(No Model.)

3 Sheets—Sheet 1.

C. C. JONES.

ROTARY ENGINE.

No. 275,667. Patented Apr. 10, 1883.

Fig. 1.

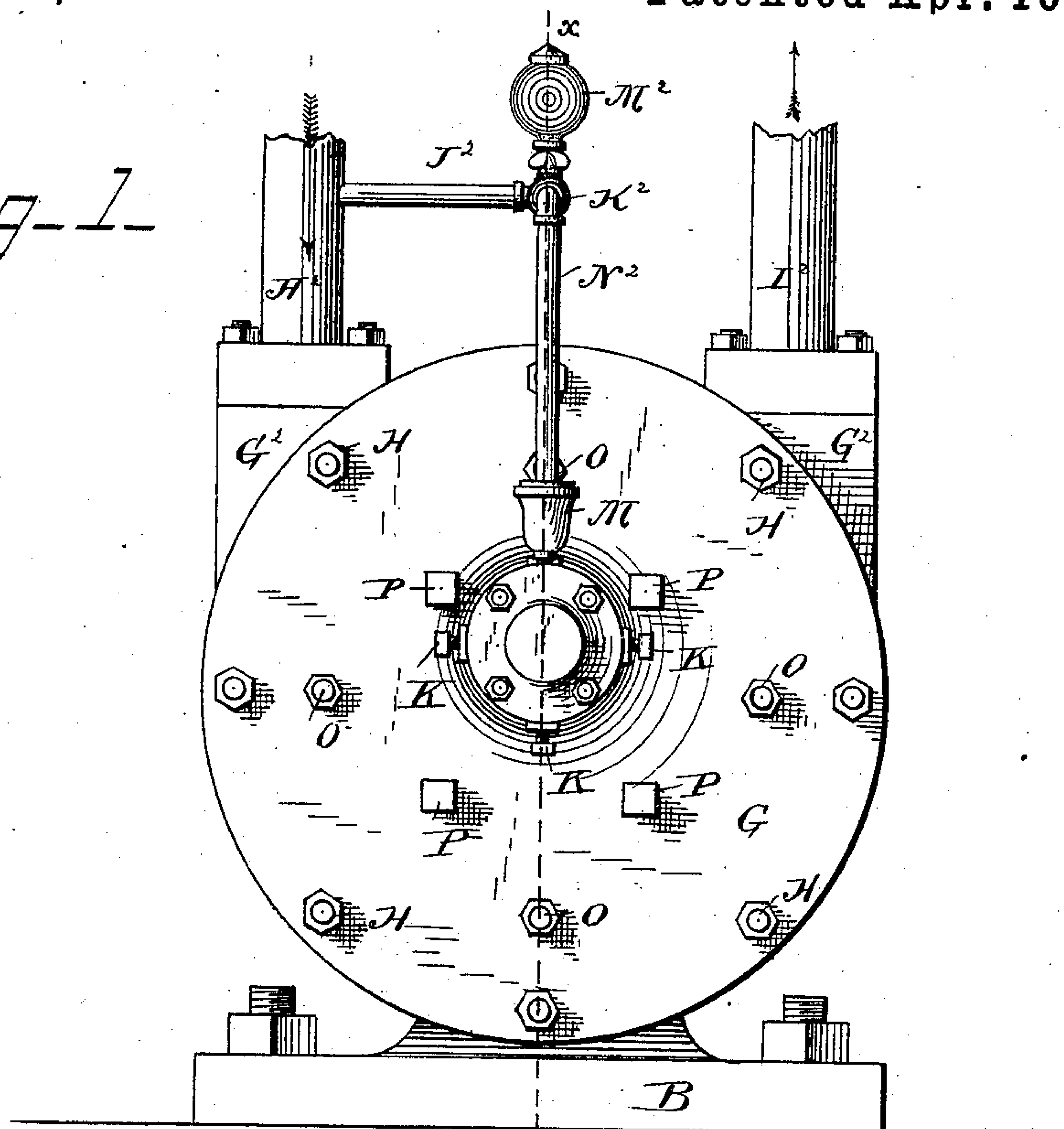
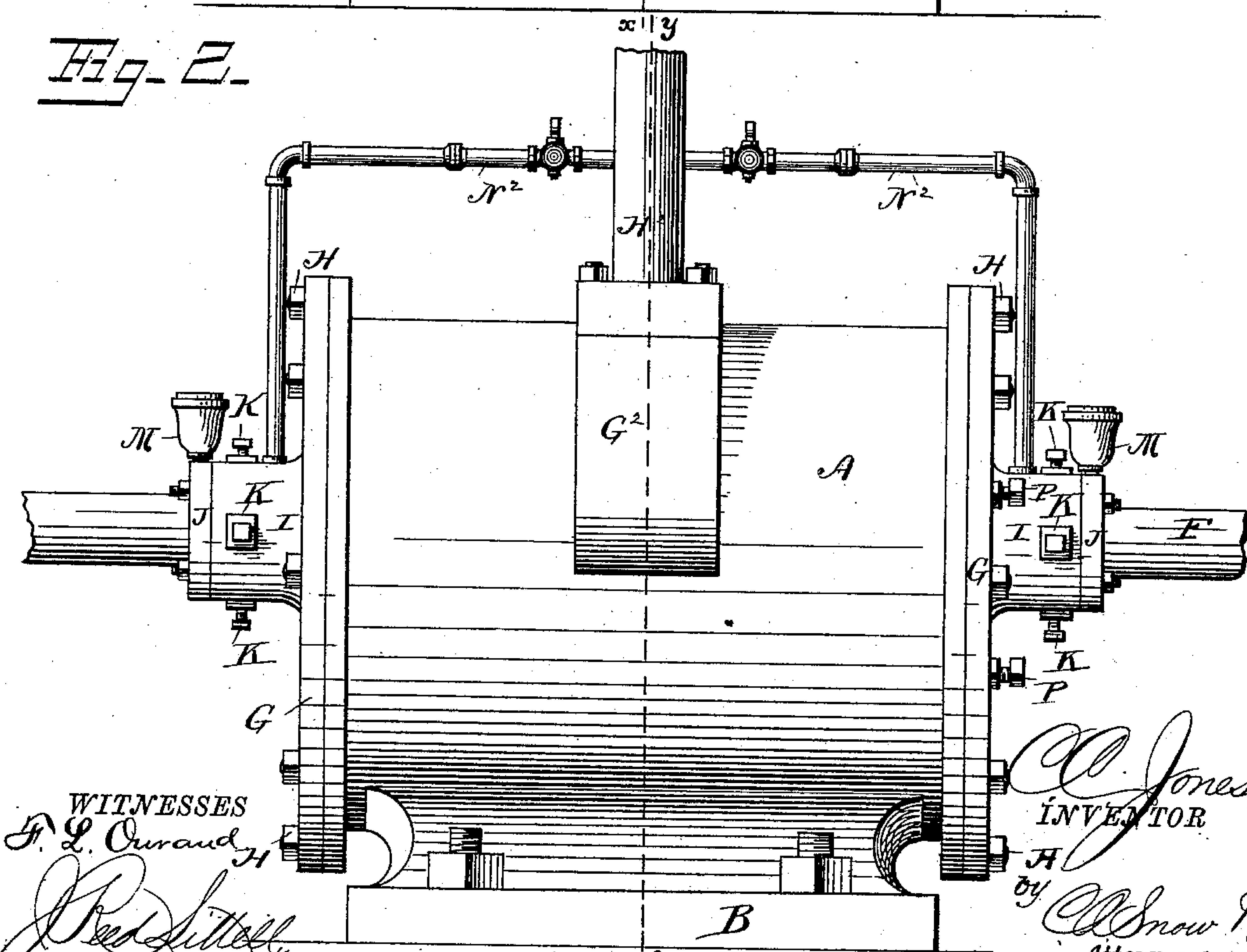


Fig. 2.



