

(No Model.)

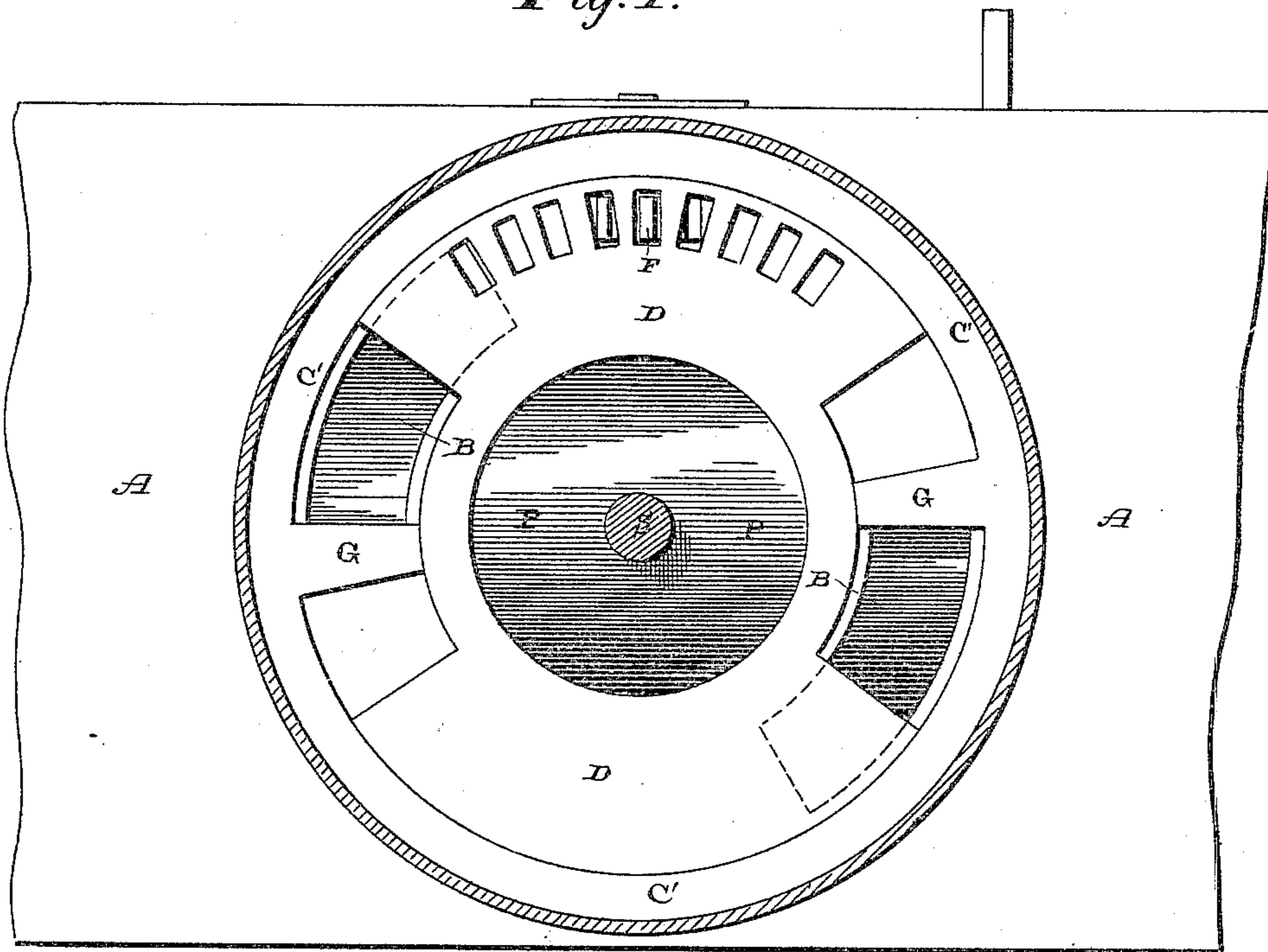
2 Sheets—Sheet 1.

