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Baskar et al.

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(54) **PORTABLE TRIMMER HAVING ROTATABLE POWER HEAD**

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B23D 51/01	(2006.01)
B26B 27/00	(2006.01)
B26B 19/12	(2006.01)

(52) **U.S. Cl.** **30/517**; 30/296.1; 30/210; 30/340; 30/519

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See application file for complete search history.

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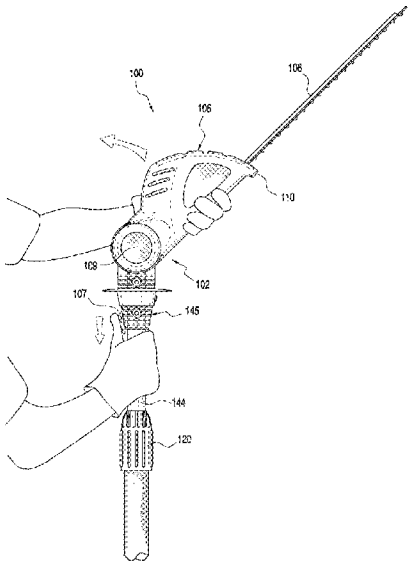
(57) **ABSTRACT**

A portable, hand-operated trimmer has a head module that is removably connected to a power control module. The head module has a power head enclosing an electric motor that is operatively connected to a trimming blade. The power head is selectably settable in a plurality of angular positions with respect to a head support, including a neutral position representing 0 degree rotation, 45 degree flexion and dorsiflexion positions, and 90 degree flexion and dorsiflexion positions. The power head also encloses a stator cartridge that is connected to the housing of the power head by a plurality of fastening members. The head support rotates about the stator cartridge and is engaged by way of a movable engagement pin that is received within a selected recess defined in the stator cartridge. The power head housing and stator cartridge further define molded sockets to receive corresponding pivot arms of the head support. An O-ring is disposed about one of the pivot arms to dampen free rotation. The power control module provides power to the power head through a removable rechargeable battery or through direct connection to conventional household power.

11 Claims, 12 Drawing Sheets



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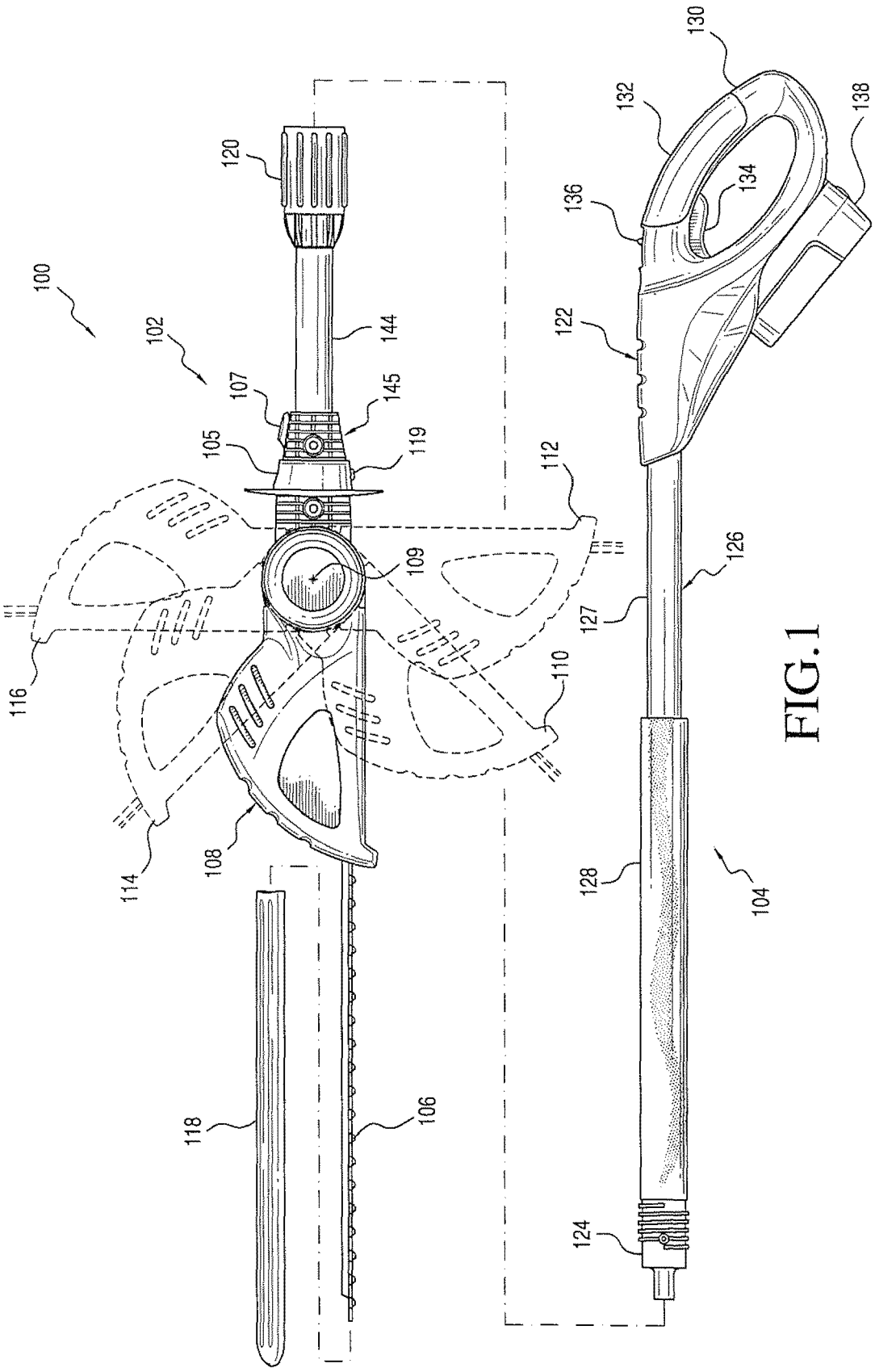
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FIG. 1

