

**MULTIFUNCTIONAL AND ADAPTABLE DEVICE UTILIZING OPTIMAL AND
VARIABLE POWER TO ALLOW DETACHABLE CONNECTION OF AN
APPLIANCE OR TOOL**

TECHNICAL FIELD

[001] The present disclosure relates to the field of electric motors. More particularly, the present disclosure relates to a multifunctional and adaptable device utilizing optimal and variable power to allow detachable connection of an appliance or a tool.

BACKGROUND

[002] Typically, motors are mounted as power sources to electric devices for example, automotive electronics or household electric appliances, electric tools, mechanical tools and carpentry tools. The motors produces greater electric sparks between a brush and a commutator slip (commutator segment) as the motor rotates at a greater rpm and produces a greater output power. The adjustment of torque and output power (RPM) of the direct motors based on the type of appliance attached is not a simple mechanism. There are no known appliances and motor assembly that adjusts the torque and output (RPM) of the motor. Although the motors are activated by sensors, there is no seamless mechanism and the motors are generally not activated accurately. There are no detachable appliance units that allow connecting and further activating the output of the motors. There also is no mechanism/appliance that can power and run multiple devices using a single motor. There is a need for a multi-appliance and single motor assembly that aid or eliminate the need for human mechanical movement.

[003] In the light of aforementioned discussion there exists a need for a device that would ameliorate or overcome the above mentioned disadvantages.

BRIEF SUMMARY

[004] The following presents a simplified summary of the disclosure in order to provide a basic understanding to the reader. This summary is not an extensive overview of the disclosure and it does not identify key/critical elements of the disclosure or delineate the

scope of the disclosure. Its sole purpose is to present some concepts disclosed herein in a simplified form as a prelude to the more detailed description that is presented later.

[005] A more complete appreciation of the present disclosure and the scope thereof can be obtained from the accompanying drawings, which are briefly summarized below and the following detailed description of the presently preferred embodiments.

[006] Exemplary embodiments of the present disclosure are directed towards multifunctional and adaptable device utilizing optimal and variable power to allow detachable connection of an appliance or a tool.

[007] An objective of the present disclosure is directed towards a multifunctional and adaptable device that can power and run multiple electrical and/or mechanical appliances, and also can be removably attached to the automotive electronics or household electric appliances, electric tools, carpentry tools, mechanical tools and the like.

[008] An objective of the present disclosure is directed towards the multifunctional and adaptable device can remove the need for human mechanical movement, for example, it aims to eliminate the need for humans to pedal a bicycle for propulsion or to wash clothes by hand.

[009] According to an exemplary aspect, the multifunctional and adaptable device comprises at least one motor configured with at least one controller, wherein the controller is adapted to adjust the torque and output of the motor based on at least one appliance attached to the motor.

[010] According to an exemplary aspect, the multifunctional and adaptable device comprises at least one RFID device connected to the controller, whereby the controller is configured to provide optimum output of torque and revolutions per minute of the motor based on the interaction between the RFID device and an appliance.

[011] According to an exemplary aspect, the multifunctional and adaptable device further comprises at least one locking mechanism comprises at least two parts provided in the motor, wherein the direct motor comprises at least two independent elements and the two parts of the locking mechanism are connected to the independent elements through at least two couplers.

BRIEF DESCRIPTION OF DRAWINGS

[001] Other objects and advantages of the present invention will become apparent to those skilled in the art upon reading the following detailed description of the preferred embodiments, in conjunction with the accompanying drawings, wherein like reference numerals have been used to designate like elements, and wherein:

[002] FIG. 1A-FIG. 1B are block diagrams depicting a multifunctional and adaptable device utilizing optimal and variable power to allow connection of an appliance or a tool, according to exemplary embodiments of the present disclosure.

[003] FIG. 2A-FIG. 2D are diagrams depicting a motor with different kinds of locking mechanism to allow connection of an appliance or tool, according to exemplary embodiments of the present disclosure.

[004] FIG. 3A- FIG. 3C are diagrams depicting example versions of a motor connected to the various appliances or various tools, according to exemplary embodiments of the present disclosure.

[005] FIG. 3D is a diagram depicting an example version of a motor connected to an appliance or a tool, according to exemplary embodiments of the present disclosure.

DETAILED DESCRIPTION

[006] It is to be understood that the present disclosure is not limited in its application to the details of construction and the arrangement of components set forth in the following description or illustrated in the drawings. The present disclosure is capable of other embodiments and of being practiced or of being carried out in various ways. Also, it is to be understood that the phraseology and terminology used herein is for the purpose of description and should not be regarded as limiting.

[007] The use of “including”, “comprising” or “having” and variations thereof herein is meant to encompass the items listed thereafter and equivalents thereof as well as additional

items. The terms “a” and “an” herein do not denote a limitation of quantity, but rather denote the presence of at least one of the referenced item. Further, the use of terms “first”, “second”, and “third”, and the like, herein do not denote any order, quantity, or importance, but rather are used to distinguish one element from another.