P. N. DELLINGER.  
ROTARY VALVE FOR ENGINES.

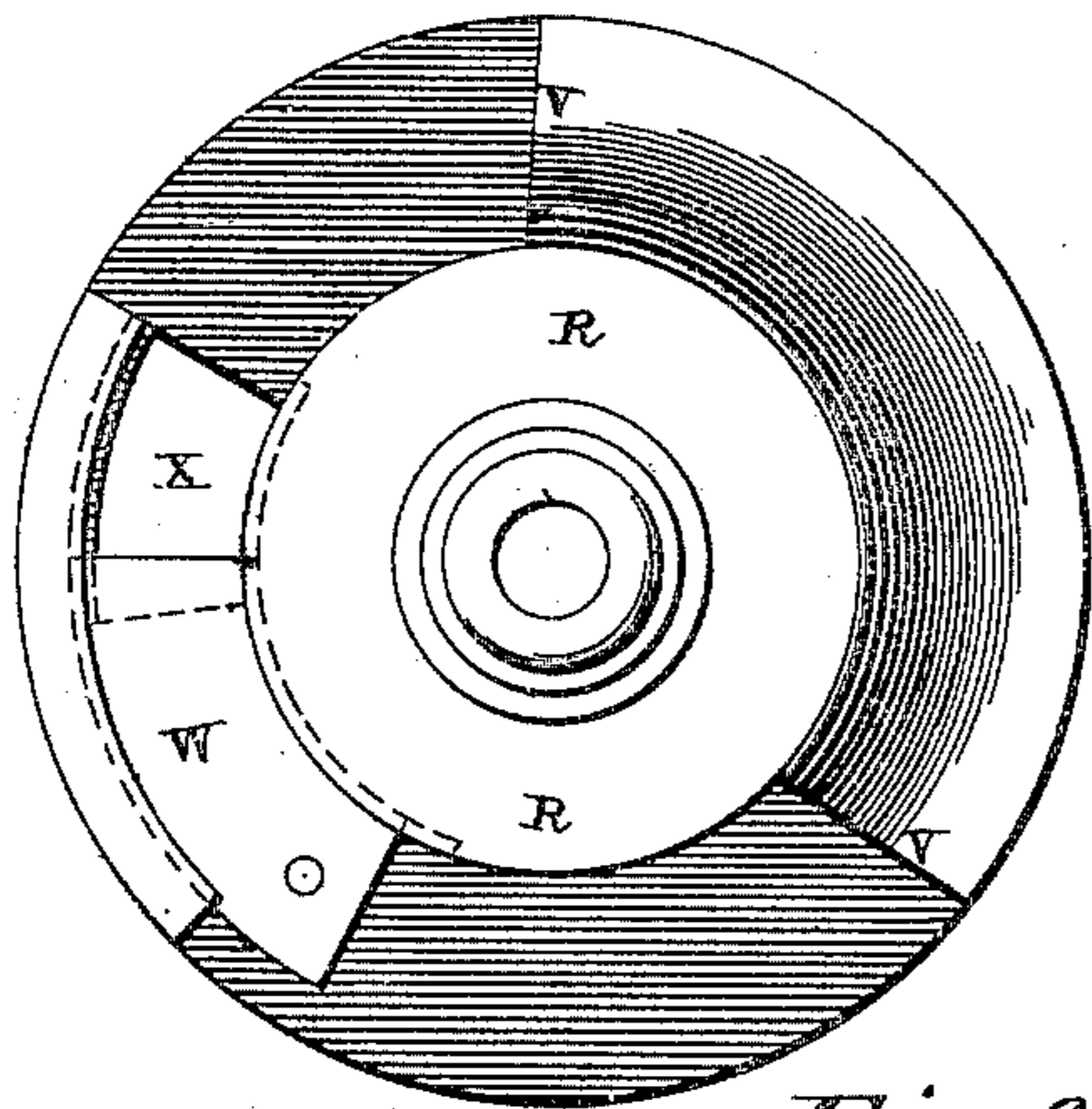
No. 436,699.

Patented Sept. 16, 1890.

