(No Model.)

G. JASMAGY.

Rotary Engine.

No. 235,246. Patented Dec. 7, 1880.

Fig: 1.

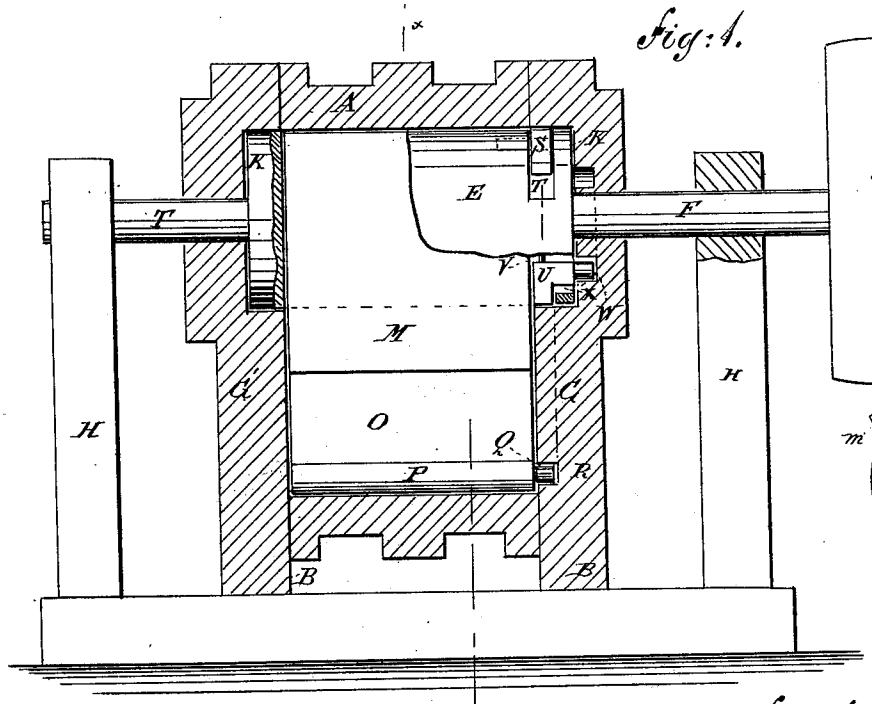


Fig: 3.

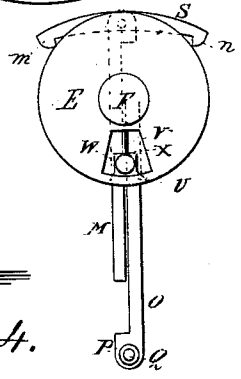


Fig: 2.

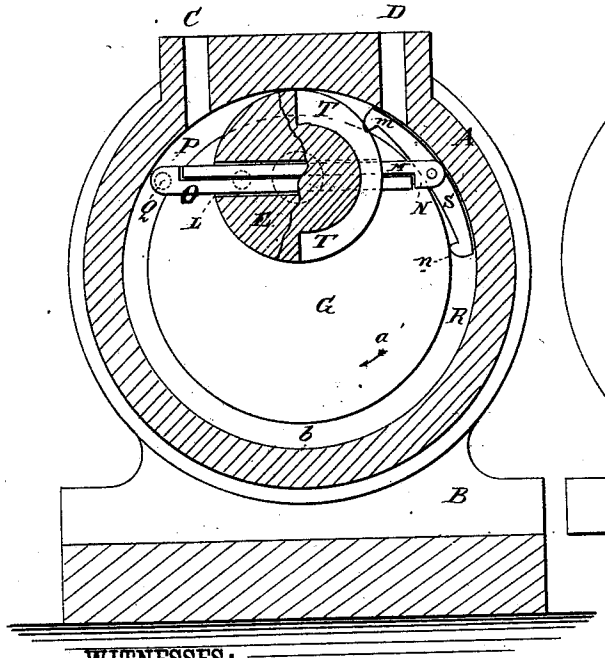
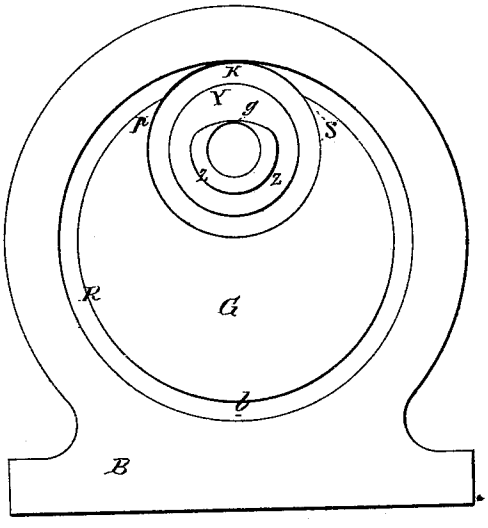