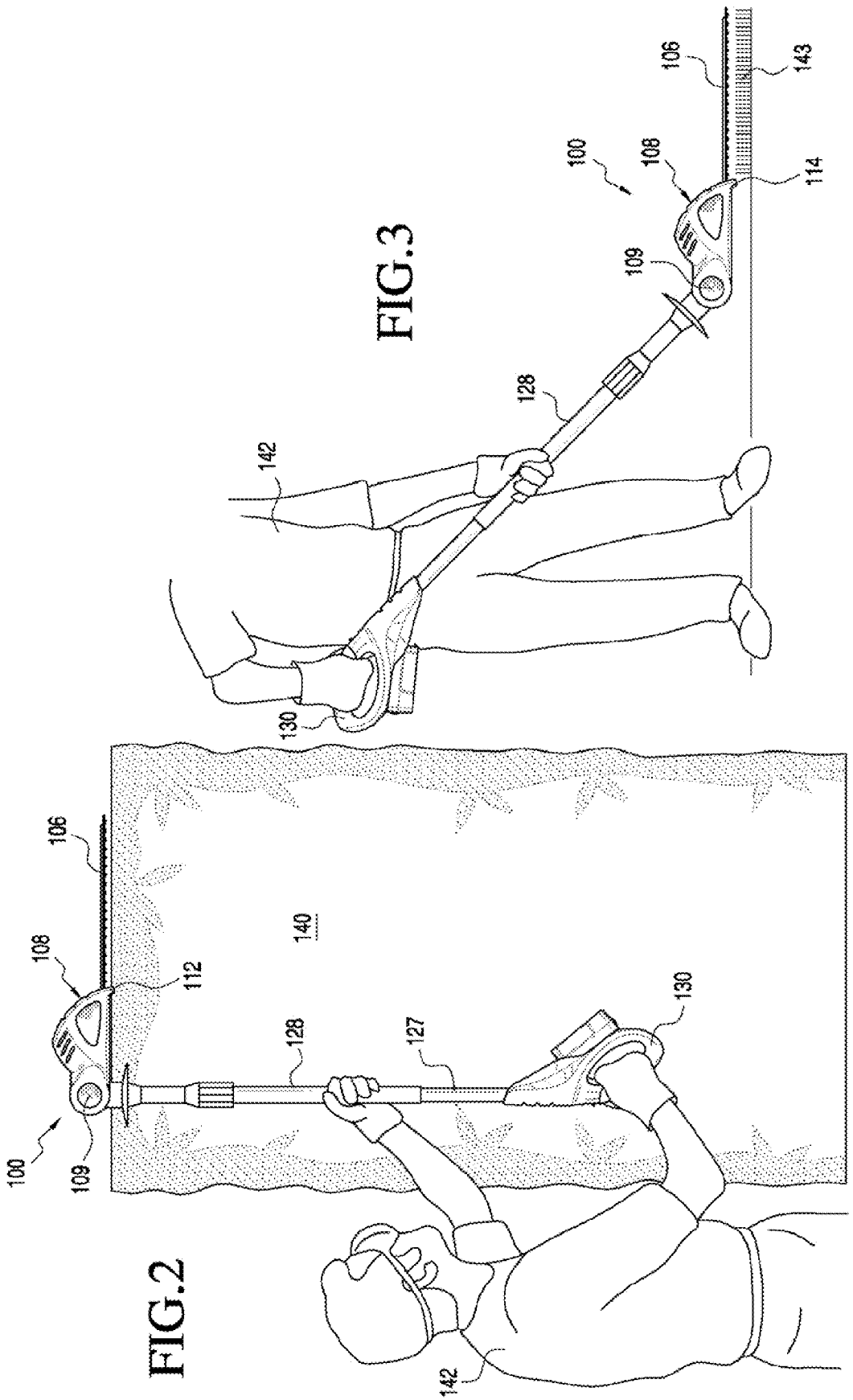

FIG.3

FIG.2

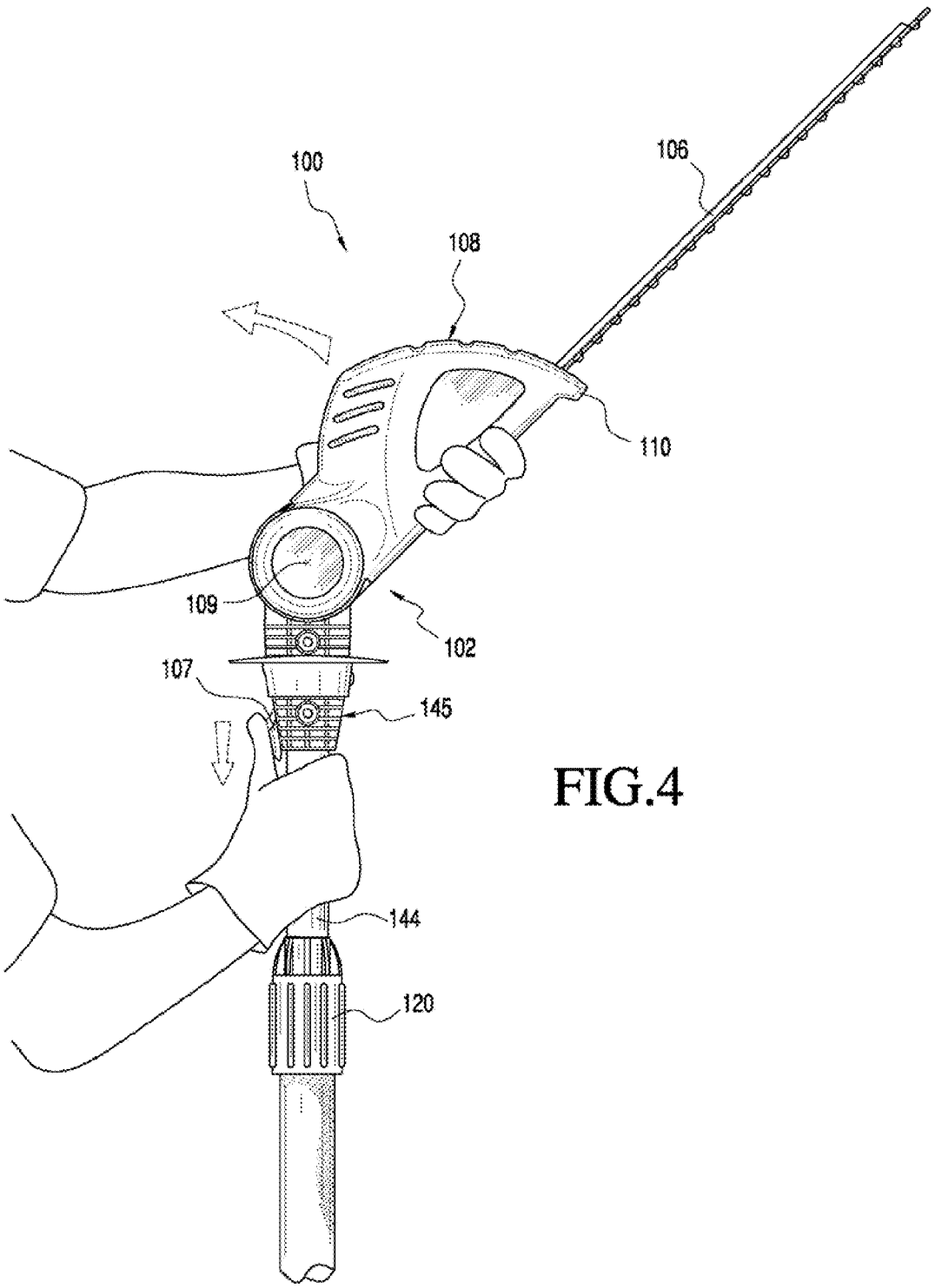

FIG.4

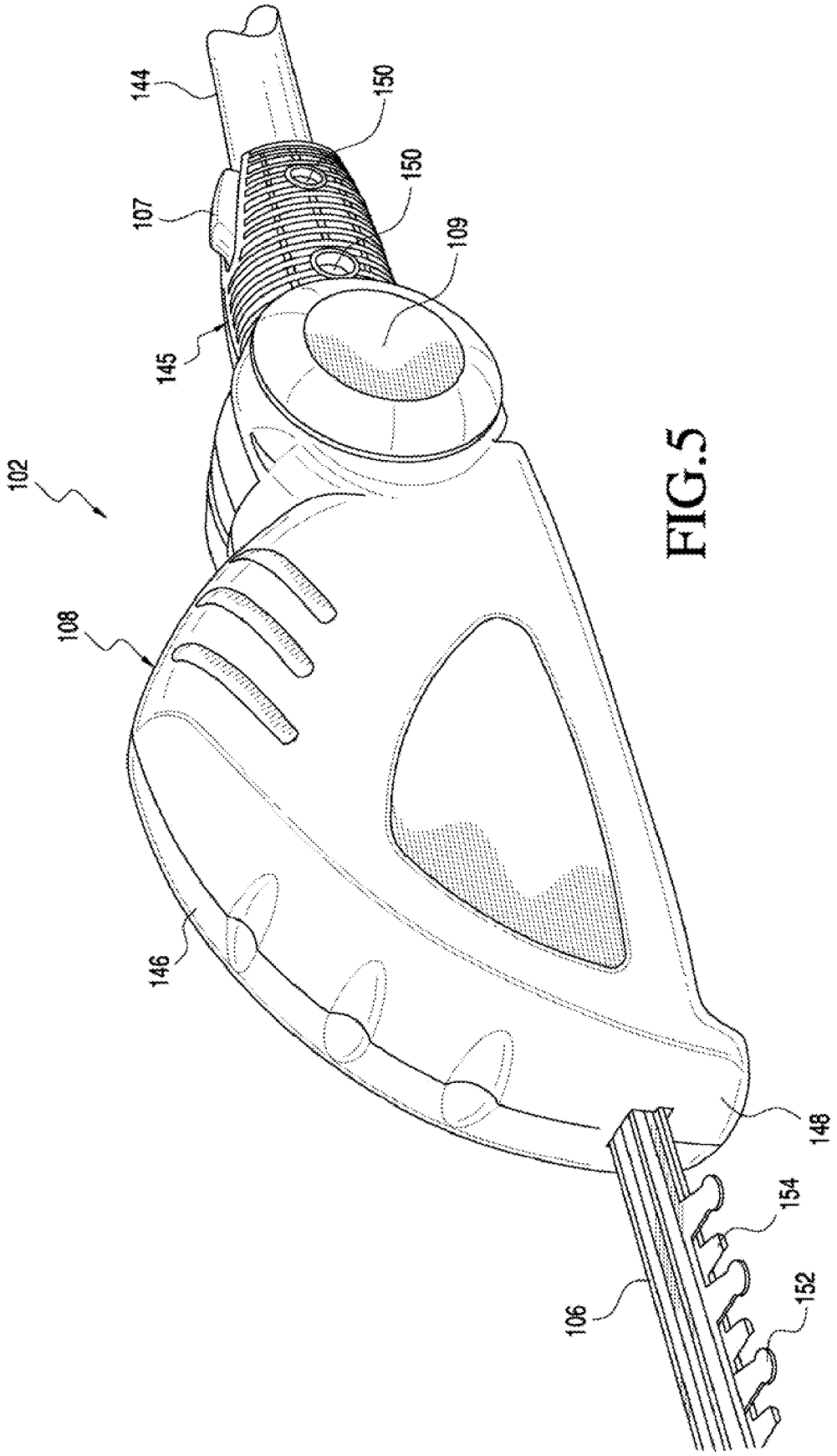

FIG.5

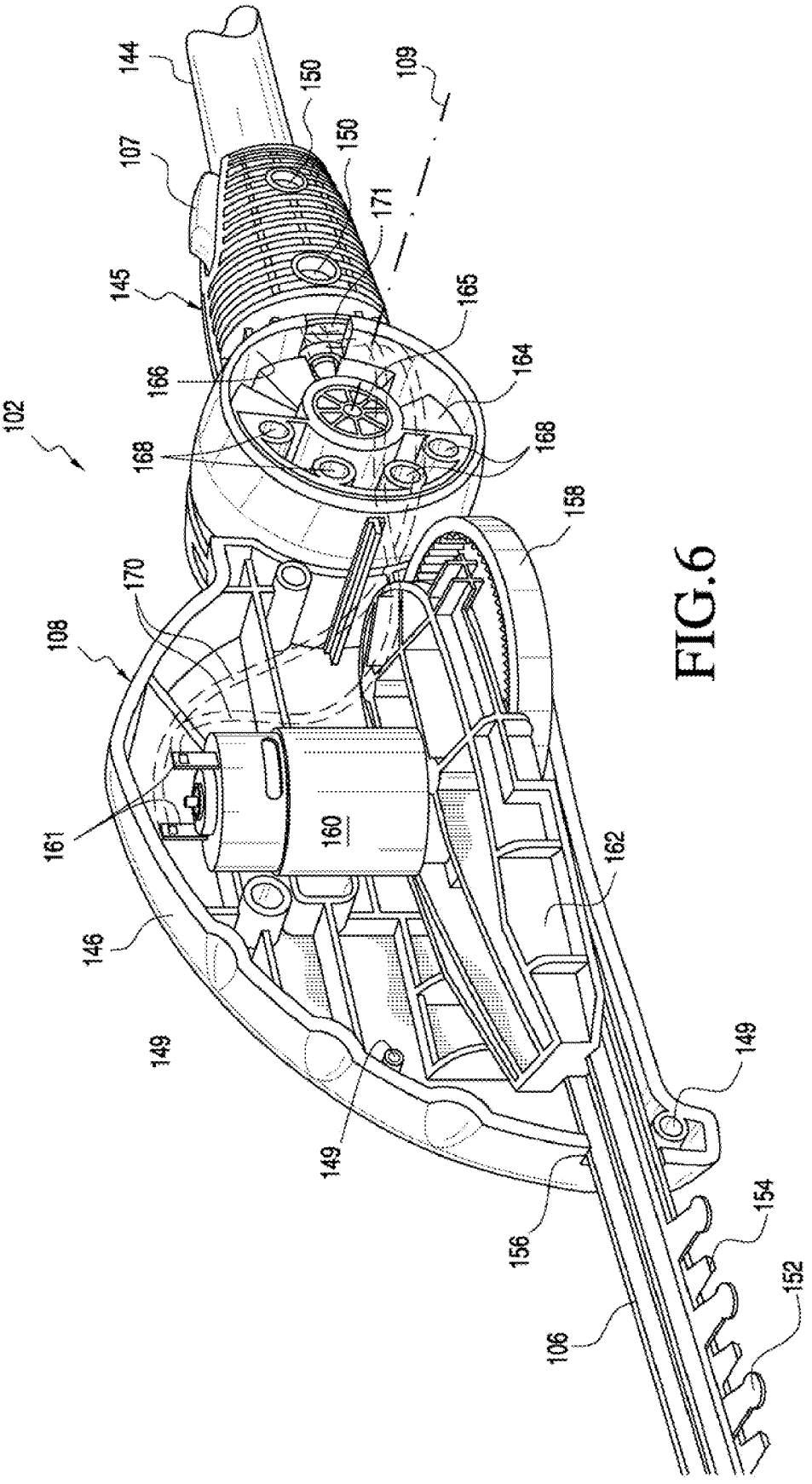
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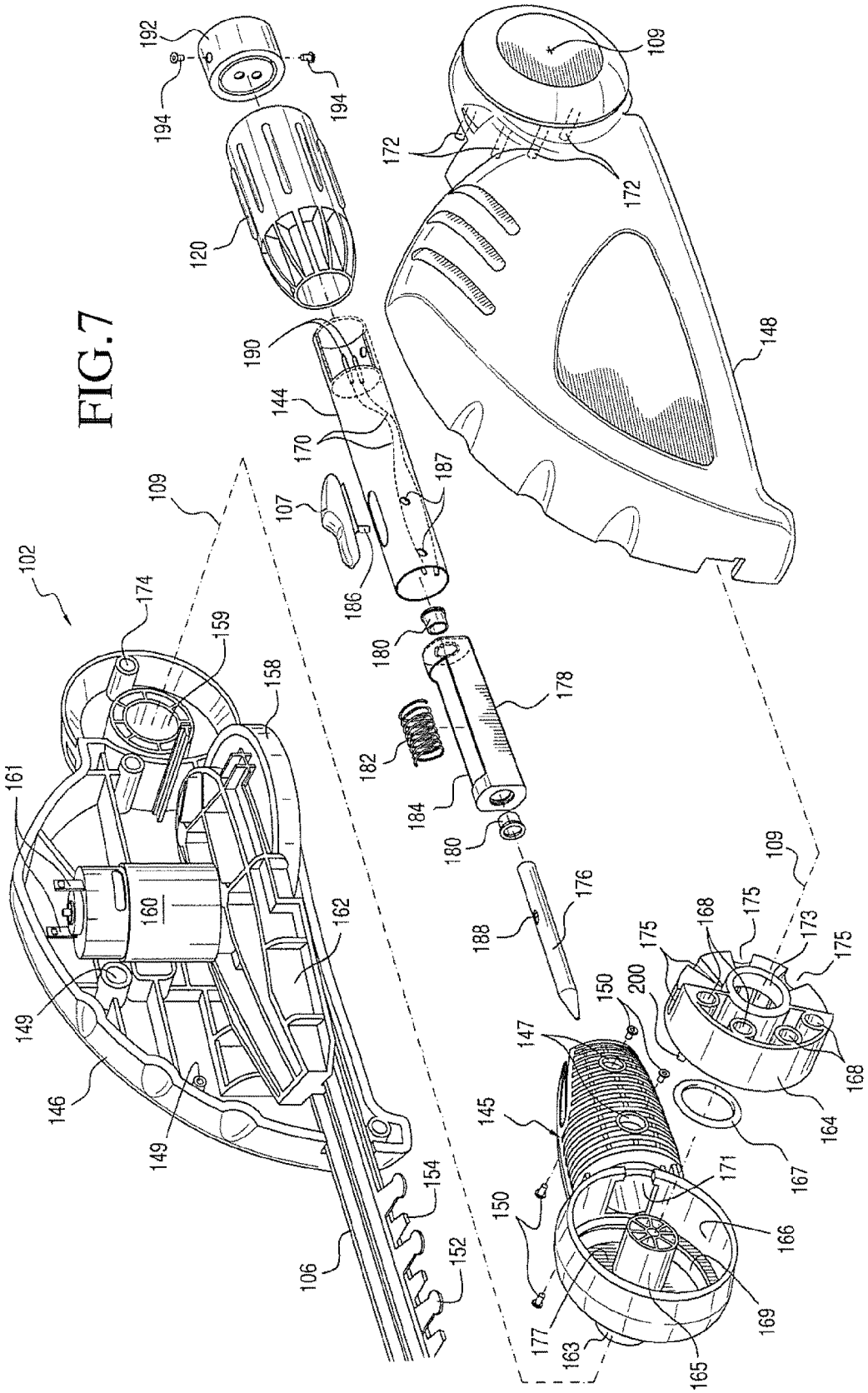
