US010121576B1

(12) **United States Patent**
Frazier

(10) **Patent No.: US 10,121,576 B1**
(45) **Date of Patent: Nov. 6, 2018**

(54) **PRESSURE BASED, MECHANICAL AMPERAGE CONTROL ENGINE FOR AN ELECTRONIC DEVICE**

(71) Applicant: **Paul Elbert Frazier**, Little Rock, AR (US)

(72) Inventor: **Paul Elbert Frazier**, Little Rock, AR (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1010 days.

(21) Appl. No.: **14/324,181**

(22) Filed: **Jul. 5, 2014**

Related U.S. Application Data

(60) Provisional application No. 61/843,313, filed on Jul. 5, 2013.

(51) **Int. Cl.**

H01C 10/12	(2006.01)
H01C 10/20	(2006.01)
H01C 10/26	(2006.01)

(52) **U.S. Cl.**
CPC ***H01C 10/12*** (2013.01); ***H01C 10/20*** (2013.01); ***H01C 10/26*** (2013.01)

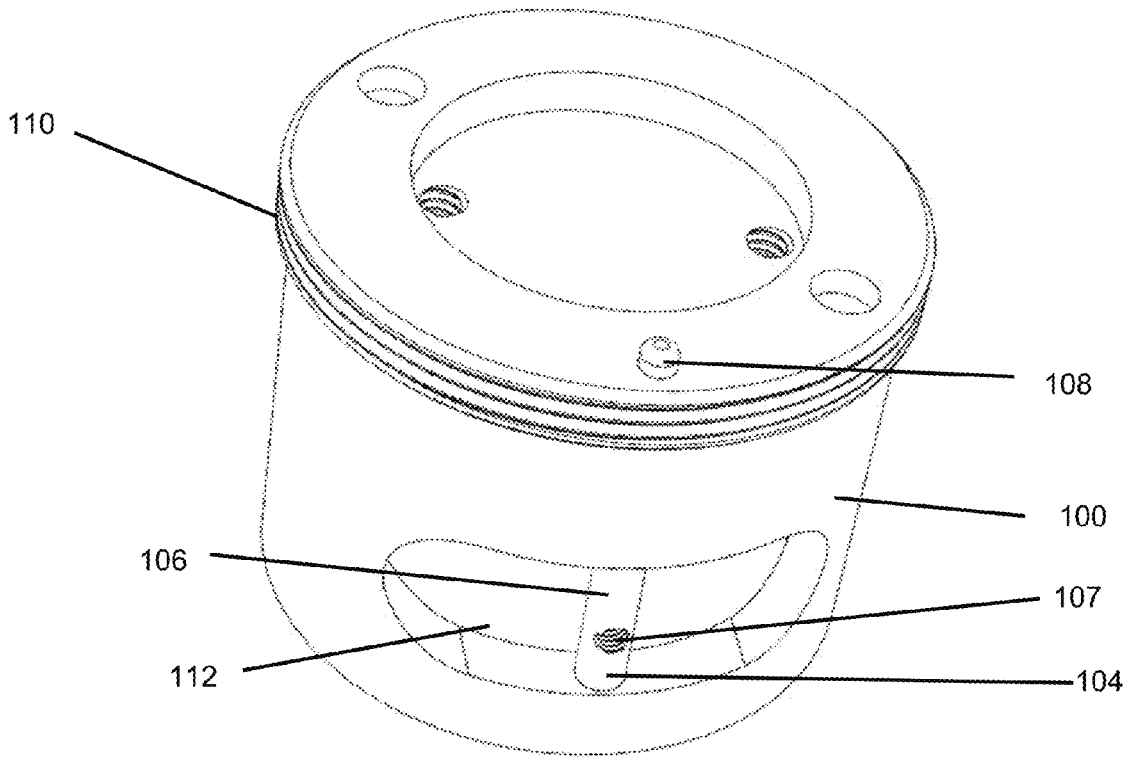
(58) **Field of Classification Search**
CPC H01C 10/12; H01C 10/20; H01C 10/26
USPC 307/120
See application file for complete search history.

Primary Examiner — Hal Kaplan
(74) *Attorney, Agent, or Firm* — Stephen D. Schrantz; Schrantz Law Firm, PLLC

(57) **ABSTRACT**

The pressure based control engine directs the amount of amperage that is applied to an electric device, such as a flashlight. The control engine provides a first piston body and a second piston body that conduct electricity. A piston divider constructed from a quantum tunneling material separates the first piston body and the second piston body. Compression of the piston divider by the first piston body and the second piston causes the piston divider to conduct electricity. As the pressure increases, the current that can flow through the piston divider also increases. Similarly, as the pressure decreases, the current that can flow through the piston divider decreases.

