

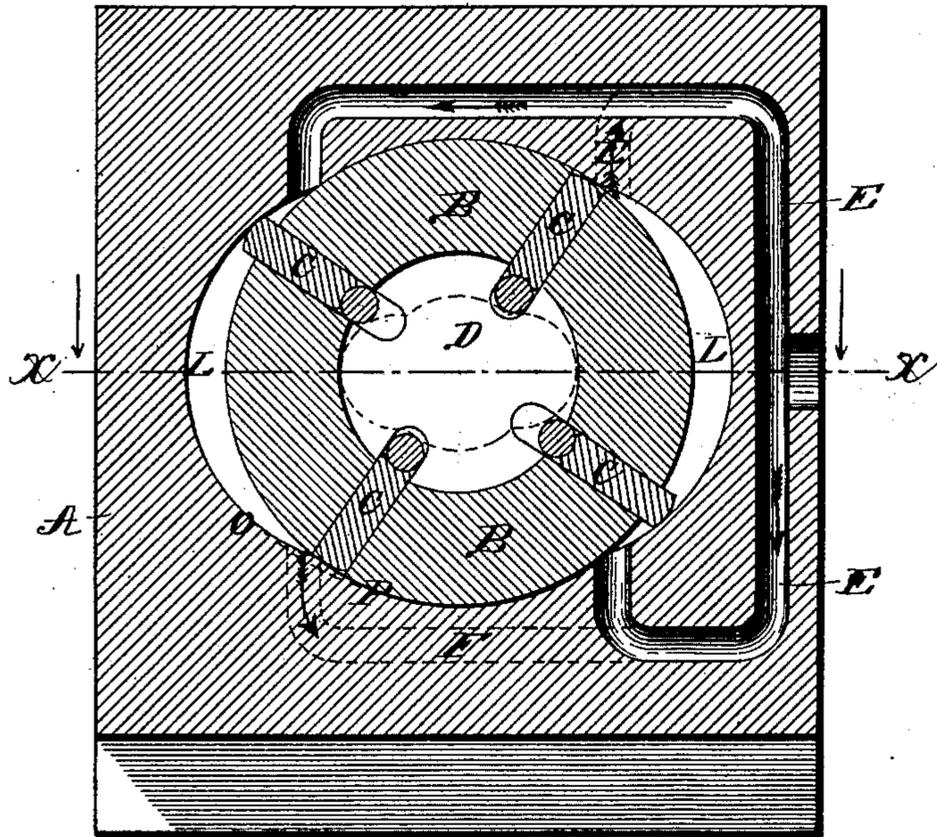
C. M. VAN TINE.

ROTARY ENGINE.

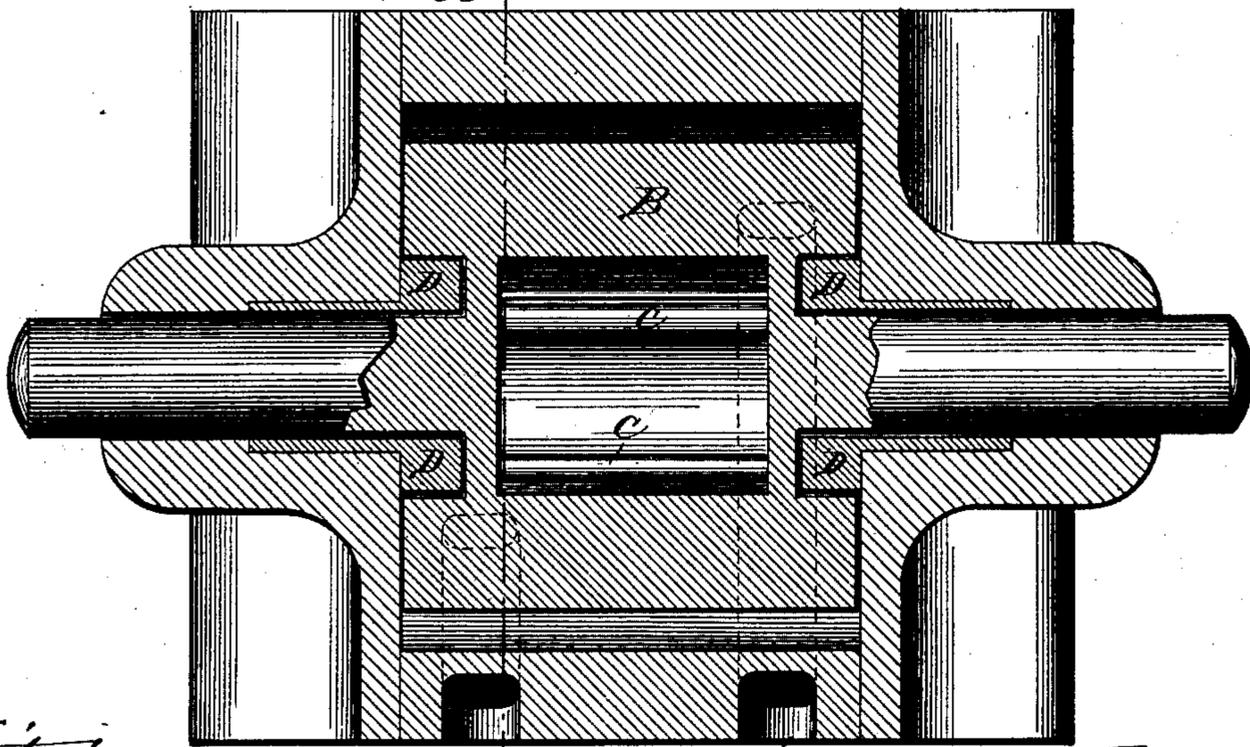
No. 362,194.

