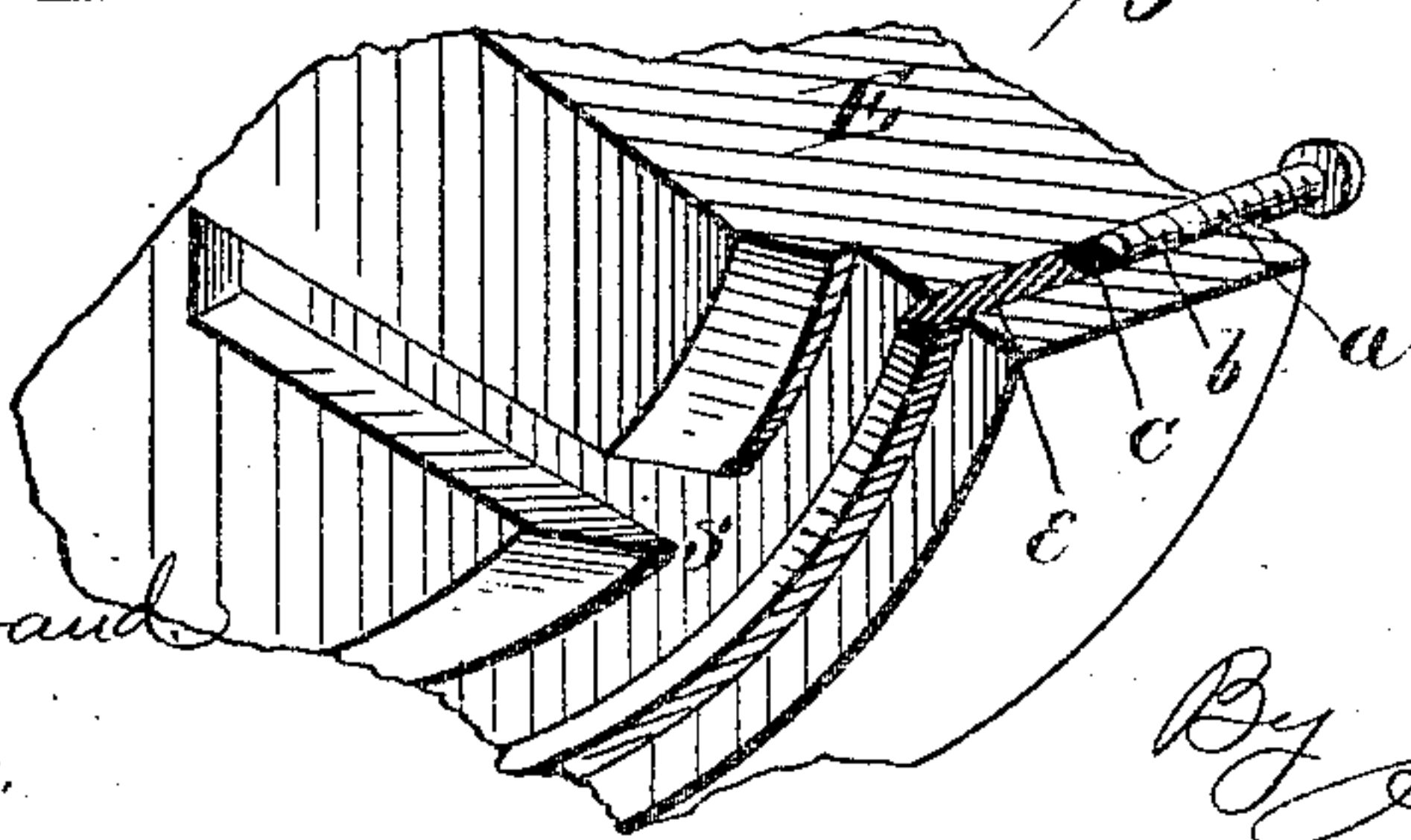
