

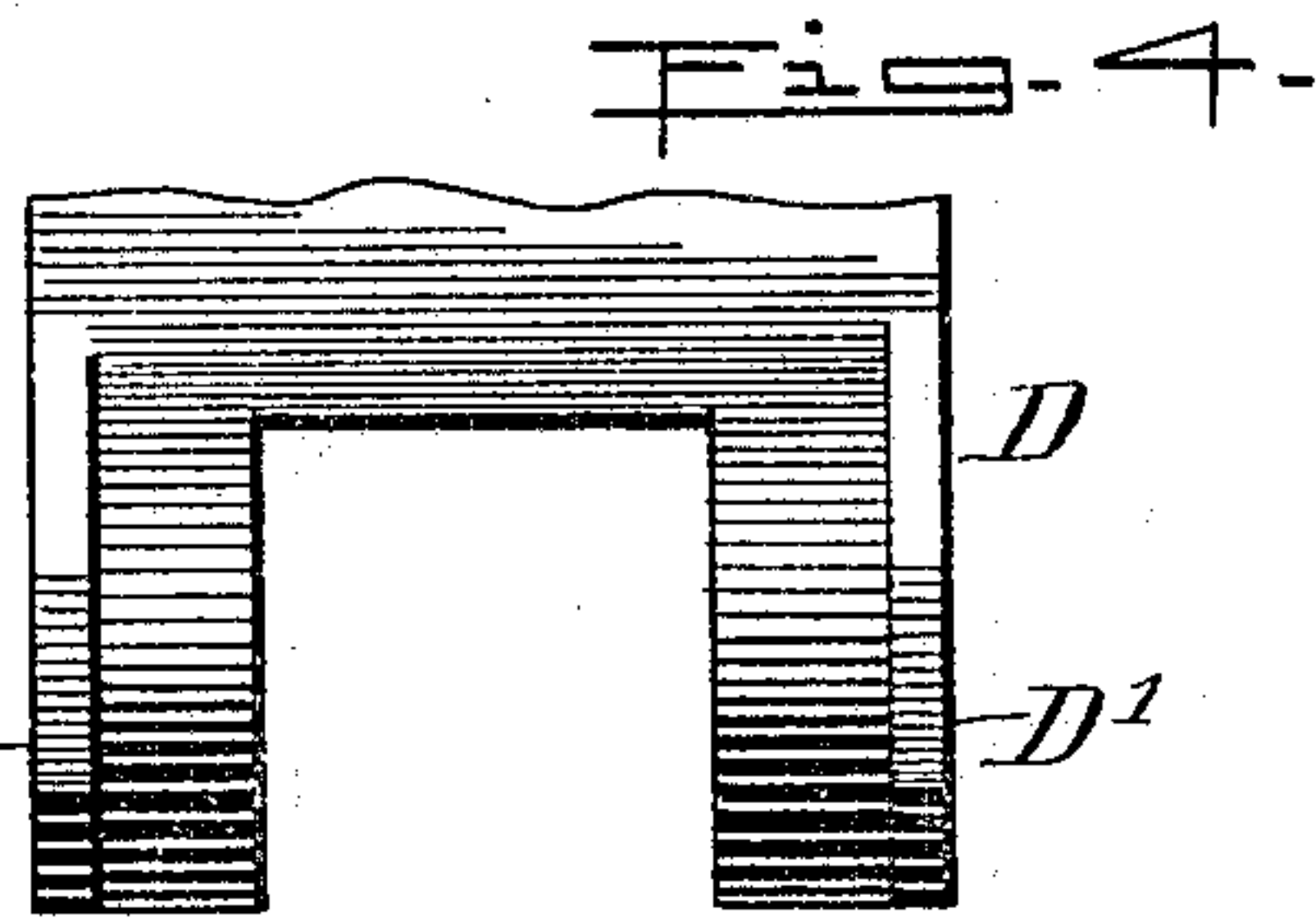