20 Claims, 17 Drawing Sheets



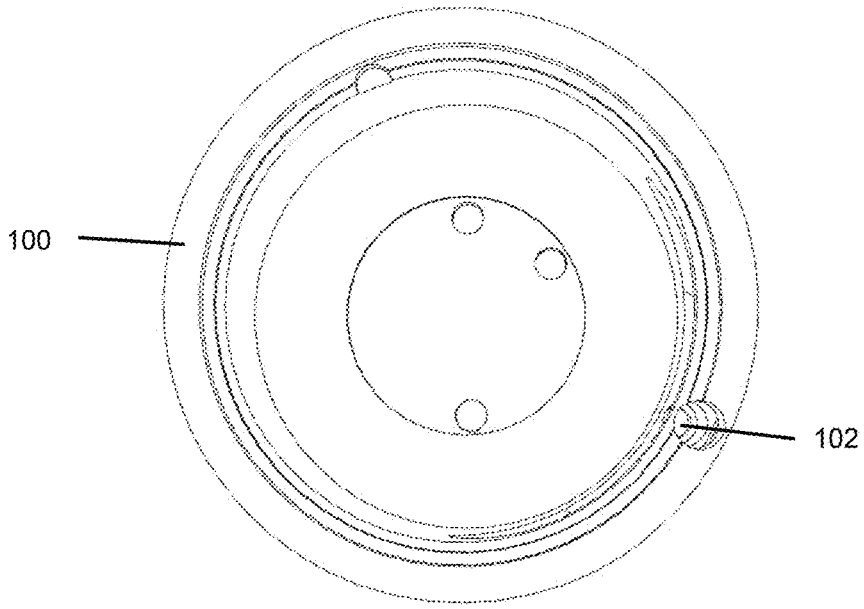


FIG. 1.1

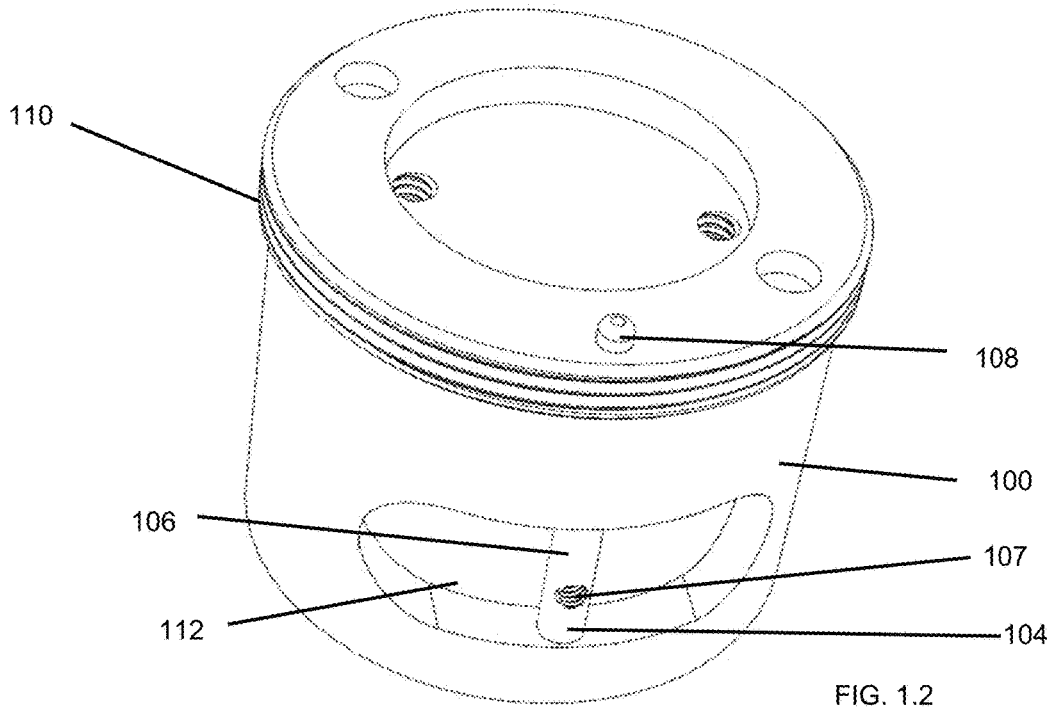


FIG. 1.2

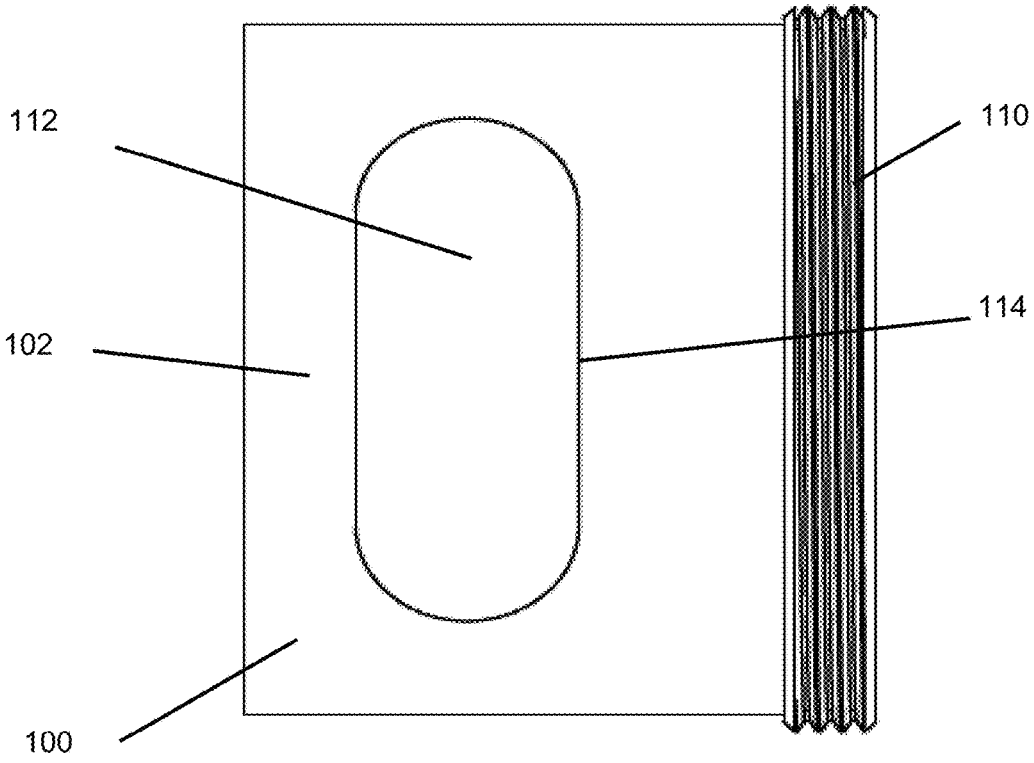


FIG. 1.3

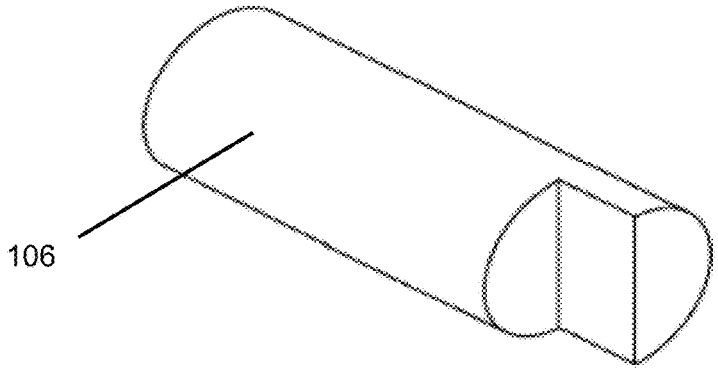


FIG. 2

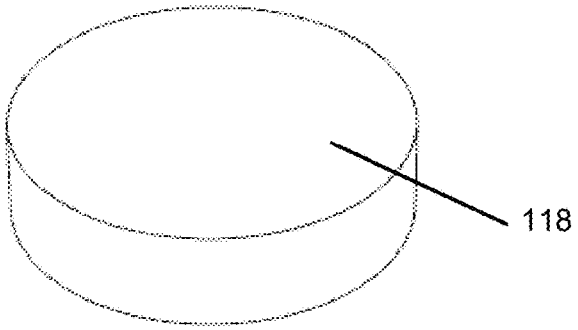


FIG. 3

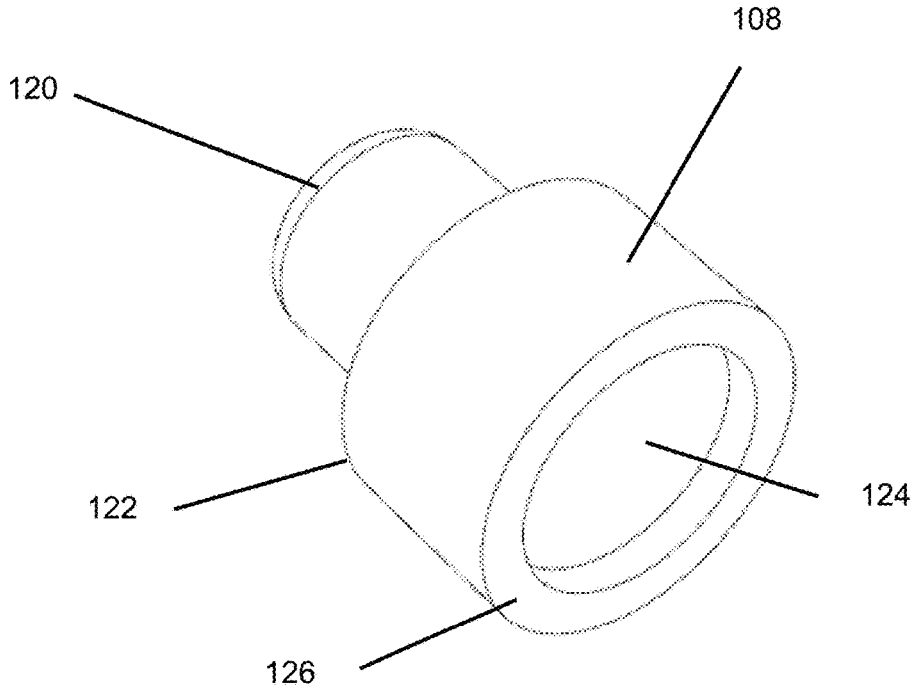


FIG. 4

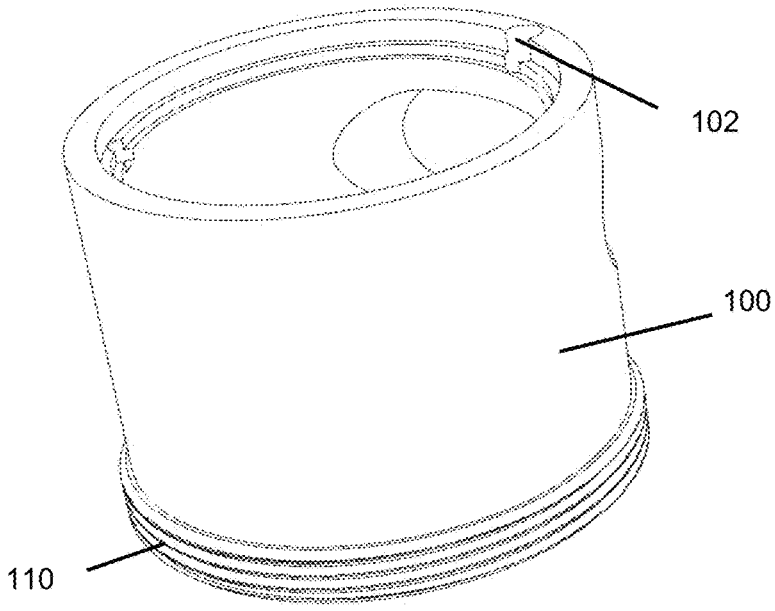


FIG. 5

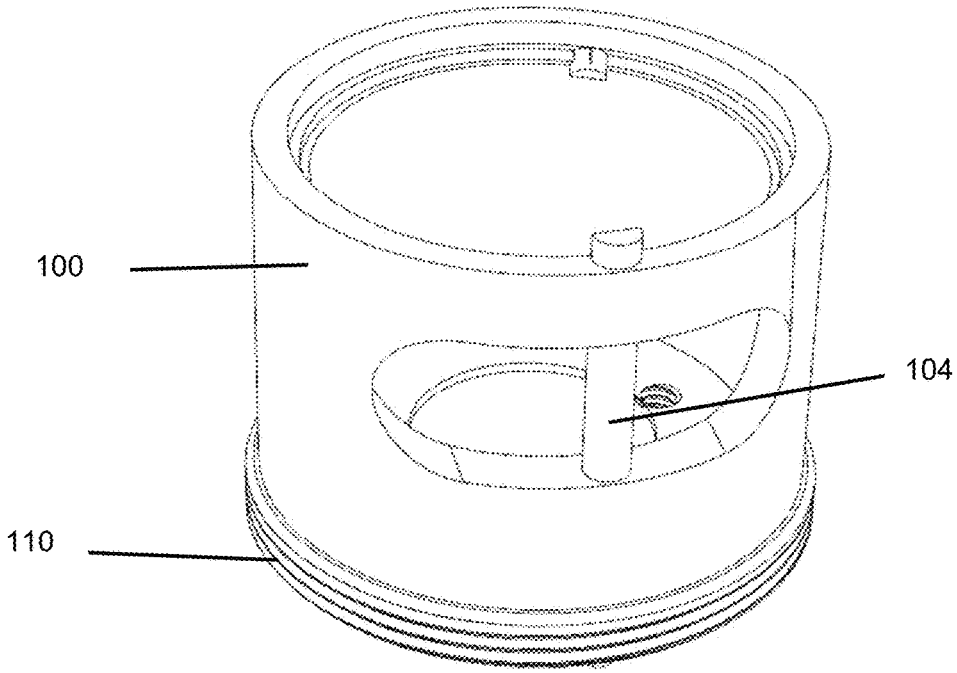


FIG. 6

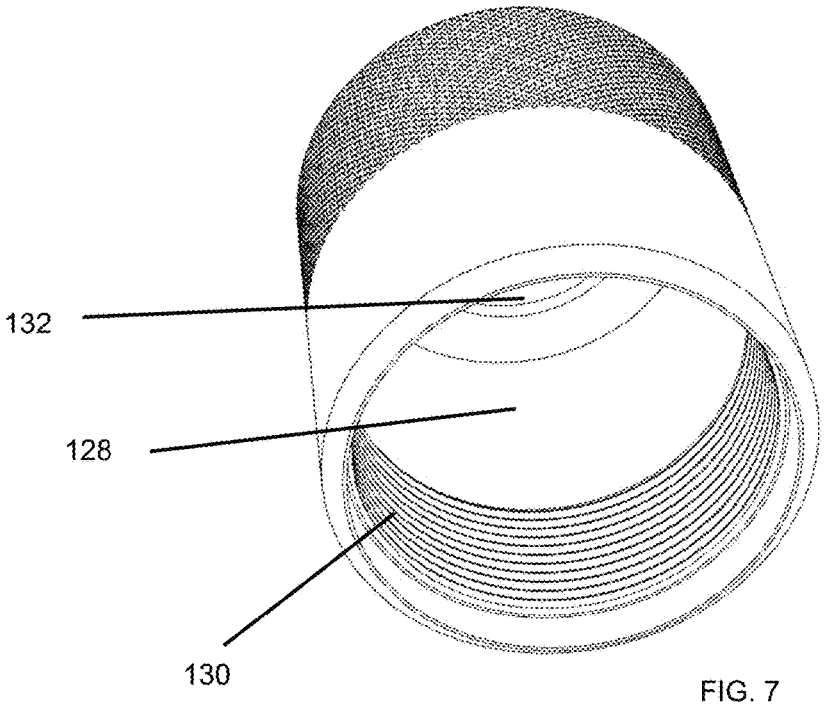


FIG. 7

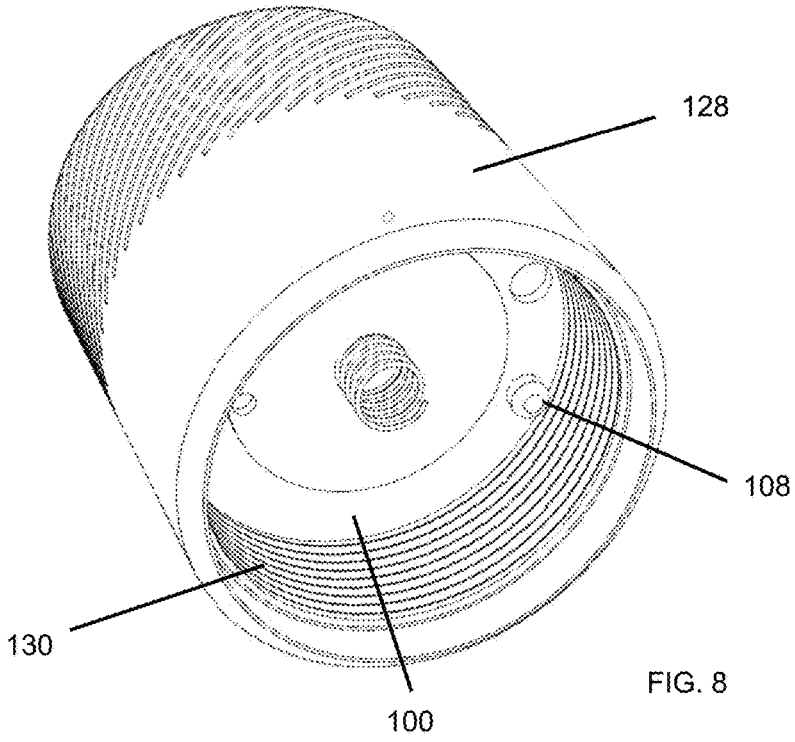


FIG. 8

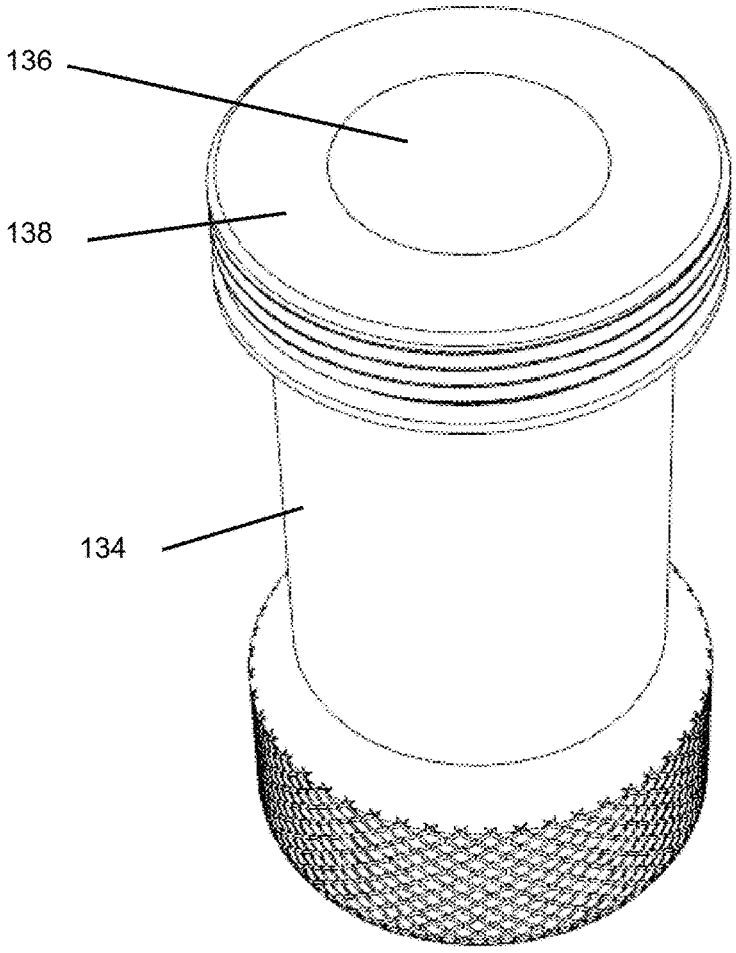


FIG. 9

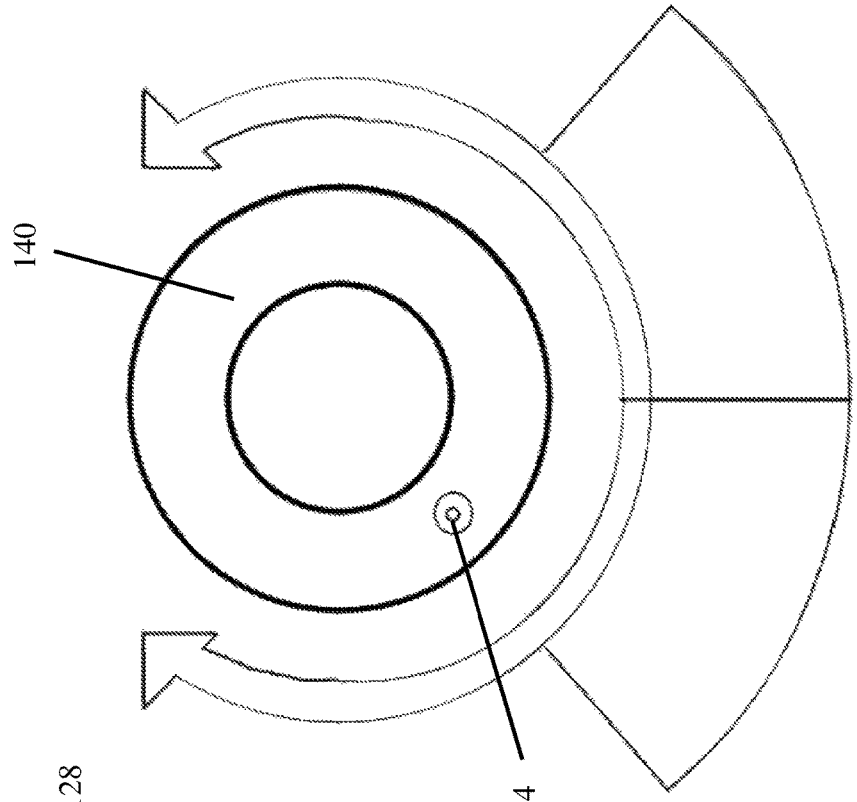


Fig. 11

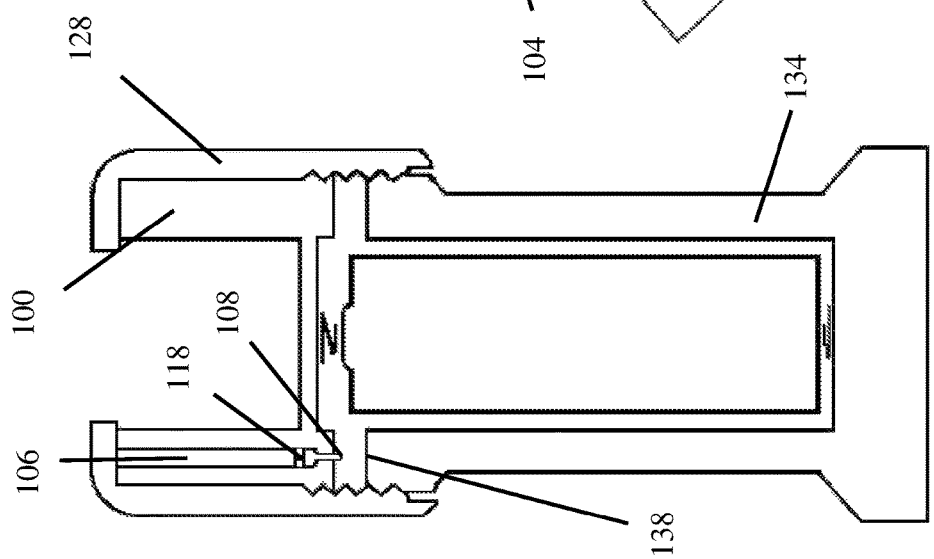


Fig. 10

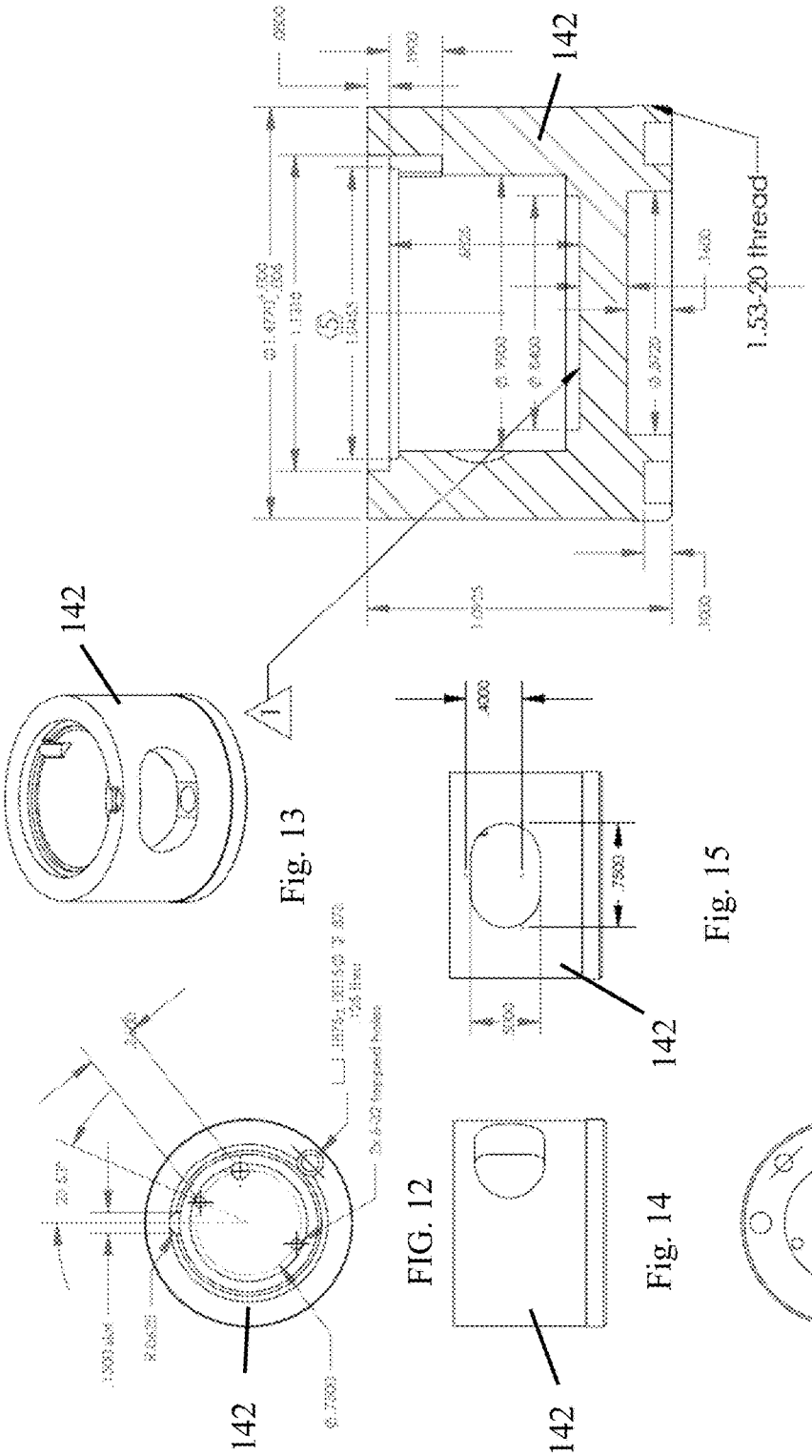


Fig. 13

Fig. 15

Fig. 16

FIG. 12

Fig. 14

Fig. 17

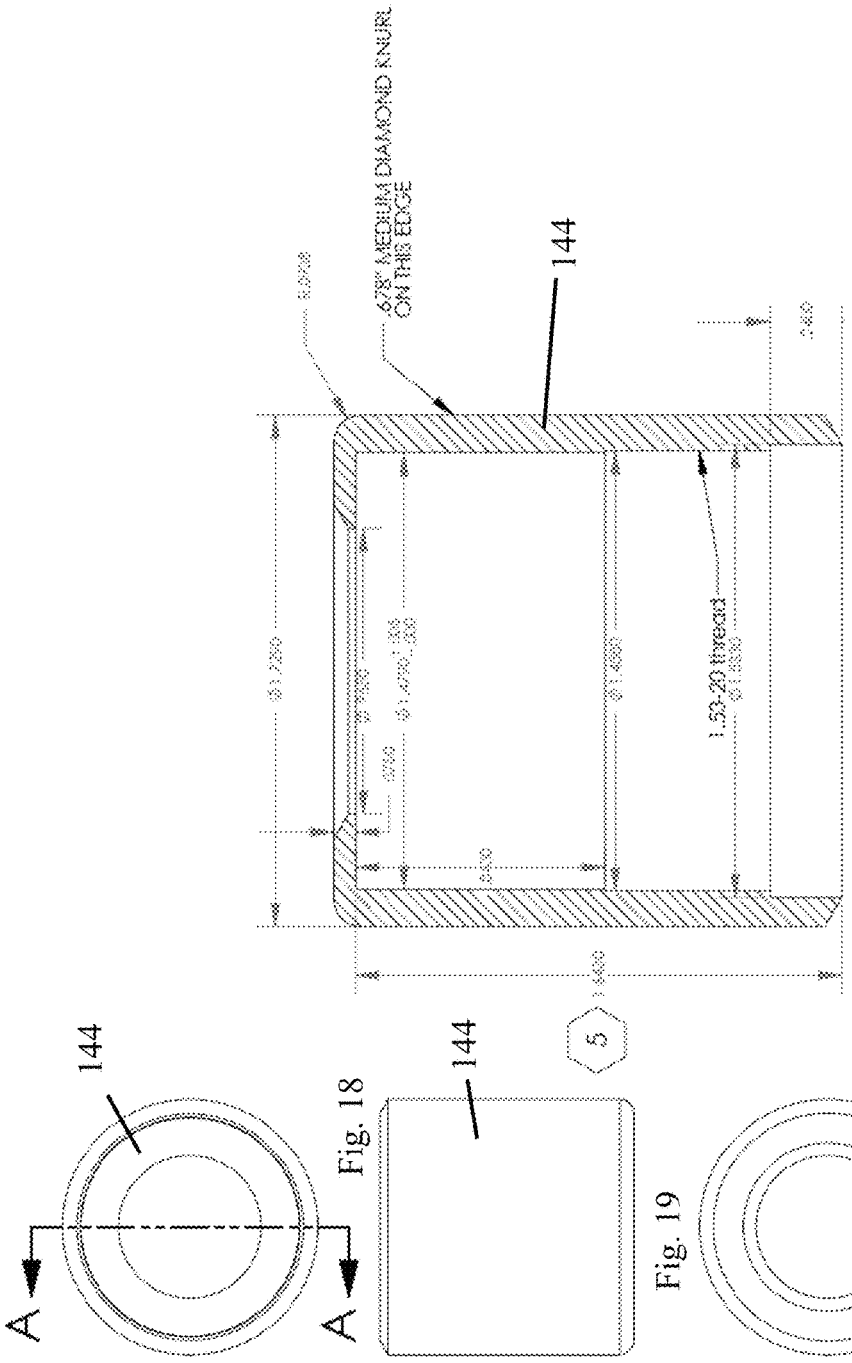


Fig. 18

Fig. 19

Fig. 20

Fig. 21

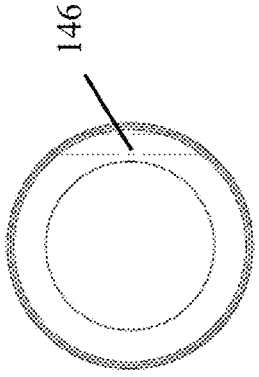


Fig. 22

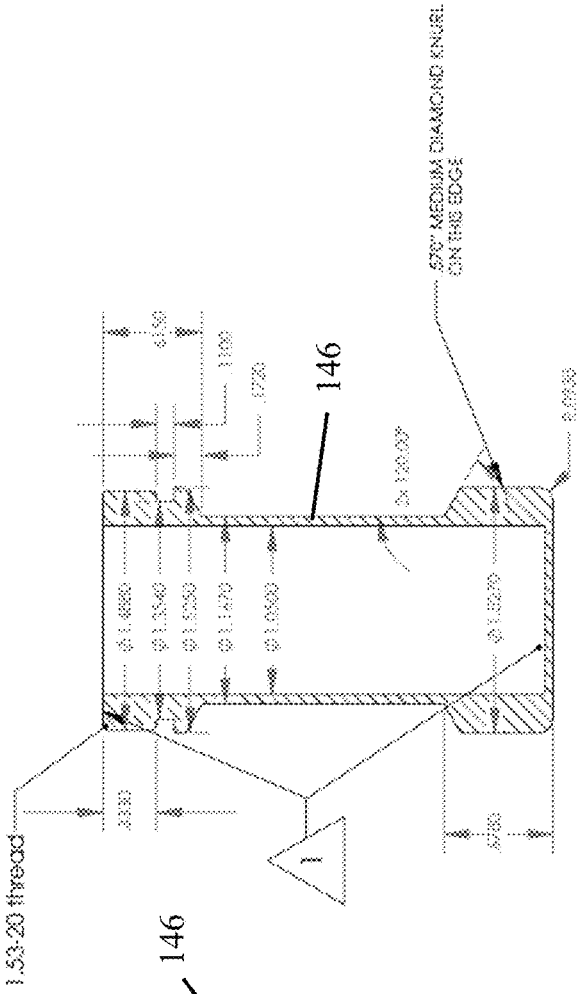


