(No Model.)

H. CHAUDUN.

ROTARY MOTOR.

No. 597,709. Patented Jan. 25, 1898.

FIG. 1ª.

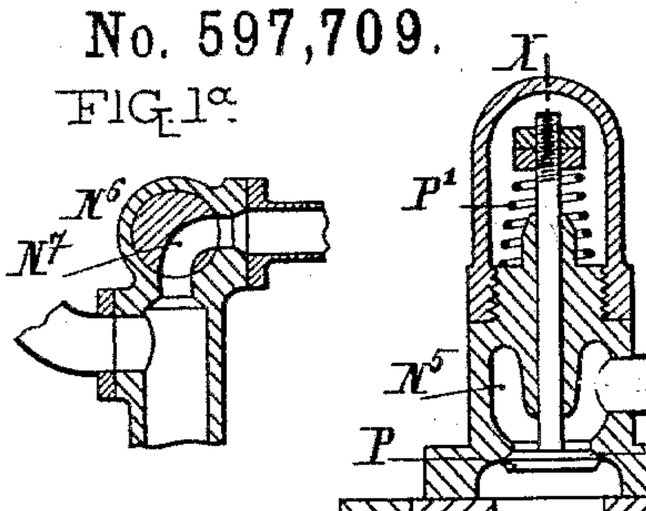


FIG. 1.

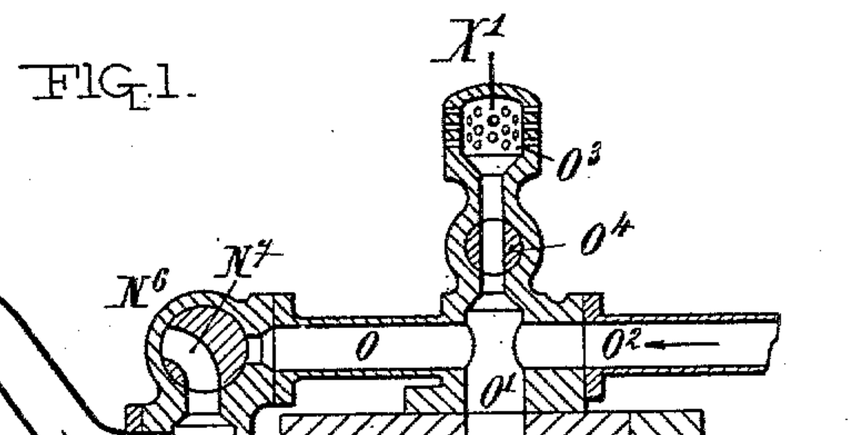


FIG. 2.

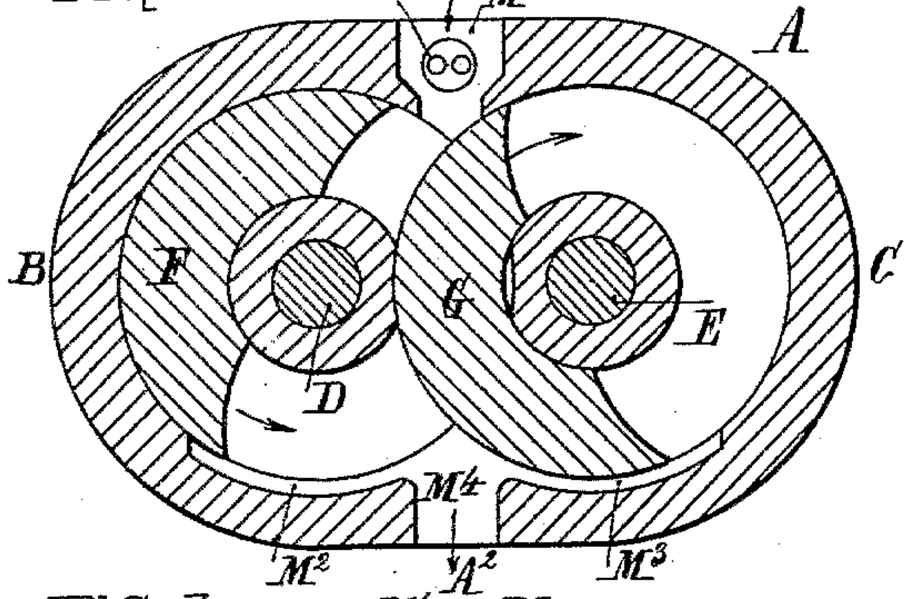


FIG. 2ª.

