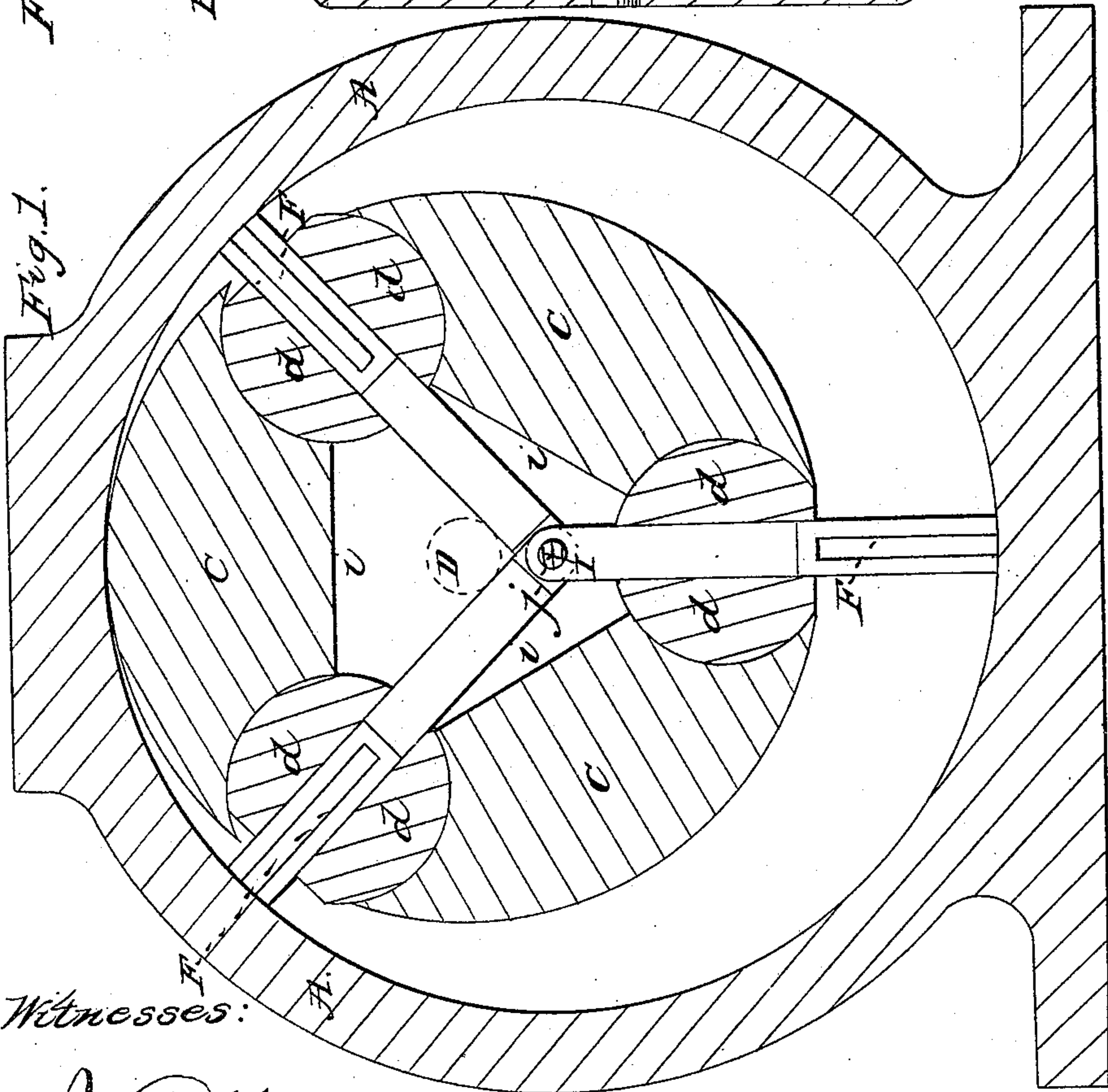
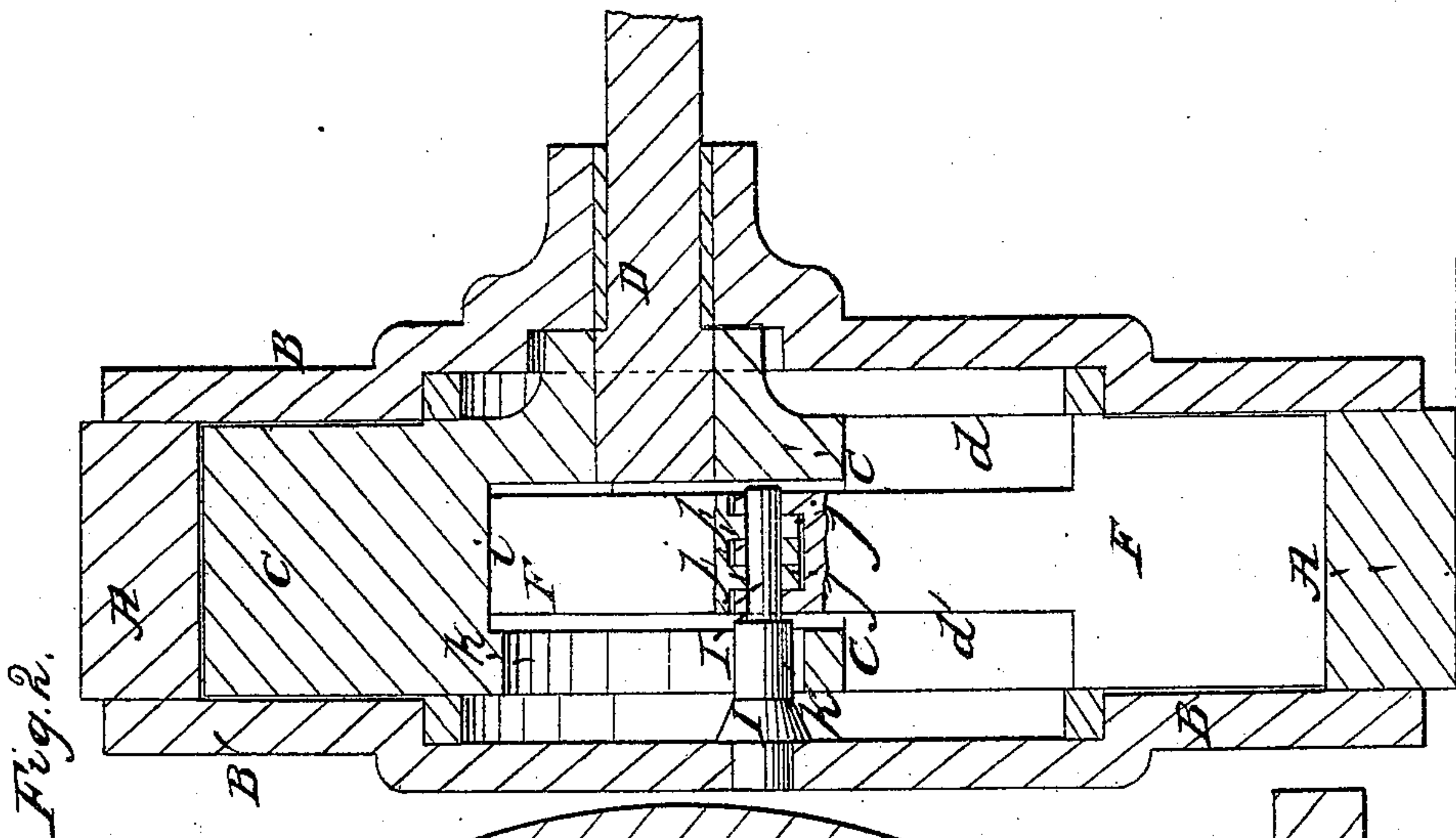