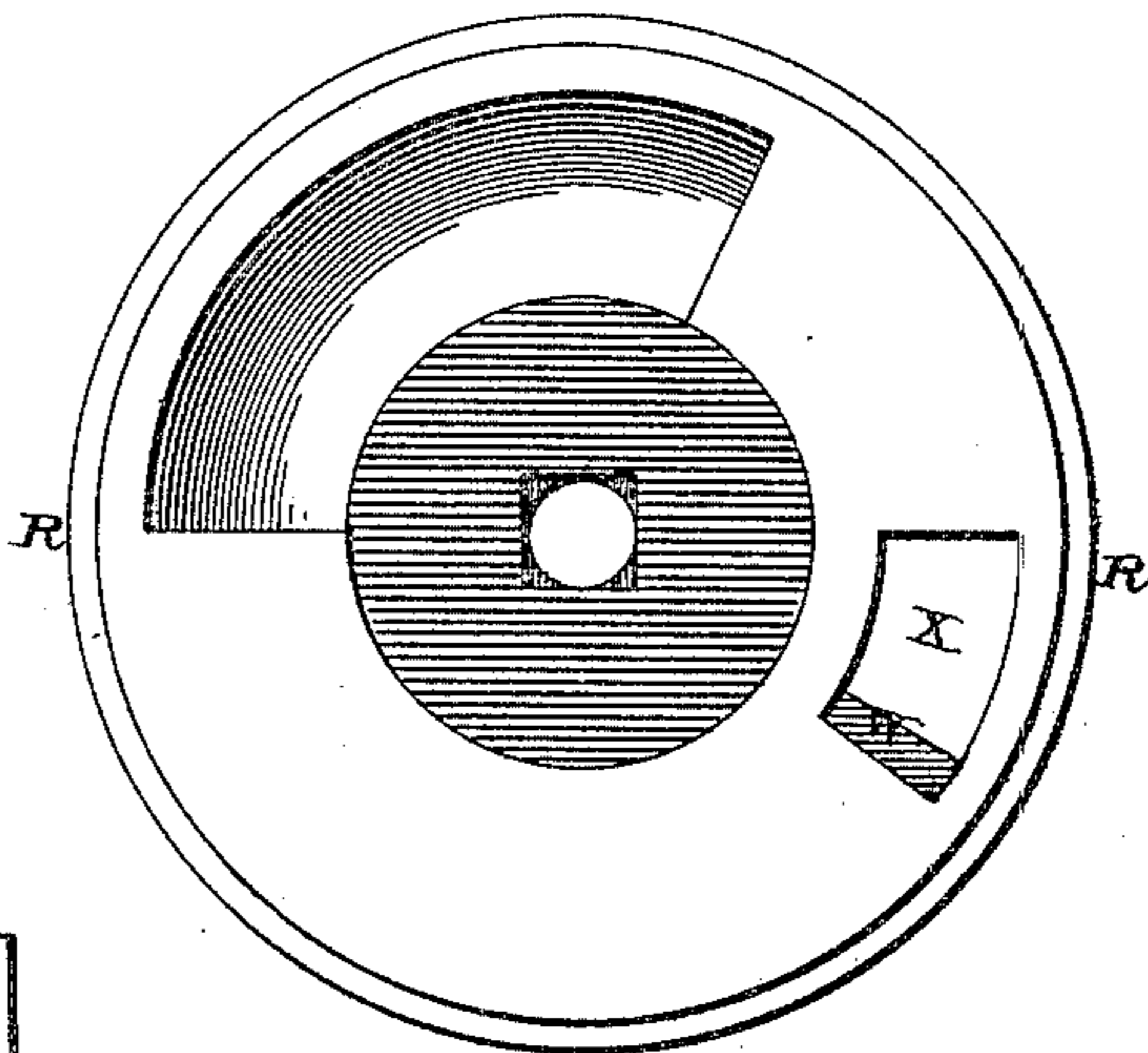
*Fig. 1.*



*Fig. 4.*



*Fig. 5.*

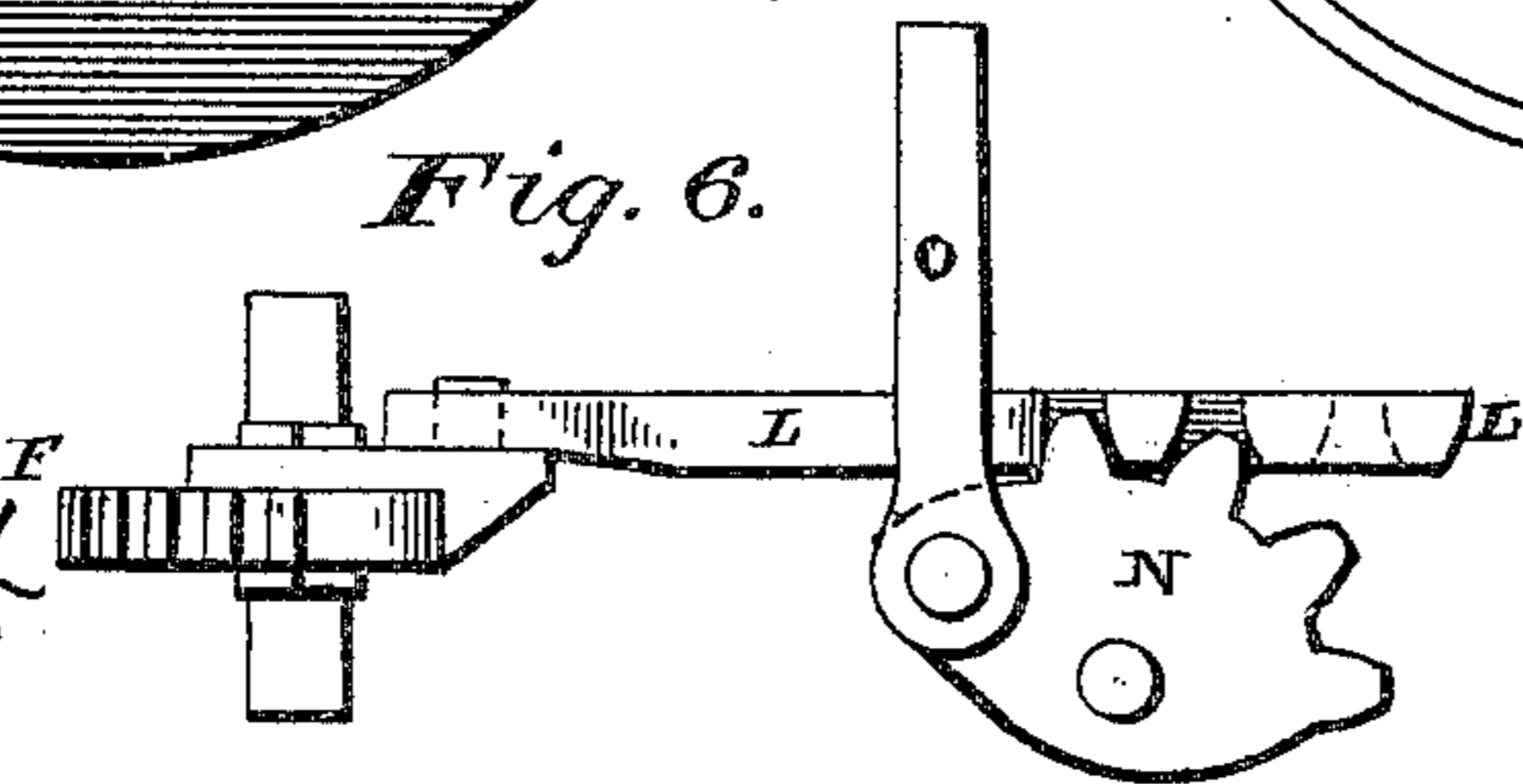


*Fig. 6.*

Witnesses:

E. P. Ellis,

J. M. Nesbit.



Inventor:

P. N. Dellinger,

per  
Lehmann & Pattison,  
attys.

(No Model.)