Fig. 24

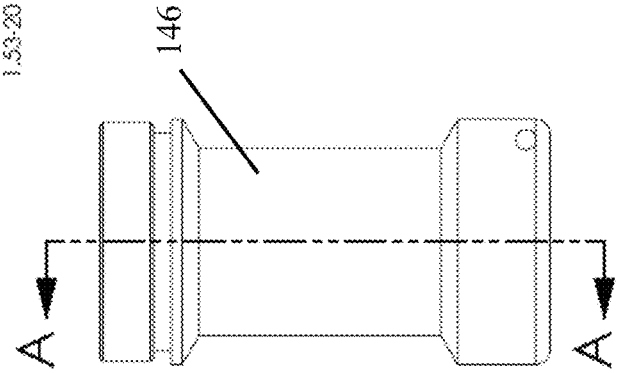


Fig. 23

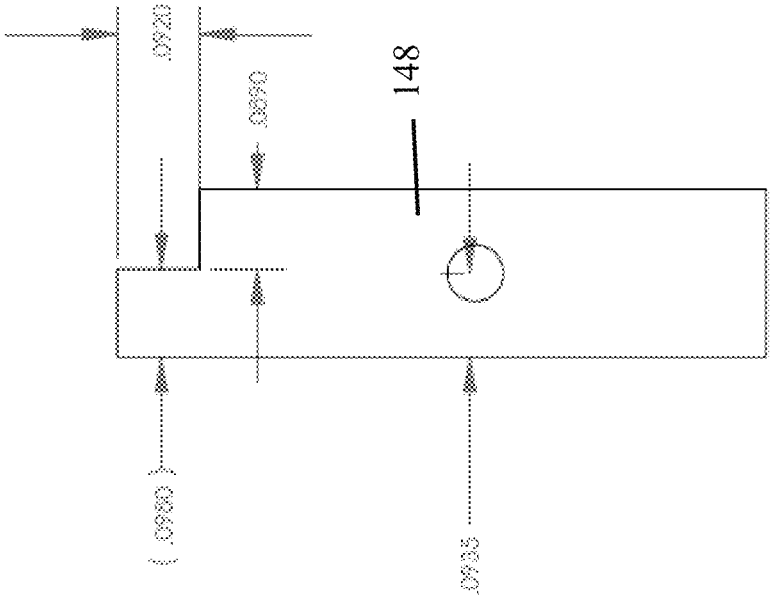


Fig. 25

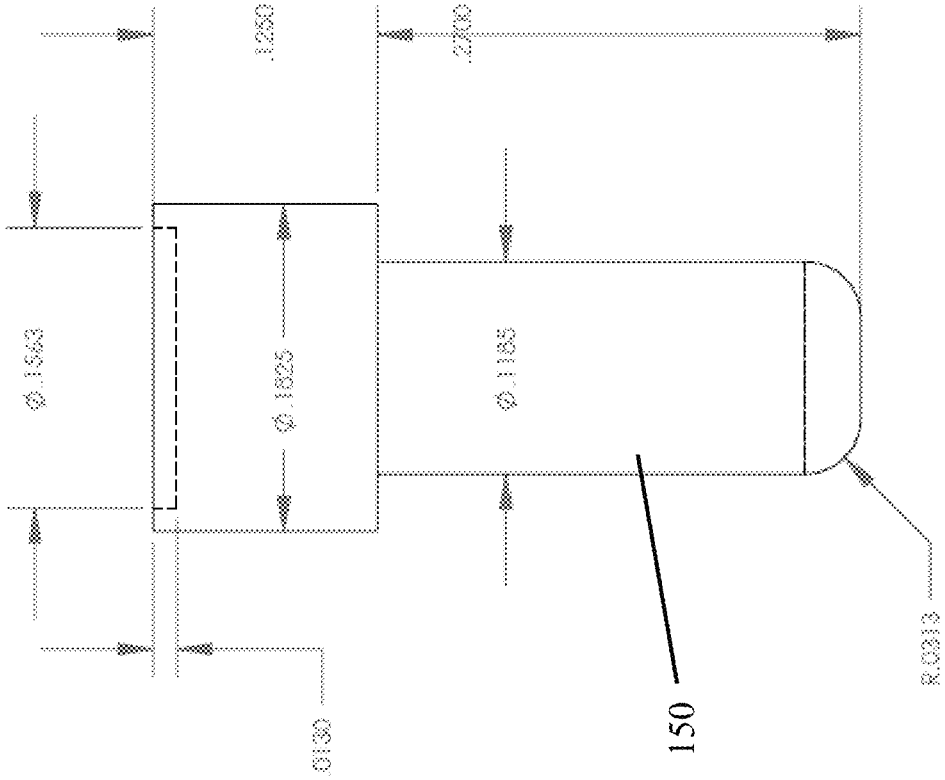


Fig. 26

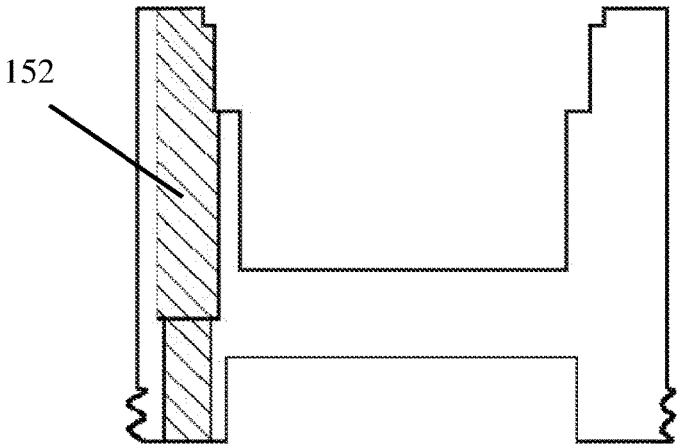


Fig. 27

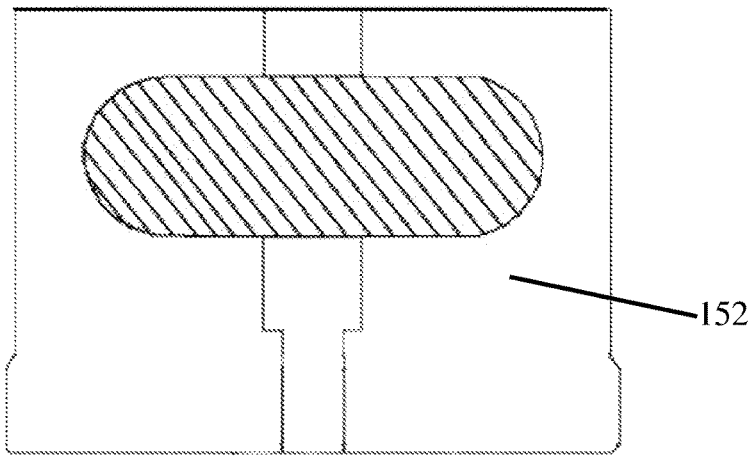


Fig. 28

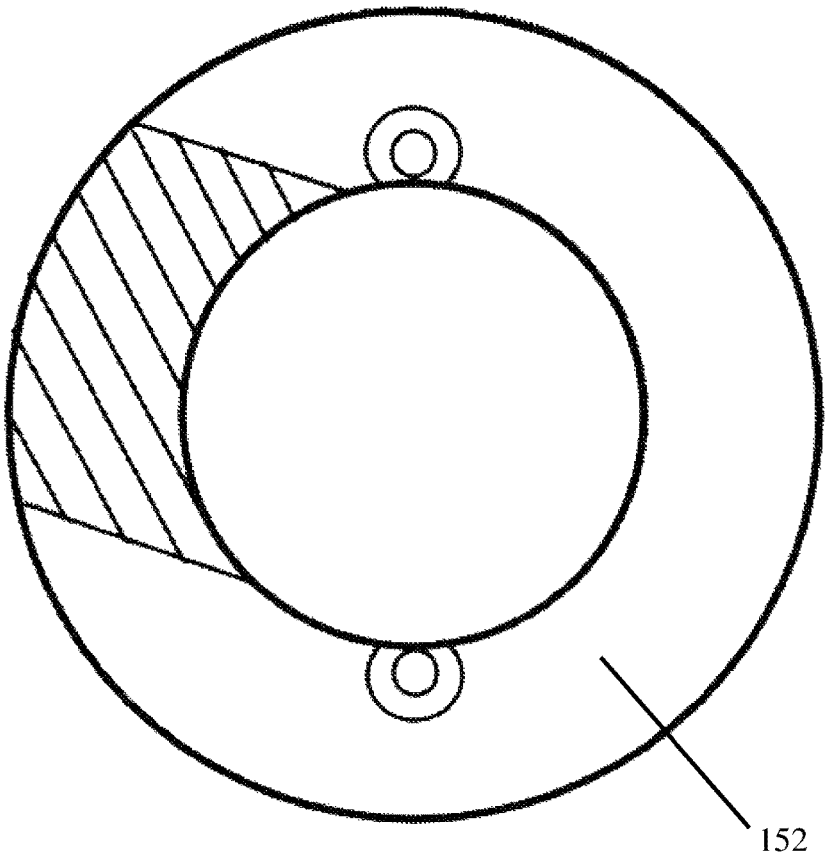


Fig. 29

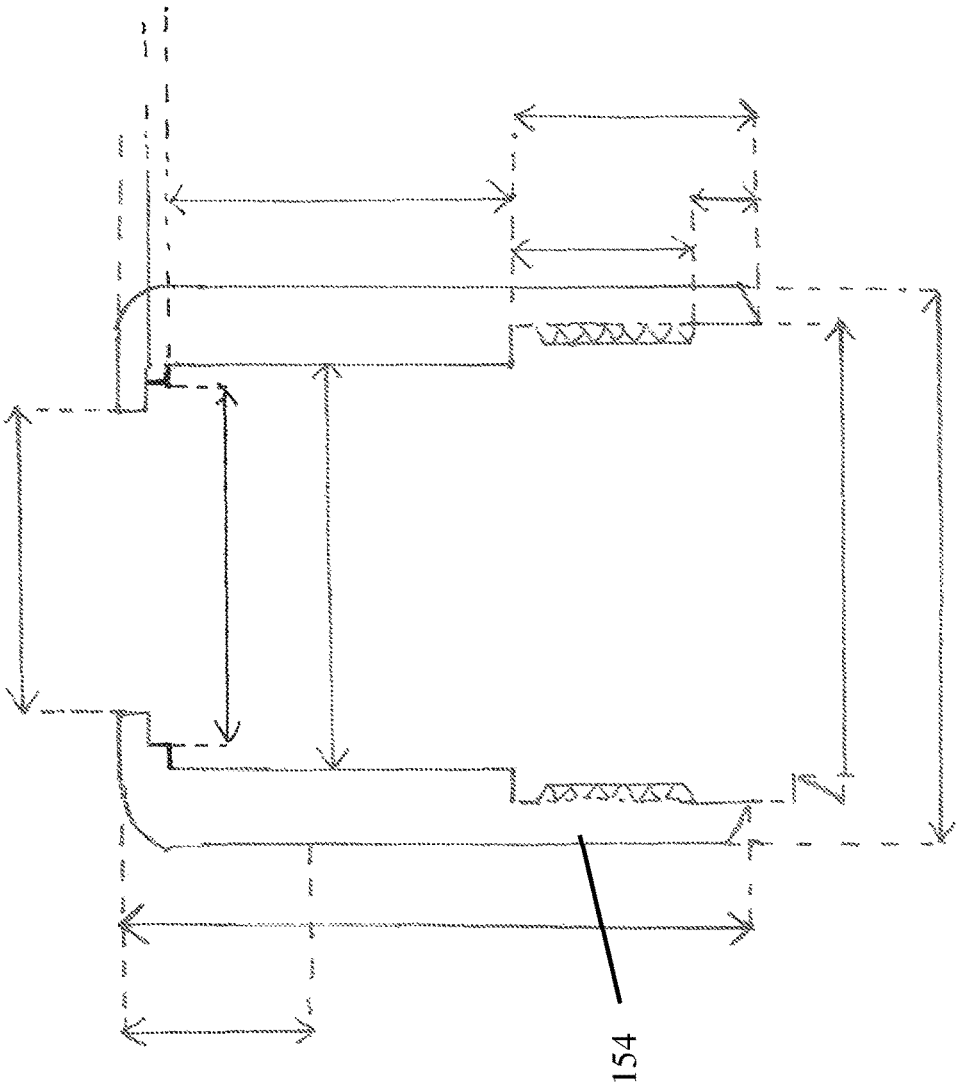


FIG. 30

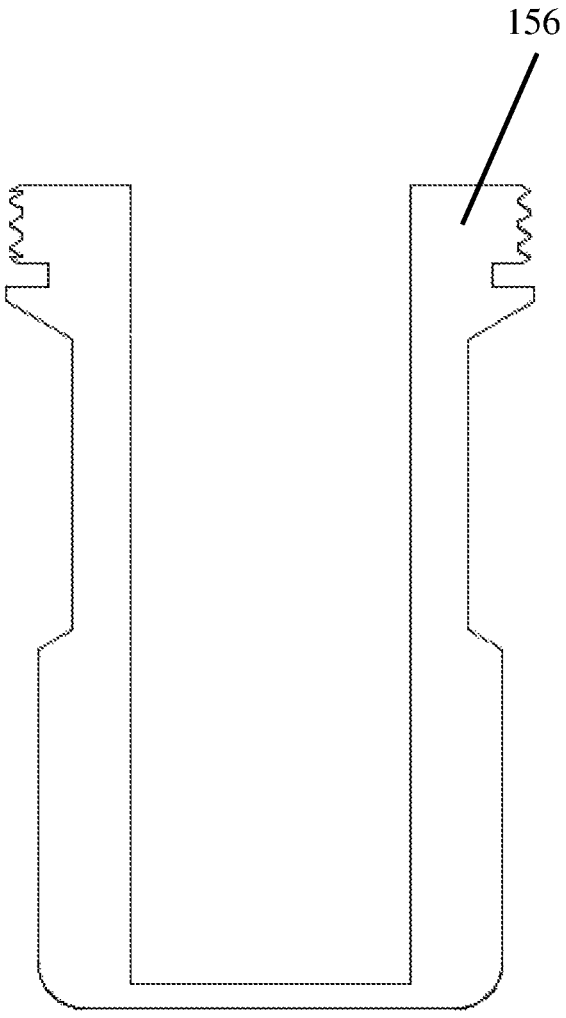


Fig. 31

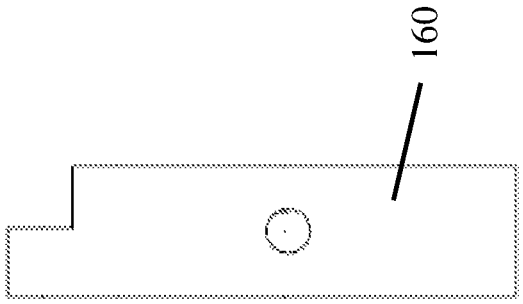


FIG. 33

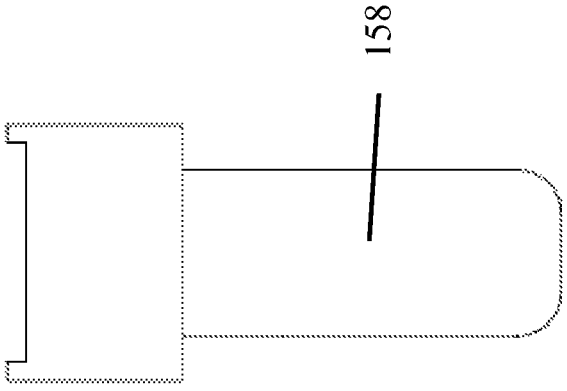


FIG. 32

PRESSURE BASED, MECHANICAL AMPERAGE CONTROL ENGINE FOR AN ELECTRONIC DEVICE

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims priority to and is a continuation-in-part of U.S. Patent Application No. 61/843,313 filed on Jul. 5, 2013 entitled PRESSURE BASED, MECHANICAL AMPERAGE CONTROL ENGINE FOR AN ELECTRONIC DEVICE which is hereby incorporated by reference.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

