No. 658,557. Patented Sept. 25, 1900.

W. A. PITT.

MECHANICAL MOVEMENT.

(Application filed June 16, 1899. Renewed Aug. 23, 1900.)

(No Model.)

Fig. 1.

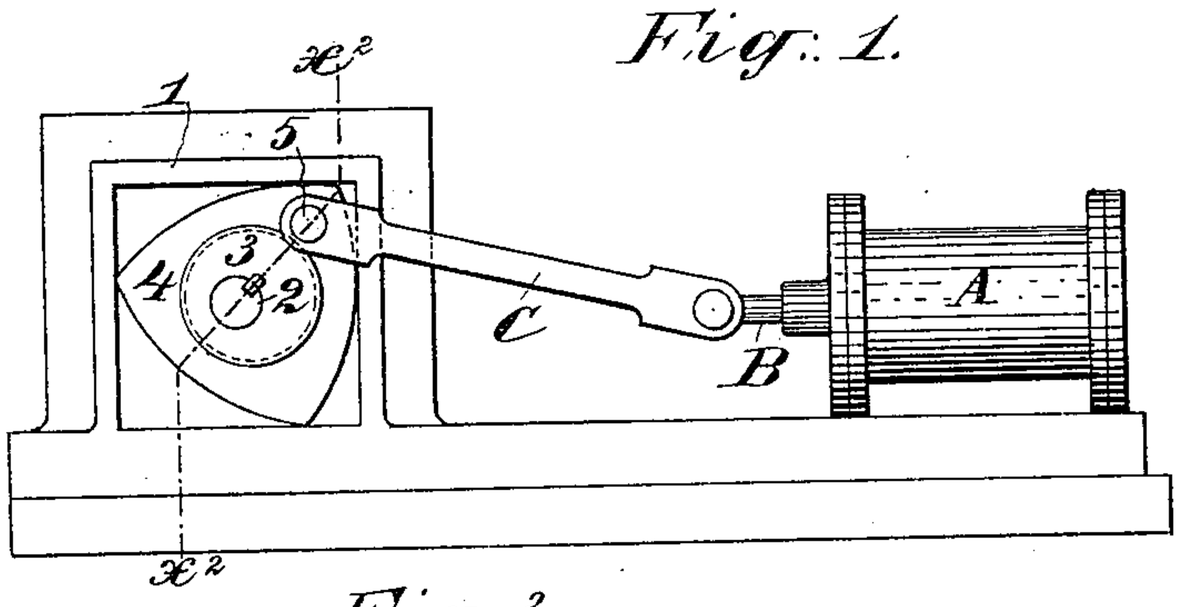


Fig. 2.

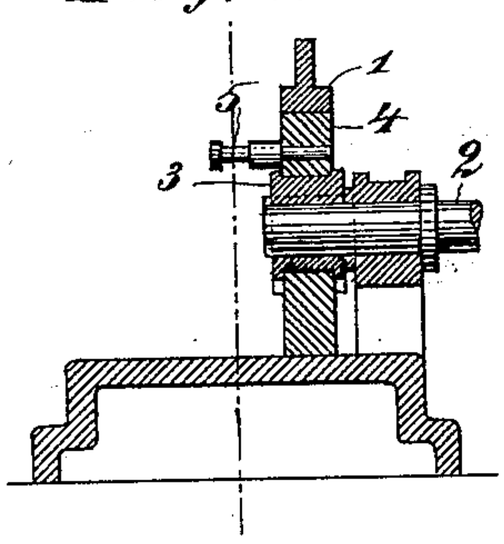


Fig. 3.

