

No. 753,731.

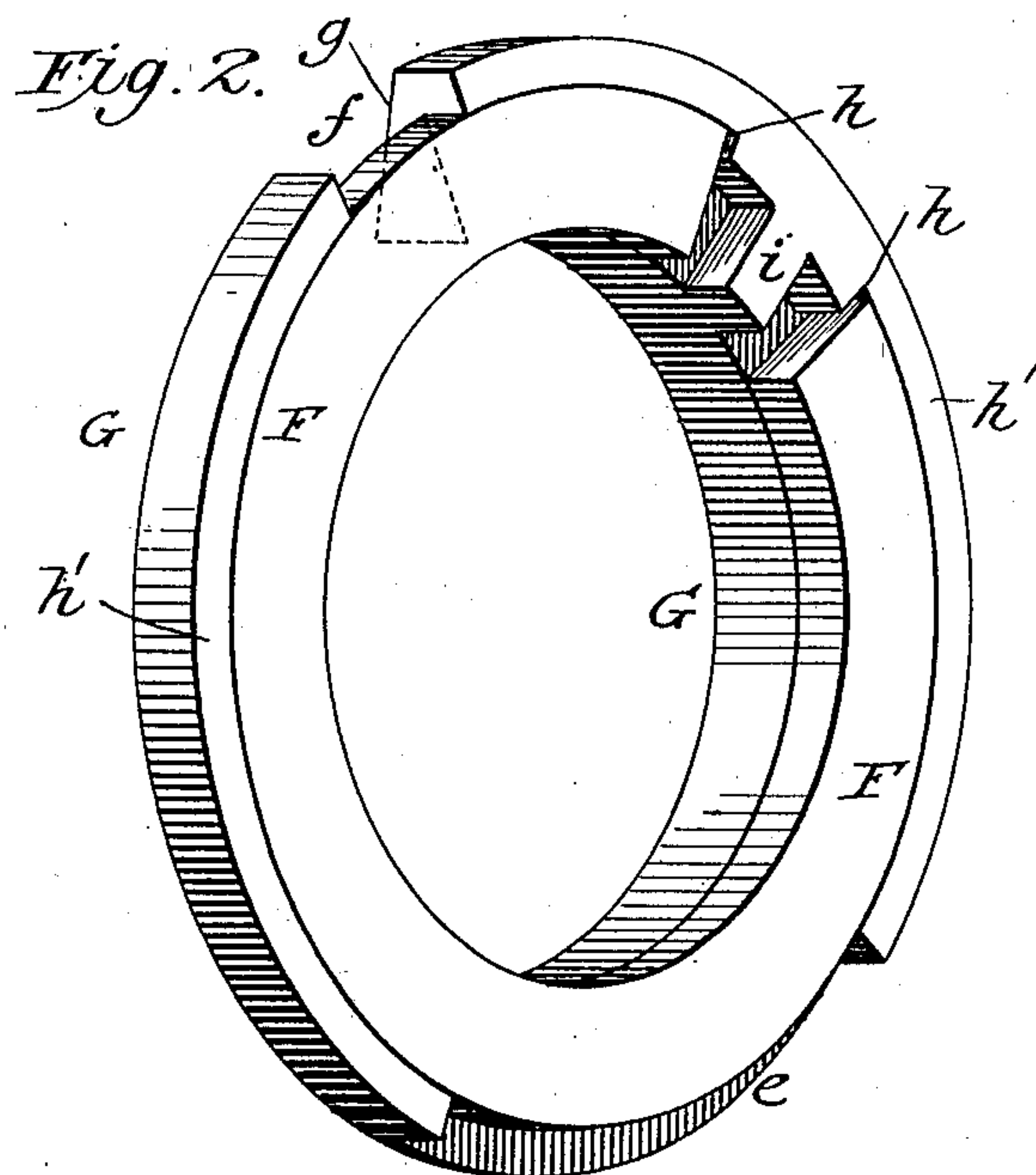