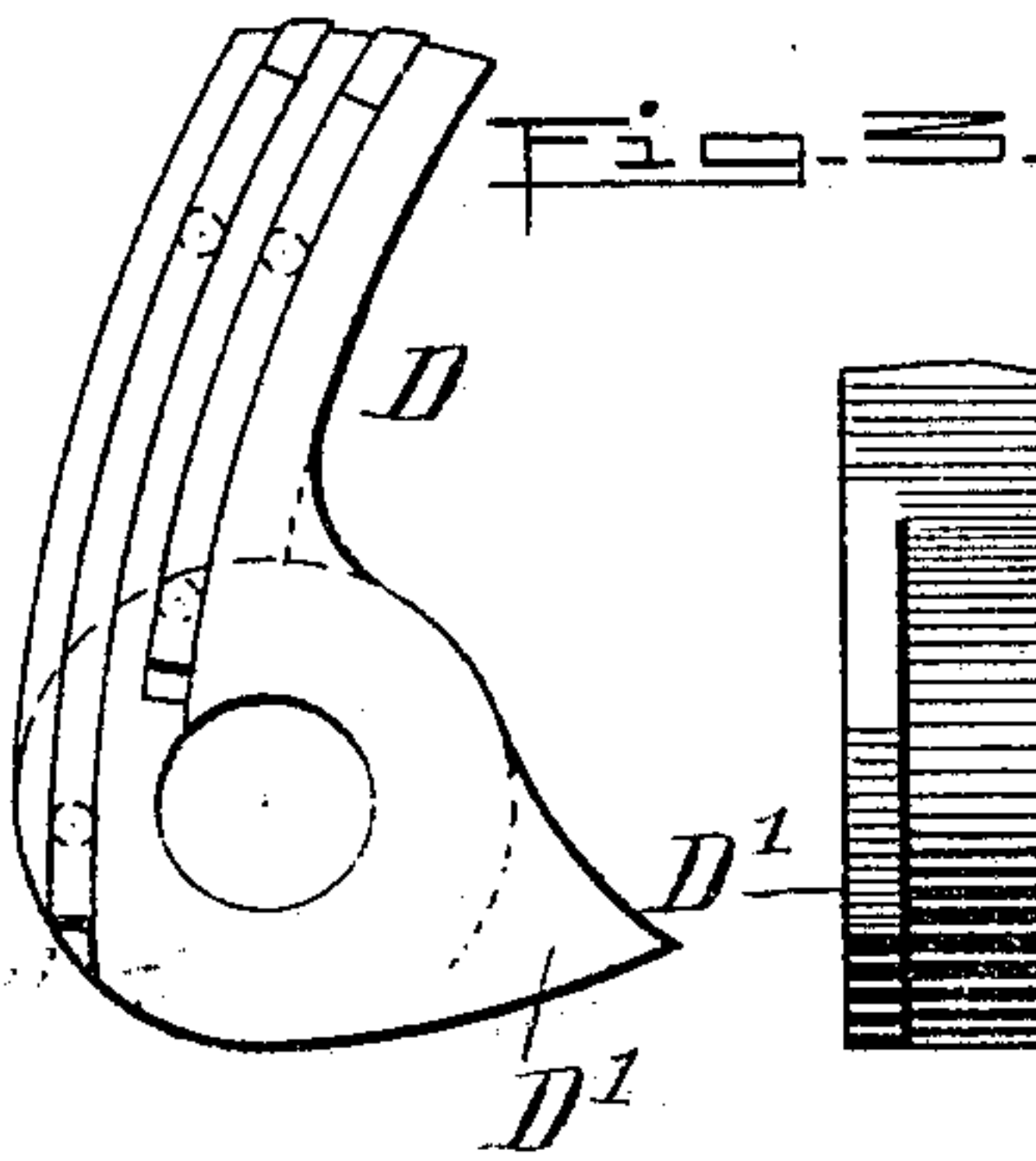
