

(No Model.)

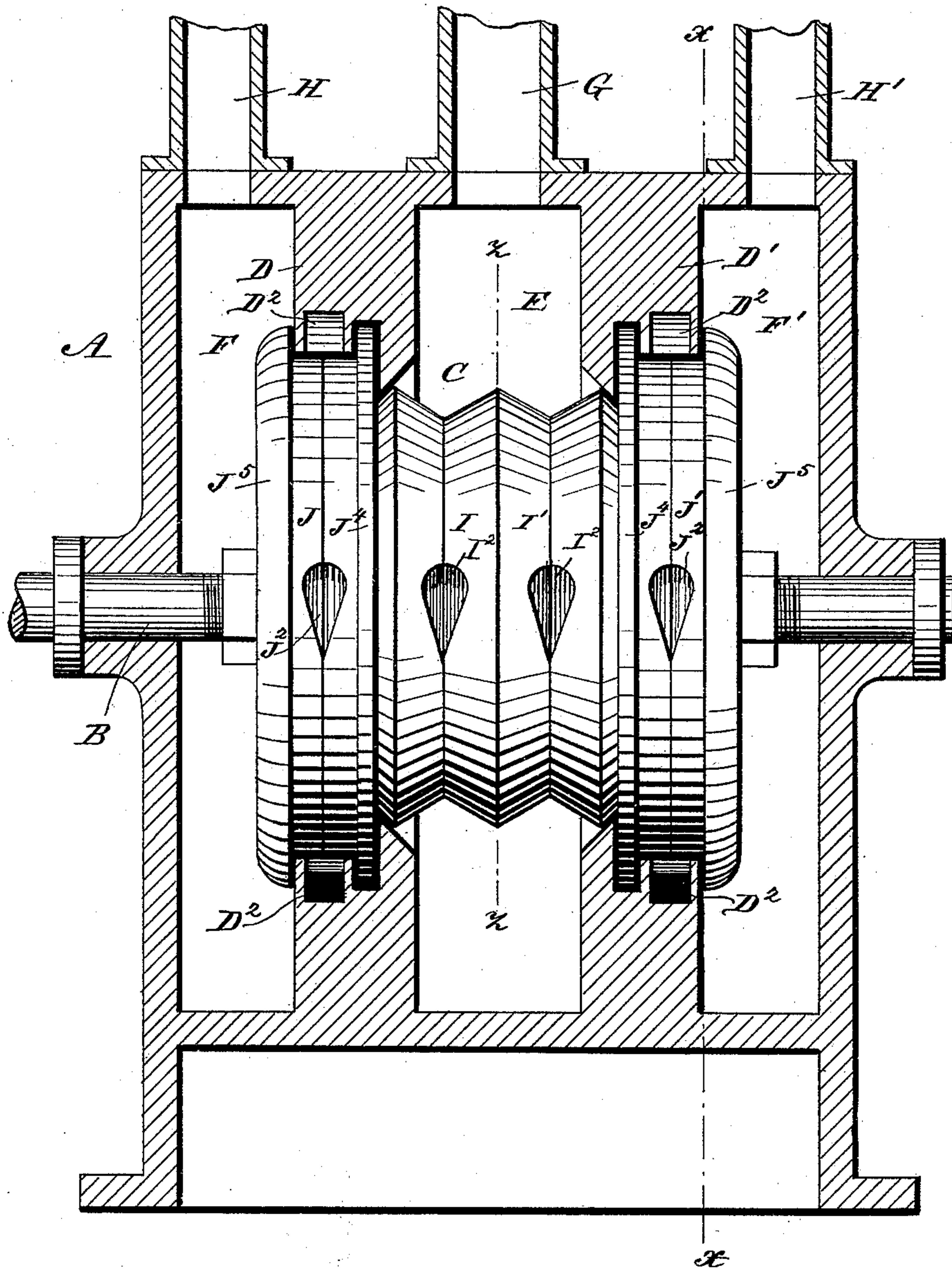
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M. A. BUFORD.
ROTARY ENGINE.

No. 401,816.

Patented Apr. 23, 1889.

Fig. 1.



WITNESSES:

D. C. Reusch.
C. Sedgwick.

INVENTOR:

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BY *Munn & Co.*

ATTORNEYS.

