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(54) A power supplying device for an exercise bicycle

(57) An exercise bicycle having an electronic meter and an alternating current generator, characterized by a rechargeable battery electrically connected with the alternating current generator via a circuit which will switch on rechargeable battery to supply electricity to the electronic meter when the alternating current generator does not provide sufficient power and will switch off the rechargeable battery and make the alternating current generator charge the rechargeable battery during the time when the alternating current generator produces sufficient working power for the electronic meters.

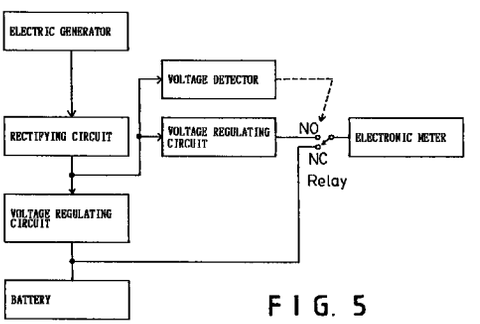

FIG. 5

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Description

This invention relates to a power supply and in particular to one for supplying power to the electronic meter of an exercise bicycle.

It has been found that the conventional exercise bicycle (stationary, recumbent, or semi-recumbent) generally falls into two categories. The first one must use alternating current power supply to provide electricity for the electronic meter, while the other will generate alternating current by its own for supplying electricity to the electronic meter. However, the electronic meters of the first exercise bicycle will not work wherever no alternating current power supply is available. As for the other exercise bicycle, it is necessary for the user to ride the second exercise bicycle until the generator produces sufficient power for the electronic meters before setting and/or adjusting the electronic meter. In short, the user must ride the exercise bicycle during the time when setting and/or adjusting the electronic meter thereby causing much inconvenience in operation.

Therefore, it is an object of the present invention to provide a power supplying device for an exercise bicycle which can obviate and mitigate the above-mentioned drawbacks.

This invention relates to a power supplying device for an exercise bicycle.

It is the primary object of the present invention to provide a power supplying device for an exercise bicycle which will switch on a rechargeable battery to supply power to the electronic meter when the electric generator does not supply sufficient power.

It is another object of the present invention to provide an exercise bicycle which will charge a rechargeable battery during the time when a user is riding the exercise bicycle.

It is still another object of the present invention to provide a power supplying device for an exercise bicycle which enables a user to set and/or adjust the electronic meters whenever he likes.

It is still another object of the present invention to provide a power supplying device for an exercise bicycle which is simple in construction.

It is still another object of the present invention to provide a power supplying device for an exercise bicycle which is easy to manufacture.

Other objects of the invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists of features of constructions and method, combination of elements, arrangement of parts and steps of the method which will be exemplified in the constructions and method hereinafter disclosed, the scope of the application of which will be indicated in the claims following.

FIG. 1 is a perspective view of the present invention;

FIG. 2 is a sectional view of the present invention;

FIG. 3 is a side view of the present invention;

FIG. 4 is an enlarged view of the alternating current generator;

FIG. 5 is a generalized block diagram of the present invention.

The invention is naturally not limited in any sense to the particular features specified in the forgoing or to the details of the particular embodiment which has been chosen in order to illustrate the invention.

Consideration can be given to all kinds of variants of the particular embodiment which has been described by way of example and of its constituent elements without thereby departing from the scope of the invention. This invention accordingly includes all the means constituting technical equivalents of the means described as well as their combinations.

With reference to the drawings and in particular to FIGS. 1, 2 and 3 thereof, the exercise bicycle 100 according to the present invention mainly comprises a pair of pedals 11, a driving wheel 17, a driven wheel 16, an electronic meter 12, a flywheel 13, an alternating current generator, a rechargeable battery 19, and an electrical circuit.

