

No. 791,392.

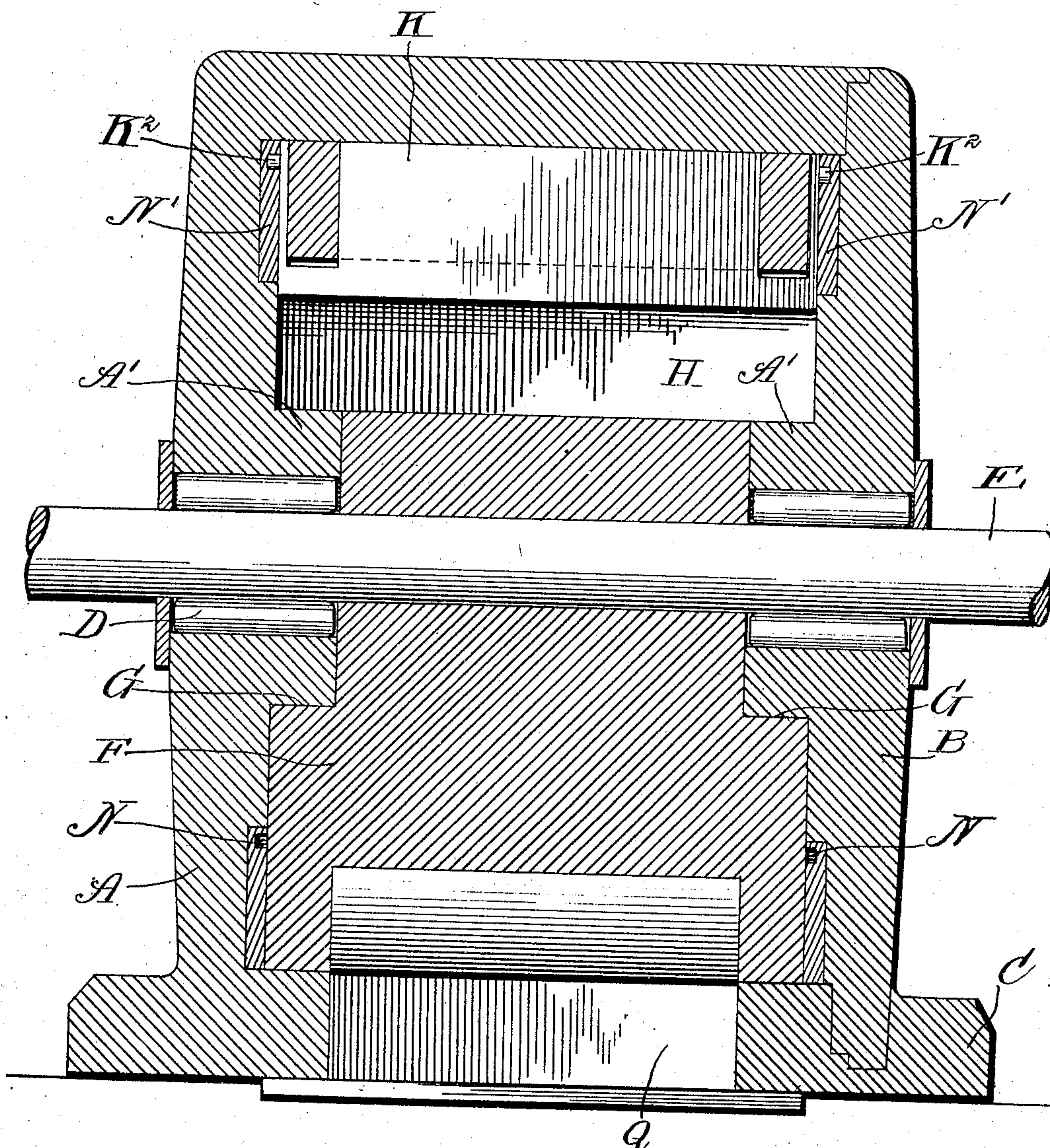
PATENTED MAY 30, 1905.

W. C. WOLFE.
ROTARY ENGINE.

APPLICATION FILED OCT. 26, 1904.

3 SHEETS—SHEET 1.

Fig. 1.



