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(54) **Water turbine**

(57) An electric generating system comprising: a fluid spraying device (10) with a pressure accumulation tank (11), the fluid spraying device (10) has a fluid spraying pipe (12) communicated with the pressure accumulation tank (11); an electric generator (20) with a turbine (21) for electric generating when the turbine (21) is rotated; and a pressurizing unit (30) connected with the fluid spraying device (10) to pressurize and inject the fluid into the pressure accumulation tank (11), so that the fluid is released from the fluid spraying pipe (12) to impact the turbine (21) with a high speed, the turbine (21) runs after impacting by the fluid to drive the electric generator (20) to generate electricity. The fluid includes air and water, and obtains an optimum energy transferring effect when it impacts the turbine (21).

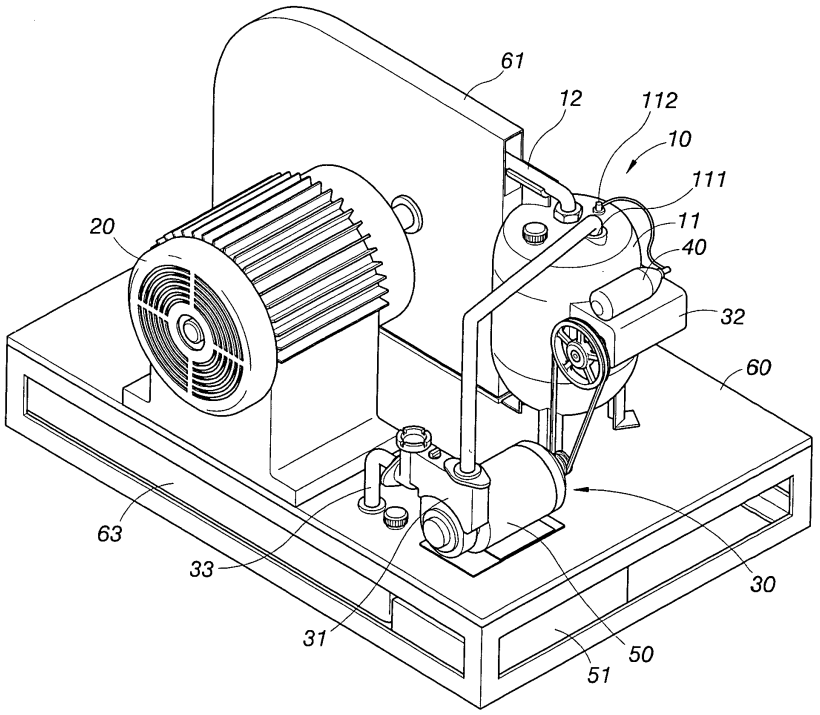

FIG.1

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Description

[0001] The present invention is related to a system for electric generating using accumulation pressure to impact a turbine provided in an electric generator taking advantage of high-speed fluid generated by mixing of high pressure air and water, thereby the electric generator can be run for generating electricity, and to supply electric power for the electricity consumptive elements on the pressure-accumulation electric generating system wi th part of the electricity generated, in order that the pressure-accumulation electric generating system can be run more smoothly.

[0002] Main providers in the global energy-source markets mostly are those for electricity generating by fire-power and nuclear energy; although they can provide electric power for living and economic development, energy source consumption, environmental pollution and the problems to the descendants they make are unsolvable. By the fact that environmental pollution gets more and more serious, and the crisis of energy source gradually gets evident, obtaining regenerative energy sources have been the mainstream in the future for energy sources; the regenerative energy sources are released energies that have existed in the nature, they can be used by non public polluting techniques, e.g. they include: solar energy, wind power, hydraulic power, subterranean heat energy, biomass energy etc. However, among the variant modes of electricity generating, the hydraulic-power generating mode is one of the most effective modes, the reason is that solar energy has the limitation of time and appropriate weather for electricity generating, wind power for electricity generating also has the limitation of season and site, subterranean energy has the limitation of district, and the technique of biomass energy has not been completely mature yet. Water is the material that can be obtained easiest, when water flow and air flow with the same speed are respectively impacted onto a turbine provided on an electric generator, by virtue that the quantity of the water is much larger than that of the air, the efficient dynamic energy converted for the electric generator from the water will relatively be much larger.