FIG.6

FIG.7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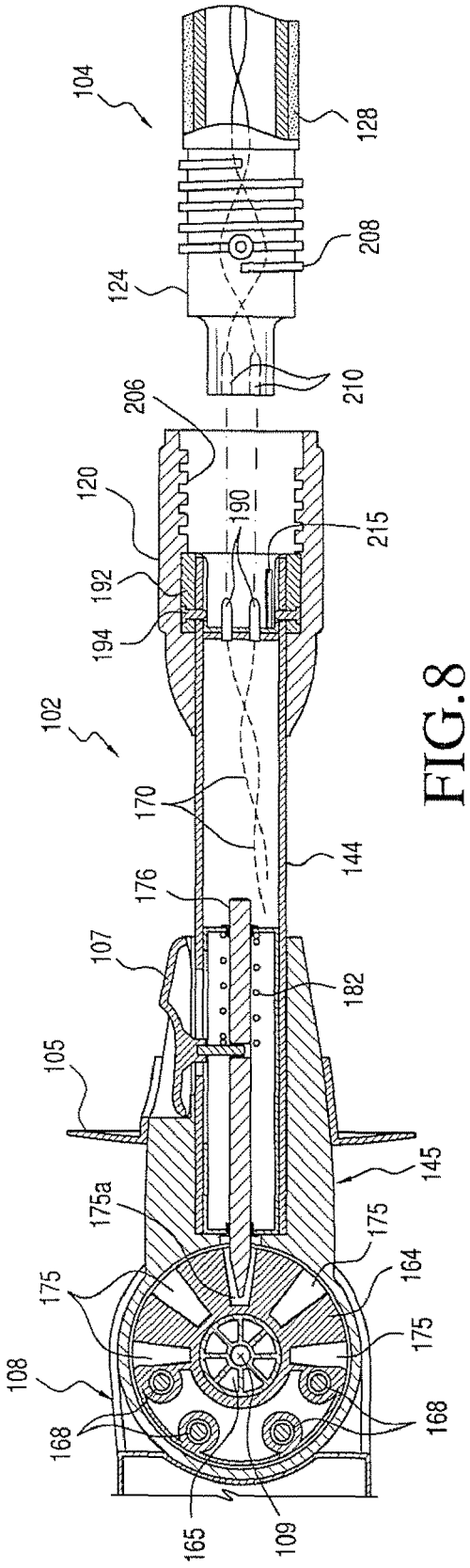
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FIG.8

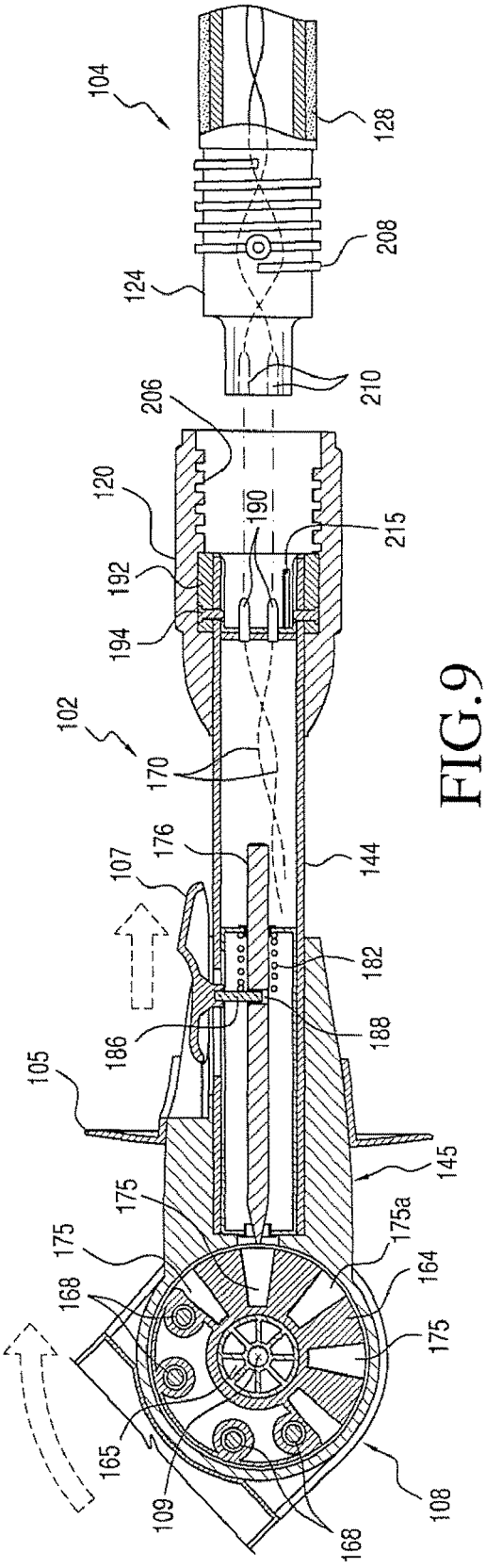
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FIG.9