Fig: 4.



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UNITED STATES PATENT OFFICE.

GABRIEL JASMAGY, OF BROOKLYN, E. D., NEW YORK, ASSIGNOR TO HIMSELF AND PETER SCHEER, OF SAME PLACE.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 235,246, dated December 7, 1880.

Application filed September 24, 1880. (No model.)

To all whom it may concern:

Be it known that I, GABRIEL JASMAGY, of Brooklyn, E. D., in the county of Kings and State of New York, have invented a new and Improved Rotary Engine, of which the following is a specification.

The object of my invention is to provide a new and improved rotary engine which is simple in construction and effective in use.

The invention consists in a rotary engine formed of a cylinder containing an interior longitudinally-slotted cylinder of one-half its diameter mounted on a suitable shaft journaled in the end pieces of the outer cylinder, which slotted cylinder is provided with two overlapping sliding piston-plates which are provided at the ends with a pin and a pivoted curved guide-bar fitting in an annular groove on the inner surface of one or both end pieces of the outer cylinder, whereby the sliding piston-plates are drawn out and inward alternately, and form a piston of variable size as the shaft rotates.

In the accompanying drawings, Figure 1 is a longitudinal sectional elevation of my improved rotary engine, showing the sliding piston extended to greatest extent. Fig. 2 is a cross-sectional elevation of the same on the line *x x*, Fig. 1. Fig. 3 is an end elevation of the inner slotted cylinder and its sliding piston-plates. Fig. 4 is an inside elevation of one of the end plates of the main outer cylinder.

Similar letters of reference indicate corresponding parts.

The cylinder A is turned absolutely true and smooth on the inner side, is provided with suitable supports B B, and is provided with two apertures, C and D, for the entrance and exit of the steam, compressed air, water, or other motive element. A second solid cylinder, E, of the same length as the interior of the cylinder A, and having a diameter which is at least equal to the radius of the cylinder A, so that it will be in contact with the inner surface of the cylinder A, is mounted centrally on a shaft, F, journaled in the end piece, G G′, and on the supports H H, and provided with a pulley, J. The ends of the inner cylinder, E, fit into apertures K K on the inner sides of the end pieces, G G′. The inner cylinder, E, is provided with a longitudinal slot, L, in which two sliding piston-plates, M and O, fit, each having the same length as the slot, but only one-half of its thickness, so that they completely fill the slot, but permit the plates to slide upon each other and in the slot. Each plate M and O is provided with an end flange, N and P, respectively, rounded at the outer edge, and smoothed and polished, so as fit closely against the inner side of the cylinder A. A pin or stud, Q, projects from one end of the flange P of the plate O, parallel to the same, into an annular groove, R, in the inner side of the end piece, G, along the edge of the cylinder A.

A bar, S, the outer surface of which is curved precisely the same as the inner surface of the cylinder A, is centrally pivoted to the end of the flange N of the plate M, and also fits in the groove R.

The inner cylinder, E, is provided with a transverse groove, T, to receive the pivoted bar S when the plate M has passed into the slot L so far that the outer edge of its flange N is flush with outer surface of the cylinder E.

An L-shaped piece of metal, U, is loosely mounted on a radial wire, V, in the end of the cylinder E, so that it can slide to and from the center of the cylinder on this wire, and is provided with a stud, W, projecting through a radial slot, X, in the end of the cylinder into an eccentric groove, Y, in the recess K of the end piece, G, forming an eccentric ridge, Z.