[008] Referring to FIG. 1A-FIG. 1B are block diagrams 100a-100b depicting a multifunctional and adaptable device utilizing optimal and variable power to allow connection of an appliance or a tool, according to exemplary embodiments of the present disclosure. The optimal and variable power for allowing connection of appliances which may be a direct current (DC) power or solar power or mechanical power, and the like, without limiting the scope of the present disclosure. The appliance may include, but not limited to, automotive electronics or household electric appliances, electric tools, carpentry tools, mechanical tools, farming and the like. The automotive electronics or household electric appliances may be a washing machine, a water pump, a food processing appliance and the like without limiting the scope of the present disclosure. For example, the food appliance may include a blender, mixer and the like. The multifunctional and adaptable device 100a-100b includes motors 102a-102b, and detachable boxes 126a-126b. The detachable boxes 126a-126b further includes controllers 104a-104b, processing devices 106a-106b, RFID devices 108a-108b, sensing devices 110a-110b, indicators 112a-112b, and potentiometers 114a-114b, a power converting device 116, analog power supply devices 118a-118b, power storage devices 120a-120b, photovoltaic panels 122a-122b and charger controllers 124a-124b.

[009] According to non-limiting exemplary embodiments of the present disclosure, the motors 102a-102b may includes a direct current motor 102a, an alternate current motor 102b. The motors 102a-102b may be removed from the detachable boxes 126a-126b and used as independent entity. For example, a wire may be placed in the detachable boxes 126a-126b connected to the motors 102a-102b. The motors 102a-102b may be used to power the appliances instead of moving the entire detachable boxes 126a-126b. The multifunctional and adaptable device 100a-100b further includes gear boxes 128a-128b which are connected to the motors 102a-102b. The gear boxes 128a-128b may be turned on based on the interaction between the RFID devices 108a-108b and the appliance.

[010] According to non-limiting exemplary embodiments of the present disclosure, the processing devices 106a-106b may be a microprocessor, a microcontroller (for example

ARM 7 or ARM 11), a digital signal processor, a microcomputer, a central processing unit, a field programmable gate array, a programmable logic device, a state machine, or a logic circuitry. The sensing devices 110a-110b, may include, but not limited to, current sensor. The sensing devices 110a-110b may detect electric current (AC or DC) in a wire, and generates signal proportional to the electric current. The generated signal may be analog voltage, current, even digital output and the like. The sensing devices 110a-110b may be utilized to display the measured current in an ammeter or may be stored for further analysis in a data acquisition or may be utilized for control purpose. The indicators 112a-112b may be configured to indicate the power, the appropriate attachment which is being connected, the appliance being used and, whether motor is overloaded. The potentiometers 114a-114b may be an analog potentiometer, a digital potentiometer and the like without limiting the scope of the present disclosure. The potentiometers 114a-114b may be used for controlling the speed of the motors 102a-102b.

[011] According to non-limiting exemplary embodiments of the present disclosure, the power converting devices 116a may be an analog to digital power converter 116. The power converting device may be configured to convert the analog signal to digital signal which adapts its range to the level of the input signal. The analog power supply device 118a may be configured to provide analog power supply to the power converting device 116 and the analog power supply device 118b may be given directly to the power storage device 120b. The power storage devices 120a-120b may store power generated from the photovoltaic panels' 122a-122b through the charger controllers' 124a-124b. The power storage devices 120a-120b may be a rechargeable battery, a detachable battery, or the like without limiting the scope of the present disclosure. Direct power supply may be given without considering power storage devices 120a-120b.

[012] According to non-limiting exemplary embodiments of the present disclosure, the RFID devices 108a-108b are connected to the controllers 104a-104b through the processing device 106a-106b for providing RFID based torque and rpm output of the motor 102a-102b. The RFID devices 108a-108b may include, but not limited to, RFID tags, RFID readers and the like. The RFID tags may store information about the rotation per minute limits, current limits, and the like.

[013] According to non-limiting preferable embodiments of the present disclosure, the specifications of motors 102a-102b may be expected to be used in an actual working unit are 400 watts, 3000 revolutions per minutes, torque 1.26Nm. The direction of the motors 102a-102b may be a clockwise direction or anticlockwise direction. The motors 102a-102b may run rotation per minute mode, timer mode, and the like without limiting the scope of the present disclosure. While running the motors 102a-102b in the rotation per minute mode the speed of the appliance may be regulated. Running in the time mode, the motors 102a-102b may be switched off after the preset time period. Based on the information stored in the RFID tags, the motors 102a-102b may identify which appliance it has to run.

[014] According to non-limiting preferable embodiments of the present disclosure, the information from the RFID tag 108a-108b, such as for example, parameters for efficient operation of the attached appliance are read from the RFID device. This information is sent from the RFID device to the controller 104a-104b and the gearbox 128a-128b converts the output from the motor to meet the requirements of the attached appliance, and operate at the preset parameters.

