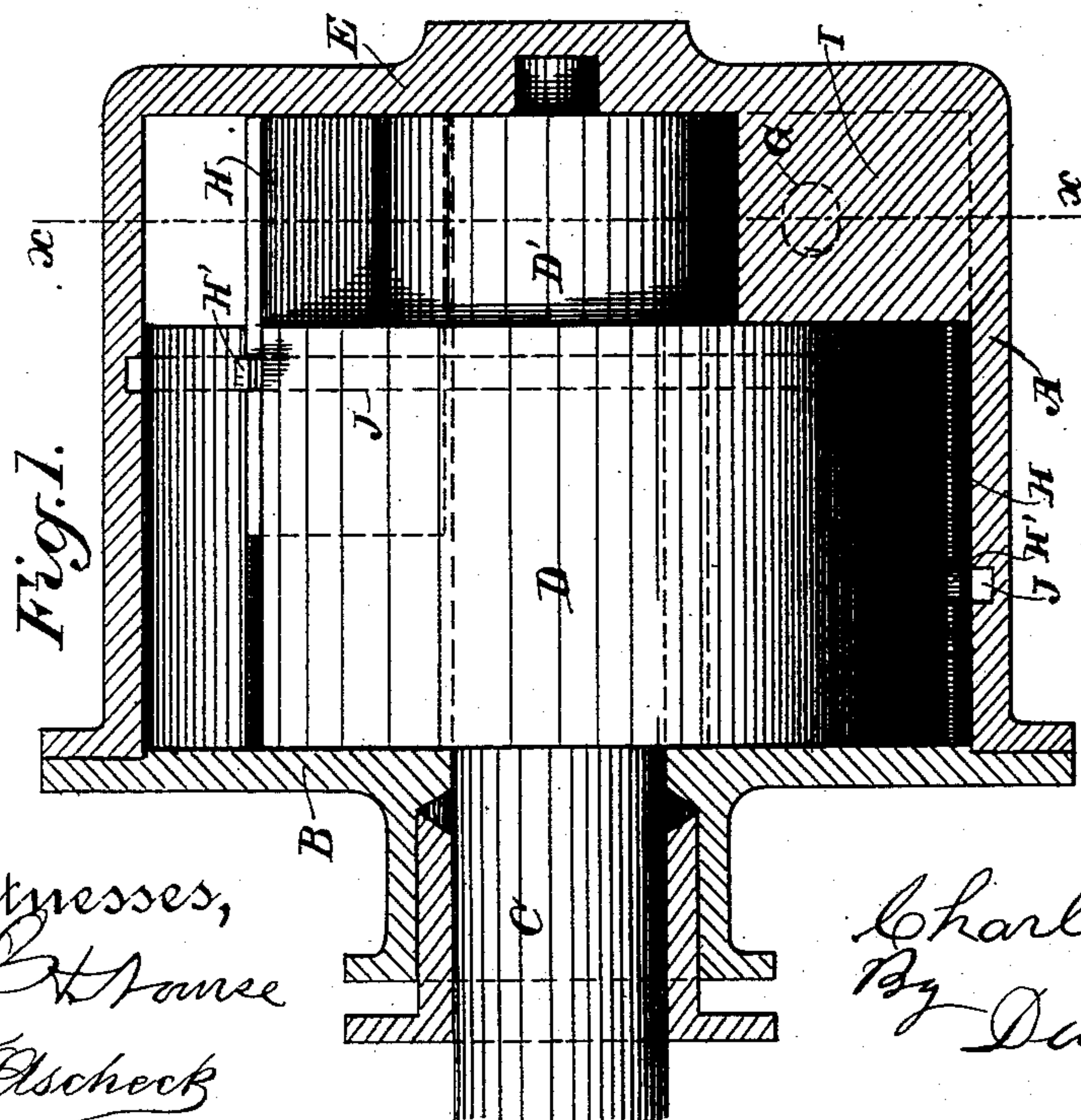
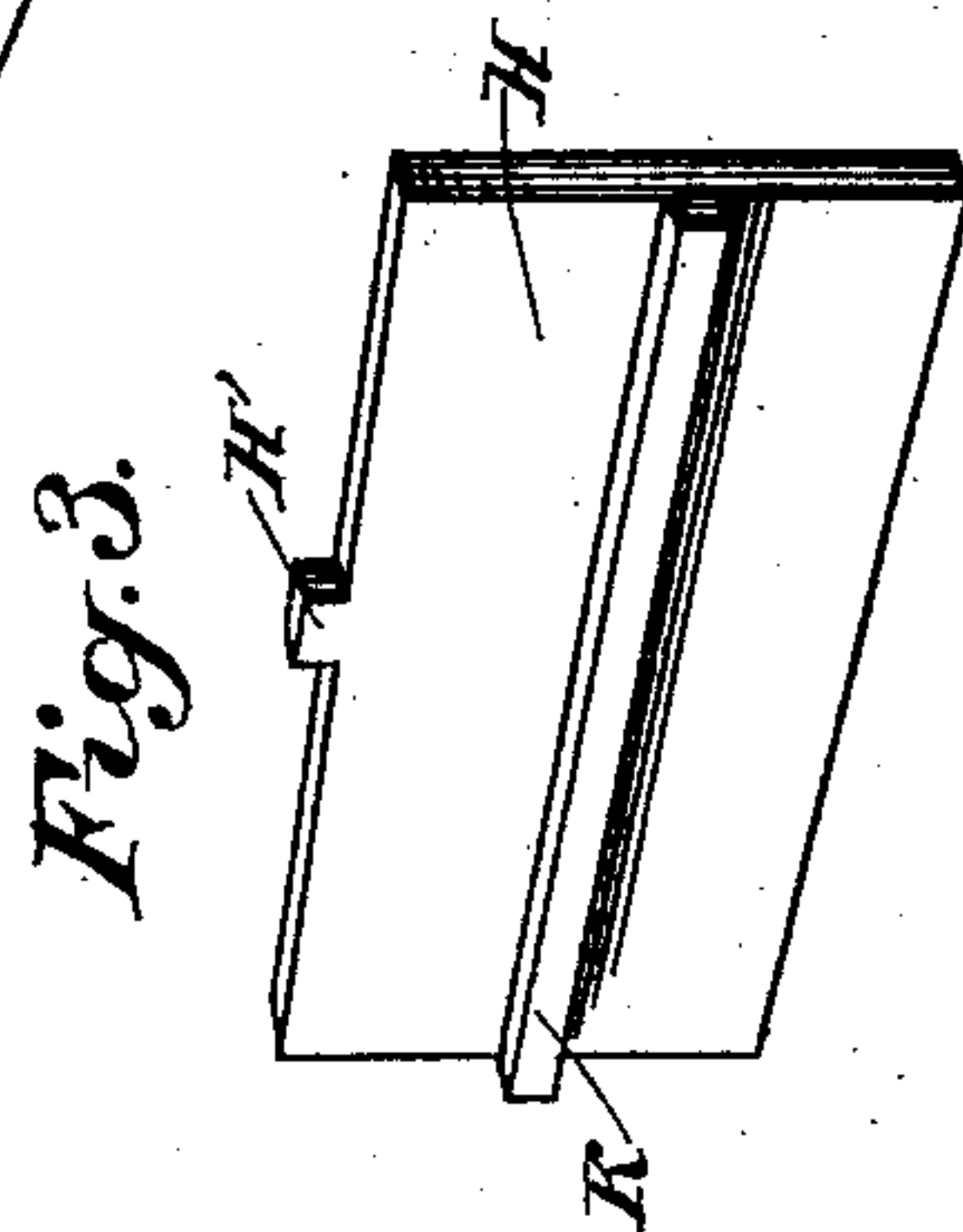