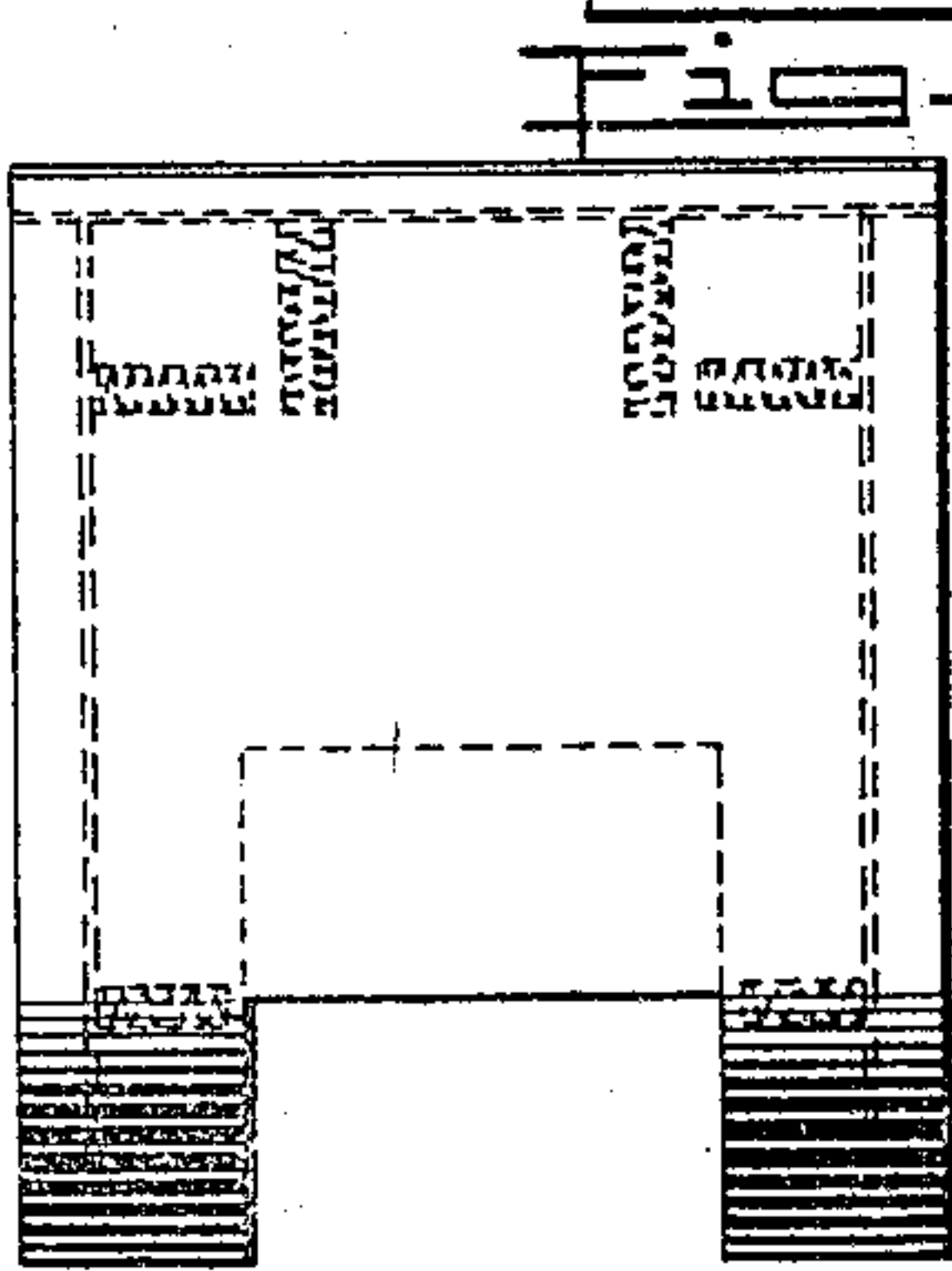