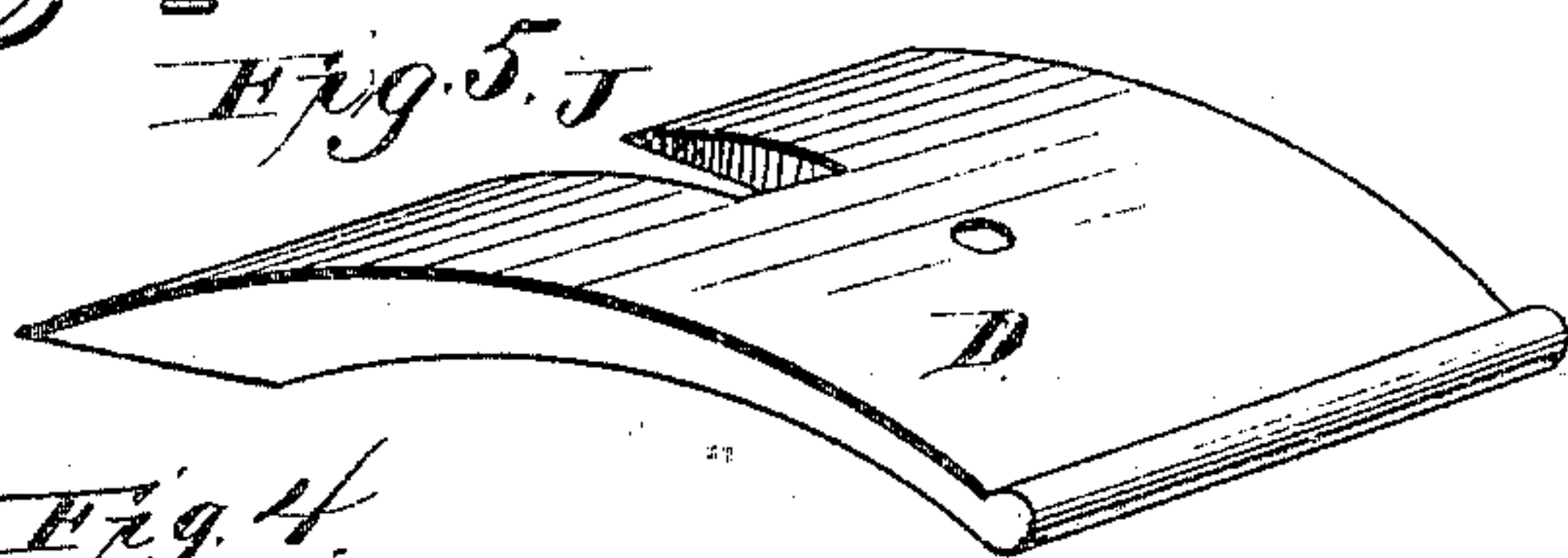
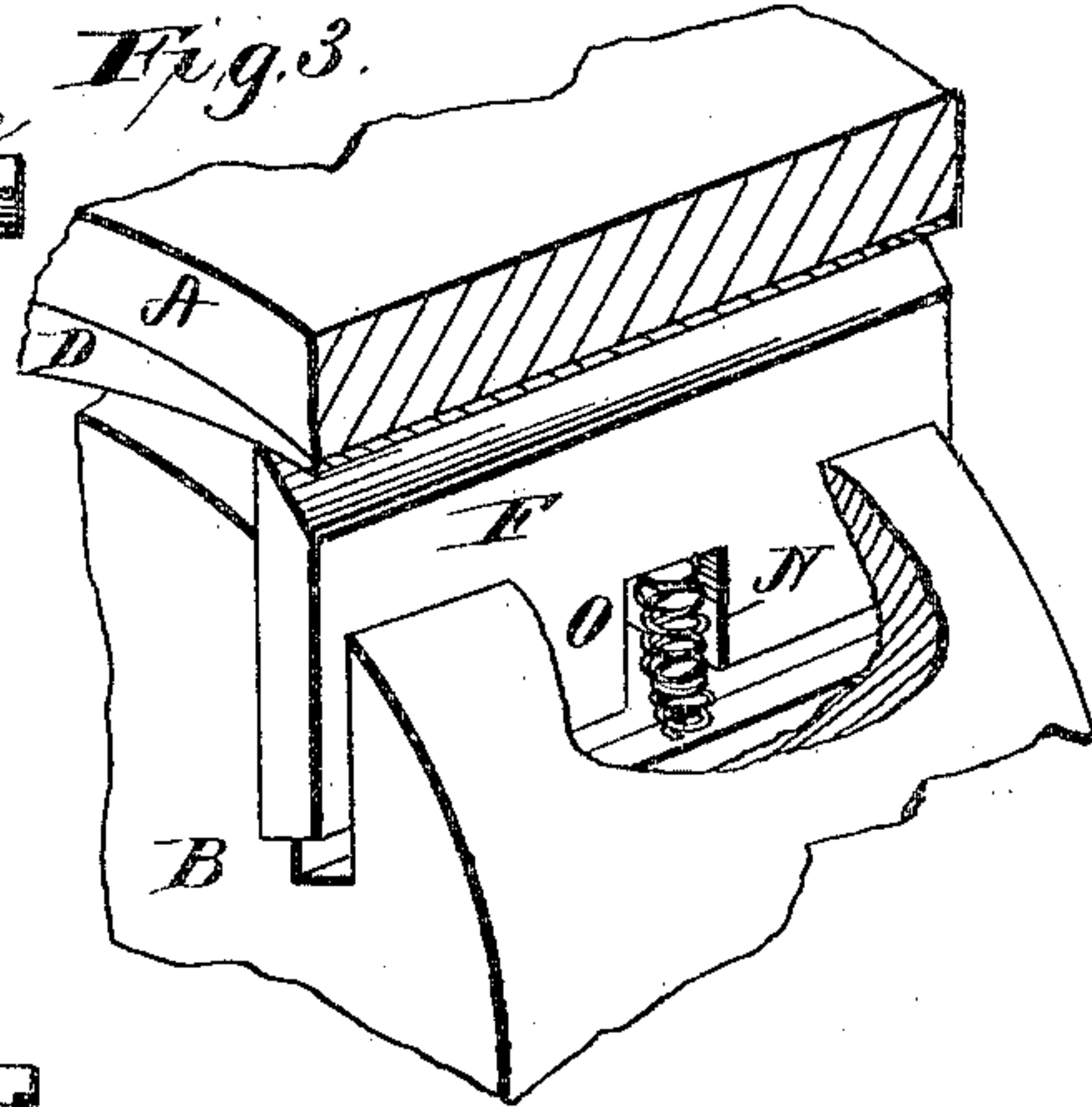
