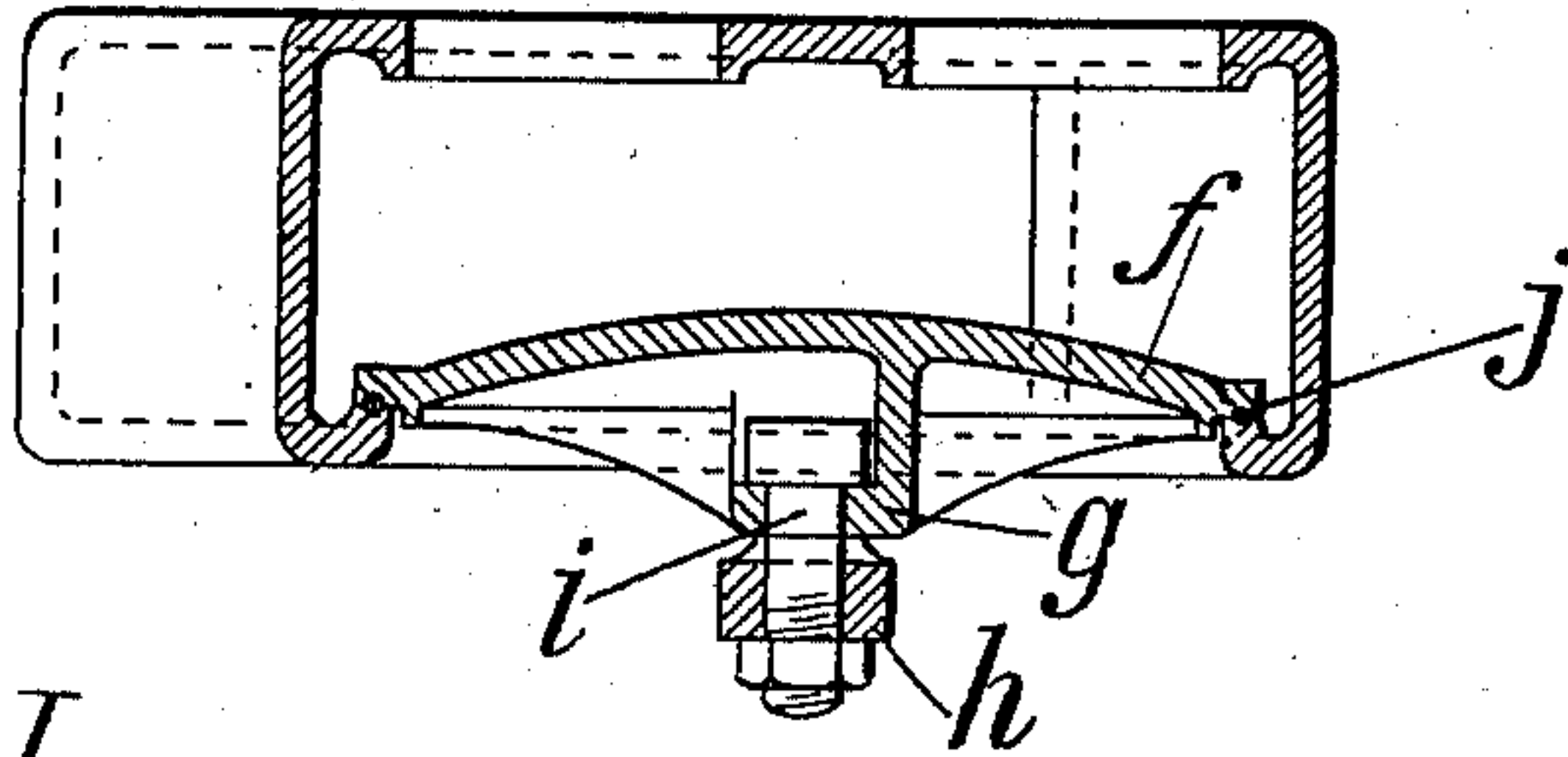


Fig. IV.