[0003] However, obtaining and converting of the regenerative energy sources normally can only be achieved by having larger sites and spaces, general small electric generators mainly use petrochemical fuels for electricity generating, i.e.: diesel electric generators and gasoline electric generators. These types of electric generators will result more serious environmental pollution in practice except that they can speedy consumption of energy sources.

[0004] In view of the above stated, the present invention aims at providing a small electric generating system using regenerative energy to get an object of saving energy source and generating electricity. The pressure-accumulation electric generating system of the present invention mainly comprises: a fluid spraying device with a pressure accumulation tank, the fluid spraying device is provided with a fluid spraying pipe in communication with the pressure accumulation tank; an electric generator with a turbine, when the turbine runs, the electric generator generates electricity; and a pressurizing unit connecting with the fluid spraying device. By injecting the fluid into the pressure accumulation tank after pressurizing of the fluid by the pressurizing unit, the fluid is released from the fluid spraying pipe to impact the turbine with a high speed; the turbine runs after impact by the fluid to drive the electric generator to generate electric power. The fluid includes air and water in practice, by the feature that the air has a higher expansion ratio after pressure releasing to impel the water with higher unit specific weight to form a high pressure fluid with mixed air and water; the fluid obtains an optimum energy transferring effect when it impacts the turbine. And after running the electric generating system, part of the electricity generated can afford using of the pressurizing unit, and can help the electric generating system to do the pressurizing operation of mixing air and water.

[0005] Before the pressure-accumulation electric generating system of the present invention generates electricity normally, the pressure accumulation tank in the fluid spraying device can generate spraying-flow pressure at the initial stage by a mode of direct pressurizing by the electric power of an electric cell or a high-pressure air bottle, thereby an electric generator runs to generates electricity; and when the pressure-accumulation electric generating system generates electric power, part of the electricity generated affords using of the pressurizing unit. By virtue that the amount of the electric power generated by the pressure-accumulation electric generating system is larger than that of consumption electricity of the pressurizing unit, the electric power can be supplied for the pressurizing unit as a sustaining aid to increase pressure for the pressure-accumulation electric generating system. Electric generating of the pressure-accumulation electric generating system can be smoother. After water in the spraying flow impacting on the turbine is collected, it is injected into the fluid spraying device again to have the water resource recycled for using, thereby no public damage and pollution can be generated.

[0006] The present invention will be apparent in its technical measures after reading the detailed description of the preferred embodiments thereof in reference to the accompanying drawings.

Fig. 1 is a perspective view showing the appearance of a pressure-accumulation electric generating system of the present invention;

Fig. 2 is a perspective view showing the allocation of a turbine of the pressure-accumulation electric generating system of the present invention;

Fig. 3 is a plane view showing the structure of the pressure-accumulation electric generating system of the present invention;

Fig. 4 is a sectional view of the pressure-accumula-

tion electric generating system of the present invention;

Fig. 5 is a sectional view of a fluid collecting tank of the pressure-accumulation electric generating system of the present invention.

[0007] Referring to Figs. 1 and 2 showing the pressure-accumulation electric generating system of the present invention, the electric generating system comprises a fluid spraying device 10, an electric generator 20 and a pressurizing unit 30; and a base 60 is provided for mounting related components of the abovementioned units. The fluid spraying device 10 is composed of a pressure-accumulating tank 11, a fluid spraying pipe 12 connecting with the pressure-accumulating tank 11, a water inlet 111 and an air intake 112. The pressurizing unit 30 includes a water pump 31 and an air pump 32, water is supplemented for the pressure-accumulating tank 11 from the water inlet 111 by rotating of the water pump 31, and air is compressed and injected into the pressure-accumulating tank 11 for increasing pressure from the air intake 112 by rotating of the air pump 32.

[0008] The electric generator 20 is provided with a turbine 21 in cooperation with the fluid spraying pipe 12, when the turbine 21 is rotated by an external impact force, the electric generator 20 can be run for electric generating to convert kinetic energy into electric energy.

[0009] Referring simultaneously to Figs. 3 and 4, the fluid spraying pipe 12 is provided on the top of the pressure-accumulating tank 11, one end of the fluid spraying pipe 12 is extended into a position under the surface of the water in the pressure-accumulating tank 11, high pressure air is used to pressurize and push the water, fluid obtained by mixing air with the water is continuously released from the fluid spraying pipe 12 with a high speed to form a high speed spraying flow to effect operation of the electric generator 20 for generating electric power.