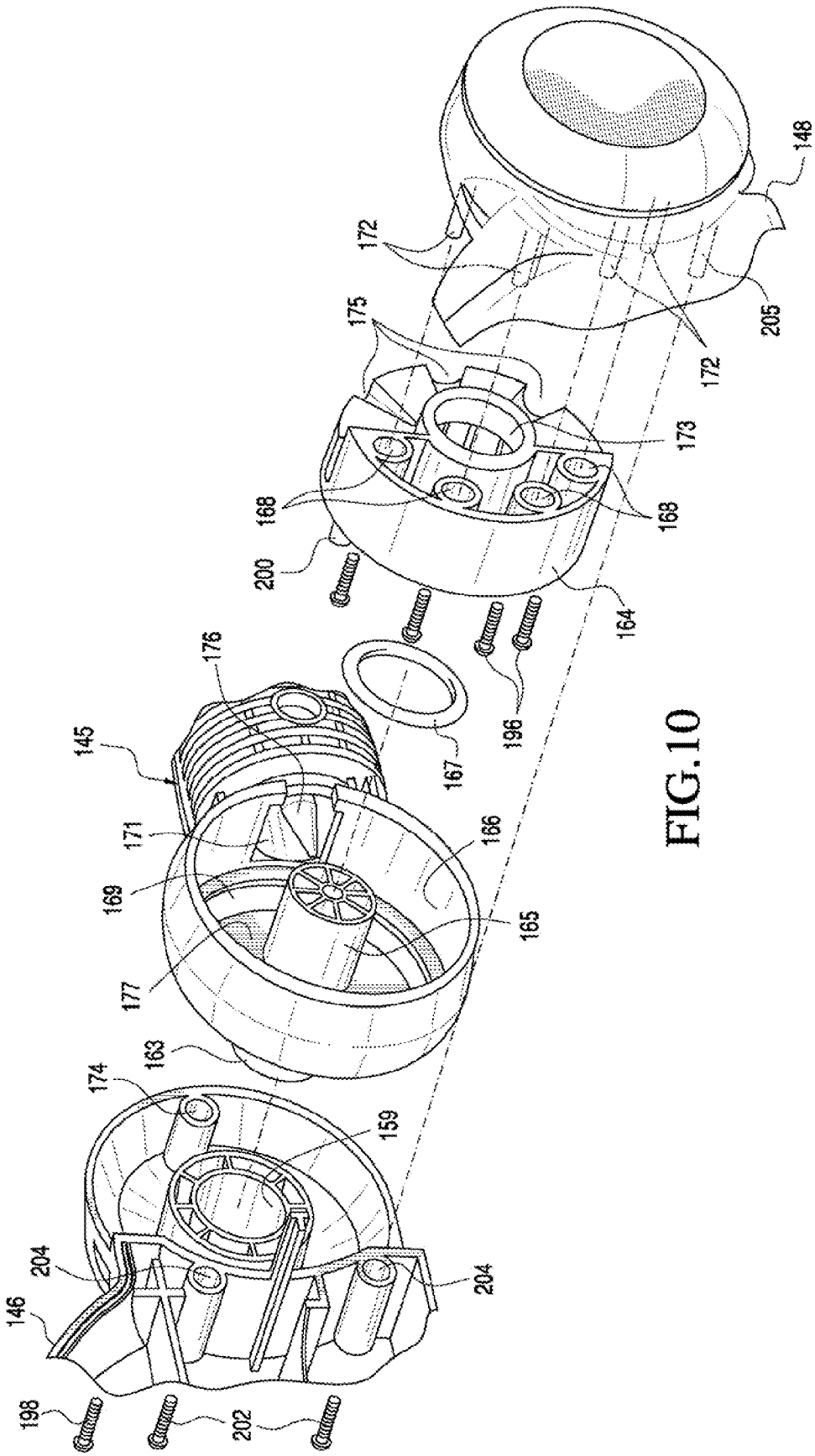
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FIG.10

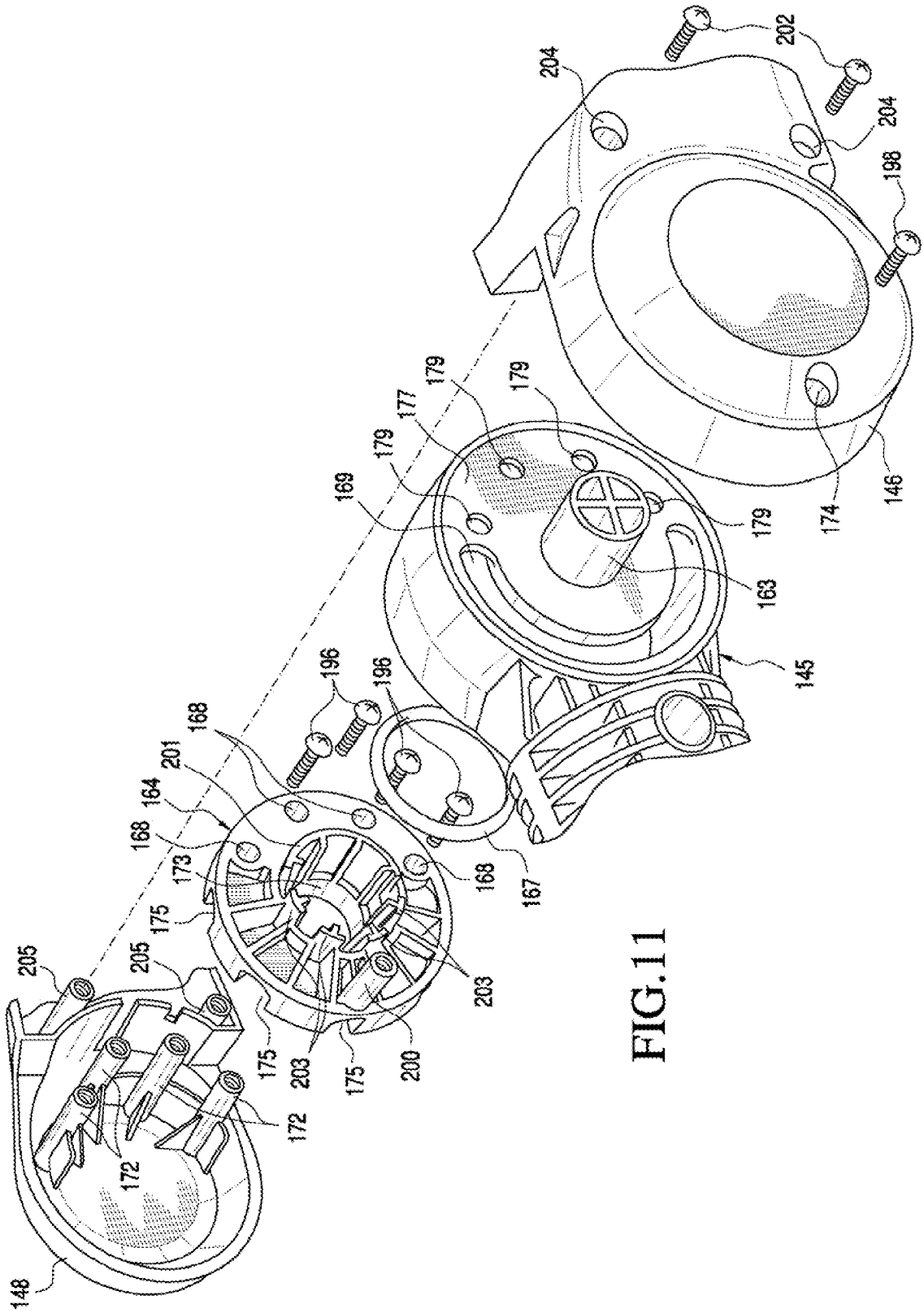
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FIG.11

