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A DEVICE FOR GENERATING MOTIVE FORCE THROUGH THE EXPANSION OF A NON-ELASTIC DENSE FLUID

L. Muller

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16. Abstract

This patent presents a device for generating motive force through the expansion of a dense, non-elastic fluid, characterized in that it consists of an exterior block of a material with a low expansion coefficient, the interior of which is equipped with two circular cavities; both of which are equipped with rotors having blades constantly stressed outward by springs, so that they make contact with the cavity walls. One cavity is heated externally, and both have an exterior wall made of a friction ring which keeps the volume constant when their length varies. These cavities are interconnected by ducts which, at the inlet, are a prolongation of a peripheral groove made in the friction ring. The excess fluid produced by expansion flows through the groove, subsequently entering the cavity again after passing through a cooler located in the exterior part of the block. Both rotors are connected to gears with appropriate ratios which are equipped with a blocking devide to guarantee that they always rotate in the same direction.

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WORKING MODEL
- REQUEST -

1. IDENTIFICATION

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Nationality — Country of Residence

Spanish — Spain

Title of the Invention

"A Device for Generating Motive Force through the Expansion of a Non-Elastic Dense Fluid"

The applicant declares that the invention is new in Spain and can be used as described in the attached report.

3. Index of Accompanying Documents

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A DEVICE FOR GENERATING MOTIVE FORCE THROUGH THE EXPANSION OF A NON-ELASTIC DENSE FLUID

L. Muller

This Working Model refers to a motive force generator */2 which produces said force using the expansion of a non-elastic dense fluid.

To achieve this, the generator consists of a hermetically sealed block made of a material with virtually no expansion coefficient. Inside this block are two cylindrical cavities, each equipped with a divided friction ring on its periphery. The ends of these rings are mounted one above the other with an expansion play which controls any variation in diameter that might result from expansion. Rotors with extensible radial blades are housed in the interior of each cavity.

These rotors transmit rotating motion though shafts projecting from the hermetic block, to which gears with appropriate ratios have been adapted.

Both cylindrical cavities are interconnected by ducts through which a nonelastic dense fluid flows: a fluid such as mercury or another appropriate fluid, for example.

The ducts form a closed circuit which passes through a cooling system in the exterior part of the hermetic block.

The internal shape of the cavities housing the rotors is not perfectly circular, but has a slight slope in one of its zones which ends flush against the perimeter of the rotor, so that /3 it prevents the fluid from passing between both ends of the

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*Numbers in the margin indicate pagination in the foreign text.

divided ring. This slope induces both rotors' extensible blades to retract radially in the rotors' grooves. Once the slope is overcome, the blades once again expand radially in the direction opposite the rotors' center, pushed by springs which drive them until they collide with the walls of the cylindrical cavity.

The existence of the slope described in the activating cylinder's cavity makes it possible for the intake through which the non-elastic dense fluid enters the cavity's interior to be located at the end of the cylinder. Intake occurs on a plane parallel to the rotor's blades. As the rotors line up with this plane and revolve, they suck in the fluid coming from the cooler described above, and the fluid enters the new cavity formed by the blade as it moves.

The motive force generator described below offers important advantages; among these, one of the most outstanding is the fact that it can be built to any size, either large or reduced, depending on the purpose for which it is designed.

In addition, it is important to point out that its operation is absolutely silent and vibration-free, due to the concept behind it.

This device's basic operating principle derives from the increase in volume produced in a non-elastic dense fluid when said fluid is heated. Heating takes place in the /4
generator's activating cavity, and can be done with solar light, in which case energy costs would be extremely low.

Finally, it must be pointed out that the dense fluid required to operate the generator circulates through a hermetically sealed circuit, and therefore it is neither consumed, nor does it deteriorate. There are no losses of fluid due to these causes.

The motive force generator described here is specially designed for use under conditions where vibration-free or very silent motors are required. Also, it could be used in deserts or on the high seas, since the only energy required to operate it is solar energy; no other types of energy are needed.

It should also be pointed out that this generator could be used in outer space, where solar energy heating is easily implemented, as is cooling, due to the low temperatures.

In order to facilitate explanation, a page of drawings is attached to this description. These drawings illustrate, but do not restrict, the design for a motive force generator operating through expansion of a non-elastic dense fluid according to the principles in these claims.

In the drawings:

Figure 1 shows a section of the motive force generator's equipment, while Figure 2 shows a section of the interior /5 of the generator's activating cavity in perspective, according to II and III in Figure 1.

Finally, Figure 3 shows a section of the valve and chamber for excess fluid volume in detail. This chamber is located at the cooler's inlet to guarantee perfect generator operation.

As these drawings show, the device for generating motive force through expansion of a non-elastic dense fluid comprises a hermetic block (1), made of a material with a low expansion coefficient, in whose interior are two cylindrical cavities (2) and (3), surrounded by a friction ring (4). In the case of the latter cylinder (3), this ring's (4) expansion prevents increases in diameter, thus keeping internal volume constant. Several peripheral ducts (5) surround this cavity (3), and these duly

heat the dense fluid (6) circulating through the generator's interior. The fluid can be heated with conventional energy generating systems, or with solar energy. Also, in cases outside the atmosphere, as in space flight, it is possible to use radioactive elements placed in the ducts (5) surrounding the cavity (3).