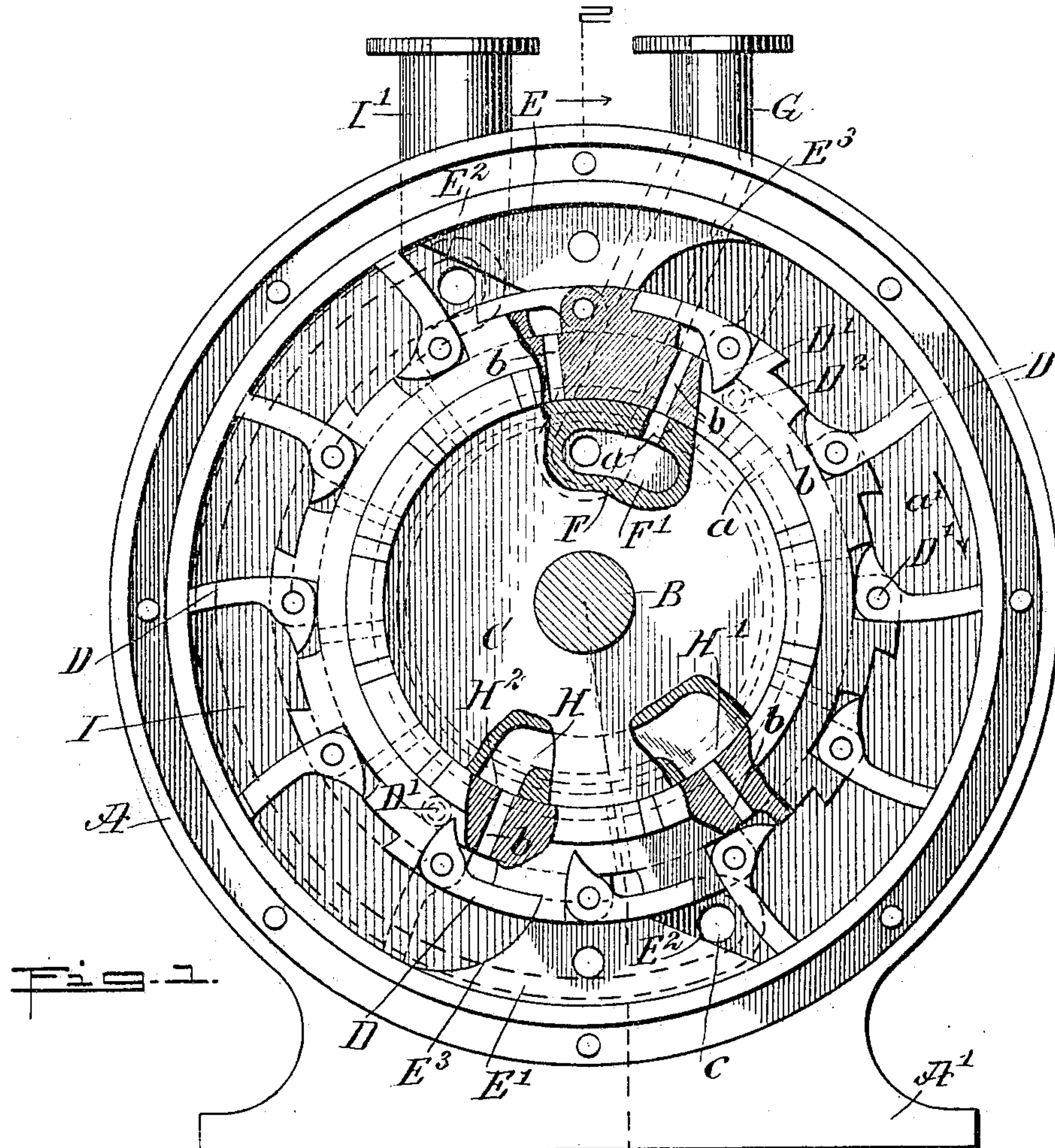
No. 801,636.