WITNESSES

F. L. Ourand

Fred Sittell

C. C. Jones,

INVENTOR

by C. A. Snow & Co.

Attorneys.

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.)

3 Sheets—Sheet 2.

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Fig. 4.

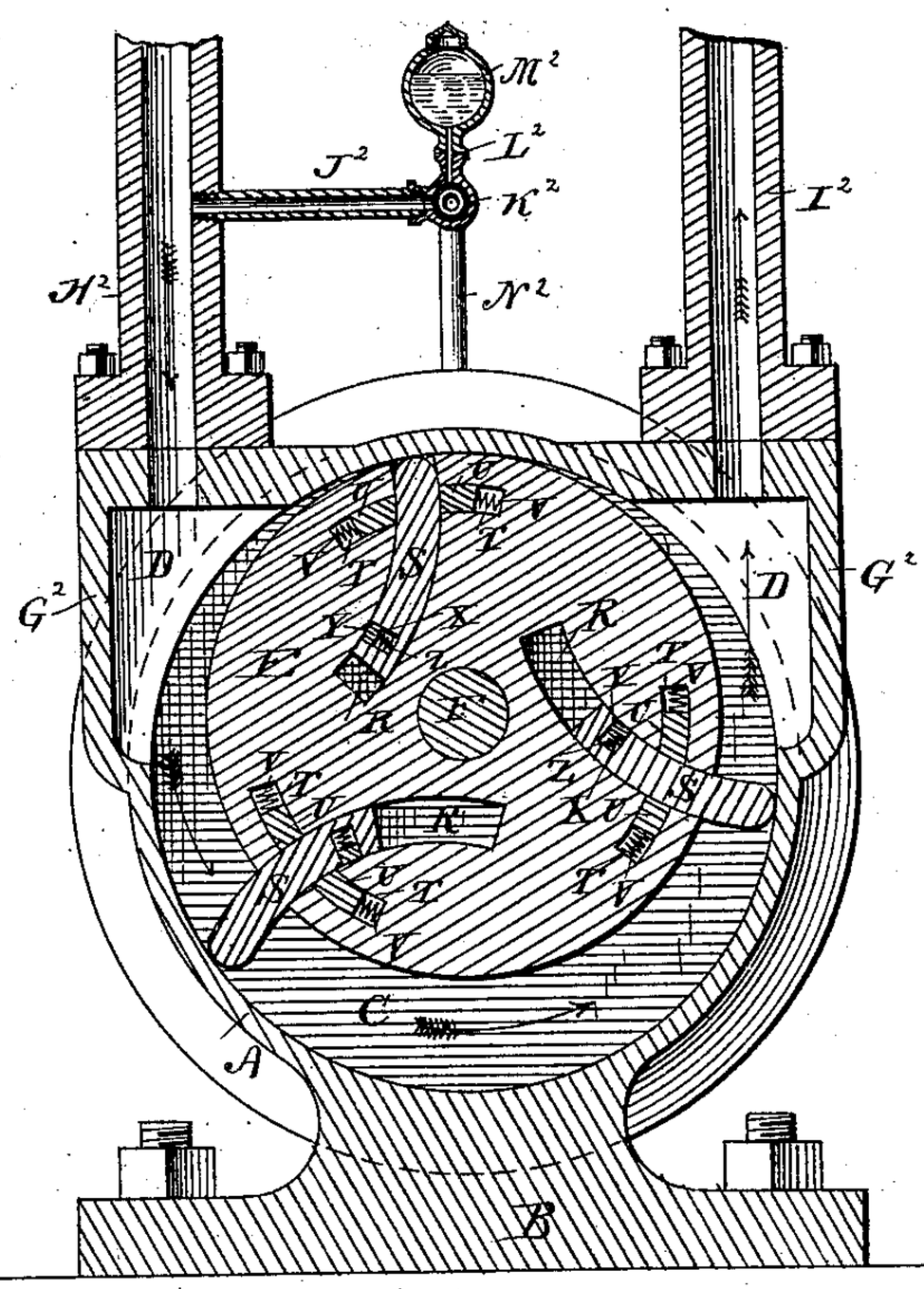
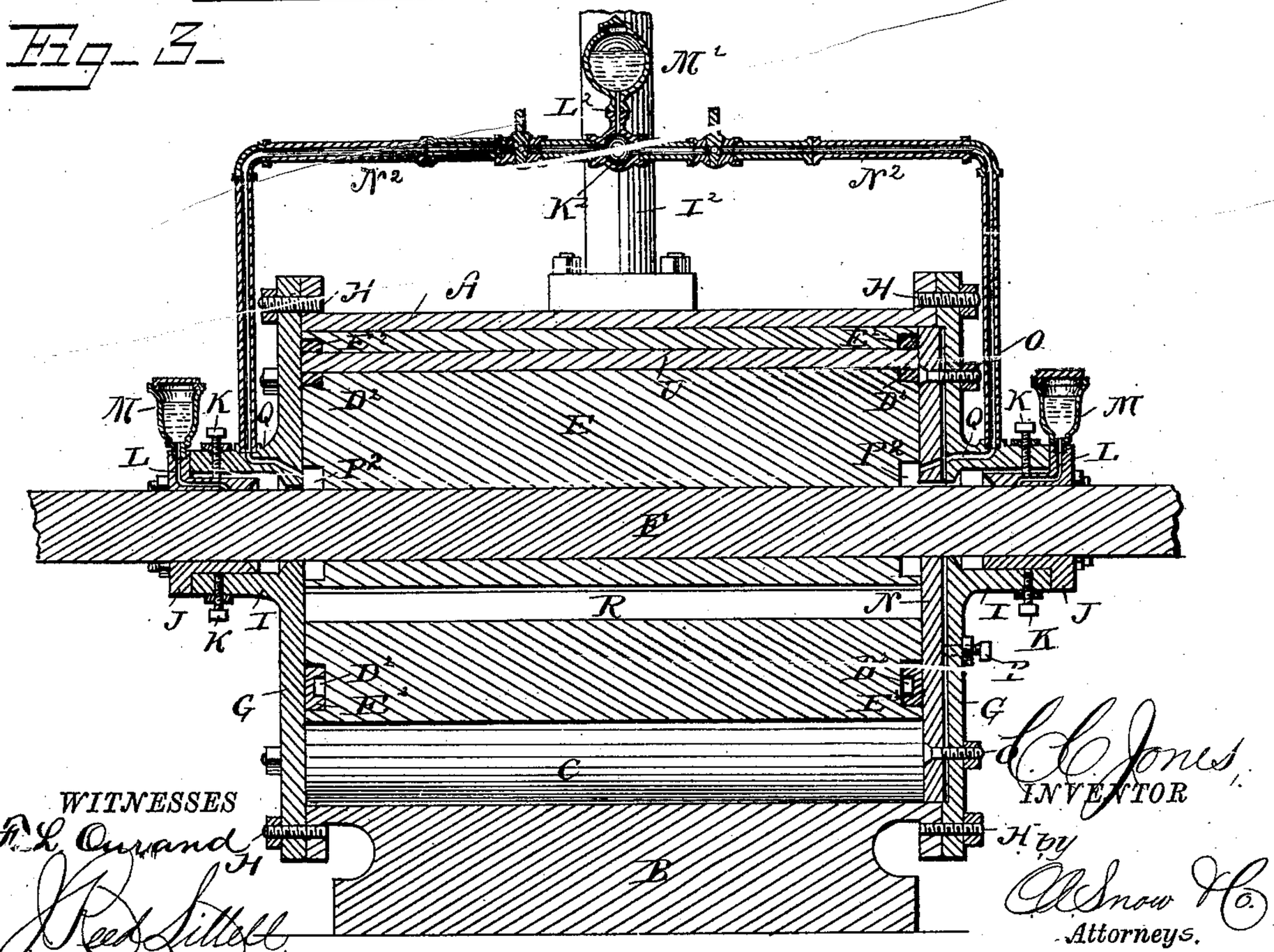


Fig. 3.