Not Applicable.

REFERENCE TO A MICROFICHE APPENDIX

Not Applicable.

RESERVATION OF RIGHTS

FIELD OF THE INVENTION

The present invention is in the field of a control engine for an electronic device.

BACKGROUND OF THE INVENTION

Typical electronic devices, such as an LED flashlight or cordless drill, will often have a control system that allows for variable output. For the LED flashlight, this control system can change the brightness level similar to the manner in which a drill spins faster with a firmer trigger pull. This output change is usually accomplished with electronic components such as a PCB (Printed Circuit Board) to control the feed of the electricity (in this case amperage) from the power source.

Electronic devices, especially those that operate in harsh environments and with heavy use, require durability and simplicity in order to function dependably and with longevity. The present invention allows for the variable output control of an electronic device without the use of a Printed Circuit Board. Thus, the present invention provides a durability advantage by eliminating the fragile PCB and adds simplicity by greatly reducing the number of solder points and parts in the device.

SUMMARY OF THE INVENTION

The present invention provides a pressure based control system for controlling the amperage supplied to an electric device. More particularly, the present invention may control the amperage applied to a flashlight. Using mechanical, pressure-based control of amperage for operation of an electronic device offers new options in durability and simplicity.

The present invention allows a user to select amperage control with a twist of the device. Tightening the device with a twisting motion increases the amperage feed to the device. Twisting the opposite direction decreases the amperage feed. The added benefit of this invention is that it allows the user to have this variable control in an electronic device without the use of a printed circuit board. The mechanical nature of the piston system achieves a level of durability and simplicity that is very useful for a device that operates under stress.

The piston system enables the flow of electricity through a piston divider constructed from a quantum tunneling material, a substance that reacts to pressure to allow current to flow through the material. As the pressure increases on the material, the amount of electricity that passes through the piston divider increases. As the pressure decreases on the material, the amount of electricity that passes through the piston divider decreases. The piston system is stored within an engine housing that enables movement of the pistons to increase the pressure on the quantum tunneling material. As the pressure increases, the electricity flows from the electrical source, such as a battery source, to the device for operation.