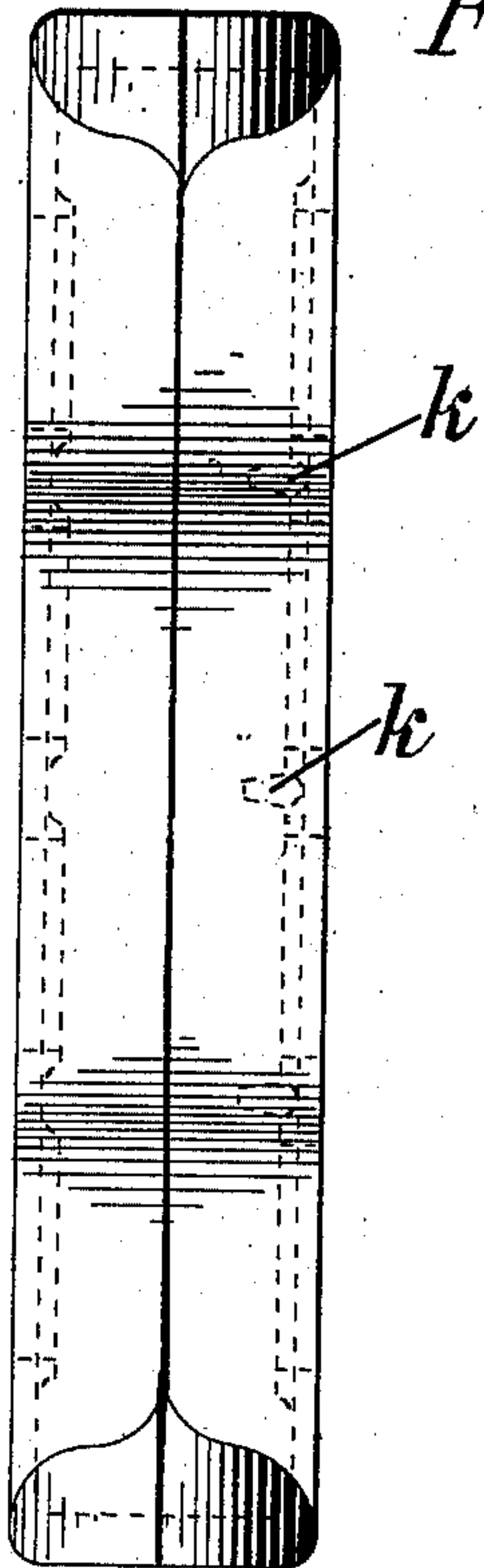


Fig. I.