[015] According to non-limiting exemplary embodiments of the present disclosure, the controllers 104a- 104b are adapted to adjust the torque and output of the motors 102a-102b based on the appliances attached to the motors 102a-102b. The power storage devices 120a-120b are configured to provide optimal and variable power to the motors 102a-102b. The motors 102a- 102b are connected to the power storage devices 120a-120b through the controllers' 104a-104b.

[016] Referring to FIG. 2A-FIG. 2D are diagrams 200a-200d depicting a motor with different kinds of locking mechanism to allow connection of an appliance or a tool, according exemplary embodiments of the present disclosure. The motor 102a-102b includes shafts 202a-202b, couplers 204a-204b, independent elements 206a-206b, and a locking mechanism 208a-208c.

[017] According to non-limiting exemplary embodiments of the present disclosure, the locking mechanism 208a-208c further includes two individual parts. The first part is associated with the second part thereby forming a mount locking system of the independent elements 206a-206b. The first part of the locking mechanism 208a-208c is configured with a

male groove and the second part of the locking mechanism 208a-208c is configured with a female groove, thereby the association of the male groove with the female locks the respective first and second parts. The first and second parts of the locking mechanism 208a-208c are attached to the first and second independent elements 206a-206b respectively through the couplers 204a-204b.

[018] According to non-limiting exemplary embodiments of the present disclosure, the first independent element 206a of the motor 102a-102b may be attachment joinery and the second independent element 206b of the motor 102a-102b may be a motor base. The individual parts of the locking mechanism 208a-208c which includes a square joint, a doretail joint, a groove joint and the like without limiting the scope of the present disclosure. The shafts 202a-202b may be attached to the coupler 204a-204b.

[019] Referring to FIG. 3A- FIG. 3C are diagrams 300a-300c depicting example versions of a motor connected to the various appliances or tools, according to exemplary embodiments of the present disclosure. The various appliances may include, but not limited to, automotive electronics or household electric appliances, electric tools, carpentry tools, mechanical tools, farming and the like. The automotive electronics or household electric appliances 302-306 may be a mixer jar or a grinder, a water pump, a fan, and the like without limiting the scope of the present disclosure. Any individual parts of the locking mechanism 208a-208c may be provided to the motor 102a-102b for establishing connection with the appliances 302-306. For example, the typical rotation per minute and torque of the motor 102a-102b for the mixer 302 may be 17000 rpm and 0.3Nm. The typical rotation per minute and torque of the motor 102a-102b for the water pump 304 may be 3000 rpm and 1.26 Nm. The typical rotation per minute of the motor 102a-102b may be 380rpm and torque ratings of the motor 102a-102b may be 2.03Nm for the fan 306.

[020] Referring to FIG. 3D is a diagram 300d depicting an example version of a motor connected to an appliance or a tool, according to exemplary embodiments of the present disclosure. The appliance here may include a washing machine 308. The diagram includes a square shaft 310, a bar shaft 312 and fins 314. The motor 102a-102b with locking mechanism 208a-208c may be provided for establishing connection with the appliance 308. The typical rotation per minute and torque of the motor 102a-102b for the washing machine 308 may be 740 rpm and 3.5 Nm.

[021] Although the present disclosure has been described in terms of certain preferred embodiments and illustrations thereof, other embodiments and modifications to preferred embodiments may be possible that are within the principles and spirit of the invention. The above descriptions and figures are therefore to be regarded as illustrative and not restrictive.

[022] Thus the scope of the present disclosure is defined by the appended claims and includes both combinations and sub combinations of the various features described herein above as well as variations and modifications thereof, which would occur to persons skilled in the art upon reading the foregoing description.

CLAIMS

What is claimed is:

1. A multifunctional and adaptable device utilizing an optimal and variable power to allow detachable connection of an appliance or a tool, the device comprising:

at least one motor configured with at least one controller, wherein the controller adapted to adjust the torque and output of the motor based on at least one appliance attached to the motor;

at least one RFID device connected to the controller, whereby the controller configured to provide optimum output of torque and revolutions per minute of the motor based on the interactions between the RFID device and an appliance; and

at least one locking mechanism comprises at least two parts provided in the motor, wherein the direct motor comprises at least two independent elements and the two parts of the locking mechanism connected to the independent elements through at least two couplers.
2. The device of claim 1, further comprising a processing device connected to the controller.
3. The device of claim 1, further comprising at least one power storage device configured to provide the optimal and variable power to the motor and the motor connected to the power storage device through the controller.
4. The device of claim 1, wherein the RFID device is connected to the controller through the processing device for providing optimum output of torque and revolutions per minute of the motor.
5. The device of claim 1, further comprising at least one sensing unit, at least one potentiometer, and a plurality of indicators connected to the processing device.

6. The device of claim 1, further comprising at least one power converting device and at least one power supply device.
7. The device of claim 1, wherein the optimal and variable power source is obtained by at least one photovoltaic cell and at least one charge controller.
8. The device of claim 1, wherein the locking mechanism of the motor comprises at least one male groove and at least one female groove.