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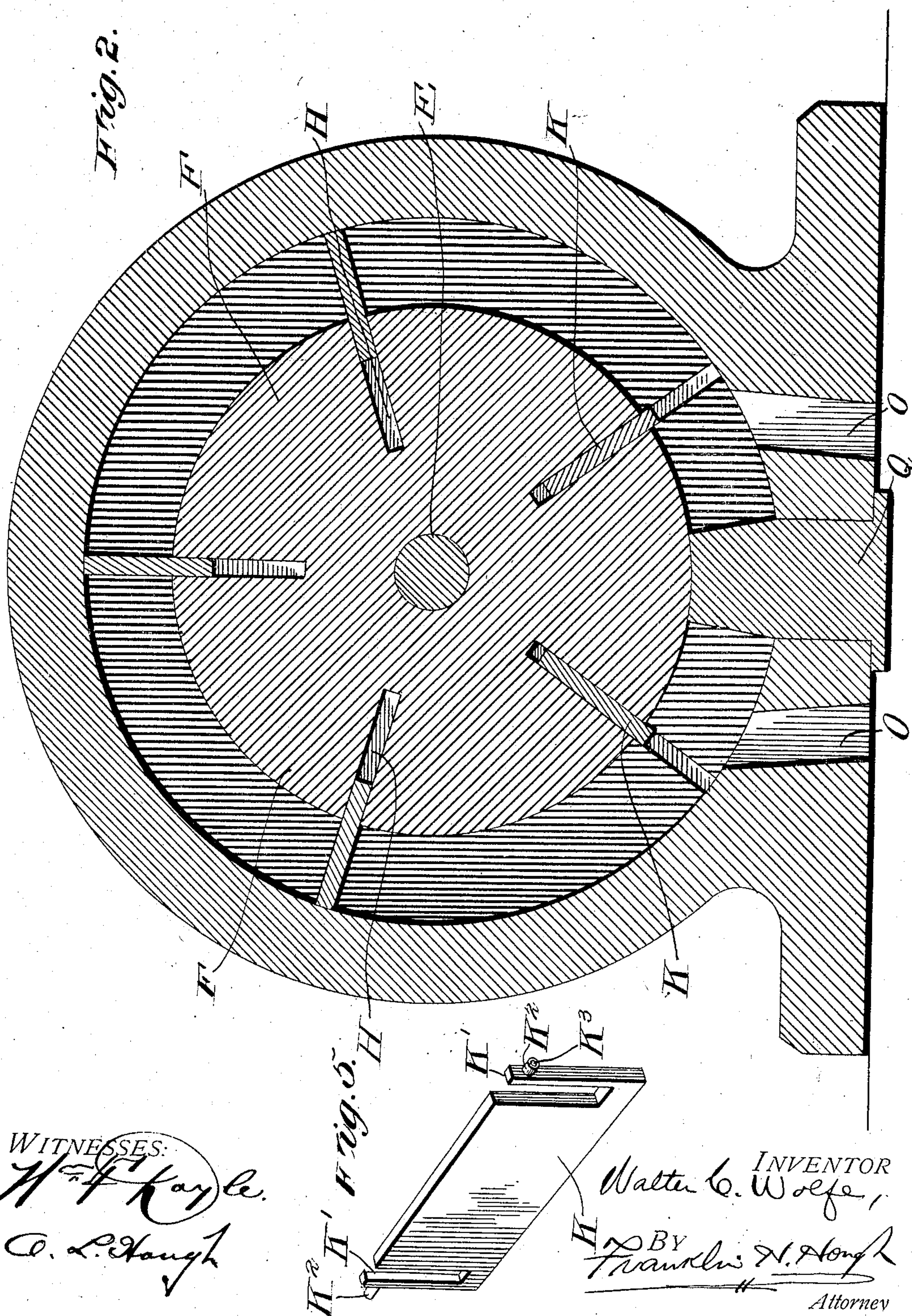
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 4.