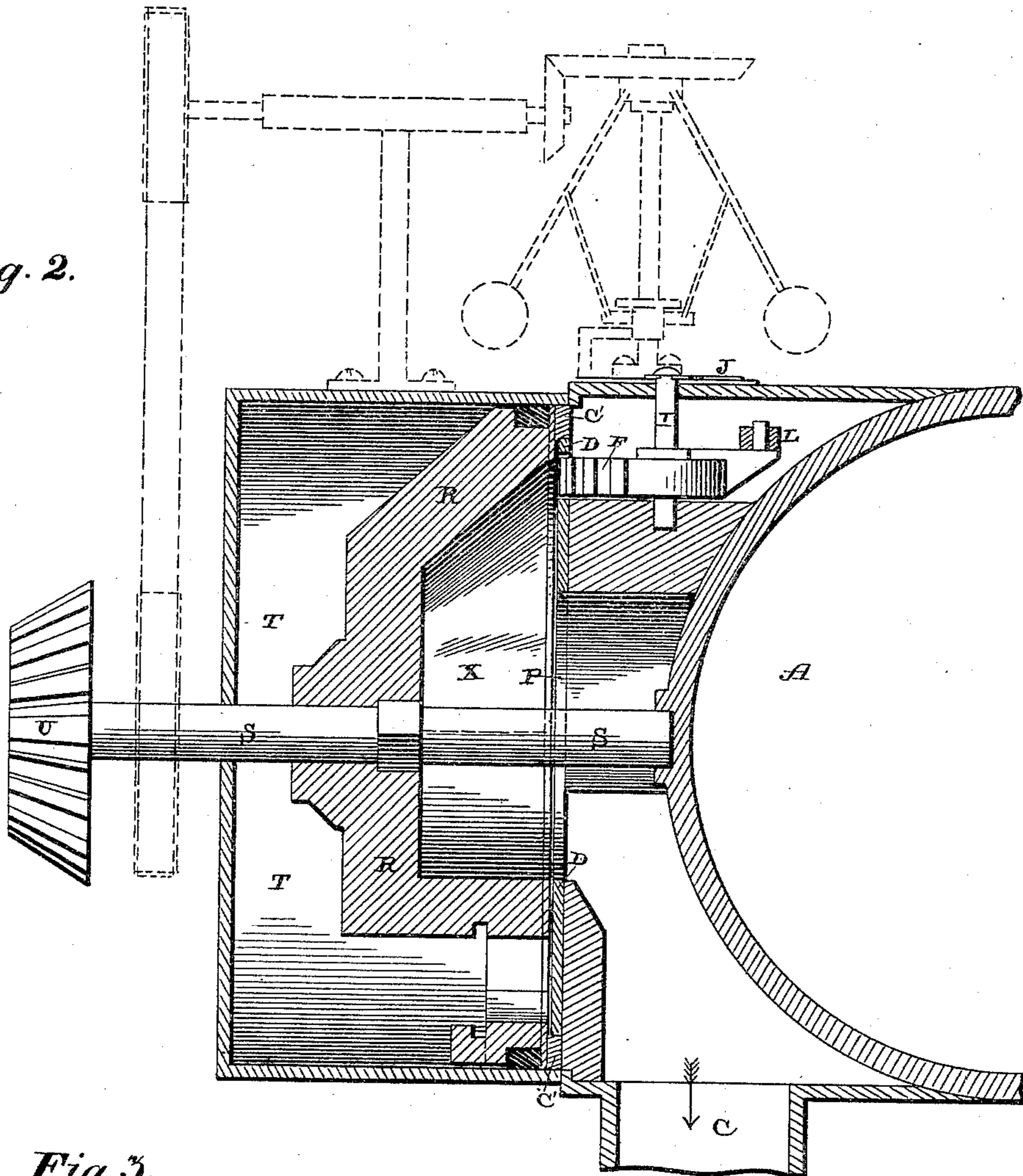
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P. N. DELLINGER.  
ROTARY VALVE FOR ENGINES.