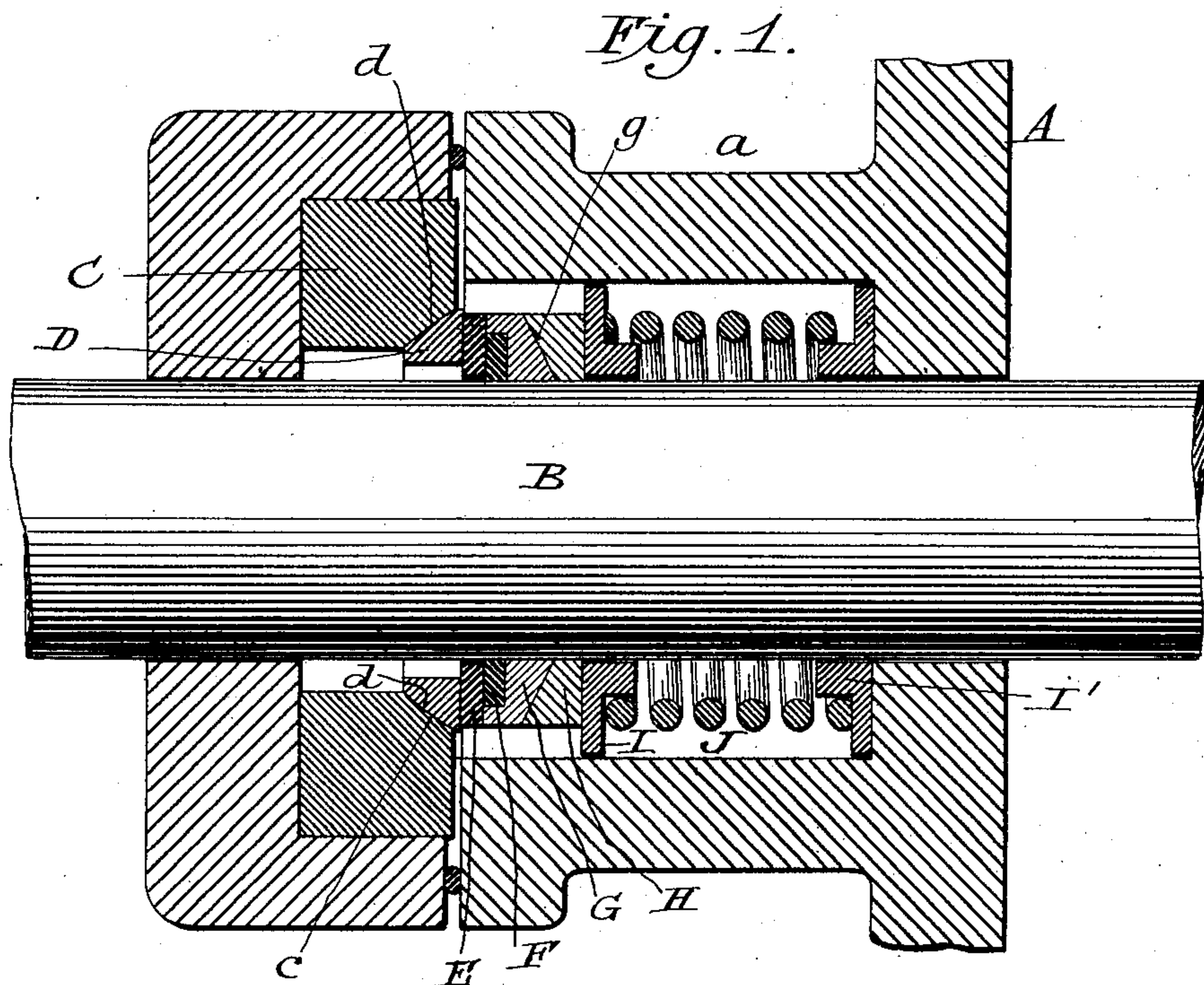
PATENTED MAR. 1, 1904.