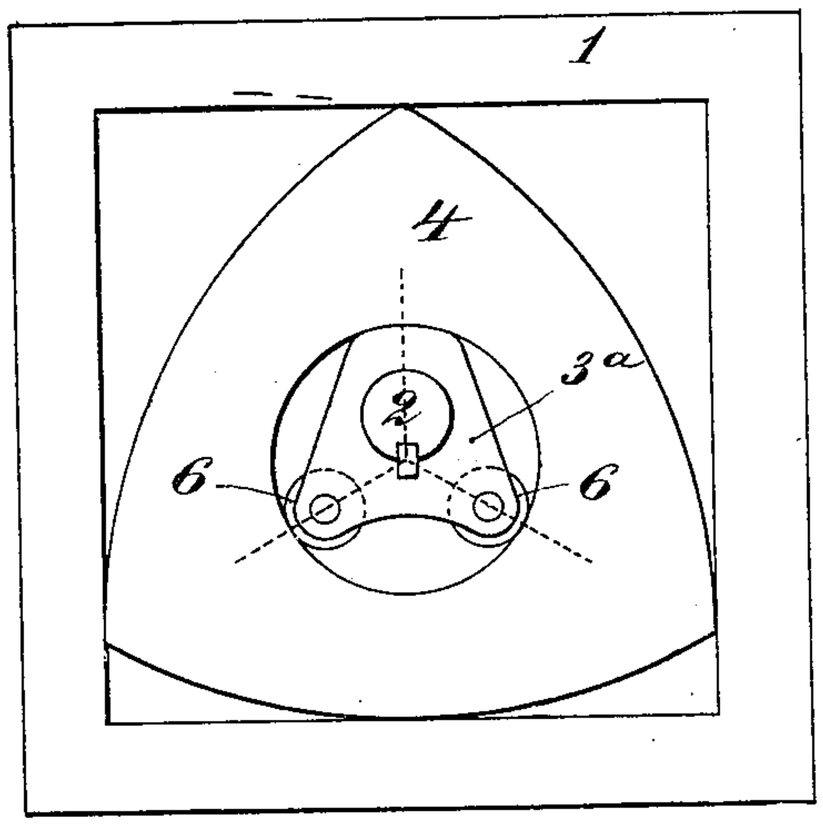


Fig. 4.

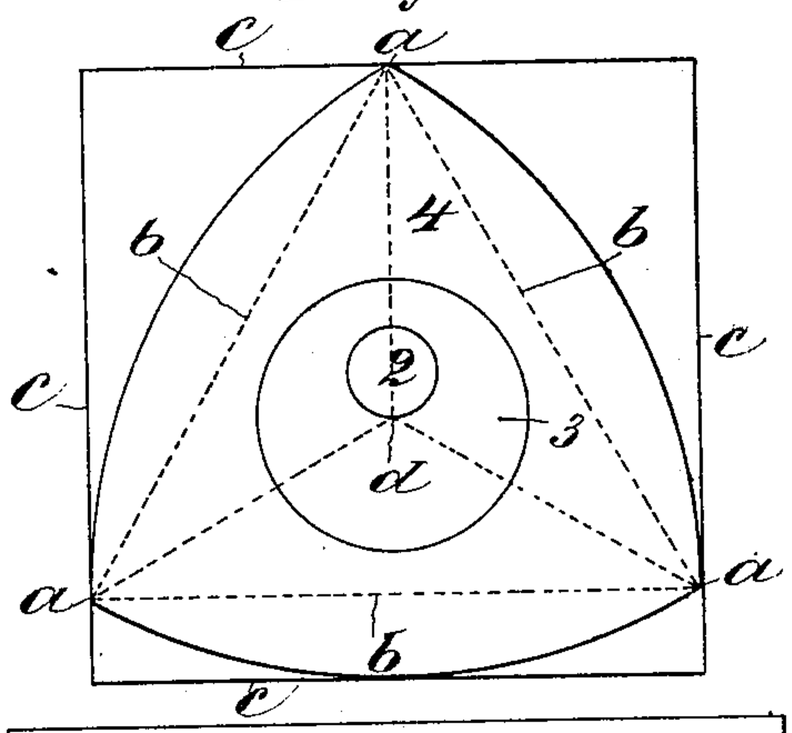


Fig. 5.