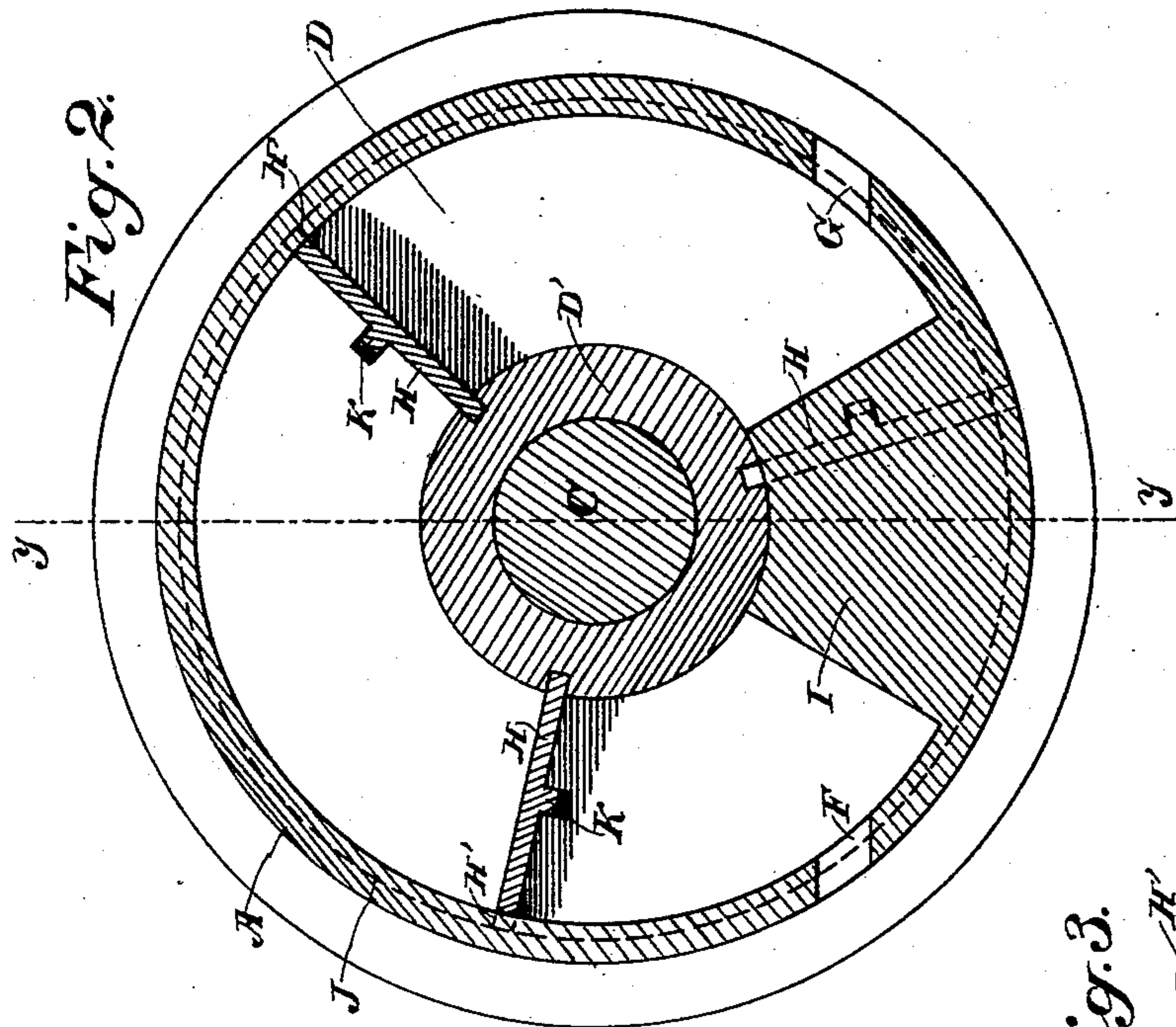


