

(No Model.)

3 Sheets—Sheet 1

H. CHAUDUN.
ROTARY MOTOR.

No. 593,514.

Patented Nov. 9, 1897.

Fig. 1.

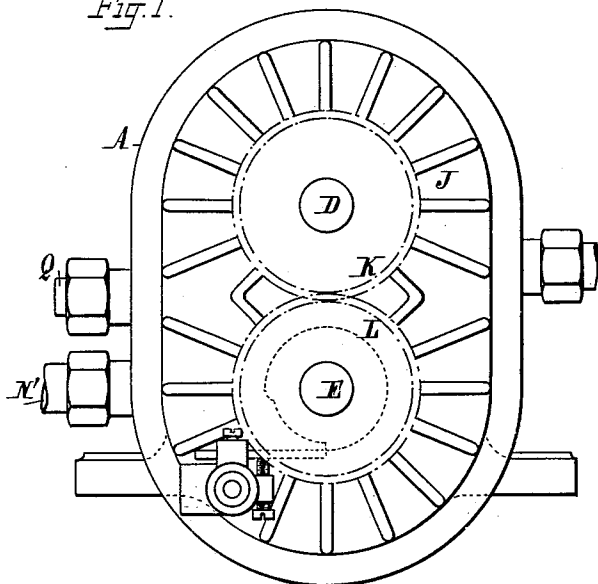
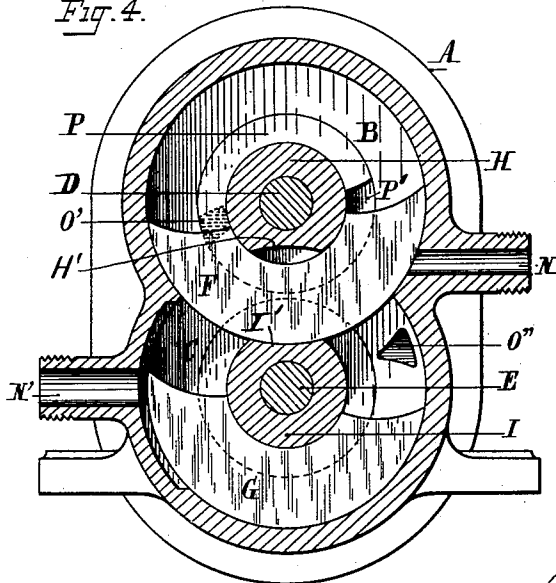


Fig. 4.



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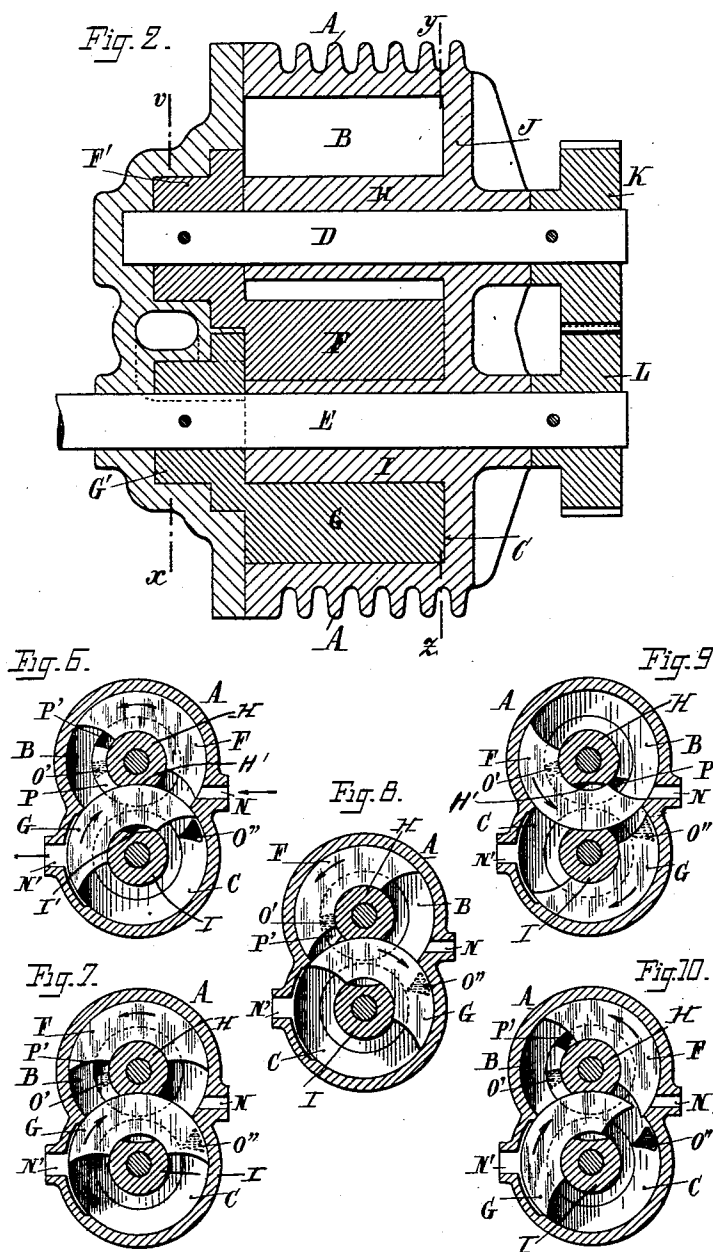
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3 Sheets—Sheet 3.