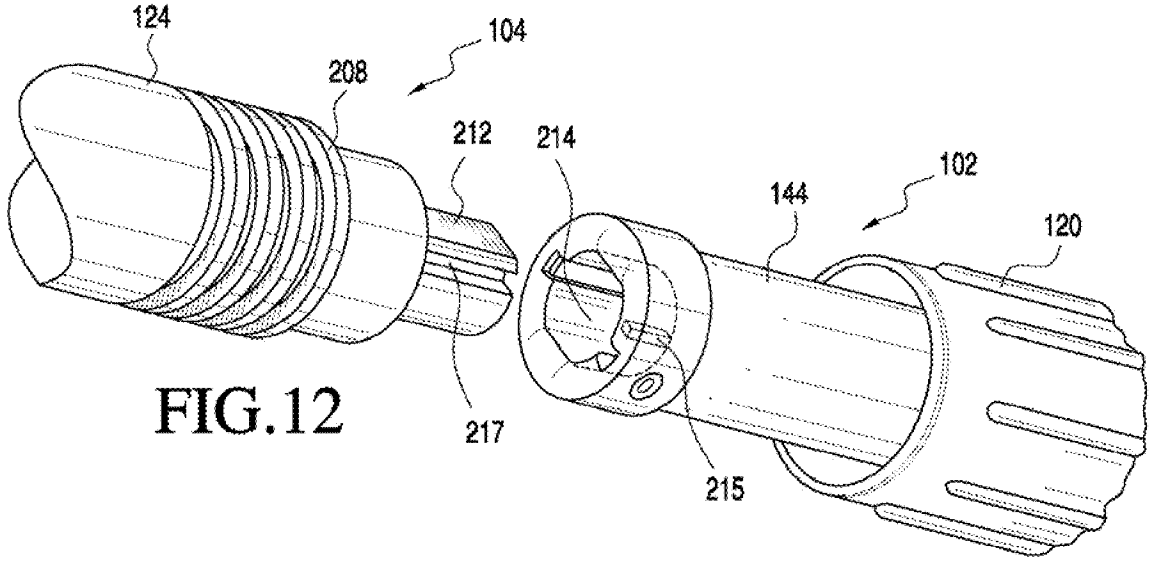

FIG.12

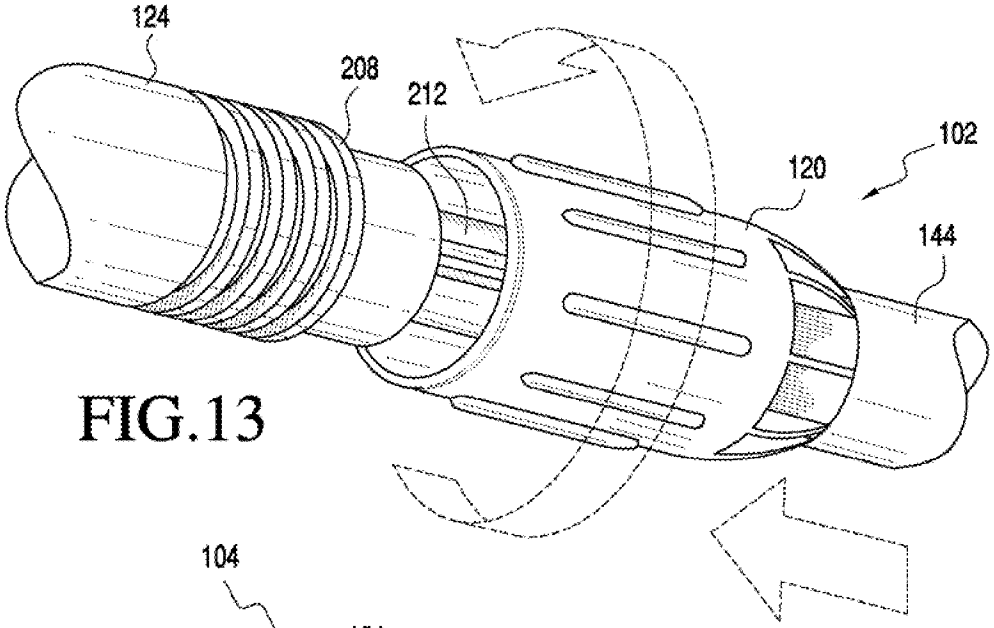

FIG.13

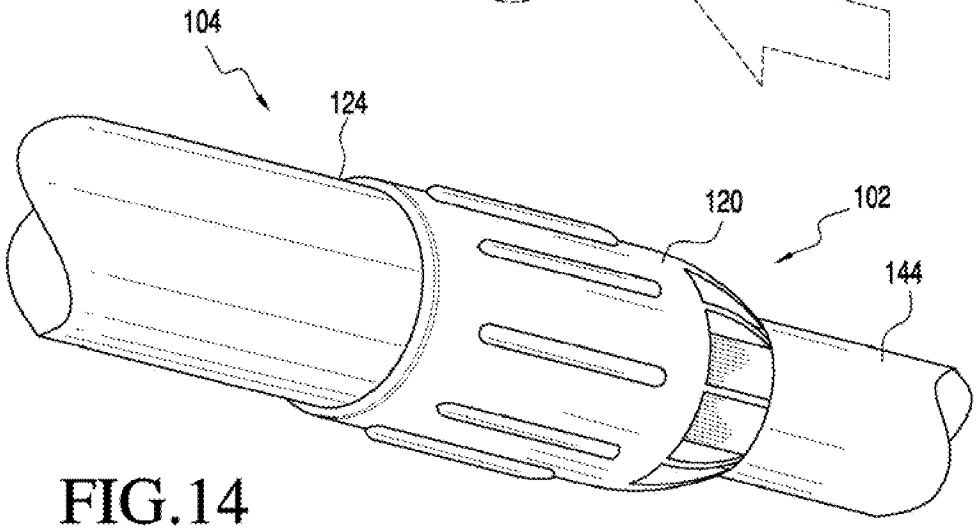

FIG.14

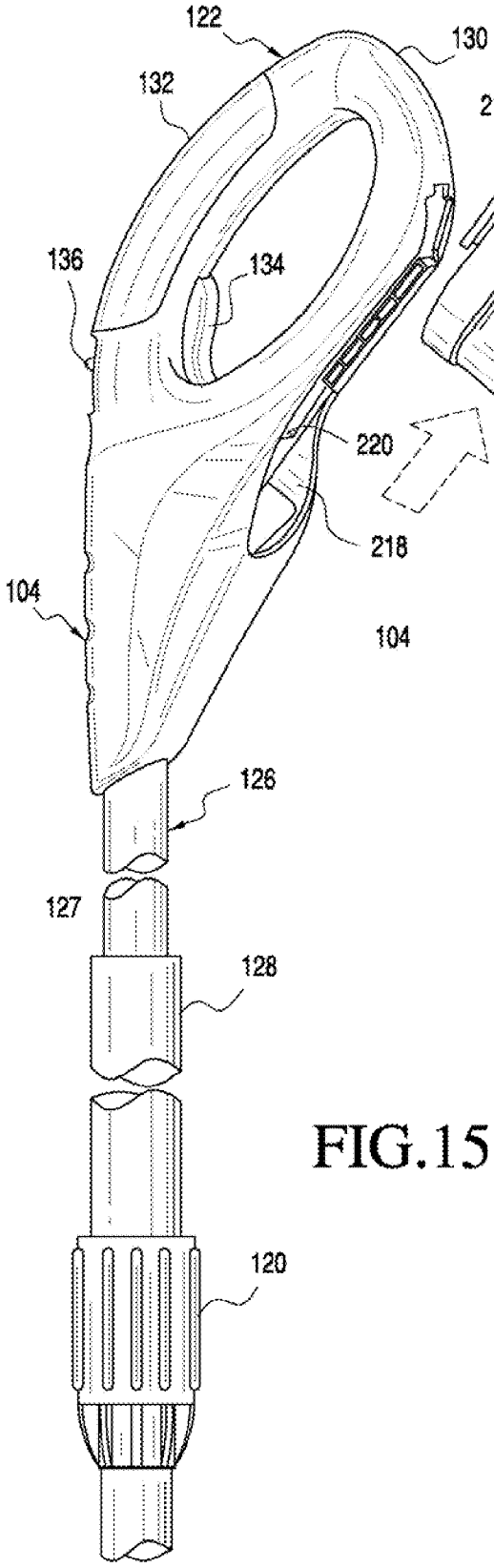
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FIG.15

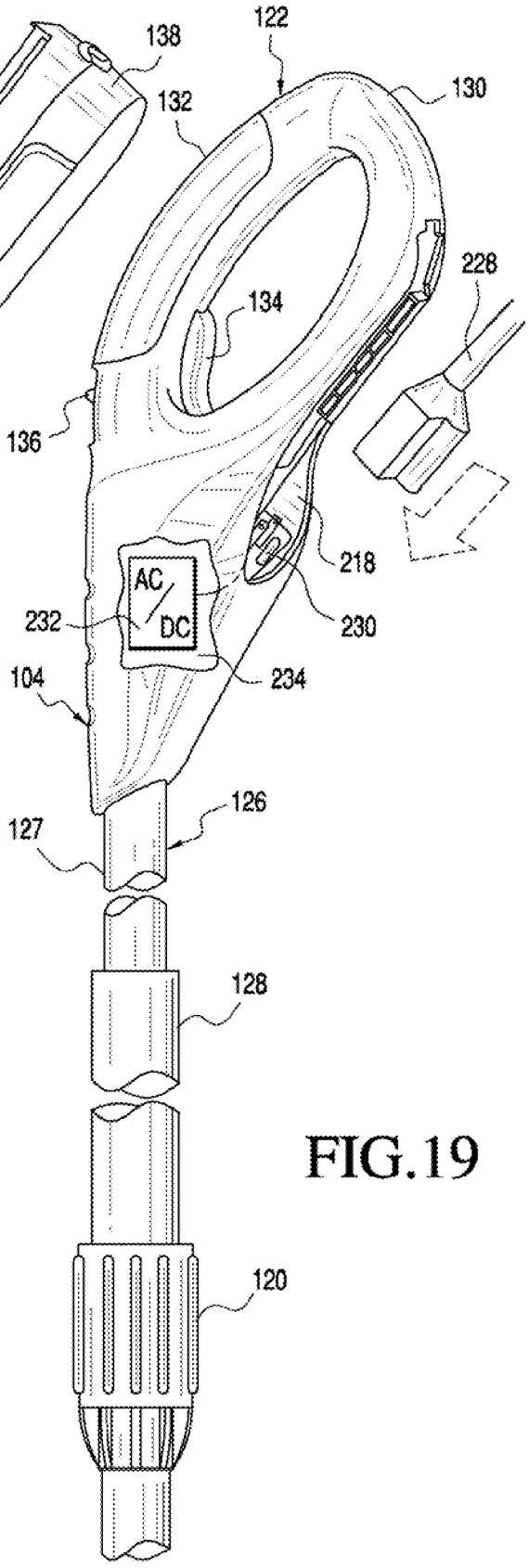
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FIG.19