As shown in FIGS. 2, 3 and 4 the pedals 11 is connected with the driving wheel 17 by any conventional means well to those skilled in the art. The driven wheel 16 is connected with the driving wheel 17 by a belt or the like. The flywheel 13 is attached to the a hub 18 for uniformity of motion of the exercise bicycle. The alternating current generator includes a plurality of magnets 14 mounted on the inner side of the flywheel 13 and a stator 15 installed on the hub 18. The magnets 14 are arranged so that the south pole of one of the magnets 14 is affixed on the inner side of the flywheel 13 while the north pole of an adjacent one of the magnets 14 is mounted on the inner side of the flywheel 13. That is, the south and north poles of the magnets 14 are alternately fixed on the inner side of the flywheel 13. The stator 15 includes a plurality of radial rods and a plurality of solenoids 16 with clockwise winding and counterclockwise winding. Each of solenoids 16 is mounted on one of the radial rods. The solenoids 16 are designed in such a way that the solenoids 16 with clockwise winding and the solenoids 16 with counterclockwise winding are alternately mounted on the radial rods of the stator 15. Hence, when the flywheel 13 is rotated, the magnets 14 will be rotated therewith thus making the solenoids 16 along with the stator 15 cut through the lines of force of the magnets 14 and therefore generating an alternating current.

FIG. 5 illustrates a generalized block diagram of the present invention. As shown, an electrical circuit is connected between solenoids 16 of the alternating current generator and the electronic meter by any conventional means well known to those skilled in the art. The electrical circuit includes a rectifying circuit, a first voltage regulating circuit, a second voltage regulating circuit, a voltage detector, a relay, and a rechargeable battery. When an user begins to ride the exercise stationary

bicycle, the alternating current generator does not provide sufficient working power for the electronic meter 12, but the electrical circuit will switch on the rechargeable battery 19 to supply electricity to the electronic meter. As the generator produces sufficient working power for the electronic meters, the electrical circuit will switch off the rechargeable battery and make the generator charge the rechargeable battery 19. Accordingly, the user may set and/or adjust the electronic meter whenever he likes thereby making it very convenient in use.

The invention is naturally not limited in any sense to the particular features specified in the forgoing or to the details of the particular embodiment which has been chosen in order to illustrate the invention.
Consideration can be given to all kinds of variants of the particular embodiment which has been described by way of example and of its constituent elements without thereby departing from the scope of the invention. This invention accordingly includes all the means constituting technical equivalents of the means described as well as their combinations.

Claims

1. In an exercise bicycle having an electronic meter and an alternating current generator, the improvement comprising a rechargeable battery electrically connected with said alternating current generator via a circuit which will cause said battery to supply electricity to said electronic meter when said alternating current generator does not provide sufficient power thereto and will cause said alternating current generator to recharge said rechargeable battery when said alternating current generator is working.

2. In an exercise stationary bicycle as claimed in Claim 1, wherein said alternating current generator includes a plurality of magnets mounted on an inner side of a flywheel and a stator fixedly mounted on a hub, said magnets being arranged so that a south pole of one of said magnets is affixed on an inner side of said flywheel while a north pole of an adjacent one of said magnets is mounted on the inner side of said flywheel, said stator including a plurality of radial rods and a plurality of solenoids with clockwise winding and counterclockwise winding, each of said solenoids being mounted on one of said radial rods, said solenoids being designed in such a way that said solenoids with clockwise winding and said solenoids with counterclockwise winding being alternately mounted on said radial rods.