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ROTARY MOTOR.

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Fig. 3.

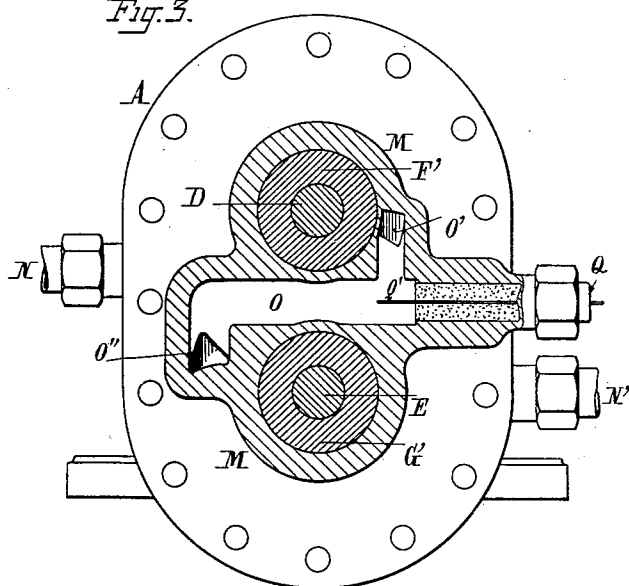
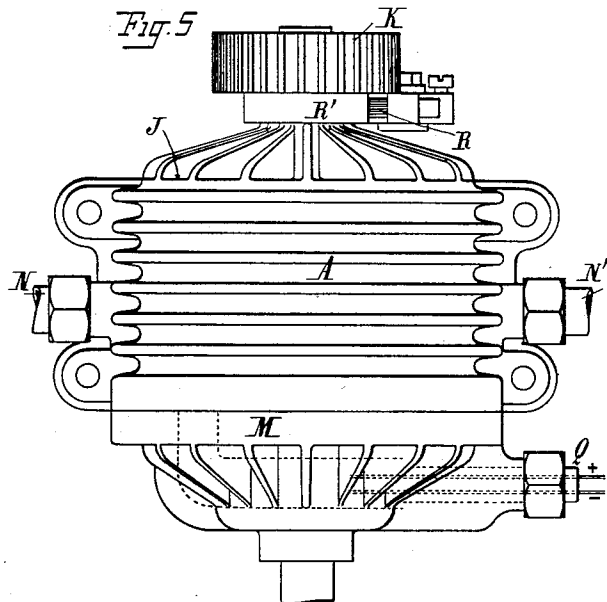


Fig. 5



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UNITED STATES PATENT OFFICE.

HENRI CHAUDUN, OF PARIS, FRANCE.

ROTARY MOTOR.

SPECIFICATION forming part of Letters Patent No. 593,514, dated November 9, 1897.

Application filed June 22, 1897. Serial No. 641,782. (No model.)