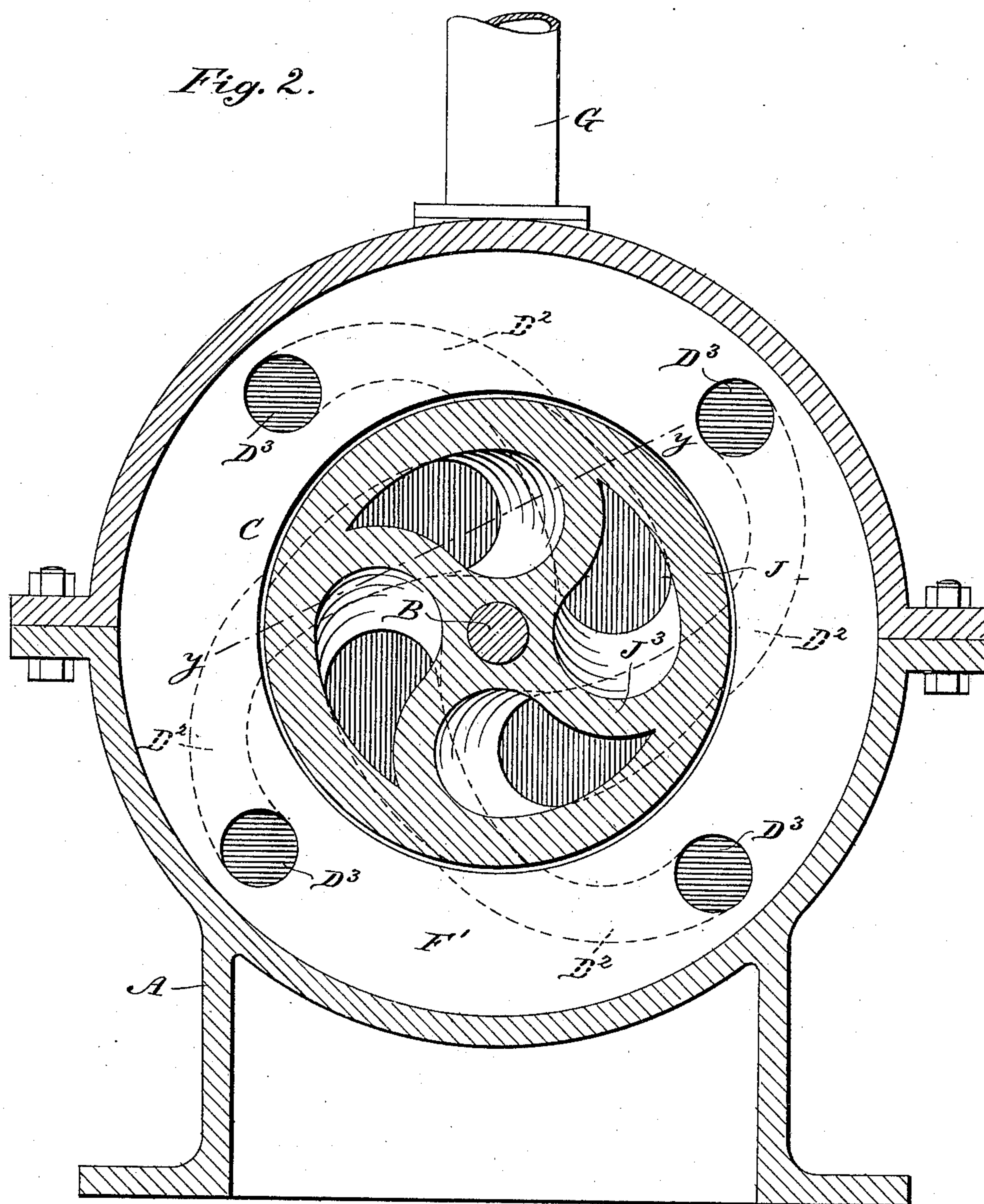
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Fig. 4.