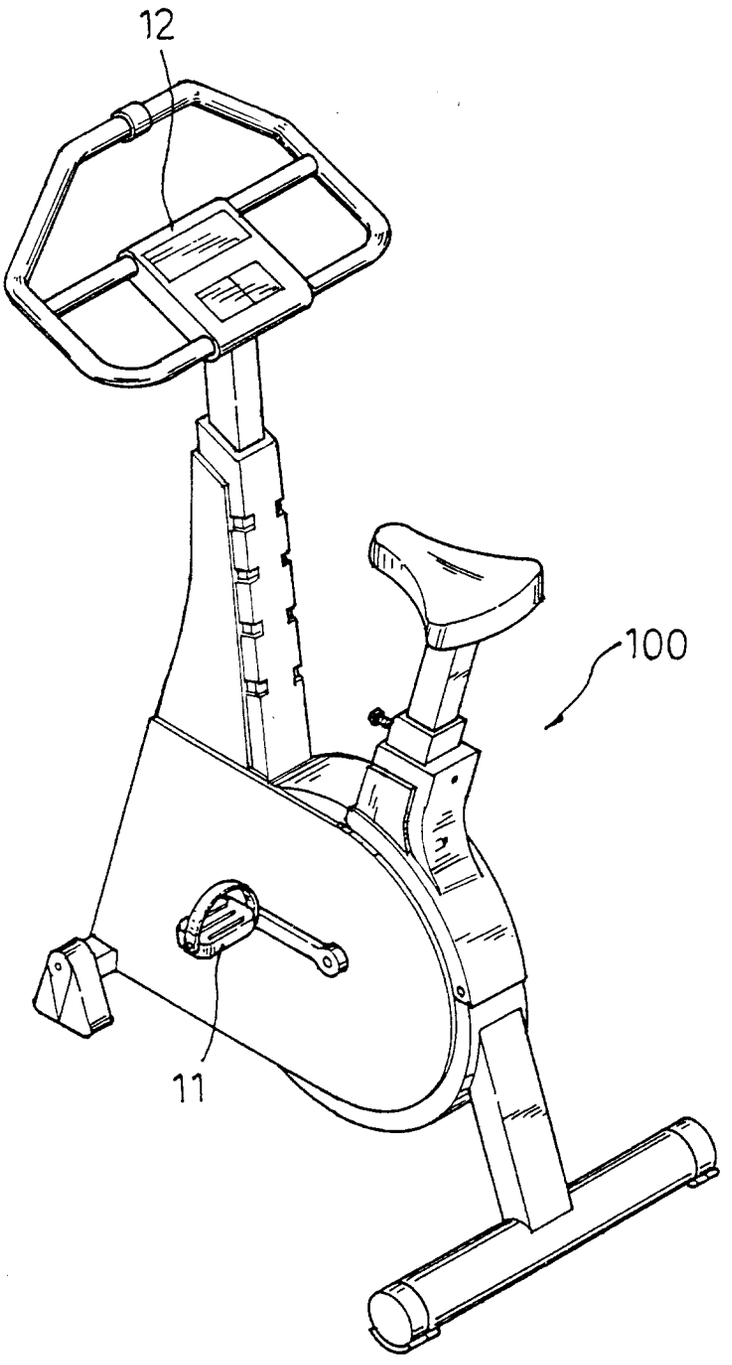

FIG. 1

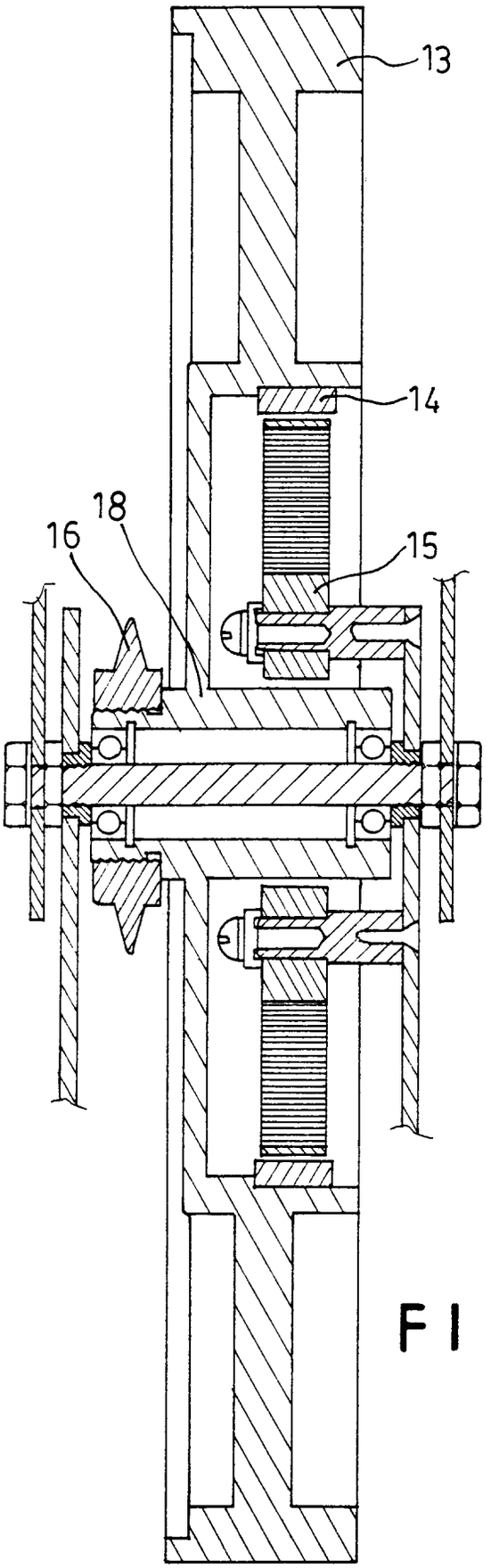

FIG. 2

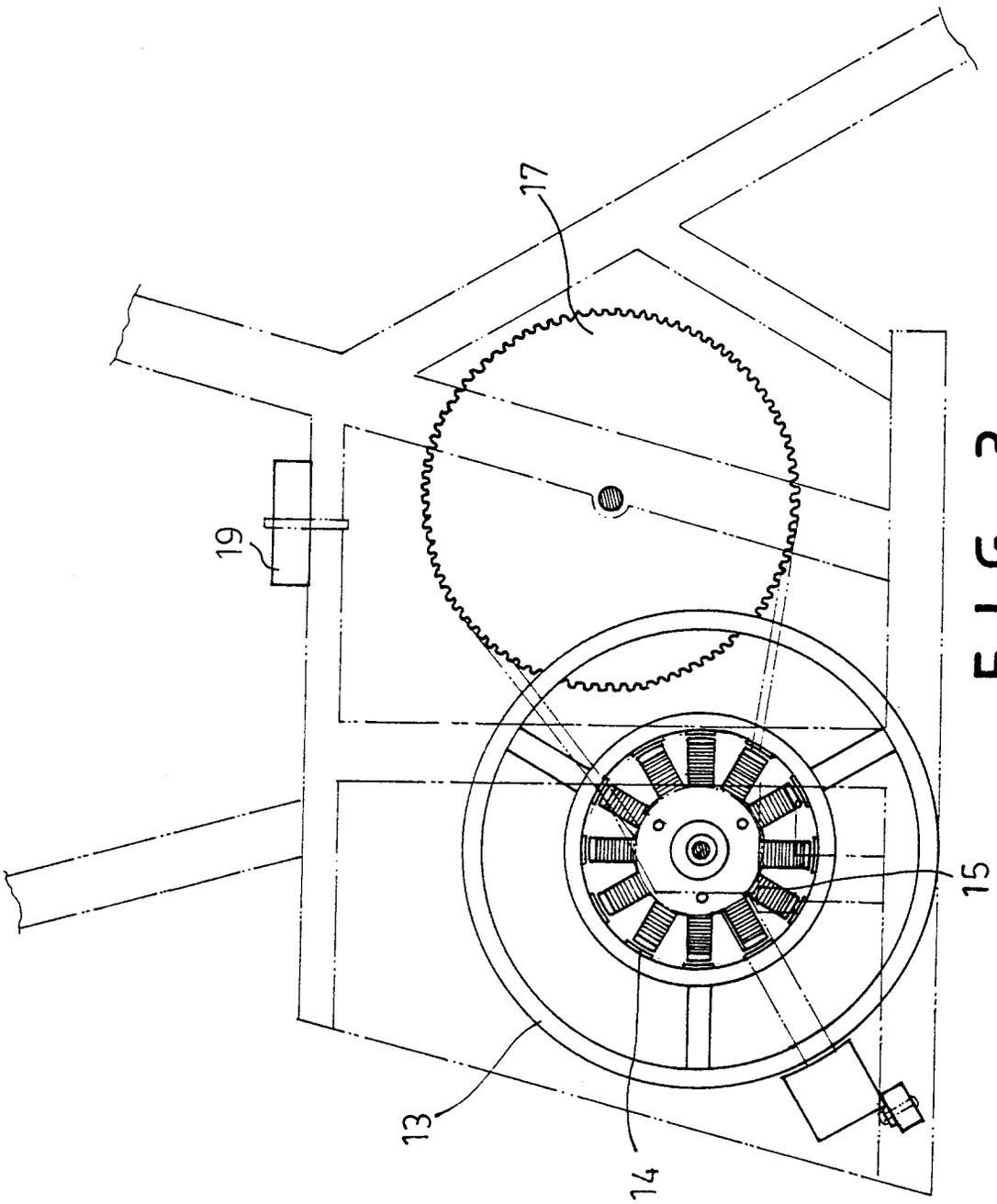

FIG. 3

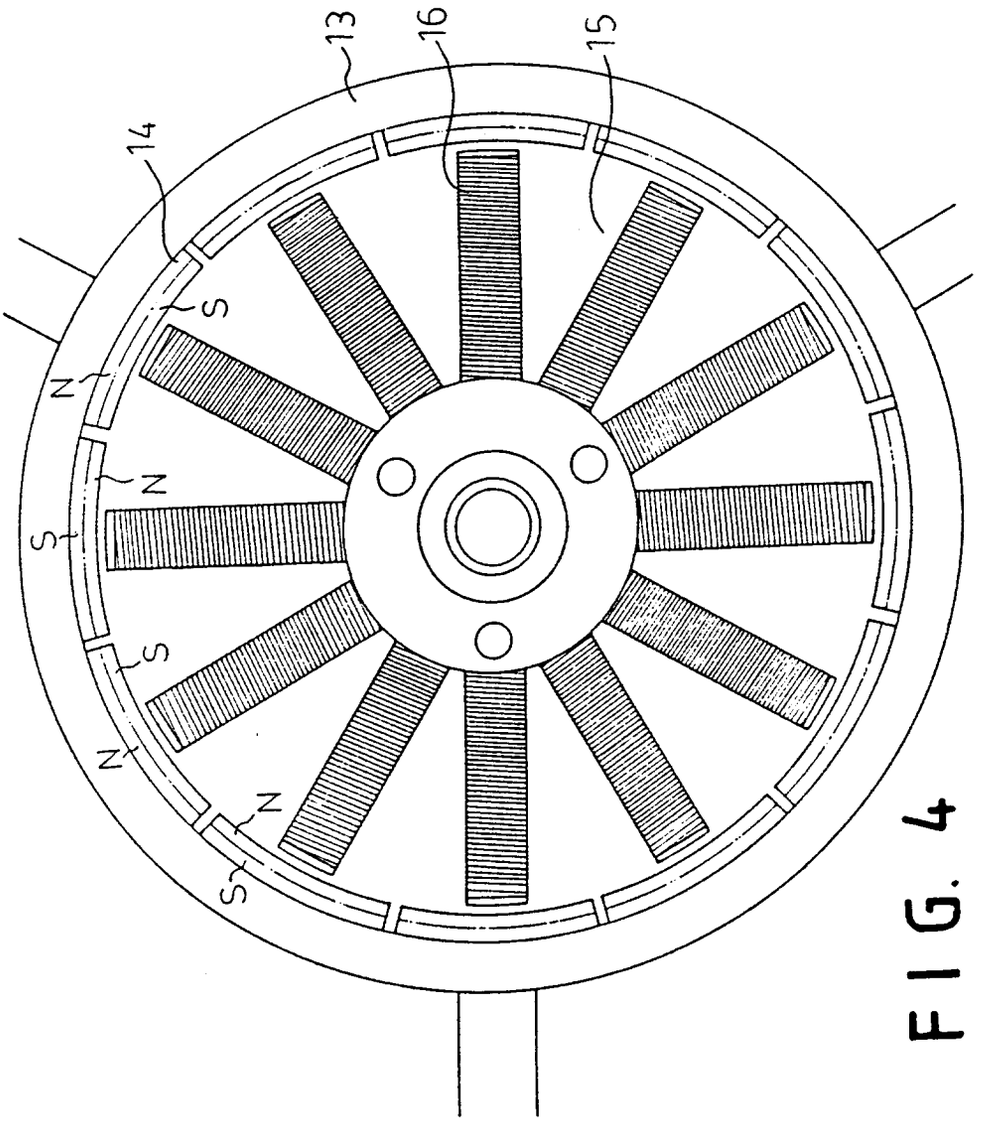

FIG. 4

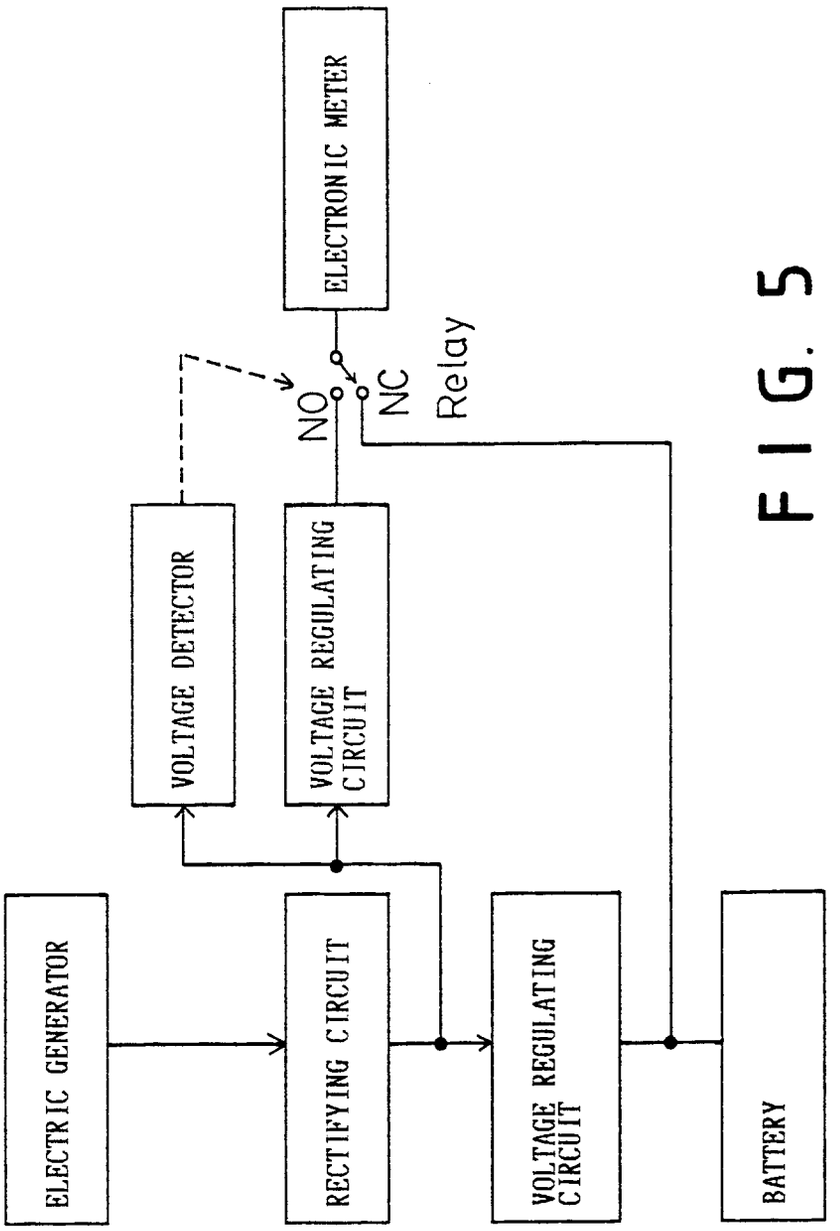
ELECTRIC GENERATOR
RECTIFYING CIRCUIT
VOLTAGE REGULATING CIRCUIT
BATTERY
VOLTAGE DETECTOR
VOLTAGE REGULATING CIRCUIT
ELECTRONIC METER
NO
NC
Relay

FIG. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 95 81 0466

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X Y	EP-A-0 449 575 (L HANER) * column 7, line 7 - line 26 * * column 6, line 31 - line 45 * * column 13, line 58 - column 15, line 31 * ---	1 2	A63B21/005
X	US-A-4 298 893 (J HOLMES) * the whole document * ---	1	
Y	WO-A-94 22538 (NORDICTRACK INC.) * page 5, line 19 - page 6, line 6 * * figures 1-3 * ---	2	
A	EP-A-0 174 747 (T YANG) * page 5, line 14 - page 6, line 10 * ---	1	
A	US-A-5 358 461 (R BAILEY) * column 1, line 35 - line 51 * ---	1	
A	DE-U-93 14 318 (W KIRCHENSTEINER) -----	1	TECHNICAL FIELDS SEARCHED (Int.Cl.6) A63B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	5 January 1996	Vereecke, A

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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