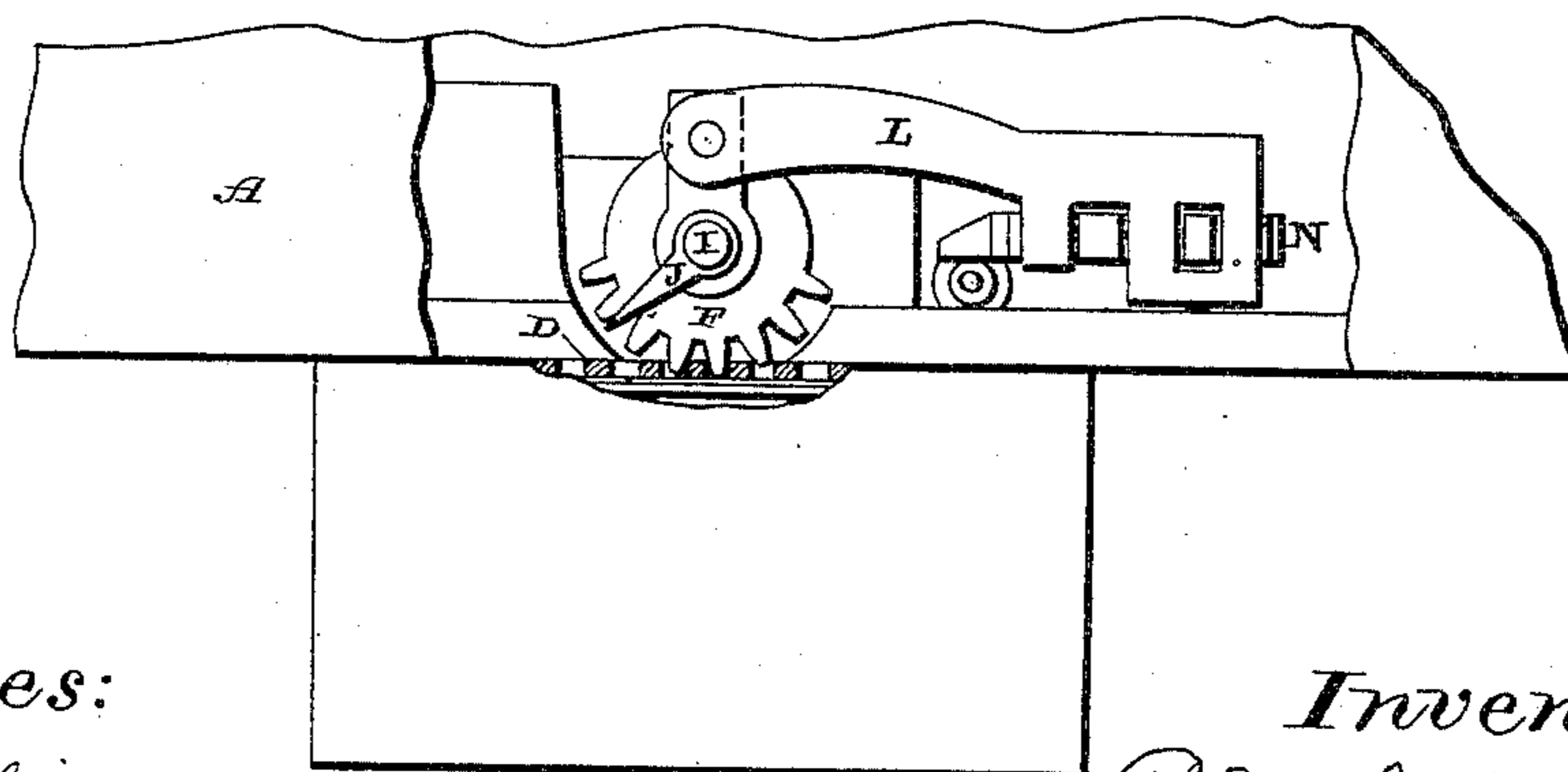
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*Fig. 2.*



*Fig. 3.*



Witnesses:

E. P. Ellis,  
J. M. Nesbit

Inventor:

P. N. Dellinger  
per  
Lehmann & Patterson.

# UNITED STATES PATENT OFFICE.

PERRY N. DELLINGER, OF WHATCOM, WASHINGTON.

## ROTARY VALVE FOR ENGINES.

SPECIFICATION forming part of Letters Patent No. 436,699, dated September 16, 1890.

Application filed June 25, 1890. Serial No. 356,612. (No model.)

*To all whom it may concern:*

Be it known that I, PERRY N. DELLINGER, of Whatcom, in the county of Whatcom and State of Washington, have invented certain  
5 new and useful Improvements in Rotary Valves for Steam-Engines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will  
10 enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in rotary valves for steam-engines; and it consists in the combination and arrangement of  
15 parts which will be fully described hereinafter.

The objects of my invention are to connect the governor either directly or indirectly to a pinion which operates a flat partially-revolving valve, which controls the size of the ports, and by means of which the ordinary ball-governor is made automatic in its action, and to produce a cheap and simple valve-gear which is not likely to get out of order.