(No Model.)

C. G. WHITE.
ROTARY ENGINE.

No. 570,584.

Patented Nov. 3, 1896.



Witnesses,
J. H. Source
J. F. Oscheck

Inventor
Charles G. White
By Dwyer & Co. atty

UNITED STATES PATENT OFFICE.

CHARLES G. WHITE, OF WOODLAND, CALIFORNIA, ASSIGNOR OF ONE-HALF
TO J. F. HINK, OF SAME PLACE.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 570,584, dated November 3, 1896.

Application filed March 11, 1896. Serial No. 582,811. (No model.)

To all whom it may concern:

Be it known that I, CHARLES G. WHITE, a citizen of the United States, residing at Woodland, county of Yolo, State of California, have
5 invented an Improvement in Rotary Engines or Pumps; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an improved apparatus which is designed to be used either as an engine or as a pump.

It consists in certain details of construction, which will be more fully explained by reference to the accompanying drawings, in
15 which—

Figure 1 is a longitudinal section through the shell on line *y y* of Fig. 1. Fig. 2 is a transverse section on line *x x* of Fig. 1. Fig. 3 is a separate view of one of the pistons.

20 This invention is designed to provide certain improvements in that class of rotary engines in which radial pistons are movable in planes parallel with the shaft and are alternately projected into the open portion of the
25 cylinder and withdrawn therefrom.