To all whom it may concern:

Be it known that I, HENRI CHAUDUN, a citizen of the Republic of France, residing at Paris, France, have invented certain new and useful Improvements in or Relating to Rotary Motors, of which the following is a specification.

The present invention relates to an improved rotary motor specially constructed to work by introducing, compressing, and igniting any explosive mixture of gas, gasolene, oil, and the like.

In the accompanying drawings, Figure 1 is a front elevation of my motor. Fig. 2 is a longitudinal section. Fig. 3 is a rear elevation in vertical cross-section on line $v x$ of Fig. 2. Fig. 4 is another front elevation seen from the same side as Fig. 3, but on the line $y z$ of Fig. 2. Fig. 5 is a plan corresponding to Fig. 3. Figs. 6, 7, 8, 9, and 10 are diagrammatic views on a smaller scale, showing the motor in different stages of working.

By examining these figures it will be seen readily that my motor is chiefly constituted by the combination of the following parts:

In a casing A, consisting of two adjacent cylinders B C, communicating with and intersecting each other, are arranged on parallel axles D E two rotatable sectors F G, fulfilling the function of pistons, the sector F rotating in cylinder B and the sector G rotating in cylinder C. The sectors are recessed or cut away at their centers concentrically to their circumference and to the diameter of corresponding sleeves H I, around which they turn, said sleeves being formed on the inner face of the wall or head J of the under side of the casing A, said side being common to both cylinders B and C, constituting said casing. In their rotation the sectors respectively make a close fit, first, by their outer circular surface with the corresponding inner circular wall of the casing A; second, by their central concentric circular recess with the corresponding sleeves H and I on the head J, and, finally, by their exterior circular surface with corresponding concentric circular recesses H' I', respectively formed on the brackets or sleeves H I of the head J.

The sectors F G comprise, respectively,

cylindrical, central, and concentric hubs F' G', formed on their faces opposite to the head J, said hubs fitting exactly and rotating in corresponding recesses in the inner face of the cover M of the casing A. The hubs F' G' are keyed or secured by cross-pins on their respective axles D E, which are supported and rotate in corresponding brackets on the head J and the cover or head M.

The ends of the sectors F G are shaped in symmetrical arcs from the outer edges to their central recessed parts in such manner that their rotation being conjugate they can turn together in opposite direction without any portion of the surface of one touching the other in spite of their being so combined as to engage with or intersect each other, as the distance between their respective axes is smaller than their respective diameters, the result being that said sectors F G during their rotation enter successively from one cylinder into the other.

The combined rotation of the sectors F G is effected by two toothed wheels K L of the same diameter mounted outside the casing A on the respective axles D E, said toothed wheels engaging with each other.

The admission-port for the explosive mixture to the cylinder B is at N, the cylinder C having an exhaust N'. In the head M there is provided a chamber O, constituting the explosion-chamber, which communicates by means of a passage O' with the cylinder B and by means of another passage O'' with the cylinder C. The relative position of the passages O' O'' and their position relatively to the sectors F G is such that their closing and opening alternately takes place at the desired times, the orifice O' being closed by the flange P of the hub F' of the sector F and uncovered by a recess or passage P', formed in said flange P, the closing of the passage O'' of the cylinder C being effected by the corresponding side face of the sector G, the opening or uncovering of said passage O'' taking place after the sector has passed over it, owing to the recess between the two ends of the sector F opposite its circular edge or solid part.

Leading into the explosion-chamber O is a

passage Q, in which is arranged an igniting device Q', which by way of example is shown as consisting of two platinum wires, Figs. 3 and 5, suitably supported and insulated, said wires projecting on one side into the explosion-chamber O. The wires are in practice to be suitably connected with any suitable source of electrical supply—as, for instance, a contact-brush R, resting against a cam R' on one of the axles E and causing the current to pass at the desired intervals in order to produce between the ends of the igniting-wires Q' a spark for igniting the explosive mixture in the chamber O.