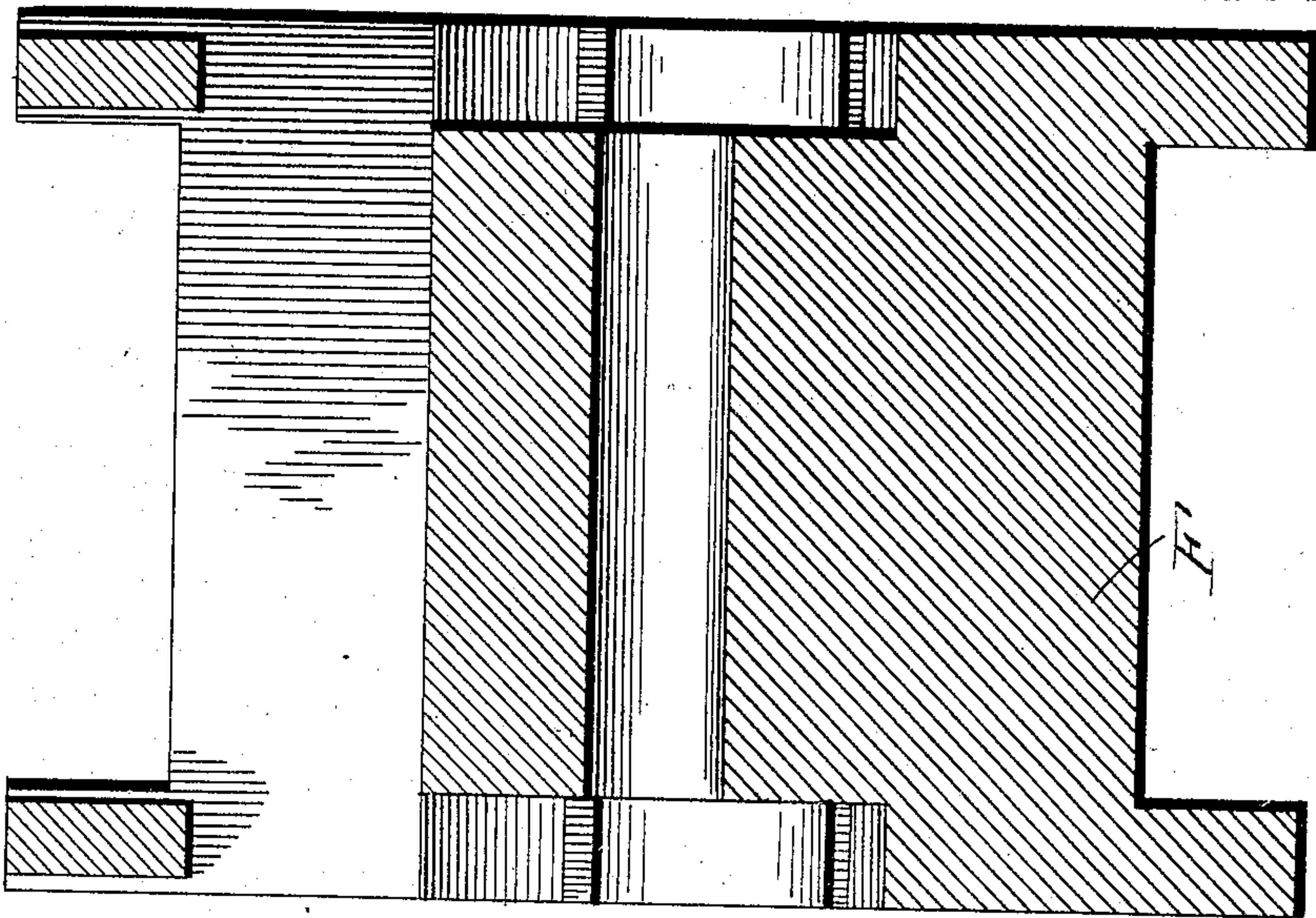
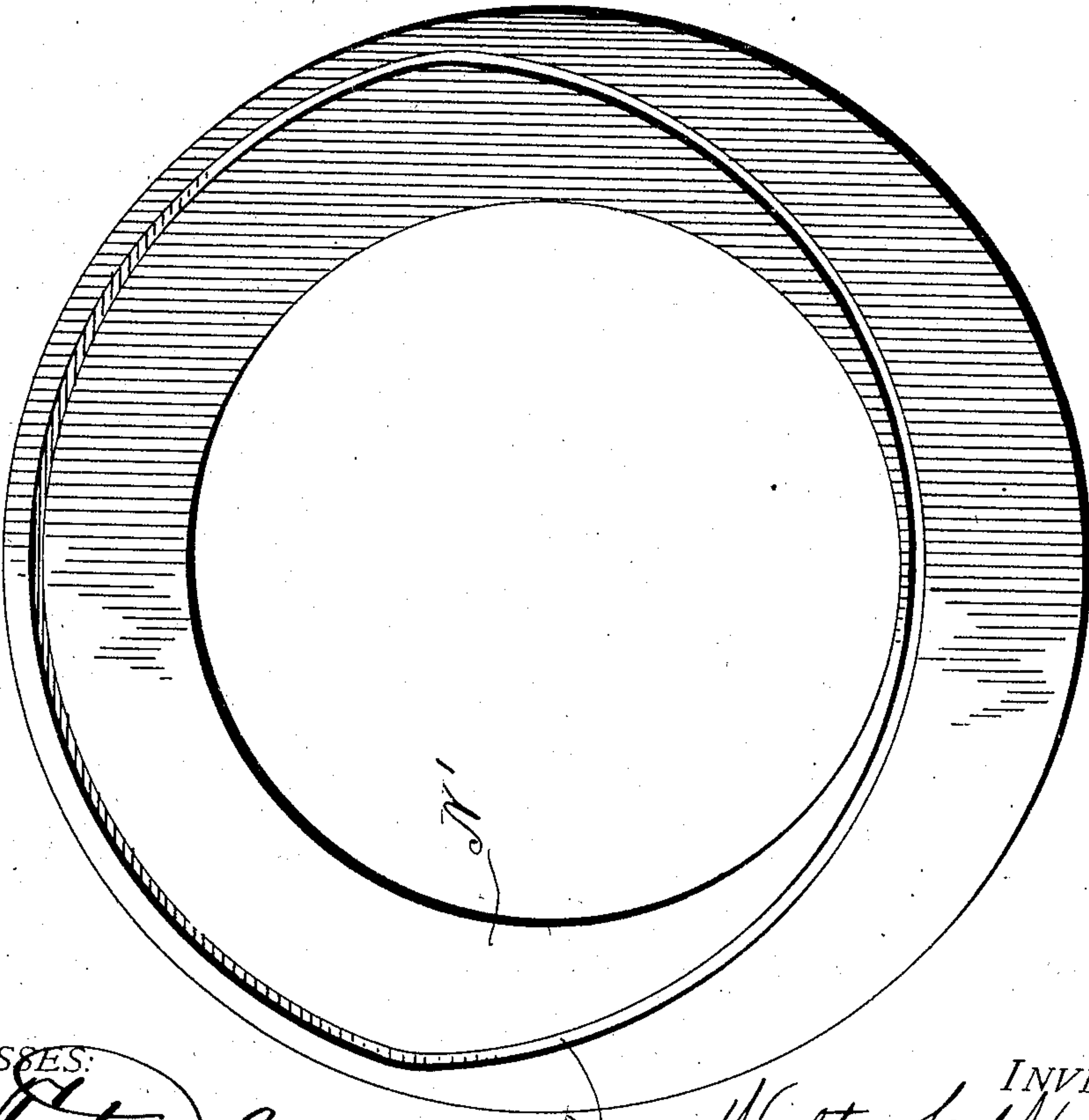