[0010] As shown in Figs. 2 and 5, the base 60 is provided with an obscuring member 61 to impede the sputtering fluid from the turbine 21, and is provided with a penetrated area 62 at a position in opposition to the turbine 21; the obscuring member 61 is allocated in contiguity to the penetrated area 62. And a fluid collecting tank 63 is provided under the penetrated area 62 of the base 60, so that the water after being impacted onto the turbine 21 can be collected to be drawn by the water pump 31 for reuse. For example, a water extracting pipe 33 is provide to extend into the fluid collecting tank 63, the water pump 31 injects the collected water once more into the pressure-accumulating tank 11, to get an effect of continuously circulating and using the water.

[0011] In the present embodiment, the water pump 31 and the air pump 32 included in the pressurizing unit 30 can be driven by an electrical motor 50; and an electric cell 51 can be provided in the base 60, the electric cell 51 pre-stores electric power required for operating the electrical motor 50, so that after the pressure-accumulation electric generating system generates electric power, part of the electricity generated can be used for running the electrical motor 50, so that the water pump 31 and the air pump 32 can operate to aid sustaining running of the electric generating action. Alternatively, the fluid spraying device 10 is provided thereon with a high-pressure air bottle 40 connected with the pressure-accumulating tank 11, by pressure releasing of the high-pressure air bottle 40 to increase the pressure in the pressure-accumulating tank 11, the electric generating system is activated to operate.

[0012] The above stated are only for illustrating the preferred embodiments of the present invention, and not for giving any limitation to the scope of the present invention. It will be apparent to those skilled in this art that various modifications or changes without departing from the spirit of this invention shall fall within the scope of the appended claims.

Claims

1. A pressure-accumulation electric generating system comprising:

   a fluid spraying device (10) with a pressure accumulation tank (11), said fluid spraying device (10) has a fluid spraying pipe (12) in communication with said pressure-accumulating tank (11);
   an electric generator (20) provided with a turbine (21), said electric generator (20) runs for electric generating when said turbine (21) is rotated;
   and a pressurizing unit (30) connected with said fluid spraying device (10);
   said pressurizing unit (30) pressurizes said fluid and then injects said fluid into said pressure accumulation tank (11), so that said fluid is released from said fluid spraying pipe (12) to impact said turbine (21) wi th a high speed, said turbine (21) runs after impacting by said fluid to drive said electric generator (20) to generate electric power.

2. The pressure-accumulation electric generating system as in claim 1, wherein: said fluid injected by said pressurizing unit (30) into said pressure accumulation tank (11) includes air and water.

3. The pressure-accumulation electric generating system as in claim 2, wherein: said pressurizing unit (30) is provided with a water pump (31) and an air pump (32), water is supplemented for said pressure accumulation tank (11) by rotating of said water pump (31), and air is compressed and injected into said pressure accumulation tank (11) for increasing pressure by rotating of said air pump (32).

4. The pressure-accumulation electric generating sys-

tem as in claim 3, wherein: said pressurizing unit (30) is provided with a water pump (31) and an air pump (32) driven by an electrical motor (50), said electrical motor (50) is activated by an electric cell (51); after power generating of said pressure-accumulation electric generating system, electric power generated by said electric generating system affords continuous running of said electrical motor (50).

5. The pressure-accumulation electric generating system as in claim 3, wherein: said fluid spraying device (10) is provided with a high-pressure air bottle (40) connected with said pressure-accumulating tank (11), by pressure releasing of said high-pressure air bottle (40) to increase pressure in said pressure-accumulating tank (11), said electric generating system is activated to operate.

6. The pressure-accumulation electric generating system as in claim 3, wherein: a fluid collecting tank (63) is provided under said turbine (21), water after being impacted onto said turbine (21) is collected to be drawn by said water pump (31) for reuse.