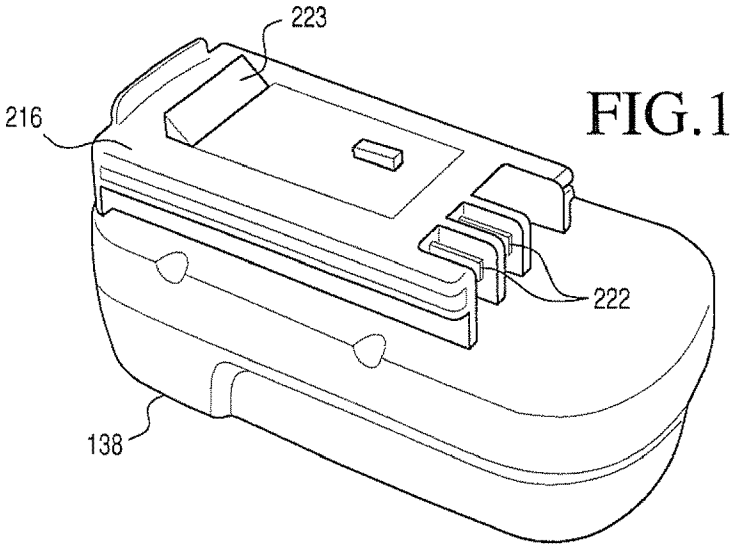

FIG.16

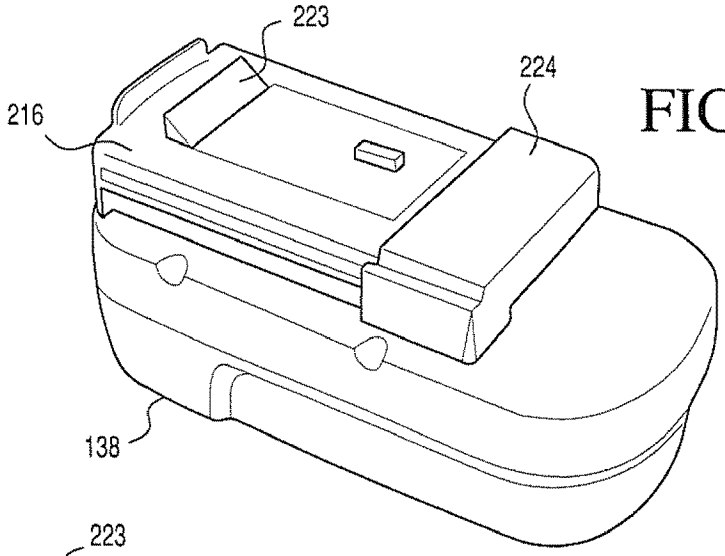

FIG.17

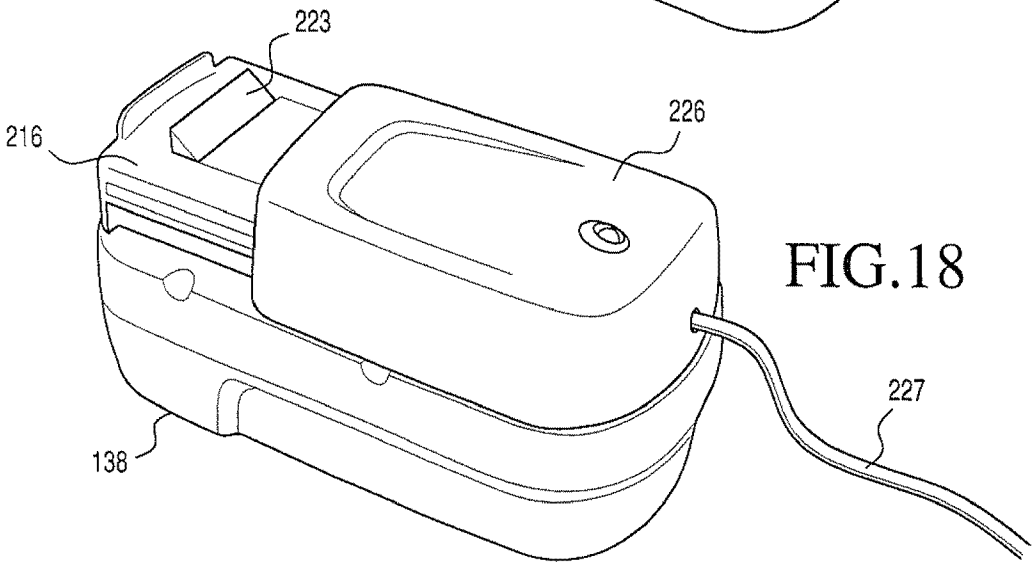

FIG.18

PORTABLE TRIMMER HAVING ROTATABLE POWER HEAD

FIELD OF THE INVENTION

The present invention generally relates to hand-held outdoor power tools. More particularly, the present invention relates to portable hedge trimmers having a rotatable power head that is selectively settable in a plurality of positions.

BACKGROUND OF THE INVENTION

Hedges are traditionally planted to define property boundaries, increase privacy, and provide shelter from prevailing winds. These hedges may achieve a formal appearance through proper cultivation, and can be trimmed as medium height hedges at 6-8 ft. or grown as taller screens or windbreaks easily exceeding 12 ft. If not pruned properly, the hedges may quickly become overgrown and unmanageable. The hedgerow top and sides are traditionally trimmed up to several times a year in the growing season, to maintain the hedge's shape.

Trimming the tops and sides of larger hedges can easily become cumbersome and time consuming. Cultivation with traditional hand-held trimmers requires the operator to mount a ladder to reach the hedge tops. The ladder must be continually repositioned along the hedgerow for proper trimming. For exceptionally wide hedgerows, the operator must repeat the trimming operation along alternate sides. Trimmers requiring use of an outdoor extension cord present additional challenges for tall hedgerows because the cord may become entangled with the operator and ladder. Moreover, conventional eight foot home ladders may be inadequate for proper operator support during trimming of exceptionally large hedges. Combustion driven hedge trimmers present additional obstacles to the operator due to increased weight, noise, and the burdens associated with the use of liquid fuel. Battery technology has recently advanced to be capable of providing sufficient electrical energy to hand-held outdoor power tools, eliminating the need for a power cord or a combustion engine. An example of a rechargeable battery used in conjunction with a power tool is disclosed in U.S. Pat. No. 6,412,572, which is hereby incorporated by reference.

Furthermore, proper trimming of the top and bottom of the hedges may require cutting at angles to achieve the proper appearance. This would force a user to climb a ladder to reach the top portion of the hedge or bend down to access the bottom portion of the hedge. Both of these options are cumbersome and burdensome for a user.

Accordingly, there remains a need for a portable trimmer to easily and safely trim a variety of plant life, including large hedges and hedgerows, small twigs and the like. There also remains a need for a portable trimmer that allows cutting at various angles to better achieve the proper hedge appearance.

SUMMARY OF THE INVENTION

In one preferred form, the present invention provides a portable, hand-operated trimmer having a head module that is removably engaged with a, power control module. The head module has a power head with a housing enclosing an electric motor and partially enclosing a trimming blade. The trimming blade is operatively coupled to the electric motor and reciprocates to provide a cutting action. The power head of the head support is selectably settable in a plurality of angular positions with respect to the head support by releasing a latch that is disposed on the head support. The angular positions include a neutral position representing 0 degree rotation, a 45 degree position and a 90 degree position.

The power head has a stator cartridge that is disposed within and statically connected to the housing of the power head by a plurality of fastening members. The head support rotates about the stator cartridge and is engaged by way of a movable engagement pin that is received within a selected recess of plural recesses defined in the stator cartridge. The latch of the head support is slidably mounted to an external surface of the head support and is connected to the engagement pin such that movement of the latch engages the pin with the selected recess. The head support is molded to define a chamber for partially enclosing the stator cartridge, and molded to define a first and second pivot arms that rotate about an axis. The first pivot arm is received within a molded socket defined by the housing of the power head. The second pivot arm is received within a molded socket defined by the stator cartridge. An O-ring is disposed about the second pivot arm to increase friction contact with the stator cartridge and thereby diminish free rotation about the axis.

The power control module releasably engages with the head module and provides a source of power and control for the portable trimmer. The power control module has a control handle assembly that provides a source of electrical power and has an elongated boom that releasably engages with a coupling module of the power head. Electrical power is provided by way of a rechargeable battery or through direct connection of a power cord to conventional household power. The battery is disengaged from the control handle assembly for charging by an external charging unit.

Further areas of applicability of the present invention will become apparent from the detailed description provided hereinafter. It should be understood that the detailed description and specific examples, while indicating the preferred embodiments and best mode of the invention, are intended for purposes of illustration only and are not intended to limit the scope of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Additional advantages and features of the present invention will become apparent from the subsequent description and the appended claims, taken in conjunction with the accompanying drawings, wherein:

FIG. **1** is a side view of a portable trimmer showing connection of a head module to a handle module, according to an embodiment of the present invention;

FIG. **2** illustrates the portable trimmer in a hedge trimming operation;

FIG. **3** illustrates the portable trimmer in a grass trimming operation;

FIG. **4** is a side view of the portable trimmer showing the head module during rotation of a power head with respect to a head support;

FIG. **5** is a perspective view of the head module with the power head disposed in the neutral position;

FIG. **6** is a sectional view of the head module illustrated in FIG. **5**;

FIG. **7** is an exploded perspective view of the trimmer head module;

FIG. **8** is a sectional view of the head module with the power head locked in the neutral position, and a sectional view of the power control module poised for connection thereto;

FIG. **9** is a sectional view of the head module and power control module illustrated in FIG. **8** with the power head unlocked for dorsiflexion rotation;

FIG. **10** is an exploded perspective view of the power head matable sections, stator cartridge, and head support;

FIG. **11** is an exploded perspective view of the power head matable sections, stator cartridge, and head support illustrated in FIG. **10** from an opposite perspective;

FIG. **12** is a detailed perspective view of the handle module poised for connection to the power control module;

FIG. **13** is a detailed perspective view showing rotatable connection of the handle module to the power control module;

FIG. **14** is a detailed perspective view of the handle module statically connected to the power control module;

FIG. **15** is a perspective view of a battery module being removed from the power control module of the portable trimmer;

FIG. **16** is a perspective view of the battery module with electrical contacts exposed;

FIG. **17** is a perspective view the battery module with a removable battery cap covering the electrical contacts;

FIG. **18** is a perspective view of the battery module connected to a battery charging unit; and

FIG. **19** is a perspective view of a power cord being connected to the power control module according to an alternate embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

With reference now to the figures, and in particular FIG. **1**, a preferred embodiment of portable trimmer **100** is illustrated in accordance with the teachings of the present invention. Portable trimmer **100** has a head module **102**, which is removably connected to power control module **104**. Head module **102** provides power to trimming blade **106**, which is a cutting tool, through rotatable power head **108**. As illustrated, power head **108** is set in a neutral position along the longitudinal axis of head module **102**. The power head **108** is rotatable about head assembly axis **109**, and is selectively settable in plural positions through releasable engagement of latch **107** in head support **145**. Latch **107** and the hand of an operator are protected by hand guard **105**, which is secured to head support **145** by way of a fastening member **119**. The fastening member **119** is preferably a set screw.