Fig. 3.



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UNITED STATES PATENT OFFICE.

WALTER C. WOLFE, OF DAVENPORT, IOWA.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 791,392, dated May 30, 1905.

Application filed October 26, 1904. Serial No. 230,132.

To all whom it may concern:

Be it known that I, WALTER C. WOLFE, a citizen of the United States, residing at Davenport, in the county of Scott and State of Iowa, have invented certain new and useful Improvements in Rotary Engines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in rotary concentric piston steam-engines; and the object of the invention is to produce an apparatus of this nature in which the piston is provided with a series of movable wings, which are recessed on the longitudinal edges thereof and adapted to have play in slots in the piston, and in the provision of guide-bands having cam-grooves therein for the reception of lugs carried on the ends of the wings, whereby as the piston rotates the movement of the wings may be regulated.

The invention consists, further, in various details of construction and in combinations and arrangements of parts, which will be hereinafter fully described and then specifically defined in the appended claims.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a central longitudinal section vertically through my improved engine. Fig. 2 is a cross-sectional view centrally through the engine. Fig. 3 is a side elevation of a ring having a cam-groove in one face thereof. Fig. 4 is a sectional view through the piston, and Fig. 5 is an enlarged detail perspective view of one of the wings or blades carried by the piston.

Reference now being had to the details of the drawings by letter, A designates the shell of the cylinder, having a removable end B and a base C. Antifriction-rollers D are positioned in apertures in the ends of the cylinder and form suitable bearings for the shaft E. It will be observed that each end of the cylinder is provided with an inwardly-extending

boss A'. F designates a piston having shouldered portions G on the opposite ends thereof, designed to rotate about said bosses A'. The circumference of said piston is provided with a series of radial slots H, designed each to receive a reciprocating wing or blade K, a detail view of one of said wings or blades being clearly shown in Fig. 5 of the drawings. Each of said wings is provided with two recesses K', formed near the ends thereof and at right angles to the longitudinal edge thereof, and upon the opposite ends of each blade is an antifriction-roller K², mounted upon a pin K³. The antifriction-rollers K² are positioned near the outer edge of each of said wings and are adapted to be guided in the cam-grooves N in the rings N', which rings are seated in recesses formed in the ends of the cylinder, as shown clearly in Fig. 1 of the drawings. Fig. 3 of the drawings shows a side elevation of one of said rings provided with a cam-groove, and it will be noted upon examination of said Fig. 3 that as the piston carrying the wings or blades rotates the reciprocal movement of said wings or blades will be effected, throwing the blades in a position to be acted upon by the pressure of steam or withdrawing the same out of the steam-chamber as the steam exhausts through the ports O, Fig. 2 of the drawings.