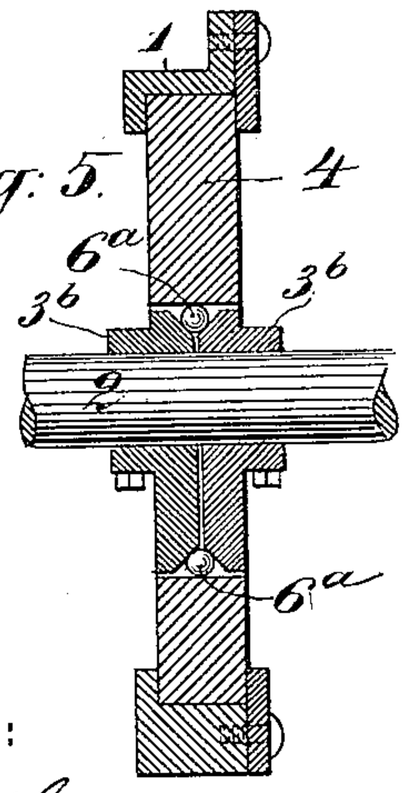
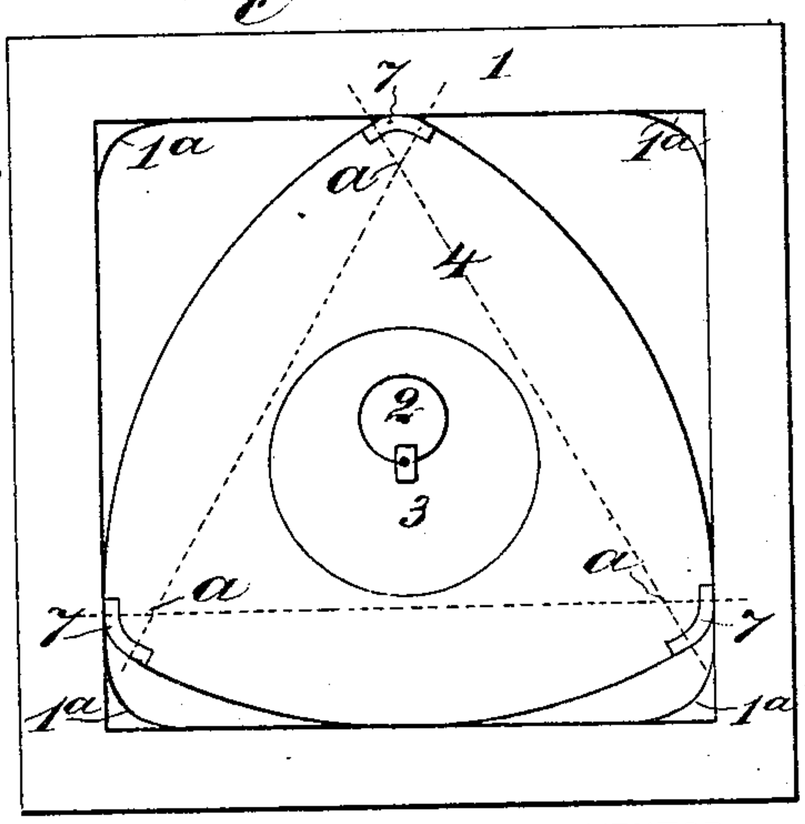


Fig. 6.



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MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 658,557, dated September 25, 1900.

Application filed June 16, 1899. Renewed August 23, 1900. Serial No. 27,821. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. PITT, a citizen of the United States, residing at Manhasset, in the county of Nassau and State of New York, have invented certain new and useful Improvements in Mechanical Movements, of which the following is a specification.

This invention relates to mechanisms designed for converting motion either from slow to fast or fast to slow without the aid of gears. It may be applied in many ways, that herein shown being the conversion of relatively-slow reciprocating motion into relatively-rapid rotary motion.