F. PINCH.
ROD PACKING.

APPLICATION FILED JULY 14, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 3.

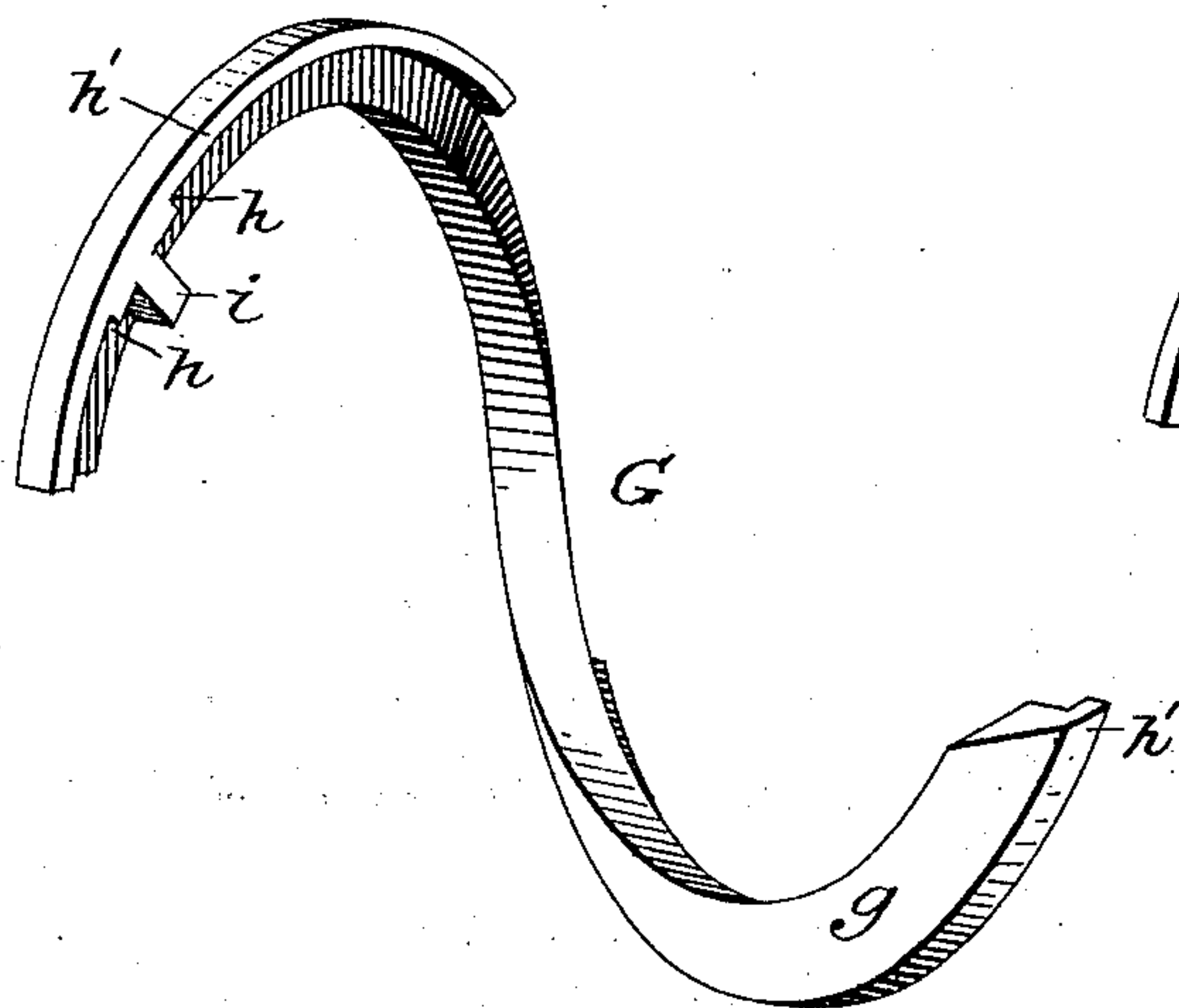


Fig. 4.