According to the preferred embodiment, power head **108** is selectively settable in the neutral position, a 45 degree flexion position **110**, a 90 degree flexion position **112**, a 45 degree dorsiflexion position **114**, and a 90 degree dorsiflexion position **116**. Accordingly, there are two 45 degree positions, namely: the 45 degree flexion position **110** and the 45 degree dorsiflexion position **114**; and two 90 degree positions, namely: the 90 degree flexion position **112**, and the 90 degree dorsiflexion position **116**. It should be understood that these angular positions are preferred, but that they can be set to any predetermined angle. According to an alternate embodiment, power head **108** only rotates from the neutral position into positions of flexion, such as the 45 degree flexion position **110** and the 90 degree flexion position **112**. According to yet another alternate embodiment, power head **108** only rotates from the neutral position into positions of dorsiflexion, such as the 45 degree dorsiflexion position **114** and the 90 degree dorsiflexion position **116**.

During rotation of power head **108** or during storage of portable trimmer **100**, trimming blade **106** is covered by removable blade sheath **118**. Head module **102** includes a head coupling **120** for removable engagement with power control module **104**. The head module **120** is connected to head support **145** by head extension pole **144**.

Power control module **104** has a control handle assembly **122** at a proximal end thereof for gripping and control of portable trimmer **100** by an operator. Control handle assembly **122** is connected to elongated boom **126**, which in turn is connected to handle coupling **124**. Elongated boom **126** has a gripper section **128** surrounding pole section **127** to enhance gripping of portable trimmer **100** by the operator. According to the preferred embodiment, gripper section **128** is a flexibly deformable material such as foam rubber, but may be any material to enhance gripping. Handle coupling **124** releasably engages with head coupling **120** to structurally connect head module **102** to power control module **104**. Handle coupling **124** also forms an electrical connection with head coupling **120** for transmitting electrical power.

Control handle assembly **122** has a handle **130** for controlling operation of portable trimmer **100**. Mating surface **132** is disposed about an upper surface area of handle **130** to increase friction with the hand of the operator and thereby provide increased control. Control handle assembly **122** also has a manual switch **134** for controlling distribution of power to head module **102**. Safety locking latch **136** is disposed about an upper periphery of control handle assembly **122** for releasably engaging manual switch **134**. An operator may control safety locking latch **136** with the thumb to thereby release manual switch **134** and initiate operation of portable trimmer **100**. Safety locking latch **136** is engaged each time the operator seeks to operate manual switch **134**. Battery module **138**, which is an electrical power unit, is releasably engaged to the underside of control handle assembly **122** to provide power to portable trimmer **100**.

FIG. **2** is a view of portable trimmer **100** in a hedge trimming operation. Portable trimmer **100** is illustrated with power head **108** disposed in the 90 degree flexion position **112** during a top hedge trimming operation of hedges **140**. Power head **108** is locked in position to thereby prevent further rotation about head assembly axis **109**. Operator **142** controls portable trimmer **100** by grasping handle **130** and gripper section **128**.

FIG. **3** is a view of portable trimmer **100** in a grass trimming operation. Portable trimmer **100** is illustrated with power head **108** disposed in the 45 degree dorsiflexion position **114** during a grass trimming operation of grass **143**. Power head **108** is locked so that it does not rotate about head assembly axis **109**. Similar to the hedge trimming operation, operator **142** controls portable trimmer **100** by grasping handle **130** and gripper section **128**.

FIG. **4** shows the repositioning of a rotatable power head **108** from the 45 degree flexion position **110** toward the neutral, i.e. straight, position. The operator grasps power head **108** with one hand and grasps head extension pole **144** with the other hand while disengaging latch **107** through movement in the illustrated downward position. Latch **107** is slidably recessed within head support **145**. Once power head **108** is rotated into the desired position, such as the neutral position, the latch **107** is released.

FIG. **5** is a perspective view of portable trimmer **100** with power head **108** in the neutral position. Hand guard **105** has been removed for clarity. Trimming blade **106**, which is a cutting tool, has a plurality of stationary blade elements **152** and a plurality of reciprocating blade elements **154**. Blade elements **152** cooperate with blade elements **154** to provide the cutting action. Trimming blade **106** is received within power head **108**, which is formed in clamshell like fashion, by first matable section **146** and a second matable section **148**. The matable sections **146**, **148** are joined by a plurality of fastening members, which are described in detail below. The fastening members are preferably received by corresponding

molded lugs within power head **108**. Head assembly axis **109** provides a point of rotation for power head **108** and head support **145**. The power head **108** is set in one of a plurality of predetermined positions with respect to head support **145** through engagement of latch **107**. Head extension pole **144** is fixedly attached to head support **145** by way of fastening members **150**. The fastening members **150** are preferably rivets, but may take other forms known in the art, such as screws.

FIG. **6** is a sectional view of FIG. **5** showing the head module **102** with power head **108** in the neutral position. As illustrated, trimming blade **106** is received within molded blade recess **156** of first matable section **146**. Likewise, trimming blade **106** is also received within a corresponding-molded blade recess of second matable section **148** (section removed for clarity). Trimming blade **106** reciprocates in response to movement of spur gear **158**. Likewise, spur gear **158** is engaged with and receives power from motor **160**. Trimming blade **106**, motor **160**, and spur gear **158** are supported by motor mount **162**, which in turn is held in place through engagement with matable sections **146**, **148**. The first and second matable sections **146**, **148** include a plurality of molded lugs **149**, described in greater detail below, for receiving respectively corresponding fastening members.

Now referring to FIGS. **6** and **7**, head support **145** rotates with respect to power head **108** upon disengagement of latch **107**. In order to define head assembly axis **109** as an axis of rotation, stator cartridge **164** remains fixed to first and second matable sections **146**, **148** by a plurality of fastening members, described in detail below. Stator cartridge **164** is also disposed within interior receiving chamber **166** of head support **145**. The head support **145** includes a distal pivot arm **163** that is received within molded socket **159** of first matable section **146**. Likewise, proximal pivot arm **165** of head support **145** is received within molded socket **173** of stator cartridge **164**. O-ring **167** is disposed about pivot arm **165** to increase friction between stator cartridge **164** and interior receiving chamber **166**. O-ring **167** provides increased stability and friction during rotation of power head **108** with respect to head support **145**.

Stator cartridge **164** freely rotates within interior receiving chamber **166** of head support **145**, but remains stationary with respect to first matable section **146** and second matable section **148**. In particular, a plurality of fastening members **196** (illustrated in FIGS. **10** and **11**) connect slots **168** of stator cartridge **164** to molded lugs **172** of second matable section **148**. Likewise, a fastening member **198** (illustrated in FIGS. **10** and **11**) connects slot **174** of first matable section **146** to molded lug **200** of stator cartridge **164** by passing through semi-circular aperture **169** defined in molded plate **177** of head support **145**.

The head support **145** is locked into a predetermined position with respect to power head **108** by latch **1,07**. In particular, extension pin **186** of latch **107** is connected to pin aperture **188** of engagement pin **176** to control linear movement thereof. The engagement pin **176** is selectably received within a plurality of engagement recesses **175** within stator cartridge **164**. The plurality of engagement recesses **175** correspond to selectable positions of power head **108**, namely: the neutral position, the 45 degree flexion position **110**, the 90 degree flexion position **112**, the 45 degree dorsiflexion position **114**, and the 90 degree dorsiflexion position **116**. Alternate embodiments corresponding to alternate selectable degree positions of power head **108** are provided by altering the placement of engagement recesses **175** in stator cartridge **164**. For example, engagement recesses **175** may be provided such that power head **108** is settable at positions of 30 degree flexion, 60 degree flexion, 30 degree dorsiflexion, 60 degree dorsiflexion, or the like.

Engagement pin **176** is received within and linearly moves with respect to cradle **178**. Engagement pin **176** is stabilized within cradle **178** by way of a pair of alternately disposed collars **180**. Biasing member **182** is received within cradle **178** and urges engagement pin **176** for selective engagement with the plurality of engagement recesses **175** within stator cartridge **164**. Cradle **178** has a defined opening **184** in the top thereof for insertion of biasing member **182**. Defined opening **184** also permits movement of latch **107** with respect to engagement pin **176**, and in particular, permits insertion of extension pin **186** of latch **107** into pin aperture **188** of engagement pin **176**. As illustrated, cradle **178** is disposed within head extension pole **144**.

The head extension pole **144** is permanently affixed to head support **145**. In particular, fastening members **150** are first inserted into slots **147** of head support **145**. The fastening members **150** are then affixed into fastening apertures **187** of head extension pole **144**. According to a preferred embodiment, fastening members **150** are rivets, but may take other forms known in the art, such as screws.

With reference to FIGS. **7-9**, head coupling **120** includes a head electrical connection unit **190**, which is formed by a pair of electrical connection pins. The head electrical connection unit **190** is retained within head extension pole **144** by way of insertion into electrical collar **192**. According to a preferred embodiment, the electrical pins are retained within electrical collar **192** by way of fastening elements **194**, which are preferably rivets. Thus, to form an electrical connection path, electrical leads **170** are respectively attached to head electrical connection unit **190**, are threaded through head extension pole **144**, and then threaded through interior channel **171** of head support **145** and into a chamber defined by first and second matable sections **146**, **148**, for ultimate attachment to electrical attachment pins **161** of motor **160**.

FIG. **8** is a sectional view of power head **108** of head module **102** locked in the neutral position with power control module **104** poised for connection to head module **102**. Power head **108** remains locked through insertion of engagement pin **176** into a selected engagement recess **175***a* of stator cartridge **164**. Biasing member **182** urges engagement pin **176** into the selected engagement recess **175**a when latch **107** is released by the operator. Head coupling **120** defines a threaded recess **206** to receive threaded male engagement section **208** of handle coupling **124**. Head coupling **120** is slidable and rotatable about extension pole **144** to engage the handle coupling **124**. Accordingly, the pins forming head electrical connection unit **190** are received within corresponding electrical receptacle **210** of handle coupling **124**, and head coupling **120** is rotated to secure the connection.