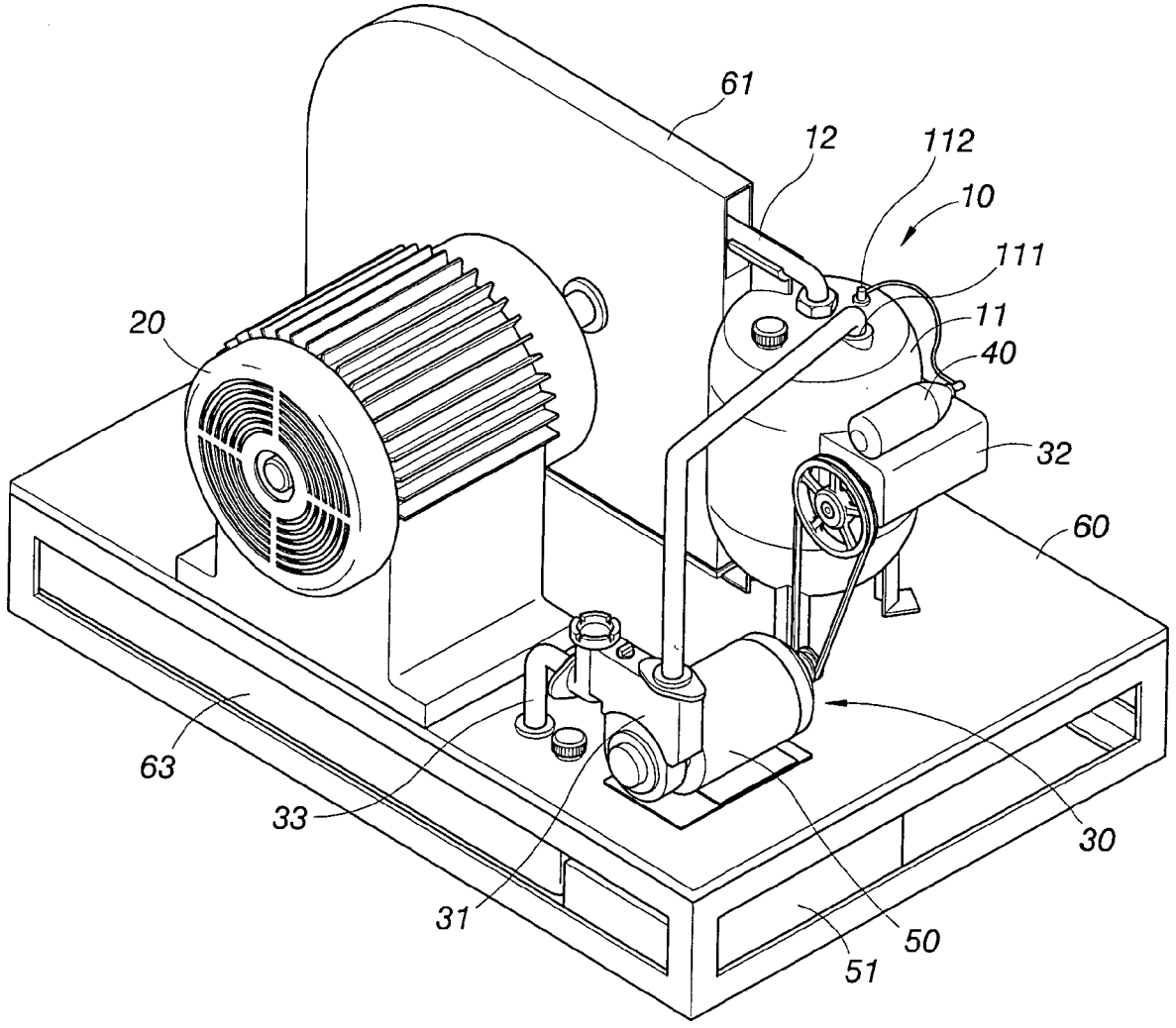

FIG.1

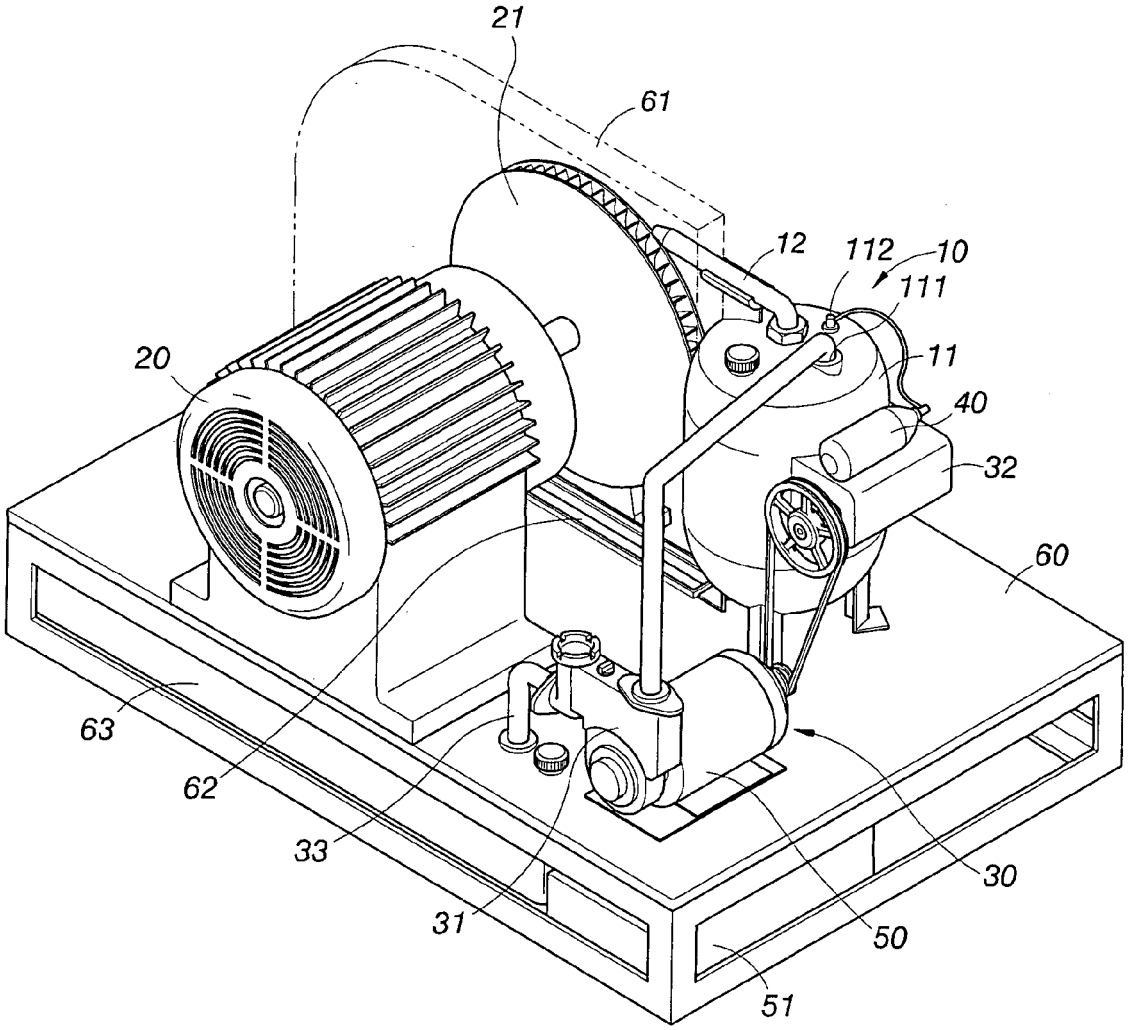

FIG.2

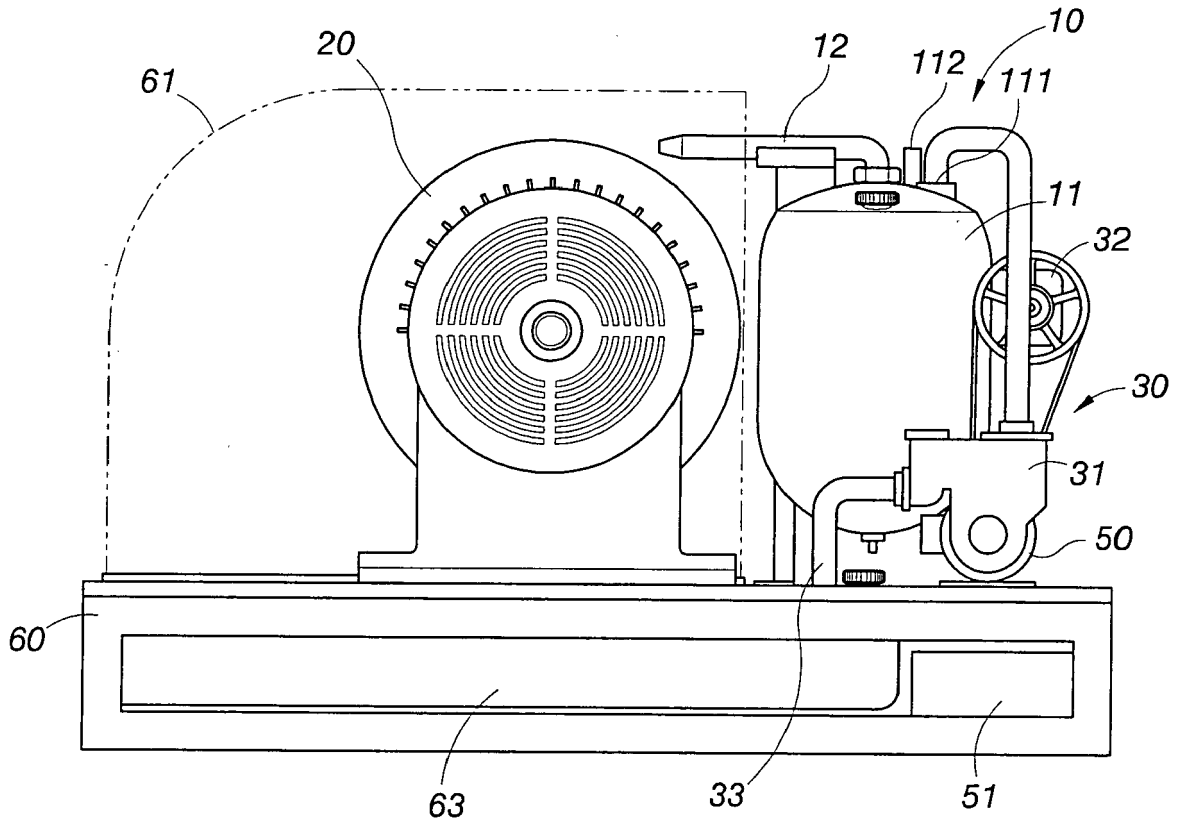