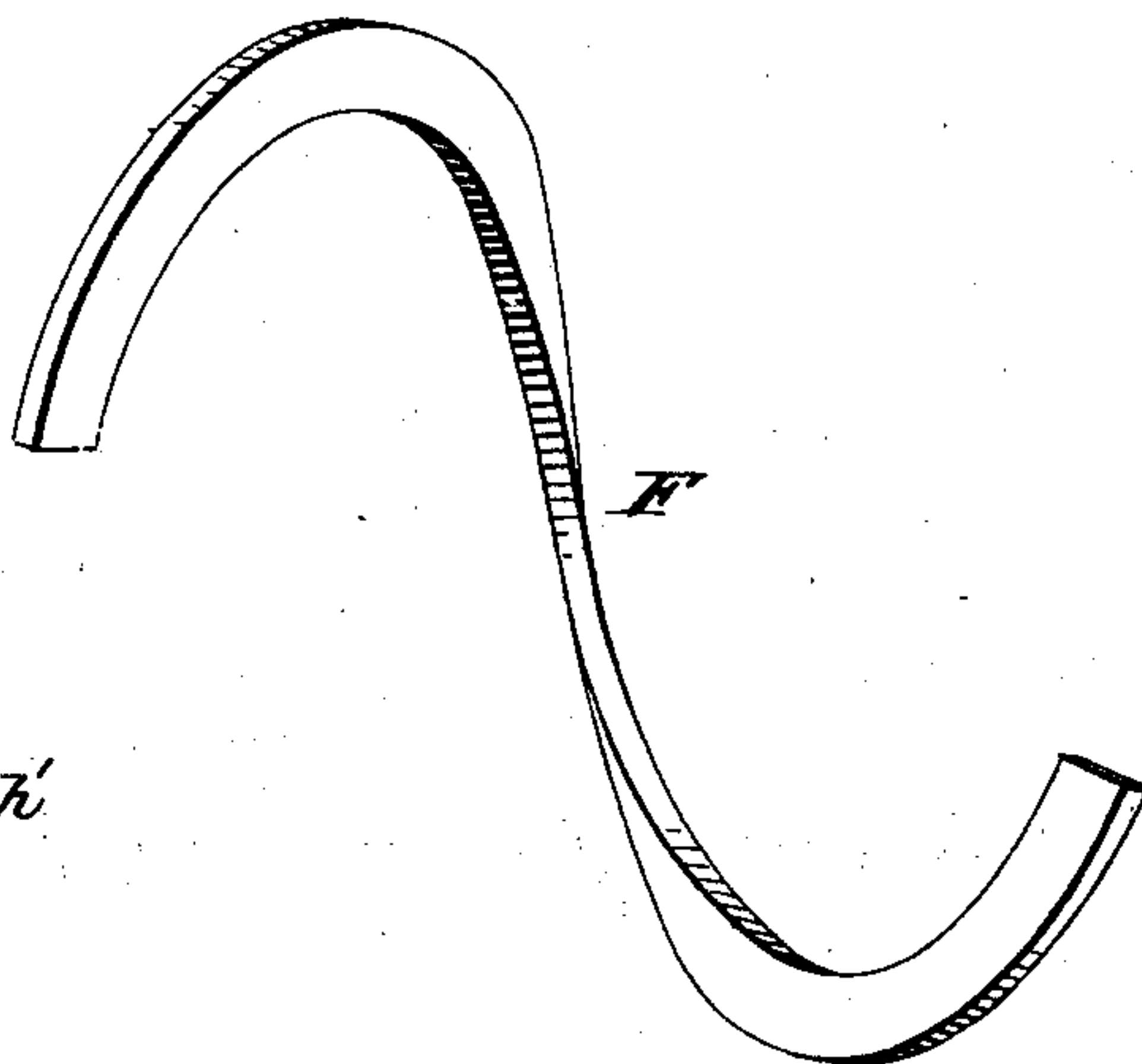


Fig. 5.

