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PROCESS AND DEVICE FOR THE PRODUCTION OF GASES AT HIGH PRESSURE AND MOTOR FED WITH THESE GASES

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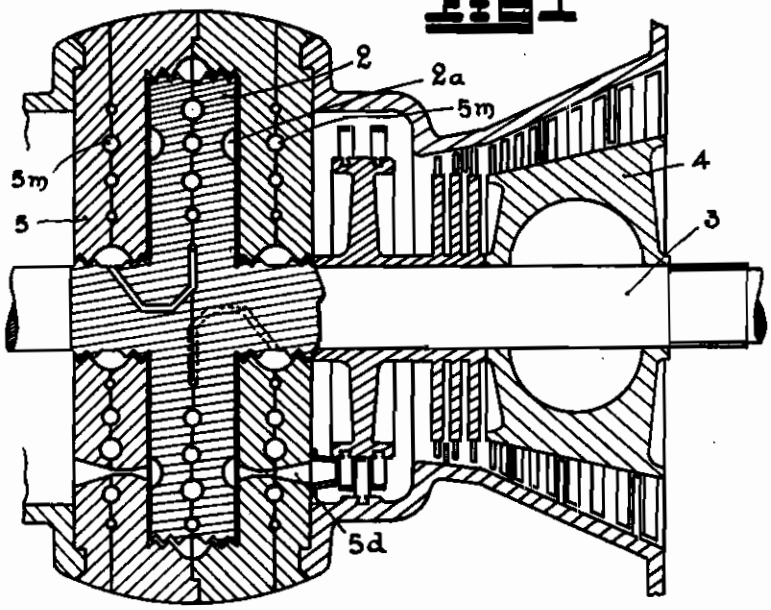
Fig 1



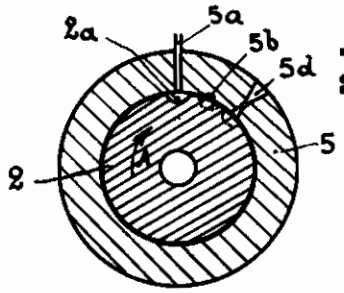


Fig 2

Fig 3

Fig 4

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PROCESS AND DEVICE FOR THE PRODUCTION OF GASES AT HIGH PRESSURE AND MOTOR FED WITH THESE GASES

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The invention is relating to the production, by chemical reaction, of gases at very high pressure, which are suitable for the feeding of motor, namely of turbines and alternating motors.

The feeding of motors, according to the invention, allows an original manner of performance of the known process according which the explosible mixture or its constituents, which may be at the gaseous, or liquid, or even solid state, are generated, not at each period of the motor operation, by the motor itself, but beforehand, independently of the motor and under the form of a reserve capable of feeding the explosion chamber of the motor a relatively great number of times.

The present invention consists in the fact that the bringing in contact of the elements intended to react and which in the molecular sense are in a very condensed state, occurs in alveoles at constant volume where the explosion generates gases at high temperature and at very high pressure, the dent being only realized in an ulterior phase.

In these alveoles, are introduced by parts, either a complete explosive either the elements which constitute it, accompanied or not of a catalyst. These various reagents may be in all or in part solid, liquid or gaseous, the gases being previously compressed.

The invention relates particularly to the use of a series of said alveoles, which successively pass before a feeding source, are then cut from communication with the exterior and submitted to the explosion, and are finally put into communication with an outlet channel through which the gases escape to realize their detent.

The alveoles may advantageously be provided in a revolution body. They can also be formed by the combustion chamber of a motor with an alternating piston, the volume of which remains practically constant when the piston passes at the dead point, the chemically reacting agents being introduced at high speed and the bringing into communication of the combustion chamber or chambers with the outlet channels for the gases occurring only after a first detent phase in the cylinder of the piston motor.

The gases under pressure to obtained may namely be used in a second piston motor or in a turbine, which, according to the invention, forms a motor group.

The accompanying drawing shows, by way of example an embodiment of the invention. The latter comprises the various original features of the embodiment shown.

Figure 1 is a section across a device according to the invention.

Figure 2 is a diagrammatic view showing the alveole provided in the rotor: the admission, the ignition and the exhaust.

Figure 3 is a diagrammatic representation of a feeding system in which a burning liquid is mixed with a combustible liquid in the alveole.

Figure 4 is a diagrammatic view of a separated feeding of the burning and combustible liquids.

The device according to the invention comprises substantially a rotor **2** rotating with the shaft **3** of a turbine **4**, the rotor being provided with a series of alveoles such as **2***a*. The stator is provided with the various admission openings **5***a*, the ignition device and exhaust tuyers **5***d*.

In order to obtain an eventual cooling, the stator and the rotor are provided with channels such as **5***m*, where, under the action of centrifugal force, circulates a cooling liquid which may even vaporize itself in all or in part.

The device according to the invention operates as follows: the reacting agent arrives through the opening **5***a* in the alveoles **2***a* with which the rotor **2** is provided. During the displacement of the latter in the direction of arrow **A**, said alveoles successively pass before an ignition device intended to do explode said agent, the detent of the burnt gases being realised through a tuyer **5***d* in the immediate neighbourhood of the first wheel of the turbine.

At the begin of this description it has been assumed that the reacting agent was formed previously to its introduction in the fore-turbine.

If the explosive is constituted by two substances (combustible and burning ones), it may be provided for one of the dispositions shown in Figures 3 and 4, these dispositions being realized in order to prevent the diffusion of the two constituents. The alveoles are symmetrically arranged in the rotor of the fore-turbine, their number and their volume are determined in relation with the rotation speed of the rotor and the power of the machine.

In order to secure the balancing relatively to the axis of rotation of the turbine, the explosion chambers are simultaneously realized in diametrically opposed alveoles, and eventually disposed on the two faces of the rotor.

In the diagrammatic view shown in Figure 2, the alveoles are symmetrically disposed and the successive ignitions are determined in such a manner that the explosion recoils neutralize each other.

The tightness between the rotor and the stator of the fore-turbine is realized by a film of oil which may come from a pump, by labyrinth joints and by elastical packing rings or by any other means.

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