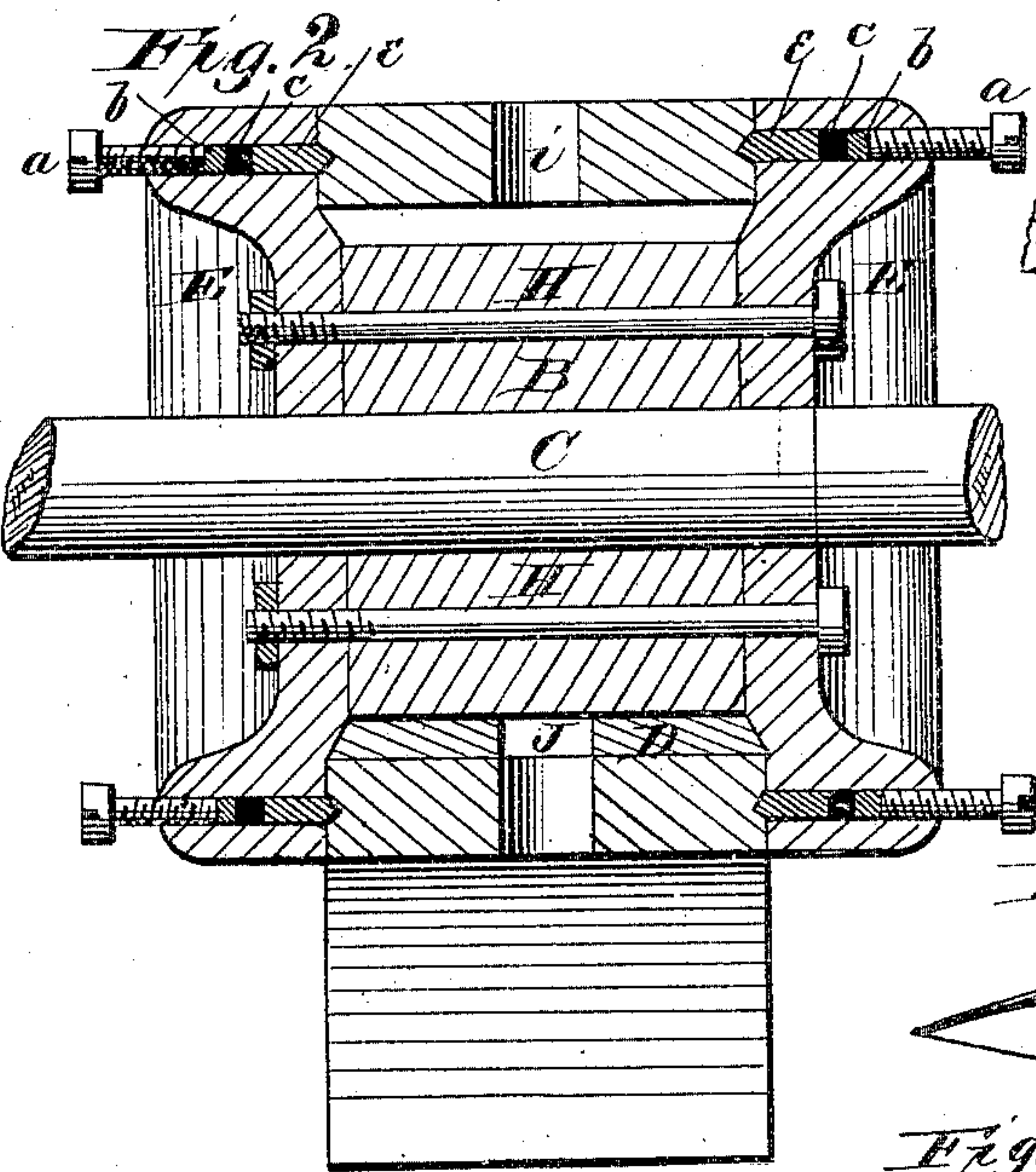