PATENTED OCT. 10, 1905.

P. BARTOLETTI.  
ROTARY ENGINE.

APPLICATION FILED FEB. 3, 1905.

2 SHEETS—SHEET 1.



WITNESSES:

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*Rev. J. H. Foster*

INVENTOR

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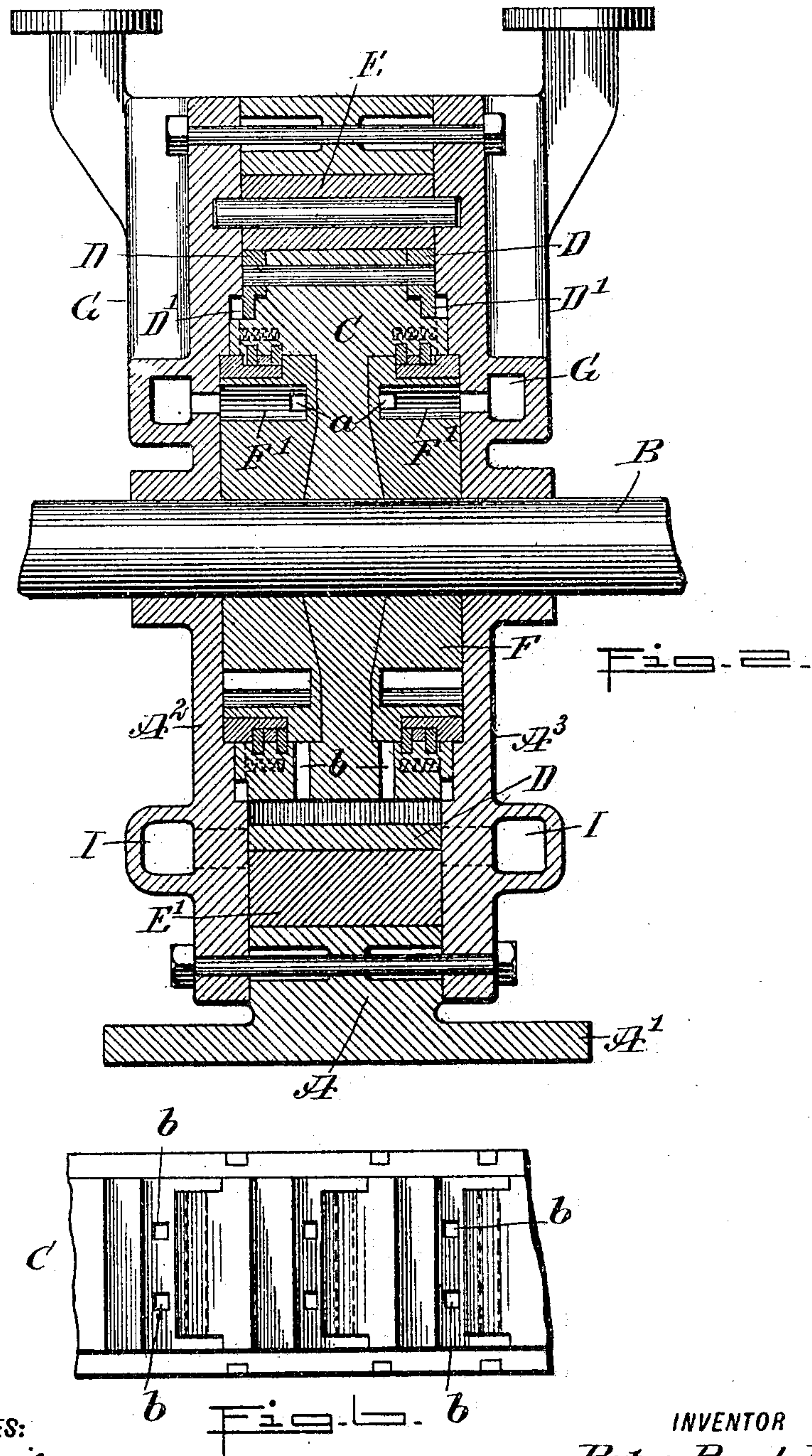
ATTORNEYS

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# UNITED STATES PATENT OFFICE.

PETER BARTOLETTI, OF BROWNSVILLE, PENNSYLVANIA.

## ROTARY ENGINE.

No. 801,636.

Specification of Letters Patent.

Patented Oct. 10, 1905.

Application filed February 3, 1905. Serial No. 243,988.

*To all whom it may concern:*

Be it known that I, PETER BARTOLETTI, a subject of the King of Italy, and a resident of Brownsville, in the county of Fayette and State of Pennsylvania, have invented a new and Improved Rotary Engine, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved rotary engine which is simple and durable in construction, very effective in operation, and arranged to utilize the steam expansively to the fullest advantage.