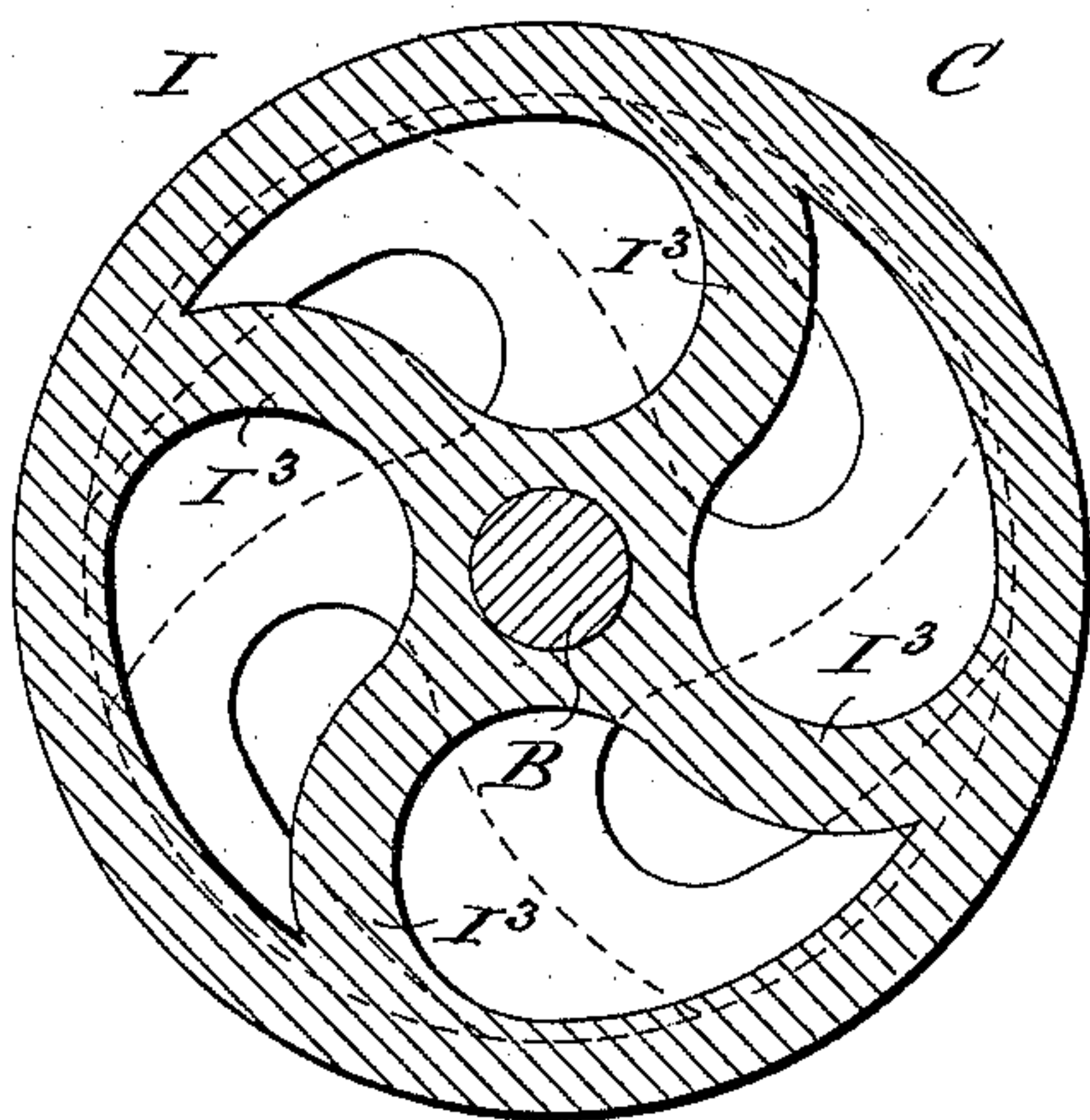


Fig. 5.