25 Figure 1 is a longitudinal vertical section of a valve mechanism to which my invention is applied. Fig. 2 is a similar view taken at right angles to Fig. 1. Fig. 3 is a plan view of the flat valve, a portion of the casing being  
30 broken away so as to show the operating parts connected with the pinion. Fig. 4 is a plan view of the rotating valve. Fig. 5 is an inverted view of the same. Fig. 6 is a detached view.

35 A represents the upper portion of the cylinder through which the inlet-ports B and exhaust-port C are made. Upon the top of this cylinder is formed or secured the raised ring C', which entirely surrounds the two inlet-  
40 ports, and inside of which the flat partially-rotating valve D is placed, and which valve is made slightly thinner than the ring so as to allow it to be freely operated by the governor. Through or in the under side of this flat  
45 valve D are formed the teeth or cogs, with which the pinion F engages for the purpose of partially rotating the valve for the purpose of controlling the size of the inlet-ports, and thus regulating with the utmost precision the  
50 amount of steam that should be admitted to the cylinder. The distance that this valve D

shall be moved is controlled by the stops G, which extend inward from the ring C', and against which stops the ends of the valve rest when it is in its normal position. In proportion as the valve D is caused to move by the governor the ends of the valves close over the inlet-ports B, so as to decrease them in size and thus lessen the amount of steam which passes into the cylinder. When this valve D  
60 is in its normal position, the size of the ports is not interfered with in any respect; and hence the full quantity of steam supplied from the boiler is fed into the cylinder.

At one side of one of the inlet-passages is  
65 formed a chamber, and in this chamber is journaled the pinion F, which has its teeth to project up through the bottom of the valve-chest and engage with the teeth of the valve D for the purpose of operating it. The shaft  
70 I of this pinion projects through the side of the top of the cylinder. A pointer J is secured thereto, and this pointer indicates the position of the valve D in all of its movements.

If the valve is placed upon the side of the  
75 cylinder, as here shown, the pinion F is provided with a wrist-pin to which the connecting-rod L is attached. The other end of this wrist-pin is provided with teeth or cogs to engage with the segment N. The shaft of this  
80 segment extends vertically, and attached to a pin which projects from one side of this segment N is the endwise-moving rod O, to which the governor is attached. The slightest movement of the governor is transferred through  
85 the segment N and pinion F to the valve D for the purpose of opening or closing the inlet-ports. Through the center of this valve D is formed the opening P, through which the dead steam passes to the exhaust-port C. Placed  
90 upon the top of this flat valve D is the rotating valve R, which is centered by means of its shaft S, which has its lower end placed in a suitable bearing upon the top of the cylinder, and which has its upper end centered by  
95 a stuffing-box in the top of the steam-chest T, and to the outer end of which shaft is secured the pinion U, through which power is applied to the valve for the purpose of rotating it. The top of this rotary valve is provided with two shoulders V, and placed upon  
100 the flat portion of the valve is the adjustable

plate W, by means of which the port X can be increased or decreased in size at the will of the engineer. In the underside of this rotary valve is formed a chamber X, which is 5 made, preferably, of the form hereshown, and into which the dead steam escapes for the purpose of being conducted to the escape-port at the same time that live steam is being admitted through the other inlet-port.

10 The valve-chest will be suitably packed so as to form a tight joint to prevent leakage at any point.

I do not limit myself to any details of construction, such as the location of the chest or 15 the packings used, for these may be varied without departing from the spirit of my invention.

Having thus described my invention, I claim—

20 1. The combination of the flat partially-rotating valve D, the ring C', inside of which it

is placed, the pinion for moving the valve, a governor for operating the pinion and moving the valve, the rotary valve provided with a port through one edge, a chamber in its under 25 side, an operating-shaft, and the pinion secured thereto, substantially as described.

2. The combination of the cylinder provided with inlet and outlet ports, the flat partially-rotating valve provided with teeth or cogs, a 30 pinion for moving the valve, a toothed rod connected to the pinion, a segment operated by the rod, and a rod connected to the pinion and to which the governor is attached, substantially as set forth. 35

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

PERRY N. DELLINGER.

Witnesses:

THOMAS J. BURKE,  
CHRIST EVERSEN.