A is a cylindrical case having the head B fitted upon one end, through which passes the shaft C. A tight joint is made around this shaft by means of a stuffing-box in the
30 usual manner. Within the case is a solid cylinder D, fixed to the shaft and turnable with it. This cylinder fits the case by means of packing around the periphery and occupies but a portion of the length of the case, the remainder being the part in which the
35 steam operates when used as an engine or as a suction-chamber if power is applied, so as to use it as a pump, it being manifest that it is capable of being operated in either way.
40 Within this open chamber is a central hub D', of sufficient diameter, extending from the end of the cylinder D to the inner end of the cap E, which forms that end of the case. The shaft may extend through and be journaled
45 in or beyond this cap. At one side of the chamber is a segmental block or abutment I, which fills the entire open space at that point, extending from the hub D' to the inner periphery of the case.

50 The cylinder D has radial channels made in it, as shown, extending from the outer pe-

riphery of the cylinder to a point near the center, preferably a little inside of the diameter of the hub, and the hub is channeled to correspond with the channels in the cylinder. 55
Rectangular plates H are fitted into these channels and form the pistons which operate within the exterior chamber. These plates or pistons have suitable packing fitted into the edges and have lugs H' projecting from
60 the outer edges, as shown. These lugs enter a circumferential groove or channel J, which is made in the interior periphery of the casing in that portion within which the cylinder revolves. This groove or channel is cam- 65
shaped and so curved that when the rotation of the cylinder has brought the pistons to a point near the abutment I the pistons will be withdrawn, so as to pass the abutment, and
70 after passing the abutment will, by the action of the cam upon the lug, be immediately projected, so as to extend across the open space at the opposite end of the casing. When thus projected, each piston will pass
75 an inlet-opening F, and a medium entering through this opening follows the piston around until it arrives at the outlet G upon the opposite side, where it is discharged. At the instant after passing the outlet the
80 piston will be withdrawn by the action of the cam, so as to pass the abutment I, and will be again projected after having passed. As many of these pistons may be employed as may be found desirable. I have here shown
85 three. In order to properly guide these pistons and prevent a pressure outward and against the interior periphery of the casing, I have shown the pistons as provided with
90 ribs or tongues K, extending longitudinally and at about the center of the piston, these ribs being parallel with the axis of the cylinder. When the pistons slide back and forward within the cylinder, these tongues travel
95 in corresponding grooves, and whatever the centrifugal force which may be developed by the rapid rotation of the apparatus these
tongues will prevent the peripheries of the pistons or plates from being forced outwardly to form an undue pressure and friction
100 against the interior periphery of the cylinder. In addition it prevents the side pressure which such friction would induce and

which would cause the plates to bind within their channels and be difficult to move out and in.

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

1. In a rotary engine, a cylinder-case, a drum or cylinder fitting one end of the same having a central shaft extending outwardly through the stuffing-box in the case, upon which shaft the cylinder is carried, radial grooves or channels formed in the cylinder, and rectangular blades or pistons slidable in said grooves, a hub extending from the cylinder to the end of the open space in the casing having corresponding grooves in which the inner edges of the pistons are guided when projected into the space, a cam-shaped groove or channel formed in the interior periphery of the case, lugs projecting from the outer edges of the pistons and engaging with said groove whereby the rotation of the cylinder alternately projects and retracts the piston, and a segmental abutment extending across one side of the open chamber of the case from the interior periphery of the case, to the hub, and inlet and outlet openings adjacent thereto.

2. A rotary engine consisting of a cylindrical case having an axial shaft journaled

and extending into it, a cylinder fixed to said shaft fitting rotatably within one end of the casing, leaving an open space at the opposite end, grooves or channels formed in the cylinder, a hub projecting from the end of the cylinder to the opposite interior end of the casing with corresponding grooves formed in its periphery, rectangular plates or pistons slidably fitting said grooves and having lugs projecting from the outer edges, a curved circumferential groove or channel cut into the interior periphery of the casing into which said lugs project, and by the curvature of which the pistons are alternately projected and retracted in lines parallel with the axis, inlet and outlet openings connecting with this open portion of the case, a fixed segmental abutment fitting this portion of the case between the end of the cylinder and the inner end of the casing, longitudinal channels formed in the cylinder connecting with the channels in which the pistons slide and corresponding ribs formed upon the pistons projecting into said channels.

In witness whereof I have hereunto set my hand.

CHARLES G. WHITE.

Witnesses:

M. DE. HURST,

WILL C. SPENCER.