

R. PHILIPPE.
MECHANICAL MOVEMENT.
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1,190,949.

Patented July 11, 1916.

Fig.1

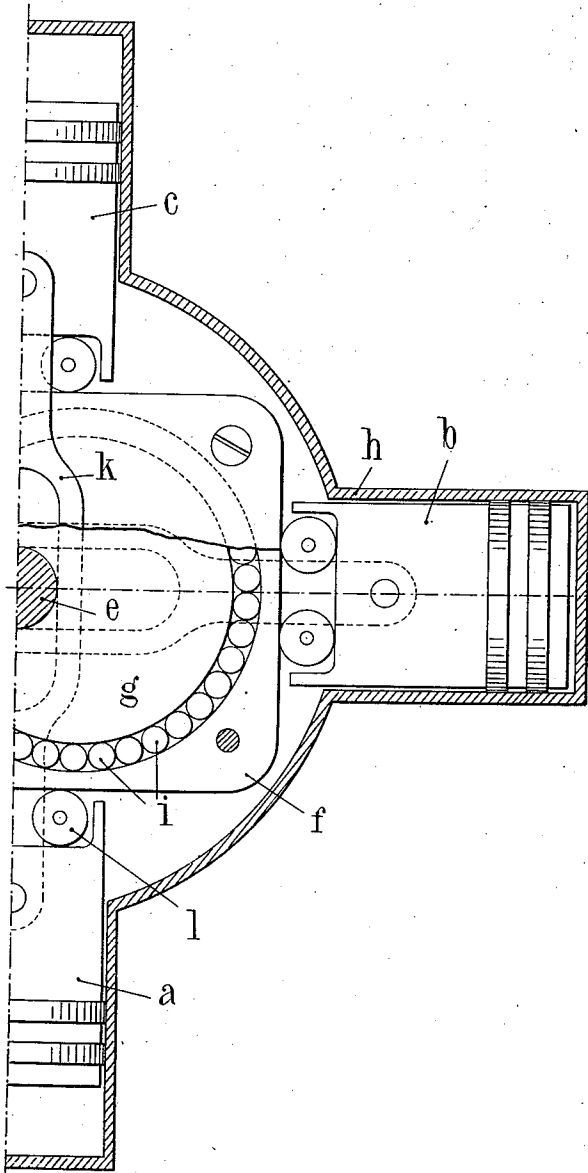
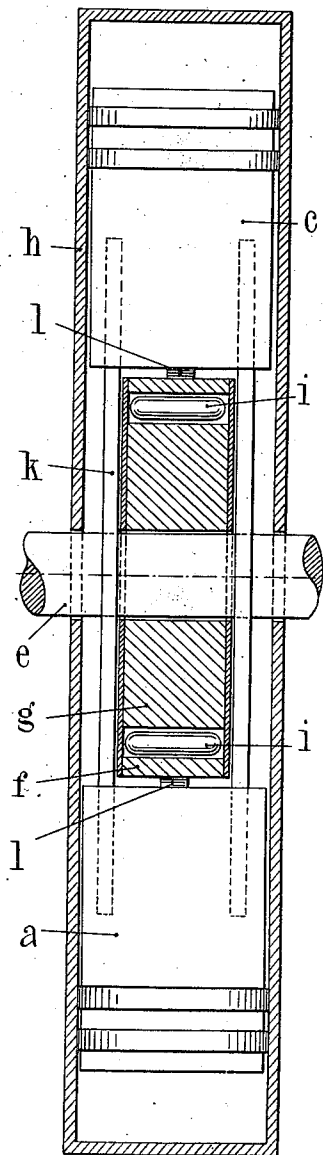


Fig.2



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UNITED STATES PATENT OFFICE.

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MECHANICAL MOVEMENT.

1,190,949.

Specification of Letters Patent.

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Application filed February 8, 1913. Serial No. 747,094.

To all whom it may concern:

Be it known that I, RAOUL PHILIPPE, citizen of the French Republic, residing at Paris, in the Department of the Seine, France, have invented certain new and useful Improvements in Mechanical Movements, of which the following is a specification.

This invention relates to the type of motors worked by internal combustion, steam, compressed air, water under pressure in a reversible or non-reversible manner, etc., described in the specification of United States Patent No. 852033 of 30th April 1907 which may also be employed as a pump or a liquid meter.

The invention consists in improvements in the construction of the said type of motor.

The improvements are illustrated by way of example in the drawings accompanying the present specification.

In these drawings: Figure 1 is a front elevation partly in section of a four-cylinder motor. Fig. 2 is a partial longitudinal section of the motor shown in Fig. 1.

For the purpose of transmitting the alternating motion of the pistons *a*, *b*, *c*, of the cylinders of the motor into rotary motion of the main or engine shaft *e* the said pistons are arranged to bear against a collar *f* of peculiar form mounted by means of balls, rollers, or other means upon the eccentric *g* which is keyed on the main shaft *e*.

Experience has shown that if the collar mounted on the eccentric of the main shaft has the form of a ring, the one-sided or unsymmetrical action or thrust of the pistons upon this ring has a tendency to impart an oval shape to the piston cylinders *h* whereby "play" is produced in the working of the engine which is thus rendered faulty. Now that drawback is obtained in a simple and effectual manner by the present invention which consists in substituting for the annular collar hitherto employed, a square collar *f*, for instance as shown in Fig. 1. This collar is mounted on the eccentric *g* of the engine shaft by means of bearing rollers *i* or any other means for diminishing friction between the collar and the eccentric.

The pistons are connected to each other by means of side links *k* which are slotted as shown in Fig. 1, to enable them to move with a reciprocating motion corresponding to that of the pistons. By this arrangement

the pistons receive a perfectly straight motion without the slightest one-sidedness in whatever position the collar may be.

The motor pistons *a*, *b*, *c*, may bear directly upon the collar *f* of the eccentric, or they may be provided with rollers *l* adapted to roll on the collar of the eccentric and act upon the latter.

It is obvious that the external shape of the collar is not limited to the square form shown, but that it may have any other form suited for instance to the number of the pistons, such as a triangular form in the case of three pistons, a pentagonal form in the case of five pistons and so on.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1. In a mechanical movement, a rotatably mounted eccentric, a collar freely rotatable thereon, said collar having a polygonal-shaped periphery, a plurality of cylindrically-shaped reciprocating elements, a plurality of hollow members each of a bore to receive one of said elements, said elements having a sliding fit therein, said elements and members being arranged around the said collar and each of said elements having a part bearing against one of the faces of the polygonal-shaped periphery of the collar and having its longitudinal axis at right angles to said face.

2. In a mechanical movement, a rotatably mounted eccentric, a collar freely rotatable thereon, said collar having a polygonal-shaped periphery having an even number of faces, a plurality of cylindrically-shaped reciprocating elements, a plurality of hollow members each of a bore to receive one of said elements, said elements having a sliding fit therein, said elements and members being arranged around the said collar and each of said elements having a part bearing against one of the faces of the polygonal-shaped periphery of the collar and having its longitudinal axis at right angles to said face, and means for connecting diametrically opposed elements together.

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

RAOUL PHILIPPE.

Witnesses:

CAIUS DANZER,
LUCIEN CRESPIN.