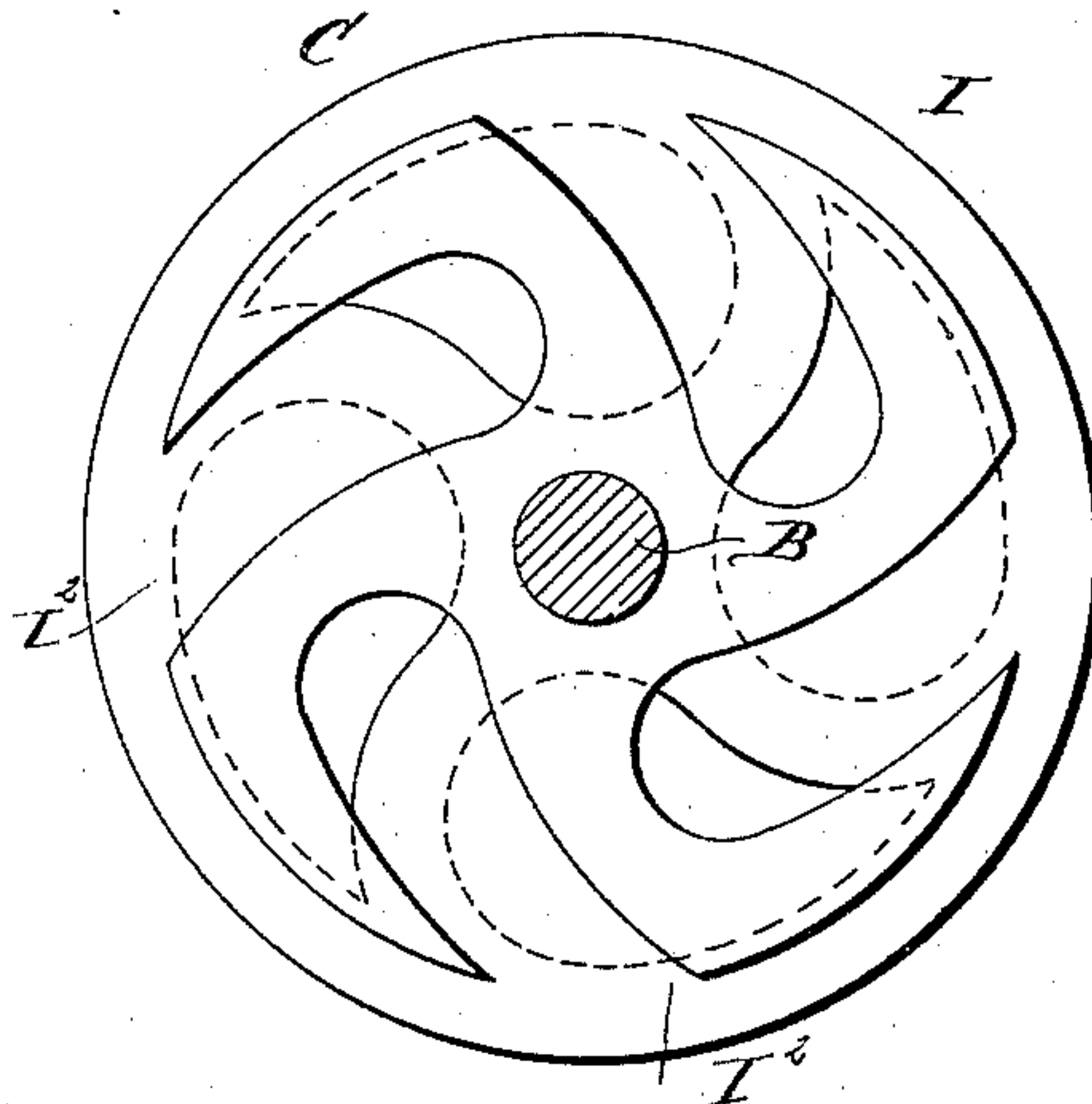