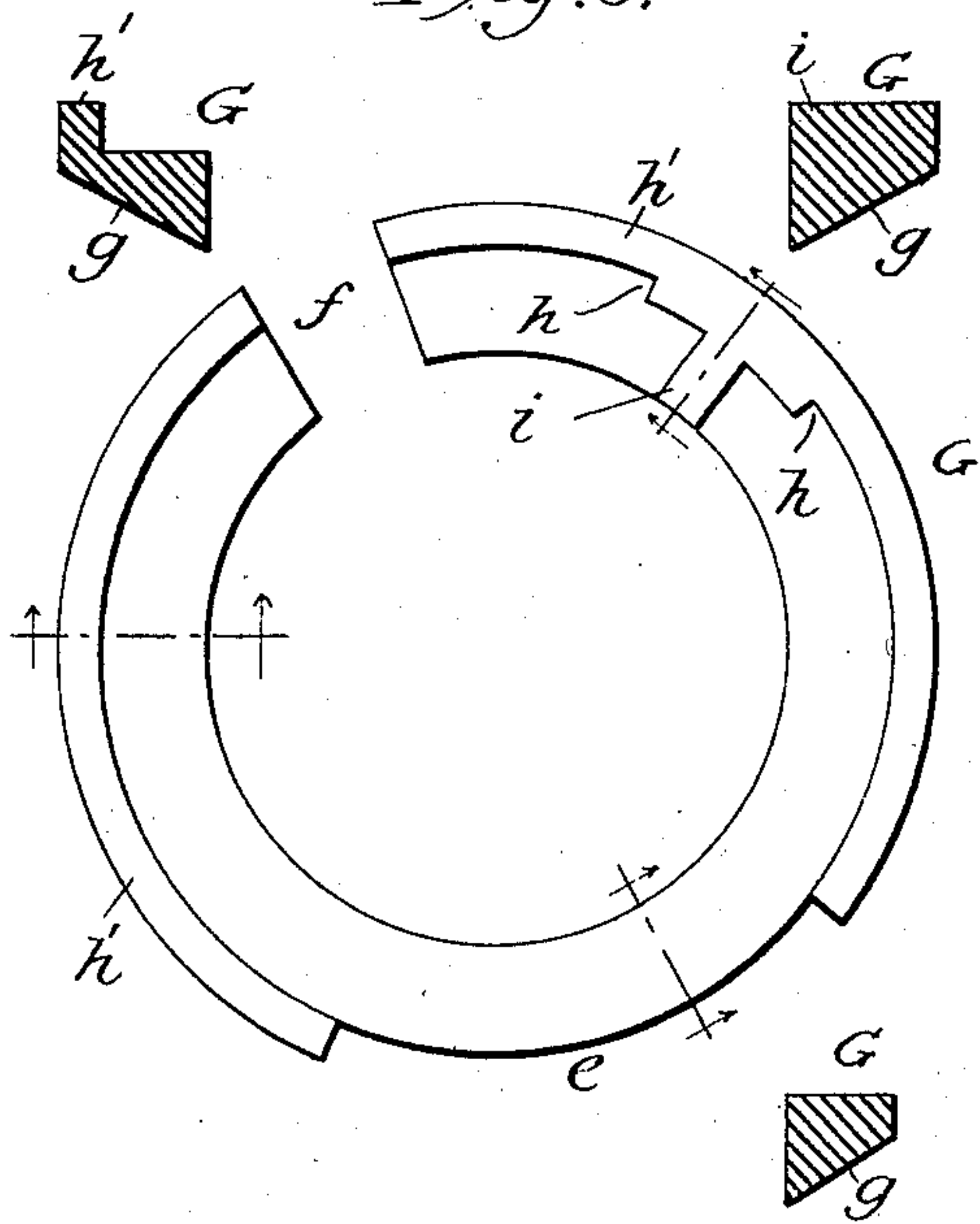
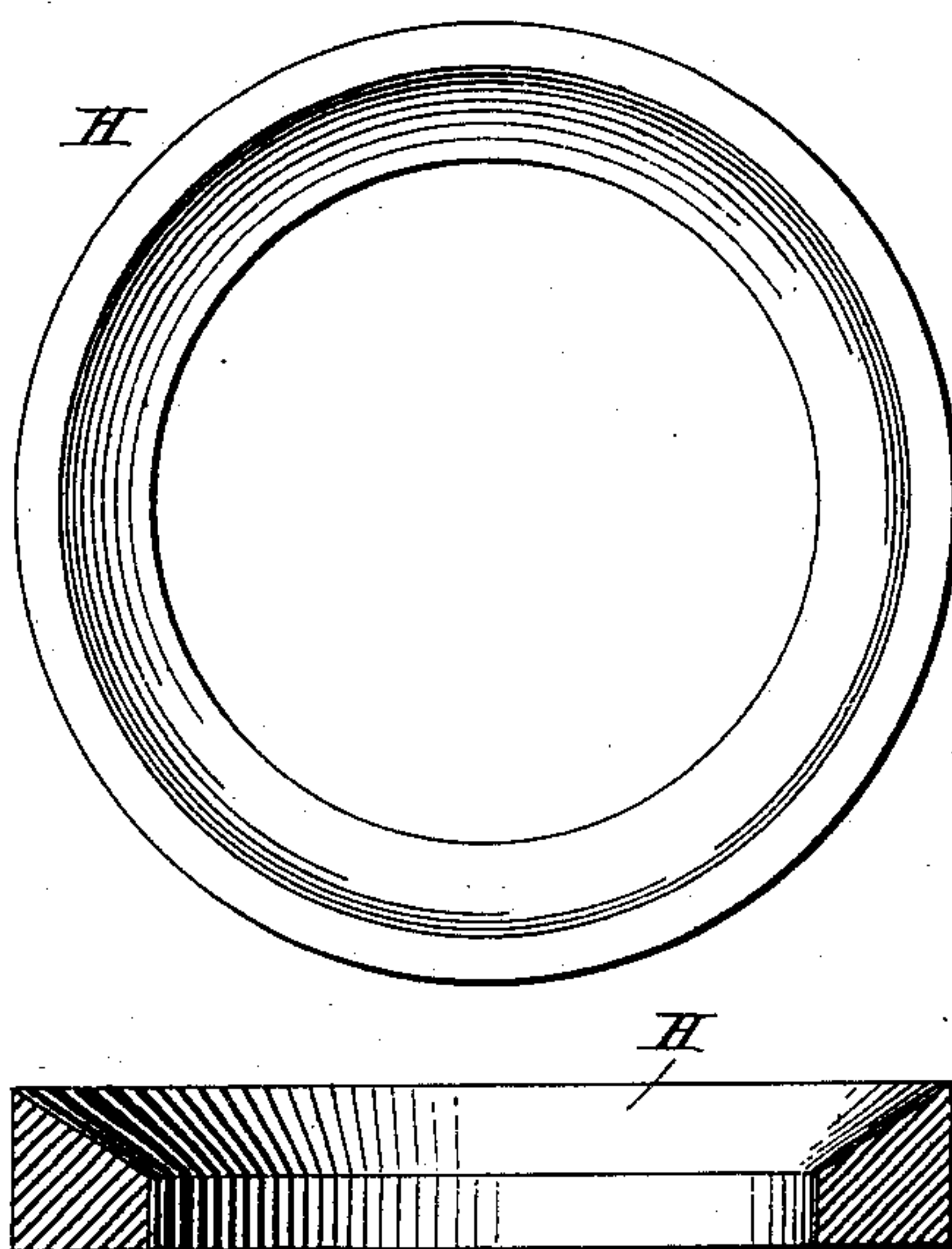