In the accompanying drawings, which illustrate an embodiment of the invention, Figure 1 is a somewhat-diagrammatic side elevation of the device as applied to the rotation of a shaft by a reciprocating engine and its connecting-rod, and Fig. 2 is a section at x^2 in Fig. 1. Fig. 3 is a view illustrating an antifriction construction of the eccentric. Fig. 4 is a diagram illustrating the relative proportion of the parts and the manner of obtaining the proper form of the triangular body. Fig. 5 is a sectional view illustrating a ball-bearing for the eccentric. Fig. 6 is a view showing a slightly-different form of the triangular body.

Let 1 represent a square frame, which is fixed, and 2 a rotatively-mounted shaft, the axis of which coincides with the center of said square. On the shaft 2 is keyed or otherwise secured an eccentric 3, which exactly fits a circular aperture in an equilateral triangular body 4, the said triangular body being within the frame 1.

Fig. 4 clearly shows the manner of drawing and proportioning the parts. For example, the body 4 is drawn from three centers *a a a* at the vertices of an equilateral triangle, having sides *b b b*, said sides being equal in length to the respective sides *c c c c* of the circumscribed square. The center *d* of the eccentric 3 coincides with the center of the triangular body. Now if we rotate the triangular body 4 in the square frame 1 the effect will be to rotate the shaft 2 in the opposite direction and at a speed three times as great; or, conversely, if we rotate the shaft 2 it will drive the triangular body and rotate the latter at a speed one-third as great as that of the shaft.

Figs. 1 and 2 show the body 4 adapted to be rotated in the manner of a crank from a reciprocating engine. A represents the engine-cylinder; B, the piston-rod thereof, and C the connecting-rod thereof, coupled to a crank-pin 5 in the body 4. Obviously by rotating the shaft 2 through the medium of any driver reciprocating motion will be imparted to the piston-rod B.

Fig. 3 shows a modified form of the eccentric 3^a, wherein it is provided with three bearing-points, two of which are supplied with antifriction-rollers 6. Fig. 5 shows another antifriction device between the eccentric 3^b and the triangular body 4. This device comprises a series of balls 6^a in the nature of a ball-bearing, the eccentric being in two sections to serve as cones.

Fig. 6 shows a construction wherein the convex faces of the body 4 are drawn from the same centers as before—as in Fig. 4, for example—but with a longer radius, whereby a round form is imparted to the angles of the body 4, and wearing-plates 7 are set in the respective rounded vertices to bear on the faces of the inclosing square 1. In this construction the curves 1^a are shown at the angles of the square 1, forming fillets.

These variations do not in the least affect the fundamental operation of the movement.

It will be noted that with my movement the transmitted rotary motion, whether from the triangular body 4 to the shaft 2 or vice versa, is either increased or diminished, and this without the aid of gear-wheels or other ordinary means for varying rotary speed, and this is effected without regard to the manner of applying power to the prime mover.

Being the first, as I believe, to employ the instrumentalities shown for the purpose set forth, I do not limit myself to the specific construction shown, nor to any application of the movement, nor to any particular means of applying power to the triangular body or the shaft for driving.

What is herein referred to as a "square frame" 1 is intended to include any square space in a fixed part which has four plane sides. The angles of the space may in any

case have small fillets similar to those seen in Fig. 6, as the vertices of the triangular body do not penetrate into the extreme reëntering angles of the square chamber.

The device 3^a in Fig. 3 is in substance an eccentric, and it plays in a circular aperture in the body 4 of precisely the same character as that provided for the eccentric 2.

Having thus described my invention, I claim—

A mechanical movement comprising a fixed part having in it a square chamber, a rotatively-mounted shaft which extends through the center of said chamber, an eccentric fixed on said shaft within said chamber, and an equilateral-triangular body, with rounded faces, within said chamber and embracing said eccentric, the center of said triangular body being coincident with the center of said eccentric, substantially as set forth.

In witness whereof I have hereunto signed my name, this 8th day of June, 1899, in the presence of two subscribing witnesses.

WILLIAM A. PITT.

Witnesses:
HENRY CONNETT,
PETER A. ROSS.