The operation of the motor is as follows, reference being had to Figs. 6, 7, 8, 9, and 10, showing different stages of working of the motor, the sectors F G of which rotate in the directions indicated by the arrows:

In Fig. 6 the sector F is about to open or uncover the port N in order to draw in explosive mixture, which will be stored between the end of the sector F and the corresponding surface of the sector G, forming the bottom of the cylinder. At the same time the other end of the sector F, in combination with the corresponding surface of the sector G, which also forms the bottom of the cylinder, compresses between them the explosive mixture previously introduced. At this moment in the cylinder B the passage O' of the explosion-chamber O is closed by the flange P. In the cylinder C the explosion has taken place, the orifice O'' of the explosion-chamber O is still open, and the exhaust begins at the side of the sector G corresponding to the exhaust N'.

In Fig. 7 the explosive mixture continues to be drawn in by the sector F through the port N, while at the same time on the other side of said sector the compression of the mixture previously introduced is still further effected, and the orifice O' of the explosion-chamber O is about to be uncovered by the recess P' of the flange P to enable said compressed mixture to enter the explosion-chamber O. In the cylinder C the exhaust continues at N', and the orifice O'' of the explosion-chamber O is closed by the corresponding lateral face of the sector G.

In Fig. 8 the sector F in the cylinder B continues to draw in the charge at N, the passage O' to the explosion-chamber O has been opened by the recess P' of the flange P, the compressed explosive mixture has passed into said chamber, the compression having been completed, the orifice O' being afterward closed by the flange P. In the cylinder C the exhaust continues at N', and the sector G by its corresponding lateral face still closes the orifice O'' of the explosion-chamber.

In Fig. 9 the introduction of the charge is about to be cut off at N by the sector F in the cylinder B. The orifice O' of the explosion-chamber O still remains closed by the

flange P. In the cylinder C the exhaust-port is about to be closed, and on the other side the sector G is about to uncover the orifice O'' of the explosion-chamber O. At this moment the ignition of the explosive mixture in the chamber O is about to be produced by the electric contact produced by the cam R' in coöperation with the brush R.

Finally, in Fig. 10 the explosion of the mixture has just taken place in the chamber O and its motive effect has been applied at the corresponding end of the sector G, the corresponding edge or surface of the sector F forming at this moment the bottom of the cylinder. The stages previously described are then repeated in the same order, the working of the motor being thus continuous.

It is evident that any suitable valve-gear may be used either for the admission or exhaust orifices or for the passage by which the explosion-chamber communicates with the cylinders. In the same manner any regulating device may be used for the same purpose as in ordinary motors.

What I claim is—

1. A rotary motor in which explosive charges are introduced, compressed and ignited, comprising a casing, oppositely-rotatable intersecting sectors therein forming with the casing two cylinders, one of said cylinders constituting a charging and compressing cylinder having an inlet-passage for the explosive charge, an intermediate chamber communicating with the cylinders and adapted to receive the compressed charge from the charging and compressing cylinder, and an exhaust-passage for the other cylinder, the said sectors being constructed to cover and uncover the passages formed in the charging and compressing cylinder to effect the drawing in, compression and ignition of the charge and exhaust of the spent gases.

2. A rotary motor in which explosive charges are introduced, compressed and ignited, comprising a casing, rotatable sectors F, G, arranged therein as described and being geared together to rotate at equal speeds and forming with the casing two cylinders B, C, a flange P on sector F and having a recess P', an intermediate explosion-chamber having passages O' O'' placing said intermediate chamber in communication with the cylinders B, C, and said casing having inlet and exhaust passages, all arranged for coöperation substantially as described for the purposes specified.

3. The combination with a casing having inlet and exhaust ports, of two rotatable sectors arranged in said casing, the paths of which intersect as described and forming cylinders with the casing, parallel supporting axles or shafts, sleeves upon the shafts around which sleeves the sectors rotate, said sleeves being cut away or recessed at points opposite each other and with the circular walls of

which recesses the circumferential walls of the sectors are adapted to make contact as described, and an intermediate or explosive chamber communicating with the cylinders, all coöperating in the manner for the purposes specified.

In witness whereof I have hereto set my

hand in the presence of the two subscribing witnesses.

HENRI CHAUDUN.

Witnesses:

LOUIS SULLIGER,
J. ALLISON BOWEN.