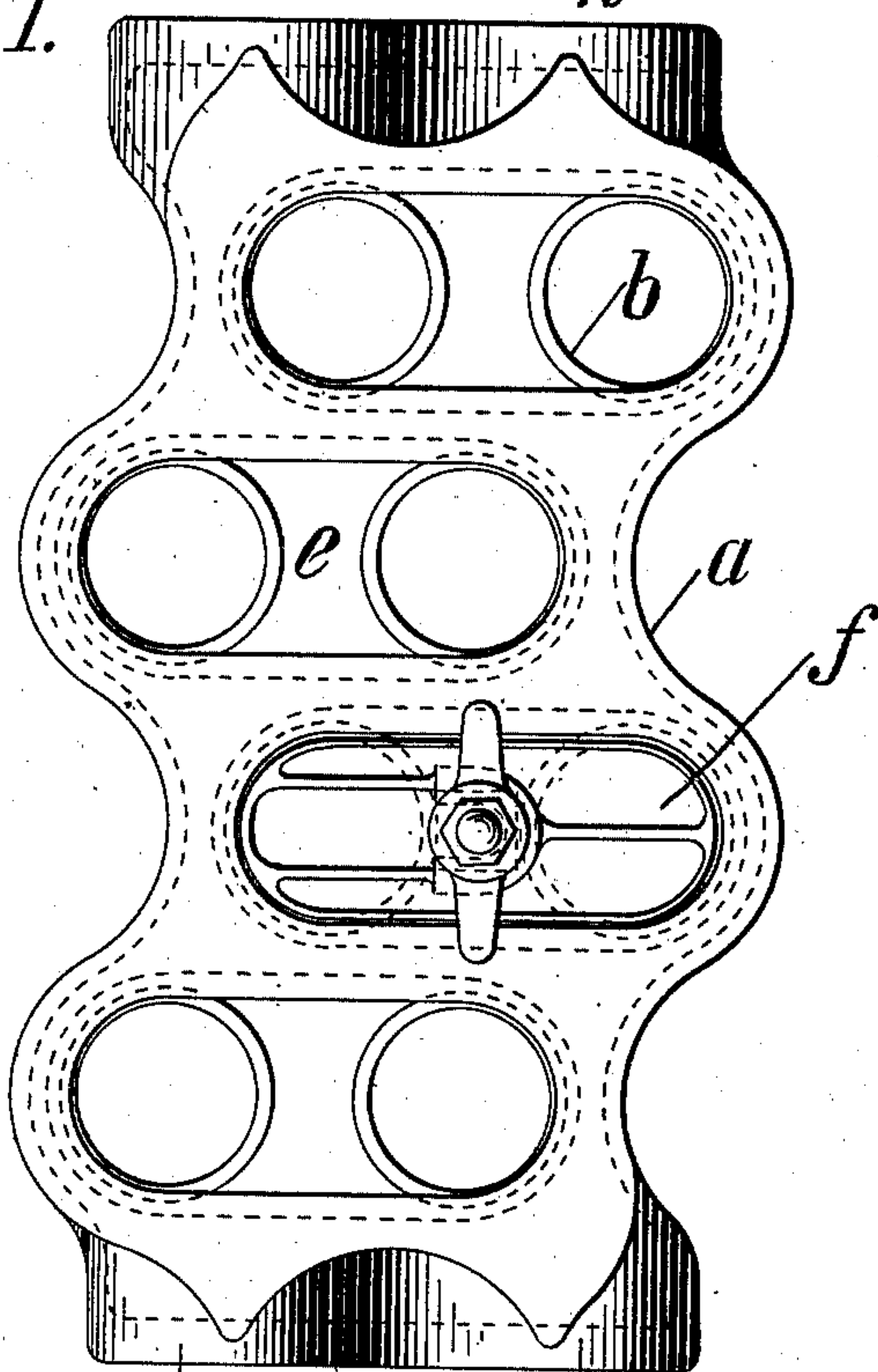
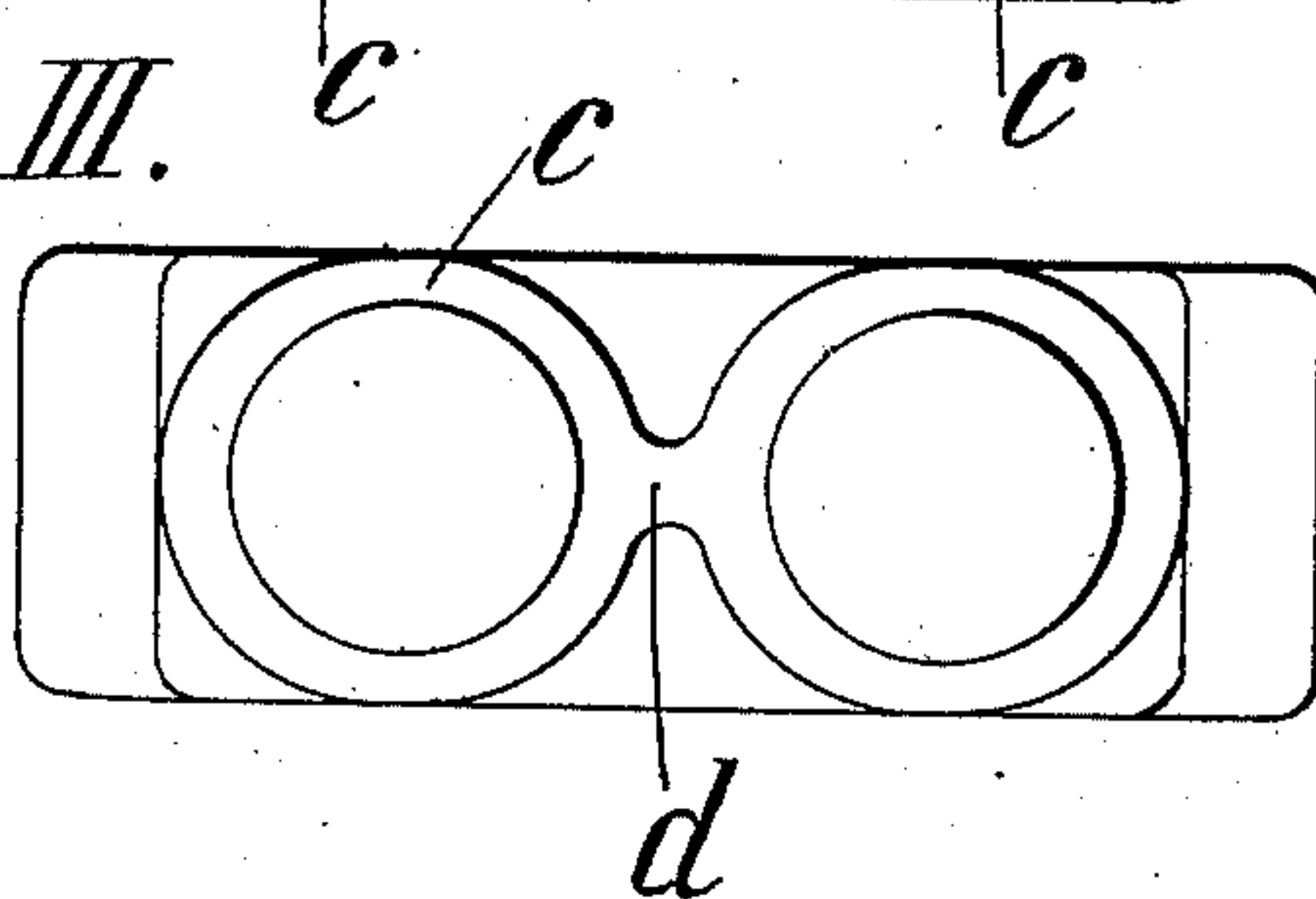


Fig. III.



WITNESSES:

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