(No Model.)

3 Sheets—Sheet 3.

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Fig. 5.

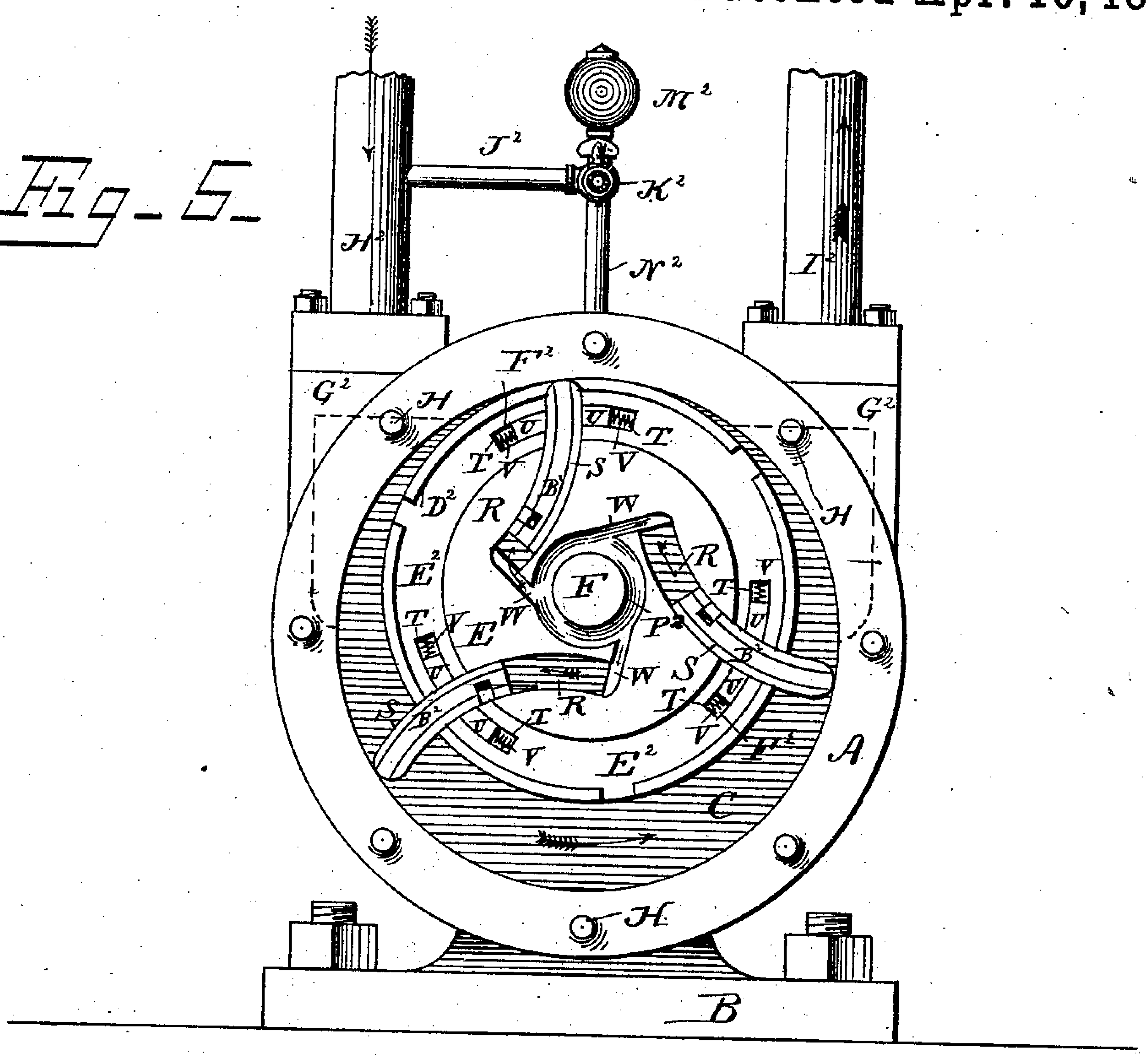
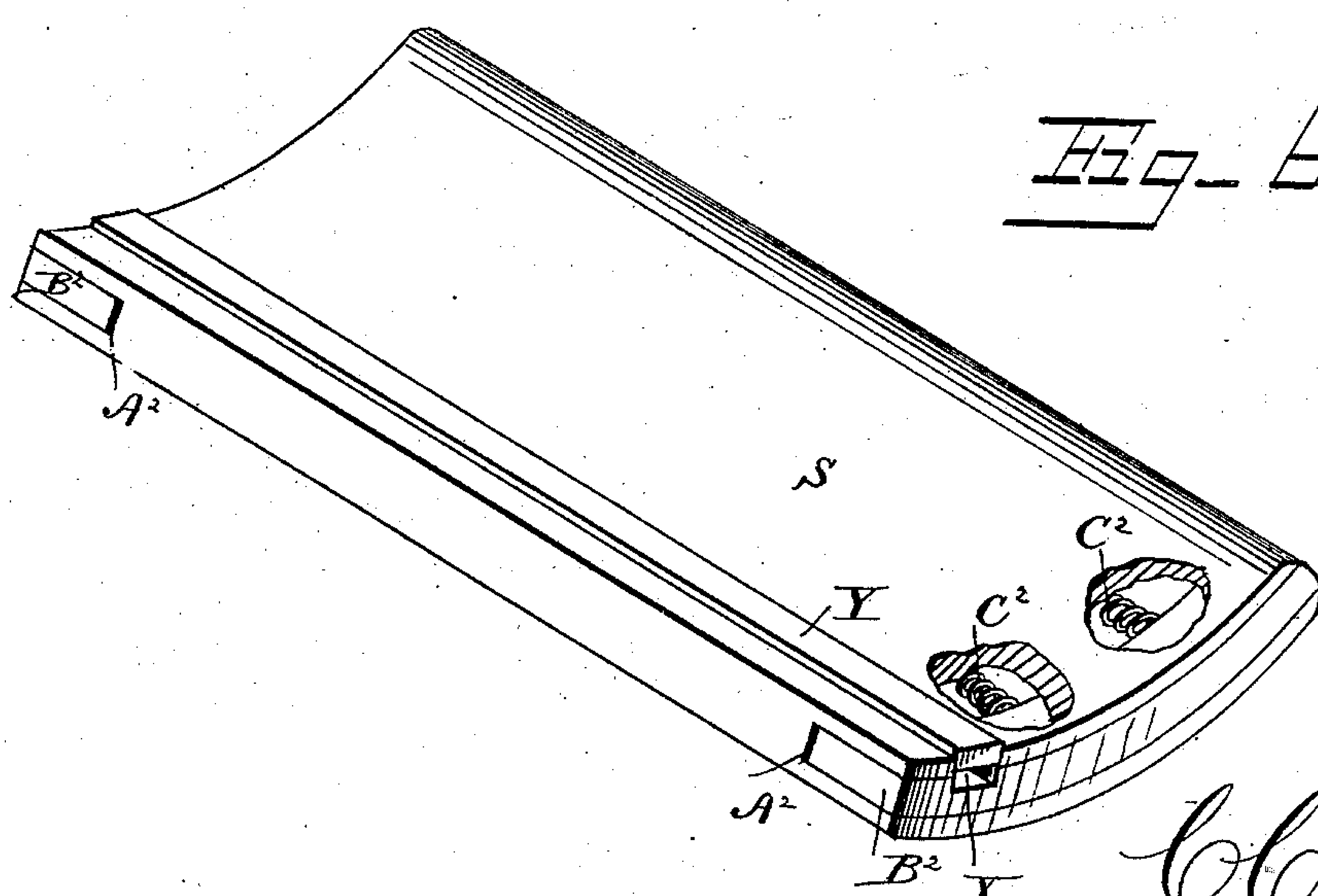