The interior of cavity (3) is divided into several cavities (7) formed by the blades (8) and the exterior walls (9) of /6 the rotor (10), as well as the interior walls of the friction ring (4).

When the hermetic block (1) is heated by heating elements (5), it transmits the heat to the fluid (6), which, in turn, expands. The excess volume of dense fluid (6) produced by expansion circulates through a peripheral groove (11) which empties into the interior of cavity (2) through duct (12). The opposite rotor (13) is located in cavity (2).

The pressure exerted by the excess volume of expanded dense fluid (6) activates one of the blades (14) of the rotor (13), making it revolve along with its shaft. The shaft's rotation is transmitted by a gear (16) equipped with a mechanism (17) to prevent it (16) from turning in the opposite direction. The shaft (20) of rotor (10) is equipped with a mechanism (19) having the same characteristics as mechanism (17).

By way of a proper ratio between gears (16) and (18), rotor (10) forms the angle needed to bring about suction of a sufficient quantity of dense fluid (6), which was cooled when passed through the cooler (21).

The excess volume of expanded dense fluid (6) in any one of the multiple cavities (7) is equal to the volume needed to make rotor (13) rotate enough to in turn transmit this rotation to

rotor (10) through gears (16) and (18) in the only direction possible, so that the heated dense fluid (6) is continuously substituted with cooled fluid. /7

To prevent the excess volume produced at the cooler (21) inlet from causing problems, the system is equipped with a chamber (22) for housing the excess volume of expanded dense fluid. This chamber is located at the back of cavity (2), and consists of a piston (23) loaded by conical disk (or similar) springs (24) situated in the interior of the cavity. There is also a check valve (25) at the cooler inlet which guarantees that the fluid will always flow toward the cooler and never turn back in the opposite direction.

The blades (8) and (14) on rotors (10) and (13), respectively, are equipped with springs (30) which constantly keep them tight against the peripheral walls of their respective cavities.

When the excess volume of expanded dense fluid (6) has activated the blades (14) of rotor (13), and blade rotation reaches semiperipheral groove (26), the fluid is evacuated through the groove and, passing through duct (27) where the housing chamber (22) is located, then flows through the check valve (25) and reaches the cooler (21), where said dense fluid (6) contracts. This fluid enters the interior of cavity (3) through suction produced by the blades' (8) movement. The cavity (3) is has an opening (29) through which the fluid passes into its interior. /8

It is important to briefly describe this generator's operating system, which is as follows:

The temperature increase produced by the heating elements (5) in the dense fluid (6) located in the interior of cavity (3)

makes this fluid increase in volume and flow out through the peripheral duct (11) toward the exterior of the rotor. Passing through duct 12, the fluid reaches the opposite cavity (2), where it collides with a blade (14), forcing the rotor (13) into motion. In turn, the rotor activates the pinion (16), which can only rotate in one direction due to a locking system (17). The pinion activates a gear (18), which forces the blades (8) of the rotor (10) into motion. This motion produces suction at the circuit's (28) inlet (29), and forces the cooled fluid to flow through a duct (28) into the interior of the cavity (3). In this way, there is constant motion which makes it possible to activate an external element.

Anything which does not affect, alter, change, or modify this generator's essence can be considered a variation on the model described here.

NOTE:

The following is claimed for this Working Model: /9

1. A device for generating motive force through the expansion of a dense, non-elastic fluid, characterized by the following: That it consists of an exterior block made of a material with a low expansion coefficient, the interior of which is equipped with two circular cavities. Both cavities are equipped with rotors having blades constantly stressed outward by springs, so that these blades make contact with the cavity walls. One of these cavities is heated externally, and both cavities have an exterior wall made of a friction ring which keeps the cavities' volume constant when their length varies. These cavities are interconnected by ducts which, at the inlet, are a prolongation of a peripheral groove made in the above-mentioned friction ring. The excess non-elastic dense fluid produced by expansion flows through this groove, and will subsequently enter

the cavity again after having passed through a cooler situated in series in the circuit and located in the exterior part of the block. Both rotors are connected to gears with appropriate ratios which are equipped with a blocking device to guarantee that they always rotate in the same direction.

2. The device for generating motive force through the expansion of a dense, non-elastic fluid, as in claim 1, is also characterized by the fact that, to prevent possible problems due to excess dense fluid volume produced by expansion at the /10 outlet of the second cavity and before said fluid enters the cooling circuit, the system is equipped with a chamber to house this excess volume. Inside this chamber there is a piston loaded by a spring designed to exert outward pressure so that the entire quantity of fluid required passes to the circuit. In addition, before the circuit reaches the cooler, it is equipped with a check valve which guarantees that the fluid will never flow backward.

These are the circumstances comprising the essence of the working model defined in the above claims, whose purpose is:

3. "TO GENERATE MOTIVE FORCE THROUGH THE EXPANSION OF A NON-ELASTIC DENSE FLUID."

This description consists of ten numbered pages, typewritten on one side, and of attached drawings.

Barcelona, June 18, 1985
By authority of D. Luis Muller Carranza