It is an object of the present invention to provide a more durable amperage control of a device.

It is also an object of the present invention to eliminate the need for a PCB.

It is also an object of the present invention to reduce shearing forces on the quantum material.

It is also an object of the present invention to reduce the pressure applied to the power source.

It is also an object of the present invention to provide a back up connection to ensure operation of the device.

These and other objects of the invention will be best understood when reference is made to the drawings and the description herein below.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1.1** is a top view of one embodiment of the engine of the present invention.

FIG. **1.2** is a bottom perspective view of one embodiment thereof;

FIG. **1.3** is a side view of one embodiment thereof

FIG. **2** is a side view of the upper piston of one embodiment of the present invention;

FIG. **3** is a top view of the quantum tunneling material of one embodiment of the present invention; the bottom view being a mirror image of the top view;

FIG. **4** is a side perspective view of the lower of one embodiment of the present invention;

FIG. **5** is a side perspective view of the engine of one embodiment of the present invention;

FIG. **6** is a side perspective view of the engine and pistons of one embodiment of the present invention;

FIG. **7** is a bottom perspective view of an engine housing of one embodiment of the present invention;

FIG. **8** is a bottom perspective view of an engine assembled within the engine housing of one embodiment of the present invention;

FIG. **9** is a top perspective view of a power source housing of one embodiment of the present invention.

FIG. **10** is a sectional view of one embodiment of the present invention;

FIG. **11** is top view thereof;

FIG. **12** is a top view of a piston housing of one embodiment of the present invention;

FIG. **13** is a top perspective view thereof;

FIG. **14** is a side view thereof;

FIG. **15** is a front view thereof;

FIG. **16** is a sectional view thereof;

FIG. **17** is a bottom view thereof;

FIG. **18** is a top view of an engine housing of one embodiment of the present invention;

FIG. **19** is a front view thereof, the rear view, left side view, and right side view being a mirror image of the front view;

FIG. **20** is a bottom view thereof;

FIG. **21** is a sectional view thereof;

FIG. **22** is a top view of a power source housing of one embodiment of the present invention;

FIG. **23** is a front view thereof;

FIG. **24** is a sectional view thereof;

FIG. **25** is a front view of a first piston body of one embodiment of the present invention;

FIG. **26** is a front view of a second piston body of one embodiment of the present invention;

FIG. **27** is a sectional view of a piston housing of one embodiment of the present invention;

FIG. **28** is a front view thereof;

FIG. **29** is a top view thereof;

FIG. **30** is a sectional view of an engine housing of one embodiment of the present invention;

FIG. **31** is a sectional view of a power source housing of one embodiment of the present invention;

FIG. **32** is a front view of a first piston body of one embodiment of the present invention; and

FIG. **33** is a front view of a second piston body of one embodiment of the present invention.

The drawings will be best understood when reference is made to the description and claims which follow herein below.

DESCRIPTION OF THE INVENTION

The present invention allows for the variable output control of an electronic device without the use of a Printed Circuit Board. The present invention operates by implementing a piston divider constructed from a quantum tunneling material that acts as a variable resistor reacting to pressure. This piston divider is isolated between two pistons that complete an electric circuit. The pistons are designed to protect the piston divider, keep it in place, and vary its thickness by adding and reducing pressure. The more the pistons compress the material, the more amperage is allowed into the electric device.

When pressure on the piston divider is reduced, amperage decreases. The piston divider must be kept well protected to preserve its function. The housing maintains the safety and integrity of the material. Furthermore, the housing eliminates the shearing forces of twisting. The housing also reduces the direct pressure on a battery or power source.

A detailed description of the pressure-based system incorporated in an electric device such as flashlight (the same system can be used in any electronic device that is controlled by amperage flow) is described below.

FIGS. **1.1-1.3** show piston housing **100** for housing the piston system **104**, constructed from two piston bodies **148**, **150** (see FIGS. **25-26**), piston head **106**, and piston bottom **108**. The piston system **104** is placed within a piston aperture **102** recessed in the side wall **114** of piston housing **100**. One embodiment of the piston housing **100** is non-conductive. In such an embodiment, piston housing **100** is constructed from a non-conductive material or a conductive material that is coated with a non-conductive substance. The non-conductive piston housing **100** electrically isolates the piston system **104** forcing the power source connection through the piston divider **118**.

In one embodiment, the piston housing **100** is machined aluminum that has been anodized to make the surface non-conductive. The functioning parts of the light (the LED) are housed in the piston housing **100** and the electric current flows through the power source, into the piston system **102**, through the LED, then back into the power source, such as a battery, to complete the circuit. The primary function of the piston housing **100** is to isolate the piston system **102** and key electric components of the device to force the electric flow through the piston system **102** and piston divider **118**. Forcing the circuit through the piston divider **118** allows for a variable current depending on the pressure generated between the two pistons, piston head **106** and piston bottom **108** to the quantum tunneling material of the piston divider **118**.

FIG. **1.2** is a bottom perspective view showing the piston assembly **104** installed in the piston housing **100**. The Piston head **106** and Piston bottom **108** are shown in place in the piston aperture **102** of piston housing **100**. The exposed Piston bottom **108** is where contact will be made with the Power Source Housing **134** to create pressure on piston divider **118**. Also shown are the threads **130**, which secure the piston housing **100** with the engine housing **128**.

FIG. **1.2** also shows the piston head **106** and connection aperture **107**. Connection aperture **107** provides an aperture for attaching a conductor such as a wire to the electric device to complete the connection from the piston assembly **104** to the device. In one embodiment, the connection aperture **107** is a threaded hole for accepting a threaded fastener to secure the conductor to the piston assembly **104** and piston head **106**.

FIG. **1.3** shows a side view of the piston housing **100**. Aperture **112** in the side wall **114** of piston housing **100** allows room for contact to be made between the electronic components of the device and the Upper Piston **106**. Specifically, in the case of this flashlight, a wire is attached to the Upper Piston **106** from the negative lead of the LED.

FIG. **2** shows the Upper Piston **106** of one embodiment of the present invention. The upper piston **106** electrically connects to the electric ground of the device. In this case, the negative contact-point of the LED is attached to the piston system **104**, more specifically the upper piston **106**. The upper piston **106** stays stationary. Electricity travels through the upper piston **106** as compression is achieved on the Lower Piston **108**. In one embodiment, electricity will not travel across the piston system **104** when compression is not achieved. The electric current travels through the piston divider **118** constructed from the quantum tunneling material when compression is achieved. The piston system **104** of one embodiment is constructed from brass. Other embodiments may implement a piston system **104** constructed from a different metal or other electrically conductive material. The present invention has been described as a piston head and a piston bottom. They system may also be described as a stationary piston and an adjustable piston wherein movement of the adjustable piston moves toward and away from the stationary piston to compress the piston divider **118**.

FIG. **3** shows the piston divider **118**. In one embodiment, the piston divider **118** is constructed from a Quantum Tunneling Material, a substance that reacts to pressure to allow current to flow through the material. As the pressure

that is exerted on this material increases, the material conducts more electricity through the material. As pressure decreases, the piston divider **118** expands back into its original shape, much like rubber, thus reducing the amount of current that flows through the piston divider **118**. In one embodiment, the piston divider **118** is placed between the two pistons, the piston head and the piston bottom, to achieve variable user control of the electronic device, including but not limited to a the intensity of a flashlight.

FIG. **4** shows the Piston bottom **108**, which is the part that moves to compress the the Quantum Tunneling Material of the piston divider **118** to create pressure and cause electricity to flow through the piston divider **118**. The two-tiered shape of the piston bottom **108** allows installation of the piston divider **118** within the piston aperture **102**. Piston neck **120** passes through the piston aperture **102** to allow adjustment of the piston bottom **108**. The piston shoulder **122** is sized not to pass through the piston aperture **102**. Piston shoulder **122** prevents piston bottom **108** from passing through the piston aperture **102**.

Piston bottom **108** also provides cavity **124** for placement of the piston divider **118**. Cavity **124** and lip **126** maintain the positioning of the piston divider **118**. Cavity **124** and lip **126** also limit the amount of force that may be exerted on the piston divider **118** thus eliminating over-compressing the piston divider **118**.

In one embodiment, such as the flashlight embodiment, the cavity **124** is 0.016" deep. The lip **126** extends outward above the cavity **124**. In one embodiment, the lip **126** extends toward the piston head **106** to form a bypass in case of failure of the piston divider **118**. When in full compression, the lip **126** of the piston bottom **108** comes into direct contact with the piston head **106**, bypassing the piston divider **118**. The lip **126** provides a fail-safe circuit in case of a complete failure of the quantum tunneling material of the piston divider **118**.

FIG. **5** shows the Threading **110** on the bottom of the piston housing **100** which allows the engine to be secured within aperture **132** of the Engine Housing **128** as shown in FIG. **6**. Piston housing **100** attaches to the engine hosing **128** via threads **130**, **110**. Engine housing **128** and piston housing **100** assembled with piston assembly **104** secures the piston assembly **104** and piston divider **118** in place and establishes the electric path to feed through the piston system **104**.