FIG. **9** is a sectional view of the power head **108** of FIG. **8** illustrating dorsiflexion rotation about head assembly axis **109**. As illustrated, latch **107** is attached to engagement pin **176** through insertion of extension pin **186** into pin aperture **188**. When latch **107** is moved away from hand guard **105**, engagement pin **176** releases from engagement with selected engagement recess **175***a* of stator cartridge **164** to disengage power head **108**. The power head **108** is then rotated through flexion or dorsiflexion into another selected position. When latch **107** is released by the operator, biasing member **182** urges engagement pin into another selected engagement recess **175**.

FIGS. **10** and **11** show exploded sectional views of the first and second matable sections **146**, **148** of power head **108**, stator cartridge **164**, and head support **145** from opposite

perspectives. Stator cartridge **164** remains statically connected to first matable section **146** and second matable section **148**. In particular, fastening members **196** are fixedly received within slots **168** of stator cartridge **164** and are joined to molded lugs **172** of second matable section **148** to thereby form a static connection. According to a preferred embodiment, fastening members **196** are screws. Likewise, fastening member **198** is fixedly received within slot **174** of first matable section **146** and is joined to molded lug **200** of stator cartridge **164**. The first matable section **146** is also directly connected to second matable section **148** by a plurality of fastening members **202**. In particular, fastening members **202** are fixedly received within slots **204** of first matable section **146** and are joined to molded lugs **205** (particularly shown in FIG. **11**) of second matable section **148**.

Head support **145** includes molded plate **177**, which is continuously joined to a predetermined side of interior receiving chamber **166**. Pivot arms **163** and **165** protrude perpendicularly from molded plate **177**. In order to support rotation of head support **145** with respect to power head **108**, pivot arm **165** of head support **145** is rotationally disposed within molded socket **173** of stator cartridge **164**, and pivot arm **163** of head support **145** is rotationally disposed within molded socket **159** of first matable section **146**.

Molded plate **177** of head support **145** also defines semi-circular aperture **169**. Accordingly, molded lug **200** of stator cartridge **164** passes through semi-circular aperture **169** and moves arcuately with respect thereto during rotation of head support **145**. O-ring **167** is disposed about pivot arm **165** and increases friction contact between stator cartridge **164** and head support **145**. In particular, O-ring **167** contacts molded plate **177** and pivot arm **165** of head support **145**, and also contacts arcuate projection **201** and T-shaped projections **203** of stator cartridge **165**. A plurality of apertures **179** are also defined within molded plate **177** of head support **145** to facilitate tightening of fastening members **196** into respectively corresponding molded lugs **172** in second matable section **148**. According to a preferred embodiment, fastening members **196**, **198**, and **202** are screws. Alternately, fastening members **196**, **198**, and **202** may be rivets, living-hinge type fittings, or combinations thereof providing a static connection.

FIG. **12** is a perspective view of power control module **104** poised for connection to head module **102**. In particular, handle coupling **124** of power control module **104** has a male extension **212** for insertion into female receiver **214** of head coupling **120**. The female receiver **214** includes a rail **215** to mate with a corresponding recess **217** in male extension **212**. Head coupling **120** defines a threaded recess **206** (see FIGS. **8** and **9**) to receive threaded male engagement section **208** of handle coupling **124**. Head coupling **120** is slidable and rotatable about extension pole **144** to engage the handle coupling **124** and secure the connection.

FIG. **13** is a perspective view illustrating rotatable connection of head module **102** to power control module **104**. Upon insertion of male extension **212** into female receiver **214**, head coupling **120** is rotated about threaded male engagement section **208** to provide a static connection between power control module **104** and head module **102**.

FIG. **14** is a perspective view illustrating power control module **104** in static connection with head module **102**.

FIG. **15** is a perspective view of battery module **138** being released from engagement with control handle assembly **122** of power control module **104**. Battery module **138** includes a channel projection **216** for engagement with elongated recess **218** in control handle assembly **122**. Electrical contacts on battery module **138** provide an electrical connection to electrical contacts **220** within elongated recess **218**

FIG. **16** is an elevated perspective view of battery module **138** illustrating channel projection **216** and plural electrical contacts **222**. Engagement projection **223** releasably engages with a corresponding element in control handle assembly **122**. According to an embodiment, battery module **138** houses a rechargeable battery power supply (not shown). According to embodiments of the invention, the battery power supply is 12 volts, 14 volts, 18 volts, 24 volts, 28 volts, or 36 volts. According to a preferred embodiment, the battery power supply is an 18 volt rechargeable battery.

FIG. **17** is an elevated perspective view of the battery module **138** of FIG. **16** with battery cap **224** covering the electrical contacts for storage.

FIG. **18** is an elevated perspective view of the battery module **138** of FIG. **16** connected to battery charging unit **226**. Battery charging unit **226** is connected to conventional household power by way of charging unit power cord **227**. Battery charging unit **226** is configured and arranged to convert conventional AC house-hold power into DC power for charging battery module **138**.

FIG. **19** is an elevated perspective view of control handle assembly **122** poised for electrical connection to AC power cord **228** according to an alternate embodiment of the present invention. As illustrated, electric power plug **230** is disposed within elongated recess **218** for connection with AC power cord **228**. According to this embodiment, AC/DC converter **232** is disposed within interior chamber **234** of control handle assembly **122** and connected between electric power plug **230** and manual switch **134** to convert supplied AC power to 18 volt DC current for driving electric motor **160**. AC/DC converter **232** in combination with the supplied AC power is an electrical power unit.

While the invention has been described in the specification and illustrated in the drawings with reference to a preferred embodiment, it will be understood by those skilled in the art that various changes may be made and equivalents may be substituted for elements thereof without departing from the scope of the invention as defined in the claims. In addition, many modifications may be made to adapt a particular situation or material to the teachings of the invention without departing from the essential scope thereof. Therefore, it is intended that the invention not be limited to the particular embodiment illustrated by the drawings and described in the specification as the best mode presently contemplated for carrying out this invention, but that the invention will include any embodiments falling within the foregoing description and the appended claims.

We claim:

1. A hand-operated power tool, comprising:

a power head having a housing enclosing an electric motor and at least partially enclosing a cutting tool operatively coupled to the electric motor;

a head support connected to the power head and settable in a plurality of angular positions with respect to said power head, said head support having a head coupling including a head electrical connection unit electrically connected to the electric motor, at least one pivot arm that is rotationally received within a corresponding socket within said power head and an engagement pin for locking said head support into one of a plurality of selectable angular positions with respect to said power head;

an elongated boom terminating at a distal end with a handle coupling for releasable engagement with the head coupling, the handle coupling having an electrical receptacle for electrically connecting to the head electrical connection unit during the engagement; and

a control handle assembly connected to a proximal end of said elongated boom and having a manual switch to control communication of electric power from an electrical power unit to a handle electrical connection unit during the engagement, whereby engagement of the manual switch controls mechanical operation of the cutting tool.

2. The hand-operated power tool according to claim **1**, wherein the electrical power unit is a battery module including a rechargeable battery, the battery module being removably connected to said control handle assembly to provide electric power to the manual switch.

3. The hand-operated power tool according to claim **1**, wherein the settable angular positions of said head support with respect to said power head include a neutral position representing 0 degree rotation, a 45 degree position, or a 90 degree position.

4. The hand-operated power tool according to claim **1**, wherein the settable angular positions of said head support with respect to said power head include a neutral position representing 0 degree rotation, a flexion position, or a dorsiflexion position.

5. The hand-operated power tool according to claim **1**, wherein the cutting tool partially enclosed by said power head is a trimming blade comprising a plurality of stationary blade elements and a plurality of reciprocating blade elements cooperating with the stationary blade elements to provide a cutting action in response to operation of the electric motor.

6. The hand-operated power tool according to claim **1**, wherein the power head is in-line with the elongated boom.

7. The hand-operated power tool according to claim **1**, wherein the power head includes a socket for receiving the head support, the head support being rotatable relative to the power head, and wherein the hand-operated power tool further comprises a stator cartridge notability disposed within an interior receiving chamber of the head support and fixably secured to the power head.

8. The hand-operated power tool according to claim **1**, further comprising a second pivot arm that is rotationally received in a second corresponding socket within said power head.

9. A hand-operated power tool, comprising:

a power head having a housing enclosing an electric motor and at least partially enclosing a cutting tool operatively coupled to the electric motor;

a head support connected to the power head and settable in a plurality of angular positions with respect to said power head, said head support having a head coupling including a head electrical connection unit electrically connected to the electric motor;

an elongated boom terminating at a distal end with a handle coupling for releasable engagement with the head coupling, the handle coupling having an electrical receptacle for electrically connecting to the head electrical connection unit during the engagement; and

a control handle assembly connected to a proximal end of said elongated boom and having a manual switch to control communication of electric power from an electrical power unit to a handle electrical connection unit during the engagement, whereby engagement of the manual switch controls mechanical operation of the cutting tool:

a stator cartridge disposed within and connected to the housing of said power head by a plurality of fastening members, said stator cartridge defining a plurality of recesses that are adapted to receive a movable engagement pin from said head support, wherein said power head is locked into a predetermined angular position with respect to said head support during engagement of the pin into a selected recess of the plurality of recesses; and

a latch slidably mounted to an external surface of said head support and connected to the pin such that movement of said latch engages the pin with the selected recess,

wherein the head support includes an interior chamber and the stator cartridge is rotatably secured within the interior chamber.

10. The hand-operated power tool according to claim **9**, wherein the interior receiving chamber includes an interior channel that allows the engagement pin to access the recesses of the stator cartridge.

11. The hand-operated power tool according to claim **9**, further comprising:

a biasing member disposed within an interior channel of said head support for urging the pin toward engagement with the selected recess.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 7,752,760 B2
APPLICATION NO. : 11/169748
DATED : July 13, 2010
INVENTOR(S) : Ashok Samuel Baskar et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Claim 7, Column 9, line 40, please change "notability" to "rotability"

Signed and Sealed this

Seventeenth Day of August, 2010

David J. Kappos

David J. Kappos
Director of the United States Patent and Trademark Office