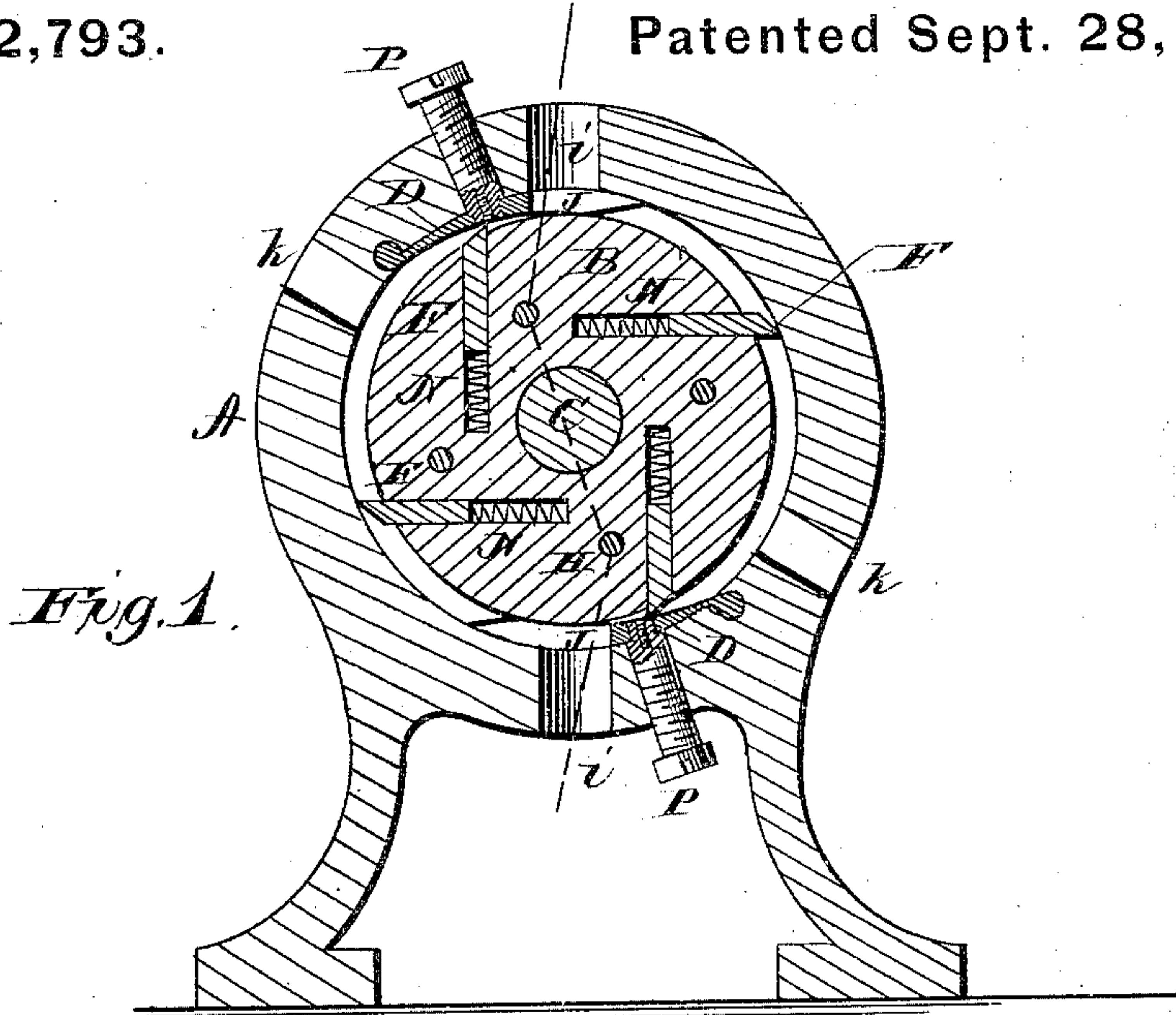