The plates M and O may be provided with the guiding devices thus described at one or both ends, as may be desired, the end pieces being constructed accordingly.

The operation is as follows: If the plates M and O are in the position shown in Fig 2, and steam is admitted through the port or aperture D, the same will press upon the plates and move the same downward; but as the front end of the plate M is attached to the bar S, which is guided and held in the slot R, the end of the plate M must move with the bar S—that is, the plate M is gradually drawn out of the slot L until it is in the po-

sition shown in Fig. 1, which is the maximum extension of the plate M; but the steam or other motive power continually presses against the plate M in the direction of the arrow *a'*, and it necessarily follows that from the point *b* on the plate M it is gradually pushed back into the slot L again; but if the plate M moves as shown, the plate O will have to move in a similar manner, which shall now be explained. The pin Q of the plate O is also guided by the groove R, and as the plate M is drawn out of the slot L the plate O is pushed into it, and when the plate M is in the position shown in Fig. 1 the upper edge of the flange P of the plate O will be flush with the surface of the cylinder E; but now if the plate M moves beyond the point *b* and begins to move into the slot L, the plate O will be gradually drawn out of the slot, and when it reaches the port D the live steam, &c., will act upon it, and finally the outer edge of the plate O will have reached the point *b*, that is its maximum of extension, and the outer edge of the flange N of the plate M will be flush with the surface of the cylinder E, and the thickness of the bar S will pass into the groove T; for as the cylinder E rotates first one end, *n*, then the center, and finally the other end of this bar S will be depressed into the groove T. As the outer rounded edge of the bar S always fits snugly to the outer edge of the groove R, the ends *m* and *n* of this bar will always be guided over the noses *p* and *s* in such a manner that they cannot lock or catch; but the pin Q of the plate O must also be raised, so as not to catch on the noses *p* and *s*. This is accomplished in the following manner: When the outer edge of the plate O is flush with the surface of the cylinder E the pin W rests upon the narrowest part *g* of the ridge Z; but as the cylinder E rotates the ridge gets wider and the pin W is gradually moved toward the periphery, and the block or L-shaped piece U moves with it; but the pin Q rests upon this piece U and is raised sufficiently by the same to clear the noses. At the end of this revolution the pin W comes to the narrow part of the ridge Z again, the piece U is drawn toward the center, and the plate O can pass entirely within the slot L. In the manner described the steam acts alternately on the sliding plates M and O, thus forming a self-adjusting sliding and revolving piston.

Having thus fully described my invention, I claim as new, and desire to secure by Letters Patent—

1. A rotary engine constructed, substantially as herein shown and described, with a rotating sliding piston consisting of two overlapping sliding plates guided by projections thereon fitting in grooves in the end pieces of the cylinder, as set forth.

2. In a rotary engine, the combination, with the main cylinder A, of an interior longitudinally-slotted cylinder, E, the overlapping sliding piston-plates M and O sliding therein, and the annularly-grooved end pieces, G G', substantially as herein shown and described, and for the purpose set forth.

3. In a rotary engine, the combination, with the inner slotted cylinder, E, of the sliding plate O, provided with a stud, Q, of the L-shaped sliding block U and the eccentric guiding-ridge Z, substantially as herein shown and described, and for the purpose of guiding the pin or stud Q over the noses *p* and *s*, as set forth.

4. In a rotary engine the combination, with the inner slotted cylinder, E, of the overlapping sliding piston-plates M and O, the pin Q of the plate O, and the pivoted curved bar S of the plate M, and the annularly-grooved end pieces, G and G', substantially as herein shown and described, and for the purpose set forth.

5. In a rotary engine, the inner cylinder, E, constructed, substantially as herein shown and described, with a longitudinal slot, L, to receive the sliding plates M and O, and with a transverse groove, T, in one end, for the purpose of receiving the curved guide-bar S. as set forth.

6. In a rotary engine, a rotary sliding piston-plate constructed, substantially as herein shown and described, with a curved guide-bar, S, pivoted thereto, for the purpose of guiding the outer end of said piston-plate, as set forth.

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