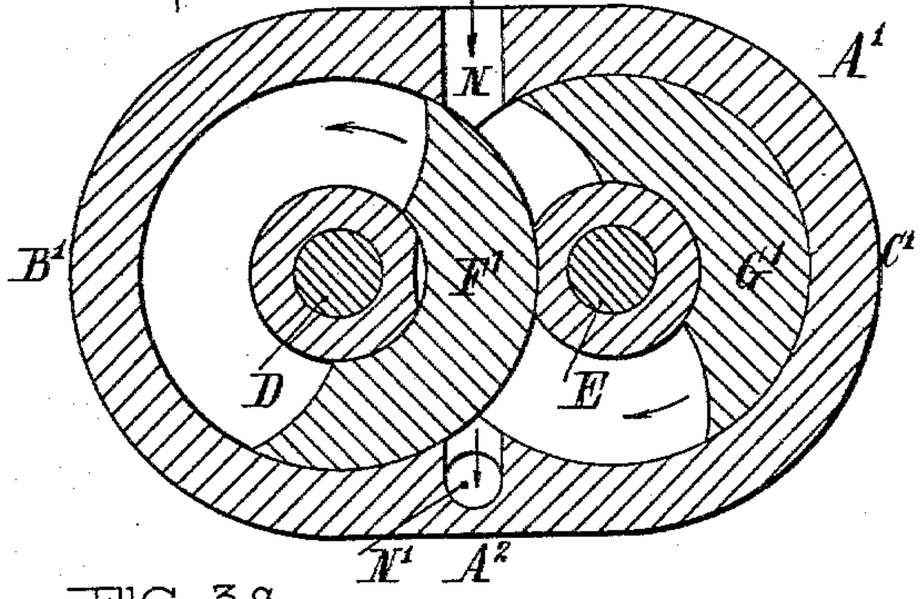


FIG. 3.

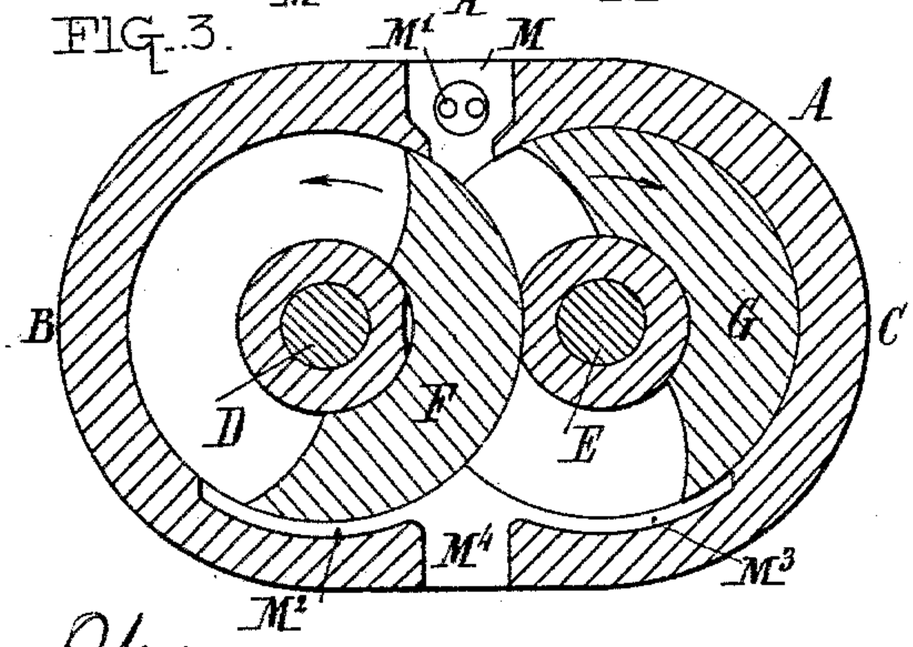
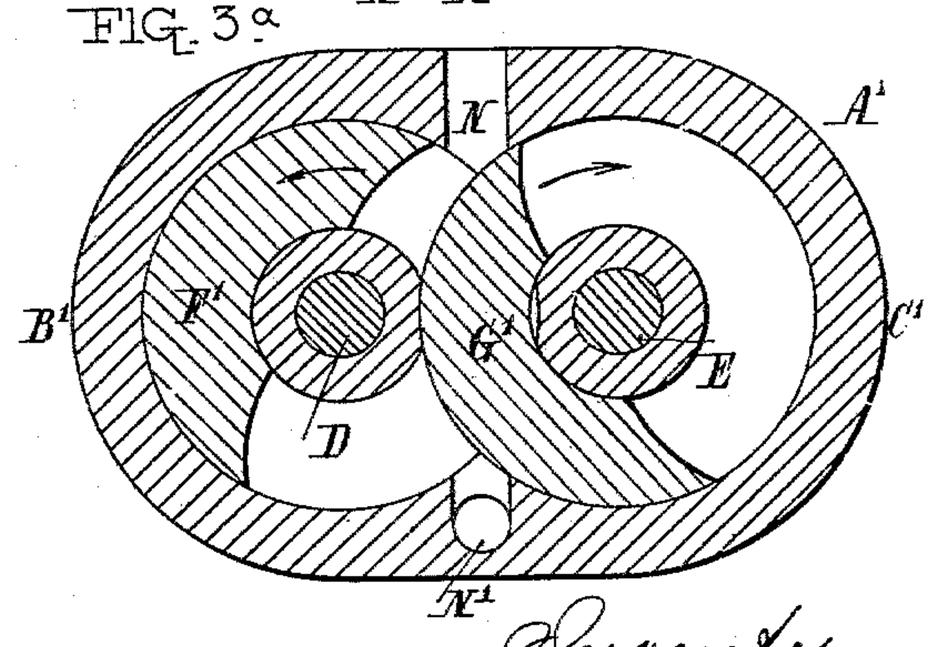