Fig. 6.



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UNITED STATES PATENT OFFICE.

FRANK PINCH, OF OSWEGO, NEW YORK, ASSIGNOR OF ONE-HALF TO
ROBERT BRUCE LAKIN, OF SIDNEY, NEW YORK.

ROD-PACKING.

SPECIFICATION forming part of Letters Patent No. 753,731, dated March 1, 1904.

Application filed July 14, 1903. Serial No. 165,453. (No model.)

To all whom it may concern:

Be it known that I, FRANK PINCH, a citizen of the United States, residing at Oswego, in the county of Oswego and State of New York, have invented certain new and useful Improvements in Rod-Packing, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

The principal object of this invention is to make a perfectly steam or water tight joint by means of a metallic packing-ring, which may be readily applied to or detached from the rod without disconnecting the latter.

Other objects of my invention will be disclosed hereinafter.

In the accompanying drawings, Figure 1 is a longitudinal section of the end of a cylinder, showing the stuffing-box, gland, rod, packing-rings, &c. Fig. 2 is a perspective view of the packing-rings assembled. Figs. 3 and 4 are perspective views showing certain of the rings bent or distorted so as to adapt them to be readily applied to or removed from the position which they occupy when assembled without detaching the rod. Figs. 5 and 6 show certain of the rings separated.

Similar letters of reference indicate similar parts in the respective figures.

While my invention is preferably adapted for use as a packing for piston and other rods and with a stuffing-box and gland, it is obvious it may be used in other relations in which such a packing may be employed.

A represents a portion of a cylinder-head having an ordinary stuffing-box *a*.

B is the piston-rod.

C is a gland or casing which may be of any approved form and connected to the stuffing-box by bolts in the usual manner.