FIG.3

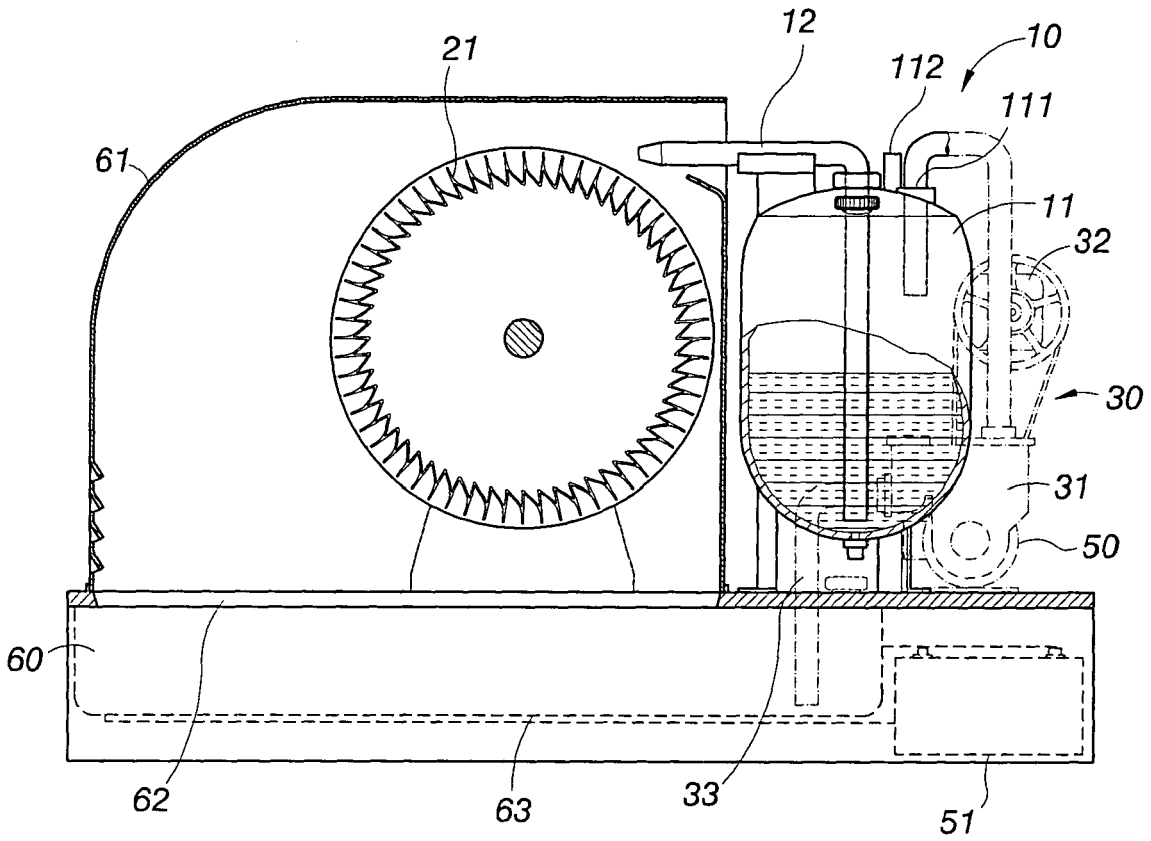

FIG.4

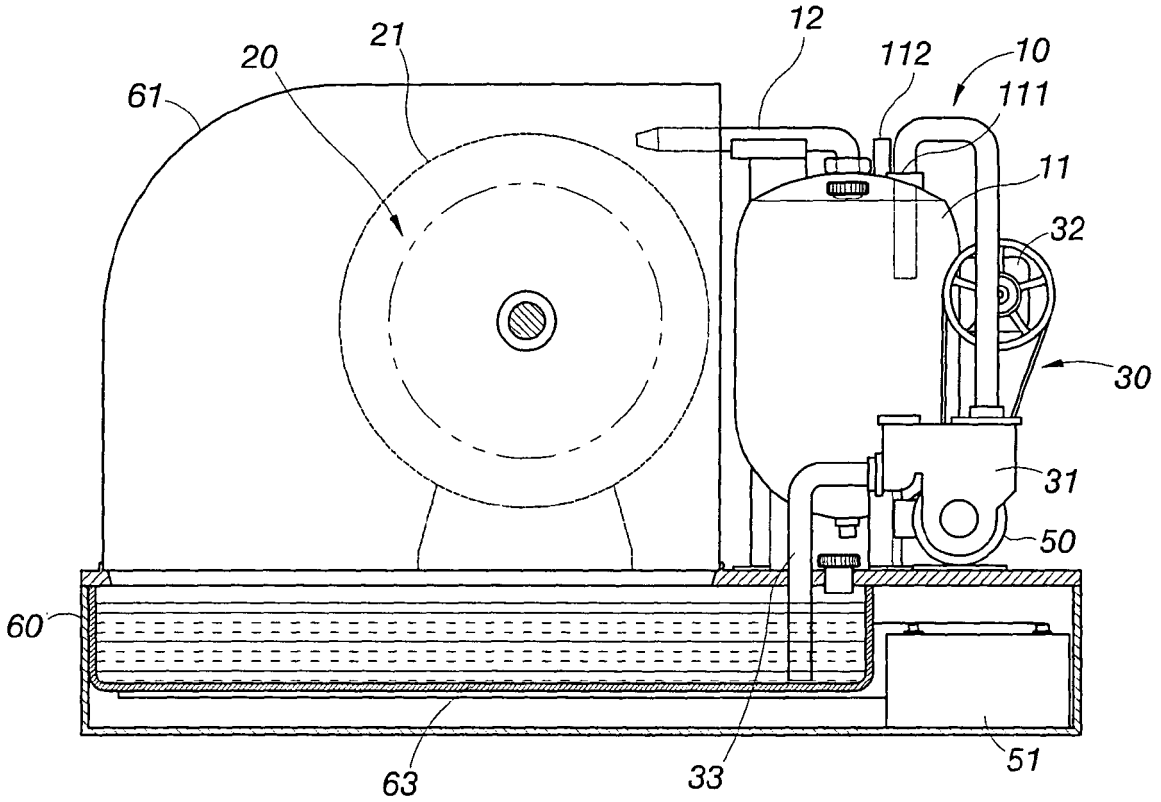

FIG.5

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EUROPEAN SEARCH REPORT

Application Number
EP 05 25 4163

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	6 October 2005	Giorgini, G

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