Fig. 6.



WITNESSES
F. L. Ourand
J. R. Littell

C. C. Jones,
INVENTOR
by
C. A. Snow & Co
Attorneys.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

CHRISTPHER C. JONES, OF SAVANNAH, GEORGIA.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 275,667, dated April 10, 1883.

Application filed January 31, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHRISTPHER C. JONES, a citizen of the United States, residing at Savannah, in the county of Chatham and State of Georgia, have invented a new and useful Rotary Engine, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to rotary engines; and it consists in certain improvements in the construction of the same, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a side view of my improved rotary engine. Fig. 2 is an end view of the same. Fig. 3 is a vertical sectional view on the line *x x* in Fig. 1. Fig. 4 is a vertical sectional view on the line *y y* in Fig. 2. Fig. 5 is a side view, the side of the casing having been removed; and Fig. 6 is a perspective view of one of the wings or piston-plates detached.

The same letters refer to the same parts in all the figures.

A in the drawings designates the casing, which is mounted upon the base B. The bore C of the casing is cylindrical, and is provided at the upper front and rear corners with recesses D, forming steam-expansion chambers.

E is the cylinder, which is mounted upon a shaft, F, eccentrically in the casing A in such a manner as to bear against the upper side of the latter. The sides G of the casing, which are secured to the latter by bolts H, are provided with packing-boxes I for the ends of the shaft. The glands J, which form the bearings for the shaft, are adjustable in the boxes by means of set-screws K, thus enabling the cylinder to be adjusted to a nicety within the casing. The glands have oil-passages L, in the upper ends of which are screwed oil-cups M, for supplying oil to the bearings of the shaft.

N is a follower fitted nicely in the cylinder-casing A, closely against one of the sides of the latter, with which it is connected by means of draw-bolts O.

P P are set-screws fitted in the side of the casing and bearing against the follower N, which by the said set-screws may be forced inwardly into the casing. When by reason of wear the cylinder becomes loose within the casing, the follower N may, by the set-screws P, be forced up against the side of the cylinder, thereby compensating for the wear. By means of the draw-bolts O the follower may be prevented from bearing too tightly against the cylinder at any point, thus preventing excessive friction.

The ends of the cylinder E are provided with annular recesses or chambers, P^2 P^2, surrounding the shaft, and registering or communicating with steam-passages Q, extending through the sides of the casing, and at one side also through the follower N. In the body of the cylinder curved recesses or chambers R R are formed, extending longitudinally through the cylinder, from end to end of the latter, and forming seats for the curved wings or piston-plates S S. The sides of the chambers or recesses R have longitudinal grooves T T, in which are seated packing-strips U, which are forced by coiled springs V against the sides of the wings or piston-plates, as shown. The ends of the cylinder have grooves or passages W extending from the annular steam-chambers P^2 to the inner ends of the piston-wing chambers R.

The construction of the wings or piston-plates will be readily understood by reference to Fig. 6 of the drawings. The said wings, it will be seen, consist simply of curved plates, fitted nicely, so as to slide radially in the chambers or recesses provided for their reception. The plates S are provided in one of their sides, near their inner ends, with a longitudinal groove or recess, X, to receive a packing-strip, Y, which is forced outwardly against the side of the chamber R by suitably-arranged coiled springs Z, thereby serving to make a tight joint. The ends of the wings or piston-plates are likewise provided with recesses A^2, in which are seated packing-strips B^2, which are forced outwardly by coiled springs C^2, so as to bear against the side of the casing at one end and against the follower N at the other. The outer ends or edges of the wings or piston-plates are nicely rounded, so that they shall fit tightly against the walls of the casing.