Patented May 3, 1887.

*Fig. 1.*



*Fig. 2.*



Witnesses,

*W. Rossiter*  
*J. S. Veeder*

Inventor,

*Chas. M. VanTine*  
*By Raymond Rainey*  
*Att'y.*

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Fig. 3.

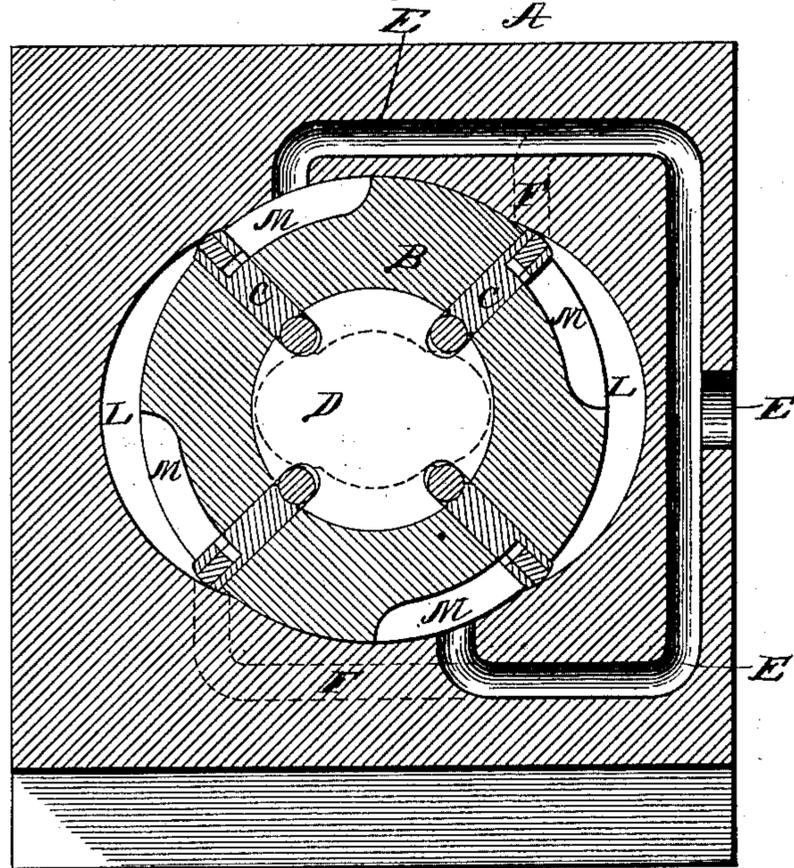
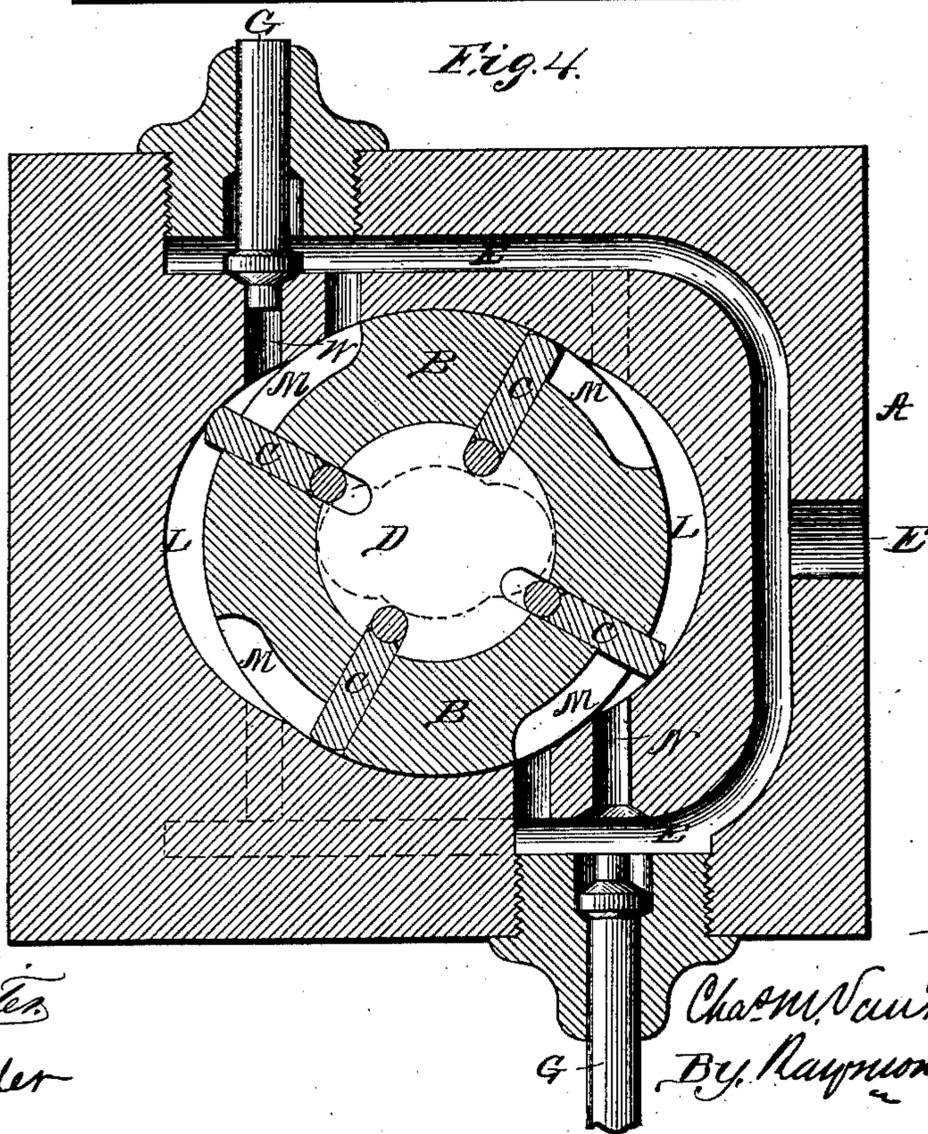