The invention consists of novel features and parts and combinations of the same, as will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a cross-section of the improvement, parts being broken out. Fig. 2 is a longitudinal sectional elevation of the same on the line 2 2 of Fig. 1. Fig. 3 is an enlarged side elevation of one of the piston-heads. Figs. 4 and 5 are face views of the same; and Fig. 6 is a plan view of the piston, the piston-heads being removed.

The cylinder A of the engine is provided with a suitable base A' and with cylinder-heads A<sup>2</sup> and A<sup>3</sup>, in which is journaled the main shaft B, connected with other machinery for transmitting the rotary motion of the engine to drive the said machinery. On the main shaft B within the cylinder A is secured a piston C, arranged concentrically in the cylinder, and on its peripheral face are fulcrumed a plurality of piston-heads D, adapted to swing into an open or closed position, as illustrated in the drawings.

Within the cylinder A are arranged a plurality of abutments. For instance, as shown in Fig. 1, two abutments E and E' are employed, located diametrically opposite each other. Each of the abutments is provided at one side with an incline E<sup>2</sup> for the free end of the piston-head D to strike against, so as to swing the piston-head into a closed position to allow this piston-head to pass under the corresponding abutment E or E'. The oppo-

site or pressure side E<sup>3</sup> of each abutment is preferably curved, as indicated in Fig. 1.

In the cylinder A on opposite sides of the web of the piston C are arranged steam-chests F, secured to the cylinder-heads A<sup>2</sup> and A<sup>3</sup>, each steam-chest F being provided with an initial pressure-chamber F', connected with a steam-inlet G, having connection with a boiler or other suitable source of steam-supply. From each initial pressure-chamber F' leads a port a to the peripheral face of the steam-chest to register with ports b, formed in the piston C and opening into the cylinder A directly under the piston-heads D, as plainly shown in Fig. 1, the port a being arranged adjacent to the pressure side E<sup>3</sup> of the abutment E, so that the steam passing through registering ports a and b acts on the under side of a piston-head D, previously closed by coming in contact with the abutment E, so that this piston-head is swung into an open position and the power of the steam is exerted against this piston-head to rotate the piston in the direction of the arrow a'. 55 60 65 70 75

In addition to the fluid-pressure means described for opening the piston-heads D each piston-head is preferably provided on its pivotal end with a heel D', adapted to engage a friction-roller D<sup>2</sup>, located slightly in advance of the corresponding abutment E or E' and journaled on the corresponding head A<sup>2</sup> or A<sup>3</sup>. 80

In the steam-chest F is also formed an expansion-chamber H, having its inlet H' and its outlet H<sup>2</sup> arranged at opposite sides of the abutment E', as plainly indicated in Fig. 1, the said inlet H' and the outlet H<sup>2</sup> being adapted to register with the ports b as the piston C rotates in the direction of the arrow a'. 85 90

By the arrangement described it will be seen that when the piston C is rotating in the direction of the arrow a' the port b for a piston-head D finally registers with the inlet H' of the expansion-chamber H, so that the steam confined between adjacent piston-heads is free to pass into the expansion-chamber H, to travel along the same in a forward direction, and finally pass through the outlet H<sup>2</sup> and the registering port b back into the cylinder A on the pressure side E<sup>3</sup> of the abutment E' to open the piston-head D, previously closed by coming in contact with the incline E<sup>2</sup> of the abutment E'. The portion of the steam not trans- 95 100



ferred to opposite sides of the abutment E' by means of the expansion-chamber H exhausts by way of a port *c* into an exhaust-chamber I, formed on each of the cylinder-heads A<sup>2</sup> and A<sup>3</sup>, each exhaust-chamber I having an outlet-pipe I' for conducting the steam to the outside. Thus by the arrangement described the corresponding piston-head D when beginning to close at the abutment E' is free to do so, as the steam in advance of this piston-head can freely escape by way of the ports *c* and chambers I from the cylinder A.

Although I have described but two abutments E and E' and a single expansion-chamber H, it is evident that more such abutments and expansion-chambers H may be employed to allow repeated transfer of steam in the cylinders from one side of an abutment to another to utilize the steam expansively to the fullest advantage.