D is a ring, preferably of brass or composition metal, having a flat rear side and an outer face of convex formation, as shown by *d*, which fits the concavity *c* of the gland and forms what is technically known as a "ball joint or bearing," the purpose of which is well understood. There is some clearance between the ring D and the rod B. Surrounding the piston-rod B and in contact with the rear of the ring D is a flat brass ring E, having a

slight clearance between it and the rod, and in the rear of said ring E is a Babbitt-metal ring F, while in the rear of said ring F is a Babbitt-metal ring G, which in my preferred construction is of the shape shown in cross-section in Fig. 1, it overlapping the periphery of the ring F and being furnished with a beveled rear side *g*. Fitting against said beveled rear side is a correspondingly-beveled brass ring H, Fig. 6, and in the rear of said ring H is a follower I, a correspondingly-shaped follower I' also surrounding the rod and fitting against the rear end of the stuffing-box *a*, as shown. A coiled spring J is confined between the followers I and I', the tendency of which is to force the packing forward in contact with the gland C.

In packing of this description it is highly important that it shall be capable of removal from the rod without disconnecting the latter, and one of the objects of my invention is to provide for such removal. Referring to Figs. 2 and 5, it will be seen that a portion of the ring G or of its peripheral flange is cut away, as at *e*, the ring being thus reduced in area at said part, so that when it is to be applied to or detached from the rod by grasping the two ends of the ring at or near the peripheral opening *f* the ring may be given a partial twist (see Fig. 3) sufficient to produce an opening to allow said ring to be slipped to or from the rod. The ring F, which is of lesser area in cross-section, may be readily given a similar twist (see Fig. 4) for the same purpose.

The ring G is provided with peripheral shoulders or abutments *h*, the peripheral flange *h'* being thickened for a short length to produce such shoulders or abutments, and at the point in the circumference of the ring where they are formed I provide a strengthening rib or projection *i*, which also has another function, as hereinafter pointed out. When the ring F is fitted within the right-angled recess of the ring G, each end of said ring fits within a short distance of one of the shoulders or abutments *h*, as seen in Fig. 2, and as the rings wear and close upon the rod under steam-pressure undue closing of the same is prevented by the engagement of the ends of the

ring F with said shoulders or abutments. They, however, as also the ends of the ring F in contact therewith, are crushed in to a limited extent by the pressure; but the resistance afforded is such as will at all times preserve the rings in the proper relation to each other and to the rod surrounded by them. The shoulders or abutments also serve to prevent the rotation of the ring F within the ring G, as also will the rib or projection *i*. The cutting away of a portion of the ring G tends to equalize or proportion its strength with that of the ring F and to allow the two rings to close at that point.

The several rings being assembled as shown in Fig. 1, it will be seen that the function of the spring J is to force the follower I and the rings H, G, F, E, and D against the face of the gland C. The convex formation *d* of the ring D and the corresponding concave construction *c* in the gland C give a "ball joint or bearing" which admits of the automatic adjustment of the ring D relatively to the ring F, immediately in the rear thereof, so that their adjoining surfaces shall at all times be true, thus preventing leakage under the steam or fluid pressure to which the packing is subjected.

I do not restrict myself to the exact details of construction, combination, and arrangement herein set forth, it being obvious that minor variations thereof not involving the exercise of invention may be made by the skilled mechanic, and such departures from what is herein described and claimed not involving invention I consider as within the scope and terms of my claims.

Having thus described my invention, I claim—

1. In a metallic packing, the combination with an outer ring having a peripheral opening and an interior right-angled recess, of an inner ring also provided with a peripheral opening and adapted to rest in said recess, said outer ring being provided with shoulders or abutments for engagement with the ends of said inner ring to resist undue closing of the rings, when under fluid-pressure, upon the piston-rod, substantially as set forth.

2. In a metallic packing, the combination with an outer ring having a peripheral opening, an interior right-angled recess and a reduced peripheral section, of an inner ring also having a peripheral opening and adapted to rest in said recess, said outer ring being provided with shoulders or abutments for engagement with the ends of said inner ring to resist undue closing of the rings, when under fluid-pressure, upon the piston-rod, and with a strengthening rib or projection at or near said shoulders or abutments, substantially as set forth.

3. In a metallic packing, the combination of a gland having a concave inner formation as described, a ring D having a convex outer surface adapted to fit said concavity, and packing-rings in the rear of said ring D peripherally divided, and adapted to be twisted so as to allow them to be applied to or removed from a rod without disconnecting the latter, substantially as set forth.

In testimony whereof I hereunto set my hand and seal.

FRANK PINCH. [L. s.]

Witnesses:

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CHARLES LOWELL HOWARD.