Fig. 4.



Witnesses.

*W. Rossiter*  
*J. J. Veeder*

Inventor:

*Chas. M. Van Tine*  
*By Raymond Rainey*  
*Atty.*

# UNITED STATES PATENT OFFICE.

CHARLES M. VAN TINE, OF MATTEAWAN, NEW YORK, ASSIGNOR TO THE  
UNITED STATES ROLLING STOCK COMPANY.

## ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 362,194, dated May 3, 1887.

Application filed December 31, 1886. Serial No. 223,094. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES M. VAN TINE, of Matteawan, in the county of Dutchess and State of New York, have invented certain new and useful Improvements in Rotary Engines, of which the following is a sufficient specification.

In a convenient and proper casing I construct a central chamber, a cross-section of which is composed of sections of three cylinders, substantially as shown and described in Letters Patent of the United States issued to me May 22, 1877, and numbered 191,205. It is not, however, essential that the outer sections should be cylindrical, and the points of junction of the three sections may be curved instead of angular, as shown at O P, Fig. 1.

In the drawings, Figure 1 shows a cross-section of the piston and case. Fig. 2 is a horizontal section on the line *x x*, Fig. 1; and Fig. 3 is a section similar to Fig. 1, showing a modification of the piston and induction-ports which utilize the expansive force of steam or air. Fig. 4 shows still further modifications adapted to the alternate or combined uses of the construction shown in Figs. 1 and 3.

A is the casing, in the central chamber of which is fitted the piston B. This piston is slotted for the reception of the blades C C C C, of which there are preferably four. The blades will be maintained in contact with the outer circular walls of the chambers L L by centrifugal force when the machine is operated at a sufficiently high rate of speed; but to secure contact at all times the inner ends of the blades, on which there may be anti-friction rollers, rest against the cams D. Springs or any of the other well-known devices therefor may be used to keep said blades continuously in contact with said walls.

E E are the induction and F F the exhaust

ports, and the piston B is preferably cored, as shown in Fig. 2.

In the modification shown in Fig. 3 recesses M M M M are made in the piston, and the induction-ports E E open into the central circular portion of the casing A. The effect of this construction is that no steam can enter the outer cylindrical chambers, L L, except through the recesses M M M M. When these recesses pass the induction-ports E E, the supply is cut off, and the expansive force of the steam or air is utilized.

In Fig. 4 supplemental valves G G and ports W W are shown, by which steam may be admitted directly to the chambers L L. When both the ports E E and valves G G are open, full pressure is exerted upon the blades through the entire length of the stroke through the chambers L L.

It is manifest that my improved motor may be used either with direct pressure or with the expansive power of steam or air, or with both combined, and that where expansion is not present it may also be used as a meter.

I claim—

1. In a rotary engine, a piston having sliding blades and the recesses M M M M, revolving in a chamber bounded by sections of three cylinders, with the induction port or ports opening into the central section, substantially as described, and as shown in Fig. 3.

2. In a rotary engine, the combination of the piston B, the sliding blades C C C C, the recesses M M M M, the induction-ports E and W, and valve G, substantially as shown and described.

CHARLES M. VAN TINE.

Witnesses:

J. L. STAGG,  
J. I. VEEDER.