A removable block Q with flanged end is inserted through an aperture in the bottom of the cylinder and extends vertically through the steam-chamber and forms a wall which is cleared by the wings or blades of the piston as they pass by the same by the wings being withdrawn into the slots, as will be readily understood.

The removable end of the cylinder may be fastened to the shell in any suitable manner and is so arranged that it may be readily removed, as well as the other working parts within the cylinder, and easily replaced.

By the provision of an engine embodying the features of my invention it will be observed that the circumference of the rotary piston extends out to the inner circumference of the shell of the cylinder, thus securely bracing the piston-heads, leaving only a portion of the head exposed to the surface of the cylinder, and the independently-operating wings

or blades are securely held in position and allowed to reciprocate freely when guided by means of the construction shown and described.

5 It will be observed that one of the exhaust-ports may be used for steam, while the other is utilized for exhaust purposes when the engine is driven in one direction and the reverse when driven in the opposite direction.

10 While I have shown a particular construction of apparatus illustrating my improved engine, it will be understood that I may vary the details of the same without departing in any way from the spirit of the invention.

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

1. A rotary concentric piston-engine comprising a cylinder with a removable end, a shaft journaled in suitable bearings therein, a piston fixed to said shaft and having a diameter equal to the diameter of the chamber of the cylinder and provided with radial slots in the circumference thereof said piston having an annular channel forming a steam-chamber, blades mounted in said slots, anti-friction-rollers carried by said blades and adapted to be guided in cam-grooves in the ends of the cylinder, each of said blades being recessed to receive a portion of the piston, as set forth.

2. A rotary concentric piston-engine comprising a cylinder with removable end, a shaft journaled in suitable bearings in said cylinder, a piston fixed to said shaft and provided with a series of radial slots, blades mounted to reciprocate in said slots, each of said slots being recessed at right angles to the longitudinal edges thereof adjacent to the ends of the blades adapted to receive a portion of the piston said piston having an annular channel forming a steam-chamber, rings seated in the ends of the cylinder and having cam-grooves on their inner faces, anti-friction-rollers carried by said blades and adapted to be guided in said grooves, as set forth.

3. A rotary concentric piston-engine comprising a cylinder having a removable end, a shaft journaled in suitable bearings in the cylinder, a piston fixed to the shaft, a series of reciprocal blades mounted in radial slots in

the piston, each of said blades having recesses in the outer longitudinal edge at right angles thereto said piston having an annular channel forming a steam-chamber, rings seated in the ends of the cylinder and having cam-grooves, the portions of the blades intermediate said recesses and the ends of the blades adapted to have play in slots in the end of the piston, and anti-friction-rollers carried at the ends of the blades and adapted to be guided in said cam-grooves, as set forth.

4. A rotary concentric piston steam-engine comprising a cylinder having a removable end with bosses on the inner faces of the ends of the cylinder, a shaft journaled in suitable bearings in the ends of the cylinder, a piston fixed to said shaft and having a series of radial slots said piston having an annular channel forming a steam-chamber, the ends of said piston having shouldered portions adapted to turn about said bosses at the ends of the cylinder, blades each having recesses formed in the outer edges thereof, rings seated in recessed portions of the ends of the cylinder and each provided with a cam-groove, and anti-friction-rollers carried by said blades and adapted to be guided in said grooves, as set forth.

5. A concentric steam-engine comprising a cylinder having a removable end, a shaft mounted in suitable bearings in said cylinder, a piston fixed to said shaft and provided with a series of radial slots said piston having an annular channel forming a steam-chamber, rings having cam-grooves in the inner faces thereof seated in recessed portions formed in the inner ends of the cylinder, blades mounted in said slots and having recesses in the outer edges thereof, anti-friction-rollers carried by said blades and guided in said grooves, a removable block mounted in an aperture in the bottom of said cylinder and adapted to form a wall across the steam-chamber intermediate the piston and the inner surface of the cylinder, as set forth.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

WALTER C. WOLFE.

Witnesses:

LOUIS BLOCK,
D. ROCHAU.