J. B. Root,

Rotary Steam Engine.

N^o 43,744.

Patented Aug. 2, 1864.



Witnesses:

*J. C. Wells
Roller*

Inventor:

John B. Root

UNITED STATES PATENT OFFICE.

JOHN B. ROOT, OF NEW YORK, N. Y., ASSIGNOR TO ROOT'S ROTARY ENGINE COMPANY, OF SAME PLACE.

IMPROVEMENT IN ROTARY ENGINES.

Specification forming part of Letters Patent No. 43,744, dated August 2, 1864.

To all whom it may concern:

Be it known that I, JOHN B. ROOT, of the city, county, and State of New York, have invented a new and useful Improvement in Rotary Engines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable any person skilled in the art to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a vertical section in a plane parallel with the plane of rotation of an engine with my improvements. Fig. 2 is an axial section of the same.

Similar letters of reference indicate the same parts.

This invention relates to that description of rotary engine whose inner rotary cylinder or drum, to which the pistons are attached, is arranged eccentrically within a larger stationary cylinder.

It consists in an improved mode of obtaining the center bearing for the pistons, whereby the construction of the engine is simplified and a larger steam-space may be obtained in a cylinder of a given diameter.

The engine represented is supposed to be, in all respects not otherwise herein described, substantially like that which is described in Letters Patent No. 1,204, granted to me on the 30th day of April, 1861, and assigned to Root's Rotary Steam Engine Company. A is the stationary outer cylinder. C is the inner rotary cylinder or piston-drum, and D is the shaft of the said drum, which is also the main shaft of the engine. F F F are the pistons, and *d d d* the cylindrical segment-pieces which constitute the guides of the pistons.

Instead of the drum C being made solid and having the shaft D extending right through it, as described in Letters Patent No. 1,204, hereinabove mentioned, the said drum is made hollow or with a central cavity, *i i*, that the pistons may be extended directly

to or beyond the center thereof and be connected together at their inner ends within the said cavity, and has the shaft D projecting from one side only, and extending through one head B of the cylinder A. In the other cylinder-head B' there is firmly secured a pin, I, which is arranged concentric with the bore of the cylinder A, and which enters the cavity *i i* of the piston-drum through an opening, *k k*, provided on the corresponding side of the said drum for the purpose of connecting the several pistons F F F, and serving as the center bearing around which the said pistons revolve. To enable the said pistons to be all fitted to the said pin, they are extended to the center of the cylinder and fitted together in a manner substantially like the joint of a hinge, as shown at *j j* in Fig. 2, and bored through for the reception of the said pin.

The operation of the pistons is substantially the same when the pin I is used as the center bearing as it is when they are constructed with segment-pieces fitted with grooves in the cylinder heads, as described in Letters Patent No. 1,204; but it will be readily understood, by a comparison of the two modes of providing the center bearing for the pistons, that the pin I is by far the simplest in construction, and, moreover, it allows the piston-drum C to be reduced in diameter, and so enables a deeper steam-space to be obtained between the said drum and the cylinder A.

What I claim as my invention, and desire to secure by Letters Patent, is—

The stationary pin I, secured in the center of one of the cylinder heads, entering a central cavity in the piston-drum and connecting and serving as center bearing for the several pistons within the drum, substantially as herein specified.

JOHN B. ROOT.

Witnesses:

J. P. HALL,

I. W. COOMBS.