The ends of the cylinder are provided with annular recesses or grooves D^2, in which are seated segmental packing-strips E^2, bearing against the side G of the cylinder-casing at one end of the latter and against the follower N at the other end. These packings, it will

be observed, are arranged in such a manner as to absolutely prevent the loss of steam by leakage. The adjoining ends of the segmental packing-strips E^2 are fitted against the sides of the wings or piston-plates, as will be seen in Fig. 5 of the drawings. The ends of the said packing-strips are also recessed, as at F^2, to accommodate the ends of the packing-strips U, to which reference has hereinbefore been made.

The ends of the cylinder-casing are provided with enlargements G^2, forming the chambers D D, and to which the steam-pipe H^2 and the exhaust-pipe I^2 are connected, as shown. J^2 is a pipe connected to the steam-pipe H^2, and having a union or coupling, K^2, with which the feed-pipe L^2 of a suitable lubricator, M^2, is connected. The union K^2 is connected by pipes N^2 with the passages Q, and through these with the recesses or chambers P^2 P^2 in the ends of the cylinder.

The operation of my improved rotary engine will be readily understood from the foregoing description, taken in connection with the drawings hereto annexed. When steam is turned on it enters through the pipe H^2 into the chamber D, where it expands and presses against the nearest piston-plate, thus causing the cylinder to revolve. At the same time steam (and oil) passes through the pipes N^2 into the recesses or chambers P^2, where the steam expands and presses against the inner ends of the piston-plates, forcing the same outward against the walls of the casing. The exhaust-steam escapes through the chamber D and exhaust-pipe I^2.

My improved rotary engine is very simple in construction and inexpensive.

By forcing the piston-plates outward by steam-pressure I am enabled to dispense with the mechanism usually employed for operating the said plates, thus saving the power that is usually required for this purpose.

My improved engine may be run by steam or by any fluid-pressure desired with equally successful results.

I claim as my invention and desire to secure by Letters Patent of the United States—

1. In a rotary engine, the combination of the casing, the revolving cylinder having curved recesses or chambers R R, annular steam-chambers P^2 P^2, and passages Q Q, arranged as described, and the curved wings or piston-plates S S, all constructed and operating substantially as described.

2. The combination of the cylinder E, having curved recesses R and grooves T, the springs V, the packing-strips U, and the curved wings or piston-plates S, all arranged and operating as set forth.

3. The combination, with the casing and the herein-described cylinder having curved recesses R R, of the curved wings or piston-plates S S, having recesses A^2, coiled springs C^2, and packing-strips Y B^2, all arranged and operating substantially as and for the purpose set forth.

4. In a rotary engine, the combination, with the cylinder having radially-sliding piston-plates arranged to be forced outward by steam-pressure, substantially as described, of the casing having passages communicating through annular chambers and passages in the ends of the cylinder, with the inner ends of the chambers in which the piston-plates slide, the steam-supply pipes, and a lubricator having its feed-pipe connected with the said steam-supply pipes, as and for the purpose set forth.

5. The combination of the casing, the follower N, draw-bolts O and set-screws P, the cylinder E, having annular steam-chambers P^2, and steam-supply passages extending through the casing and follower, as set forth.

6. The combination of the casing, the follower N, draw-bolts O and set-screws P for adjusting the same, the cylinder E, having recesses R, extending from end to end, annular grooves D^2 in the ends of said cylinder, and segmental packing-strips E^2, seated in said grooves between the recesses R R, as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

CHRISTPHER C. JONES.

Witnesses:
W. C. QUIRNEY,
M. F. MOLINA.