FIG. 3ª.



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UNITED STATES PATENT OFFICE.

HENRI CHAUDUN, OF PARIS, FRANCE.

ROTARY MOTOR.

SPECIFICATION forming part of Letters Patent No. 597,709, dated January 25, 1898.

Application filed July 12, 1897. Serial No. 644,278. (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.

This invention relates to a new rotary motor working by ignition of any explosive mixture, gas, gasolene, oil, &c., with or without compression of said mixture, as desired.

In the accompanying drawings, Figure 1 is a longitudinal vertical section of the motor according to the present invention. Fig. 1ª is a detail sectional view of portions of the pipes O N^3 N^4 and also showing the cock N^6. Figs. 2, 2ª, 3, and 3ª are respectively side elevations in vertical section, Figs. 2 and 3 being sections on the line X Y of Fig. 1, and Figs. 2ª and 3ª sections on the line X′ Y′ of the same figure. Figs. 2 and 2ª correspond to one stage, and Figs. 3 and 3ª to the opposite stage, of working.

As can be easily seen from the drawings, the new motor is chiefly constituted by the combination of two principal parts or chambers A A′, substantially of the same construction. Each part A A′ comprises a casing consisting of two combined intersecting chambers B C B′ C′, communicating with each other at their points of intersection A^2, which chambers are provided with sectors F G F′ G′, mounted, respectively, on parallel shafts D E and acting as rotating pistons, F F′ in the parts B B′ and G G′ in the parts C C′. These sectors F G F′ G′ are respectively arranged in pairs, F F′ on one spindle D and G G′ on the second spindle E, these two parallel spindles rotating together by means of two toothed wheels K L of the same diameter engaging together and arranged outside the casings between the two parts A A′ of the motor. According to this new arrangement one part of the apparatus A constitutes the driving part and comprises in its upper part an explosion-chamber M, provided with an electric or other ignition device M′, and in the lower part recesses or passages M^2 M^3, terminating in an outlet-passage M^4. The outlet-passage M^4 and the explosion-chamber M are symmetrically arranged between the chambers B C, so that said outlet M^4 and the explosion-chamber M act alternately in combination with each of the chambers B and C and their respective sectors F and G, as will be hereinafter explained.

If the motor is to work with compression, the other half of the apparatus A′ constitutes the part which draws in, compresses, and distributes the explosive mixture to the driving part A. It comprises at the top the inlet N for carbureted air, gas, or other fluid and at the bottom an opening N′, communicating with a short pipe N^2 for the passage and distribution of the fluid drawn in through the upper opening N by the alternate action of the sectors F′ G, respectively working in the chambers B′ C′ of this half A′ of the apparatus, and which sectors are constituted in the same manner as those F G of the other half A, the passages N and N′ being arranged on each side of the median line of intersection A^2 of the chambers B′ and C′ in the same manner as in the driving part of the apparatus.

To the short outlet-pipe N^2 is connected a pipe or pipes N^3 N^4, leading to the distributing-chamber N^5 near the explosion-chamber M of the driving-chamber A and also to a two-way cock N^6, communicating by a pipe O with the chamber O′ and with the inlet-pipe O^2 for carbureted air or gas and with a short branch air-supply pipe O^3, which can be opened or closed by a valve O^4 in order to enable the supply of air to the explosive mixture to be regulated as desired.