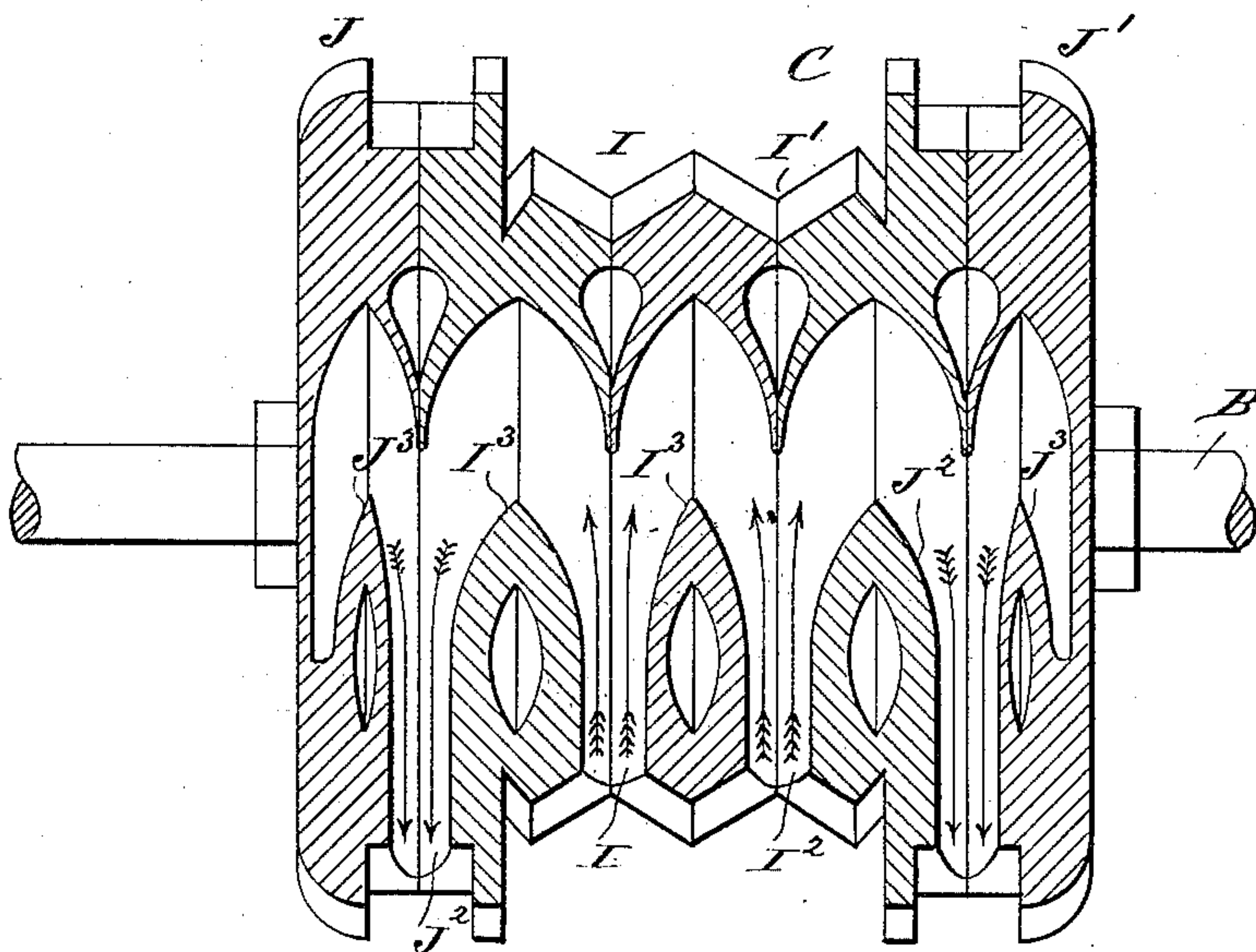


Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

MARCELLUS A. BUFORD, OF THOMPSON'S STATION, TENNESSEE.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 401,816, dated April 23, 1889.

Application filed August 14, 1888. Serial No. 282,710. (No model.)

To all whom it may concern:

Be it known that I, MARCELLUS A. BUFORD, of Thompson's Station, in the county of Williamson and State of Tennessee, 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 adapted to be operated by steam, air, water, or any other suitable fluid.

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

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is an end elevation of the improvement, showing the casing in section. Fig. 2 is a sectional side elevation of the same on the line xx of Fig. 1. Fig. 3 is a sectional plan view of the main driving-wheel on the line yy of Fig. 2. Fig. 4 is a sectional side elevation of the wheel on the line zz of Fig. 1, and Fig. 5 is a face view of the steam-receiving disk of the main wheel.

In a suitably-constructed casing, A, is mounted to rotate centrally the driving-shaft B, on which is secured in the casing A a wheel, C, partly surrounded by the partition-walls D and D', secured in the casing A, and forming in the middle of the latter the live-steam chamber E and near the ends of the casing the exhaust-chambers F and F', respectively. Into the live-steam chamber E leads the pipe G, for supplying steam to the chamber E. From the chambers F and F' lead the exhaust-pipes H and H'.

The main wheel C is provided in its middle with one or more disks, I I', each of which has a V-shaped groove in its periphery, from which lead at suitable intervals inlet-openings I², extending through the V-shaped spokes I³, to open into the space between two successive spokes. The number of inlet-openings I² corresponds with the number of spokes, so that the steam passes in through one opening in

the rim of the wheel and passes out through the opening between two successive spokes.

On the outer faces of the disks I and I' are secured the disks J and J', respectively, mounted to rotate in the partitions D and D', respectively, each of the disks being provided in its rim with an inwardly-extending opening, J², leading to the interior of the V-shaped spoke J³, to open into the spaces formed between two successive spokes. Thus the spaces formed by the several spokes of the several disks I, I', J, and J' are in communication with each other, so that the steam entering the openings I² of the disks I and I' passes out of the same to the right and left into the openings formed by the spokes of the disks J and J', through the hollow spokes J³, and into the outlet-openings J². The latter are adapted to register alternately with the inner ends of the curved channels D², formed in the partition-walls D and D', respectively, each of the said channels D² leading to an opening, D³, formed in the side of the wall D or D', respectively, and leading into the respective exhaust-chamber F or F'.

In order to render the wheel C steam-tight, the disks J and J' are provided on the inside with annular flanges J⁴, fitting in corresponding grooves in the walls D and D', and covers J⁵ are secured to the outer ends of the disks J and J', fitting against the spokes J³ and against parts of the walls D and D', as plainly shown in Fig. 1.

The operation is as follows: Steam is admitted through the steam-inlet pipe G into the live-steam chamber E, which is completely filled. The live steam from the chamber E passes continuously into all of the inlet-openings I² of the disks I and I', thus exerting a tangential pressure against the spokes, whereby the wheel C is turned in one direction. The steam, passing through the spokes, passes out at each side through the spaces between the successive spokes to enter the spaces formed between the successive spokes in the disks J and J', respectively. The steam then passes through the V-shaped spokes of the disks J and J' into the openings J², formed in the peripheries of the said disks, and then the steam escapes through the channels D² into the respective chambers F and F', as the said

openings J^2 in the disks J and J' register alternately with the inner ends of the said channels D^2 . The exhaust-steam in the chambers F and F' passes out through the pipes H and H' in the usual manner. Thus it will be seen that a continuous motion is imparted to the wheel C by the steam exerting a tangential pressure on the disks I and I', whereby the main shaft B is rotated, and as the latter is connected by suitable means with the machinery to be driven the latter is also set in motion.

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

1. In a rotary engine, the combination, with a casing provided with a steam-inlet chamber and steam-exhaust chambers, of a main driving-shaft mounted to rotate in the said casing, and a wheel secured on the said shaft in the said casing and provided with central disks having inlet-openings in their peripheries, and exhaust-disks secured to the central disks and provided with outlet-openings discharging into the said exhaust-chambers, substantially as shown and described.

2. In a rotary engine, the combination, with the casing A, provided with the walls D and D', forming the chambers F and F', of the main driving-shaft B, mounted to rotate in the said casing, the wheel C, secured on the said driving-shaft and provided with the disks I I', each having the spokes I^3 and in-

let-openings I^2 in its periphery, said wheel being also provided with the exhaust-disks J and J', having spokes J^3 and exhaust-disks J^2 , registering with channels formed in the walls D and D', substantially as shown and described.

3. In a rotary engine, a casing, partition-walls formed in the said casing and provided with channels leading into the outer chambers formed by the said partition-walls, an inlet-pipe leading to the central chamber formed by the said partition-walls, and exhaust-pipes leading from the outlet-chambers formed by the said partition-walls, in combination with the main driving-shaft mounted to rotate centrally in the said casing, the disks I and I', secured on the said main driving-shaft between the said partition-walls, each disk being provided with spokes and inlet-openings extending from the periphery through the said spokes, and exhaust-disks secured on the said main driving-shaft and abutting against the outer faces of the said disks I and I', said exhaust-disks being fitted in the said partition-walls D and D' and provided with spokes and exhaust-openings in the periphery, said openings registering alternately with the channels in the partition-walls, substantially as shown and described.

MARCELLUS A. BUFORD.

Witnesses:

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