The piston-heads D are provided with suitable packings, as indicated in Figs. 3 and 5, and suitable packings are also arranged between the peripheral faces of the steam-chests F and the rim of the piston C, as plainly indicated in Figs. 1 and 2.

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

1. A rotary engine comprising a cylinder provided with an abutment, a piston mounted to turn concentrically in the said cylinder and provided with pivoted piston-heads adapted to close on coming in contact with the said abutment, the piston also having ports opening into the cylinder, under the piston-heads, and a steam-chest fixed centrally in the said cylinder and connected with a steam-supply, the steam-chest having a port registering with the said piston-ports and opening into the cylinder at the pressure side of the abutment, the said steam-chest having an expansion-chamber provided with ports for registry with said piston-ports.

2. A rotary engine, comprising a cylinder provided with an abutment, a piston mounted to turn concentrically in the said cylinder and provided with pivoted piston-heads adapted to close on coming in contact with the said abutment, the piston also having ports opening into the cylinder, under the piston-heads, a steam-chest fixed centrally in the said cylinder and connected with a steam-supply, the steam-chest having a port registering with the said piston-ports and opening into the cylinder at the pressure side of the abutment, and mechanical means for opening the piston-heads after passing the pressure side of the abutment.

3. A rotary engine, comprising a cylinder provided with a plurality of abutments, a piston mounted to turn concentrically in the said cylinder and having pivoted piston-heads and ports leading to the cylinder under the

piston-heads, a steam-chest fixed centrally in the said cylinder and connected with a steam-supply, the steam-chest having a port for registry with the piston-ports, and an expansion-chamber provided with an inlet and with an outlet, the inlet and outlet registering with the piston-ports on opposite sides of an abutment.

4. A rotary engine, comprising a cylinder provided with a plurality of abutments, a piston mounted to turn concentrically in the said cylinder and having pivoted piston-heads and ports leading to the cylinder under the piston-heads, a steam-chest fixed centrally in the said cylinder and connected with a steam-supply, the steam-chest having a port for registry with the piston-ports, an expansion-chamber provided with an inlet and with an outlet, the inlet and outlet registering with the piston-ports on opposite sides of an abutment, and an exhaust leading from the non-pressure side of an abutment.

5. A rotary engine comprising a cylinder, a plurality of abutments fixed in the said cylinder, each having an incline on its non-pressure side, a piston mounted to turn concentrically in the said cylinder and provided with spaced ports in its rim, piston-heads fulcrumed on the said piston-rim and adapted to be opened by steam-pressure passing through the piston-rim ports, and steam-chests fixed in the cylinder and having their peripheral faces in contact with the inner face of the piston-rim, the steam-chest having an initial pressure-chamber, an expansion-chamber and ports leading from the said chambers for register with the said piston-rim ports.

6. A rotary engine comprising a cylinder, a plurality of abutments fixed in the said cylinder, each having an incline on its non-pressure side, a piston mounted to turn concentrically in the said cylinder and provided with spaced ports in its rim, piston-heads fulcrumed on the said piston-rim and adapted to be opened by steam-pressure passing through the piston-rim ports, steam-chests fixed in the cylinder and having their peripheral faces in contact with the inner face of the piston-rim, the steam-chest having an initial pressure-chamber, an expansion-chamber and ports leading from the said chambers for register with the said piston-rim ports, and exhausts on the cylinder-heads, having ports opening into the cylinder on the non-pressure side of the abutment for the expansion-chamber.

7. A rotary engine, comprising a cylinder provided with an abutment, a piston mounted to turn in the said cylinder and provided with pivoted piston-heads adapted to close on coming in contact with the said abutment, the piston having ports opening into the cylinder under the piston-heads, a steam-chest in said cylinder and connected with a steam-supply, the steam-chest having a port registering with

the piston-ports and opening into the cylinder at the pressure side of the abutment, the said piston-heads being each provided on its pivoted end with a heel, and a friction-roller  
5 located in advance of the abutment, and adapted for engagement with the said heels to open the piston-heads.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PETER BARTOLETTI.

Witnesses:

THEO. G. HOSTER,

EVERARD BOLTON MARSHALL.