FIG. **7** shows the Engine Housing **128**, which at least partially encloses the piston housing **100** and secures the piston housing **100**, the piston assembly **104**, and piston divider **118**. Engine housing **128** also provides the receiving threads **130** for securing the engine housing **128** with the power source housing **134**. The threaded connection of engine housing **128** with the power source housing **134** enables rotation of the engine housing **128** and the power source housing **135**. Tightening the engine housing **128** with the power source housing **134** adjusts the power source housing **134** towards the piston housing **100** and piston bottom **108**. The power source housing **134** adjusts towards to contact and push the piston bottom **108**, the adjustable piston, toward the piston head **106** to apply pressure to the piston system **104** and piston divider **118** by tightening the power source housing **134** on the threads **130**. The threading system **130** of engine housing **128** corresponds with the threading **110** on the bottom part of the piston housing **100**. Threads **110**, **130** allow the piston housing **100** to be threaded into the aperture **132** of engine housing **128** and locked tightly into place. This same threading **130** also allows the Power Source Housing **138** to thread in and create pressure on the piston system **104** at the user's discretion.

In FIG. **8**, the piston housing **100** is secured within the engine housing **128**. The piston housing **100** can be removed from engine housing **128** for repair if necessary. The fully assembled engine housing **128** with piston housing **100**, piston system **104**, and piston divider **118** may be secured to Power Source Housing **134** wherein the power source housing serves as an adjustment body. The piston neck **120** of piston bottom **108** extends outward from piston housing **100** thus enabling contact and adjustment of piston bottom **108**. As the Power Source Housing **134** is threaded onto the engine housing **100**, Contact wall **138** of the adjustment body, such as power source housing **134**, contacts the piston bottom **108** to force the piston bottom **108** towards piston head **106** to compress the piston divider **118**. As the power source housing **134** is loosened, the pressure on the piston bottom **108** decreases such that the compression of the piston divider **118** decreases.

FIG. **9** shows the Power Source housing **134**, which provides the electricity to the device. In this case, power source housing **134** stores a battery in aperture **136**. When the power source housing **134** is connected to the threading on the Engine Housing **128**, pressure can be created on the Piston bottom **108** by tightening the connection of the engine housing **128** with power source housing **134** from twisting. Conversely, pressure is lessened by twisting the opposite direction. Contact from the piston system **104** is made on the contact wall **138** of the Power Source housing **134** and allows the current to flow from the negative end of the power source (battery), through the body of the Power Source Housing and into the piston system **104**. The body of the Power Source Housing **134** acts as a conductor from the negative end of the battery, traveling to the contact wall **138**. Exerting a force in mostly a linear fashion from contact of the contact wall **138** with piston bottom **108** allows for no shearing force to be exerted onto the piston system **104**.

FIG. **10** shows a sectional view of the device showing the electrical connections and the piston housing **100**, the engine housing **128**, and power source housing **134** secured to each other. Contact wall **138** adjusts towards and away from piston bottom **108**. The adjustment of power source housing **134** increases or decreases the compression of the piston divider **118** depending on the movement of power source housing **134**. Piston bottom **108** extends outward from the piston housing **100** to enable power source housing **134** to contact piston bottom **108** and push the piston bottom **108** towards the piston head **106** to compress the piston divider **118**. As stated above, loosening the power source housing **134** decreases the pressure on piston bottom **108** and piston divider **118**.

FIG. **11** shows the adjustment of an adjustment body **140** such as power source housing **134** to increase the pressure applied to the piston divider **118**. As the pressure applied to piston divider **118** increases, the current that flows through the piston divider **118** increases causing the light to be brighter. As the pressure applied to piston divider **118** decreases, the current that flows through the piston divider **118** decreases causing the light to be dimmer.

FIGS. **12-26** show one embodiment of the present invention and the corresponding piston housing **142**, the engine housing **144**, the power source housing **146**, the first piston body **148**, such as a piston head or top piston body, and the second piston body **150**, such as the piston bottom or bottom piston body.

FIGS. **27-33** show one embodiment of the present invention and the corresponding piston housing **152**, the engine housing **154**, the power source housing **156**, the first piston

body **158**, such as a piston head or top piston body, and the second piston body **160**, such as the piston bottom or bottom piston body.

From the foregoing, it will be seen that the present invention is one well adapted to obtain all the ends and objects herein set forth, together with other advantages which are inherent to the structure.

It will be understood that certain features and subcombinations are of utility and may be employed without reference to other features and subcombinations. This is contemplated by and is within the scope of the claims.

As many possible embodiments may be made of the invention without departing from the scope thereof, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. A control apparatus for adjustment of the amperage applied to an electric device from a power source, the apparatus comprising:

a first piston body wherein the first piston body conducts electricity and the first piston body conductively connects the power source and the electric device;

a second piston body wherein the second piston body conducts electricity, the second piston body conductively connects the power source to the electric device and the first piston body;

a piston divider located between the first piston body and the second piston body wherein the adjustment of pressure applied to the piston divider adjusts the amount of electricity conducted between the first piston body and the second piston body.

2. The apparatus of claim **1** wherein the first piston body and the second piston body apply the pressure to the piston divider to adjust the electricity conducted through the piston divider.

3. The apparatus of claim **2** wherein the first piston body and the second piston body adjust towards each other.

4. The apparatus of claim **1** further comprising:

a piston housing for storage of the first piston body and the second piston body;

a piston aperture wherein the first piston body and the second piston body are at least partially inserted into the piston aperture, the piston aperture providing access to the first piston body and the second piston body to enable exertion of a force on the first piston body and the second piston body to compress the piston divider.

5. The apparatus of claim **4** wherein the piston divider is constructed from a quantum tunneling material.

6. The apparatus of claim **1** further comprising:

an adjustment body that contacts at least one of the piston bodies to drive the piston bodies towards each other to compress the piston divider wherein the adjustment body adjusts towards and away from the first piston body and the second piston body.

7. The apparatus of claim **6** wherein the adjustment body rotates in relation to the piston housing, the adjustment body rotating to adjust the position of at least one of the piston bodies.

8. The apparatus of claim **7** wherein the rotation of the adjustment body in a first direction adjusts the first piston body towards the second piston body to compress the piston divider; and

wherein rotation of the adjustment body in a second direction adjusts the first piston body away from the second piston body to reduce pressure on the piston divider.

9. The apparatus of claim **1** wherein the first piston body remains stationary and the second piston body adjusts towards and away from the first piston body.

10. The apparatus of claim **9**, the second piston body further comprising:

a cavity for placement of the piston divider; and

a lip forming the cavity wherein the lip conducts electricity, the lip extending towards the first adjustment body.

11. The apparatus of claim **10** wherein the piston divider installed into the cavity extends above the lip.

12. A control apparatus for adjustment of the amperage applied to an electric device from a power source, the apparatus comprising:

a first piston body wherein the first piston body conducts electricity and the first piston body conductively connects the power source and the electric device;

a second piston body wherein the second piston body conducts electricity, the second piston body conductively connects the power source to the electric device and the first piston body;

a piston divider located between the first piston body and the second piston body wherein the adjustment of pressure applied to the piston divider adjusts the amount of electricity conducted between the first piston body and the second piston body; and

a piston housing for storage of the first piston body, the second piston body, and the piston divider wherein the piston housing allows adjustment of the first piston body and the second piston body towards each other to compress the piston divider.

13. The apparatus of claim **12** wherein the first piston body and the second piston body apply the pressure to the piston divider to adjust the electricity conducted through the piston divider.

14. The apparatus of claim **12** further comprising:

an adjustment body configured to contact the second piston body to direct the second piston body towards the first piston body and to compress the piston divider;

a piston aperture in the piston housing wherein the second piston body at least partially passes through the piston aperture to enable the adjustment body to contact the second piston body and direct the second piston body towards the first piston body to compress the piston divider.

15. The apparatus of claim **14** wherein the piston divider is constructed from a quantum tunneling material.

16. The apparatus of claim **14** wherein the rotation of the adjustment body in a first direction adjusts the second piston body towards the first piston body to compress the piston divider; and

wherein rotation of the adjustment body in a second direction adjusts the second piston body away from the first piston body to reduce pressure on the piston divider.

17. The apparatus of claim **16**, the second piston body further comprising:

a cavity for placement of the piston divider; and

a lip forming the cavity wherein the lip conducts electricity, the lip extending towards the first adjustment body wherein the piston divider installed into the cavity extends above the lip.

18. A control apparatus for adjustment of the amperage applied to an electric device from a power source, the apparatus comprising:

a first piston body wherein the first piston body conducts electricity and the first piston body conductively connects the power source and the electric device;

a second piston body wherein the second piston body conducts electricity, the second piston body conductively connects the power source to the electric device and the first piston body;

a piston divider located between the first piston body and the second piston body wherein the adjustment of pressure applied to the piston divider adjusts the amount of electricity conducted between the first piston body and the second piston body;

a piston housing for storage of the first piston body, the second piston body, and the piston divider wherein the piston housing allows adjustment of the first piston body and the second piston body towards each other to compress the piston divider;

an engine housing wherein the piston housing attaches to the engine housing;

an power source housing for storage of a power source wherein the power source housing attaches to the engine housing, the power source housing contacting at least one of the piston bodies to direct the piston bodies towards each other to compress the piston divider.

19. The apparatus of claim **18** further comprising:

a threaded connection for securing the power source housing to the engine housing wherein the power source housing adjusts towards and away from the piston housing;

a piston aperture in the piston housing wherein the second piston body at least partially passes through the piston aperture to enable the power source housing to contact the second piston body and direct the second piston body towards the first piston body to compress the piston divider.

20. The apparatus of claim **19** wherein the rotation of the power source housing in a first direction adjusts the second piston body towards the first piston body to compress the piston divider; and

wherein rotation of the power source housing in a second direction adjusts the second piston body away from the first piston body to reduce pressure on the piston divider.

* * * * *