In the chamber N^5 for distributing explosive mixture to the driving-chamber A is a valve P, controlled by a spring P′, arranged so that it is stronger than the compression produced by the compressing-chamber A′ in the said distributing-chamber N^5 and conduits N^4 N^3 N^2 N′ leading to it. This valve P is seated in an orifice P^2, communicating with the explosion-chamber M of the driving-chamber A and especially used for the purpose of intercepting all communication of the explosion-chamber M with the distribution-chamber N^5 and its conduits at the moment of explosion.

The sectors F′ G′ of the supply or compression chamber A′ are respectively keyed on the same spindles D E as the sectors F G of the driving-chamber A, as shown in the draw-

ings, so that when rotating in the directions indicated by the arrows the sectors F′ G′ respectively and alternately draw in a charge and respectively and alternately close the passage N, through which the drawing in of the charge takes place, as soon as the corresponding sectors F G of the driving-chamber A begin to respectively and alternately place their two chambers B C in communication with the explosion-chamber M.

In Figs. 2 and 2ª suppose one of the driving-sectors F is about to act as a driving-sector, its chamber being in communication with the explosion-chamber M and the other side of said cylinder B being in communication with the outlet M^4 for the escape of combustion-gases which have previously done their work. At this moment the other sector G of this element A forms a wall or part of the cylinder. As regards the other half of the apparatus A′ the sectors F′ G′ will be in the position shown in Fig. 2ª, one sector F′ will have finished drawing in its charge through the inlet N and will close the communication of the latter with its chamber B′ and will take with it in its rotation the mixture which it has just drawn in in order to force and compress it into the conduits $N' N^2 N^3 N^4$ and to the distributing-chamber N^5 as soon as it has uncovered the outlet-passage N′ thereto, at which moment the communication of the latter with the other chamber C′ will be closed by its sector G′. As regards this other sector G′ it will begin to draw in through the inlet-orifice N at the same time that on its other side it forces out and compresses the mixture which it has previously drawn in into the conduits $N' N^2 N^3 N^4$ and distributing-chamber N^5.

In Figs. 3 and 3ª when the sectors F G F′ G′ are in the reverse position to that described and shown in Figs. 2 and 2ª the sectors F G′ form the walls of the cylinders, while the other sectors G F′ act one to produce motive power on one hand and exhaust on the other hand and the other to take with it the mixture which it has just drawn in and which it is about to force into and to compress into the distributing-chamber N^5.

At one position of the cock N^6 (shown in Fig. 1) the motor works with compression, the distributing-chamber N^5 communicating only with the passage N′, through which is forced out from the supply-chamber A′ the mixture drawn in alternately by its sectors F′ G′. If said cock is turned into the position shown in Fig. 1ª, the motor will work without compression, the distribution of the mixture then taking place directly by alternate drawing in produced by the sector F G of the driving-chamber A, the passage N^7 of the plug of said cock N^6 putting the distributing-chamber N^5 and its conduits $N^4 N^3$ into open communication with the passage O, leading into the chamber O′, into which the explosive mixture is drawn in. In spite of this working without compression, the sectors F′ G′ of the supply-chamber A′ continue to rotate, thus drawing in, taking with them, and forcing out the mixture without compressing it, for as the passage or bore N^7 of the plug N^6 places the conduit in communication with the inlet-chamber O′ the mixture drawn in from the inlet-chamber O′ through the inlet-passage N will return into the said chamber through plug-passage N^7 and its conduit O, thus forming a cycle which will assist in increasing the thorough mixture of the explosive charge, which is drawn in directly by the driving element A. The result of this arrangement is that the motor can be easily started. The cock N^6 being set, as in Fig. 1ª, so as to avoid compression after the motor has been started, it is turned so that the motor will then work with compression, which of course is more economical.

I claim—

1. A rotary internal combustion-engine consisting of two casings each forming two intersecting cylinders, each of which cylinders contains a sector-piston, which sector-pistons are carried on two intergearing shafts common to each casing, one sector-piston of each cylinder being carried on each shaft, and a tubular connection between the casings, in combination with inlet-passages for the charge and air in the compression-cylinder, and an inlet-passage and ignition-chamber in the working cylinder, and an exhaust-outlet, substantially as set forth.

2. A rotary internal combustion-engine consisting of two casings each forming two intersecting cylinders, each of which cylinders contains a sector-piston, which sector-pistons are carried on two intergearing shafts common to each casing, one sector-piston of each cylinder being carried on each shaft, and a tubular connection between the casings, a branch, provided with a valve, extending from the tubular connection to the inlet-passage of the supply-cylinder, in combination with inlet and outlet passages, substantially as set forth.

In witness whereof I hereto set my hand in the presence of the two subscribing witnesses.

HENRI CHAUDUN.

Witnesses:

LOUIS SULLIGER,

FINLEY P. MCGUIRE.