(Model.)

C. S. WHITNEY.
Rotary Steam Engine.

No. 232,793.

Patented Sept. 28, 1880.



Witnesses.
Frank L. Girard
J. J. McCarthy.

Inventor,
Charles S. Whitney
By Alexander Watson
att.

UNITED STATES PATENT OFFICE.

CHARLES S. WHITNEY, OF CANASERAGA, NEW YORK.

ROTARY STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 232,793, dated September 28, 1880.

Application filed June 22, 1880. (Model.)

To all whom it may concern:

Be it known that I, CHARLES S. WHITNEY, of Canaseraga, in the county of Allegany, and in the State of New York, have invented certain new and useful Improvements in Rotary Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a rotary engine, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a vertical cross-section of the entire engine. Fig. 2 is a longitudinal vertical section of the same. Figs. 3, 4, and 5 are detailed views of parts thereof.

The engine consists of a cylindrical case, A, a cylinder or hub, B, shaft C, heads E E, abutments D D, set-bolts P P, pistons F, spiral springs N, metal packing-rings e, elastic packings c, followers b, and follower-bolts a. The cylindrical case A, abutments D, and set-bolts P are stationary. The hub B, shaft C, bolts H, pistons F, springs N, heads E, rings e, packing c, follower b, and bolts a revolve.

The shaft C is supported in bearings outside of the engine. The hub B is keyed to the shaft C, and the heads E are secured to the hub by bolts H. On the inside of the heads E, and near their outer circumference, is turned a slot to correspond with V-shaped grooves in the case A, which slot is for the reception of metal packing-rings e, rings of elastic packing c, and metal rings b, which act as followers.

At suitable distances on the outside of each head E, and on a circle opposite said slot, are placed bolts a, which, being turned in, force the rings e into the V-shaped grooves, making a steam-joint between the case A and heads E.

D D are abutments, held in their places by

the set-bolts P and hinges fitting into the case A. By means of the set-bolts P the abutments D can be forced toward the center, taking up all wear, and making a steam-joint between the abutments D and hub B.

The abutment D is beveled on its edges to correspond with the bevels on the heads E, as shown in Fig. 2, thereby making a steam-joint, and taking up all wear when the abutment is forced toward the center by the bolts P.

The abutments are wedge-shaped, extending each way from the point of contact with the hub B. The forward incline is for the purpose of letting the pistons F act gradually, preventing noise and undue wear on the case A, said forward portion of each abutment being provided with an opening, J, for steam to pass through.

The hub B is slotted its entire length at suitable points, for the reception of the pistons F, and the heads E are correspondingly slotted, as shown in Fig. 4, at s.

The pistons F extend through the hub B and into the slots s in the heads, making a steam-joint on the front side of each piston. These pistons are held out against the case by springs N and centrifugal force when in motion, the springs fitting in openings O in the inner edges of the pistons. These pistons have a short bevel extending nearly to the front edge, allowing the steam to counterbalance the pressure from the other edge, reducing friction against the case.

i i are ports for the admission of steam. k k are exhaust-ports extending longitudinally across the case A for a sufficient distance to give the steam free vent to the open air.

The operation of the engine is as follows: The steam entering at i i acts upon the pistons F, situated between the abutments D and the exhaust-ports k, propelling them forward until the pistons following pass by the points of contact of the abutments and hub and take steam, the other two then exhausting, and so on.

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

1. In a rotary engine, the combination, with the stationary case A, having V-shaped grooves in its edges, as described, of the rotating heads

E, metal packing-rings *e*, elastic packings *c*, followers *b*, follower-bolts *a*, and the hub B, and connecting-bolts H, for securing the heads to said hub, substantially as and for the purposes specified.

2. The combination of the case A, rotating heads E, beveled as described, the abutments D, made wedge-shaped, and with beveled sides, as shown, and provided with openings J, and the set-bolts P, substantially as and for the purposes herein set forth.

3. The combination, with the cylinder A, of the heads E, hub B, bolts H, pistons F, and springs N, substantially as and for the purposes specified.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 8th day of June, 1880.

CHAS. S. WHITNEY. [L. S.]

Witnesses:

DANIEL M. PRATT,
OSCAR PORTER.