United States of America

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The Director

of the United States Patent and Trademark Office has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this United States

Patent

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John A. Squires

Director of the United States Patent and Trademark Office

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If the application for this patent was filed on or after December 12, 1980, maintenance fees are due three years and six months, seven years and six months, and eleven years and six months after the date of this grant, or within a grace period of six months thereafter upon payment of a surcharge as provided by law. The amount, number and timing of the maintenance fees required may be changed by law or regulation. Unless payment of the applicable maintenance fee is received in the United States Patent and Trademark Office on or before the date the fee is due or within a grace period of six months thereafter, the patent will expire as of the end of such grace period.

Patent Term Notice

If the application for this patent was filed on or after June 8, 1995, the term of this patent begins on the date on which this patent issues and ends twenty years from the filing date of the application or, if the application contains a specific reference to an earlier filed application or applications under 35 U.S.C. 120, 121, 365(c), or 386(c), twenty years from the filing date of the earliest such application ("the twenty-year term"), subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b), and any extension as provided by 35 U.S.C. 154(b) or 156 or any disclaimer under 35 U.S.C. 253.

If this application was filed prior to June 8, 1995, the term of this patent begins on the date on which this patent issues and ends on the later of seventeen years from the date of the grant of this patent or the twenty-year term set forth above for patents resulting from applications filed on or after June 8, 1995, subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b) and any extension as provided by 35 U.S.C. 156 or any disclaimer under 35 U.S.C. 253.

US012537319B2

(12) **United States Patent**
Henderson

(10) **Patent No.: US 12,537,319 B2**
(45) **Date of Patent: Jan. 27, 2026**

(54) **ELECTRICAL COUPLING**

(71) Applicant: **Justin Henderson**, Canyon, TX (US)

(72) Inventor: **Justin Henderson**, Canyon, TX (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 248 days.

(21) Appl. No.: **18/179,009**

(22) Filed: **Mar. 6, 2023**

(65) **Prior Publication Data**

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Related U.S. Application Data

(60) Provisional application No. 63/316,651, filed on Mar. 4, 2022.

(51) **Int. Cl.**

H01R 4/24	(2018.01)
H01R 4/2408	(2018.01)
H01R 4/50	(2006.01)
H01R 11/12	(2006.01)

(52) **U.S. Cl.**

CPC ***H01R 4/2408*** (2013.01); ***H01R 4/5016*** (2013.01); ***H01R 11/12*** (2013.01)

(58) **Field of Classification Search**

None

See application file for complete search history.

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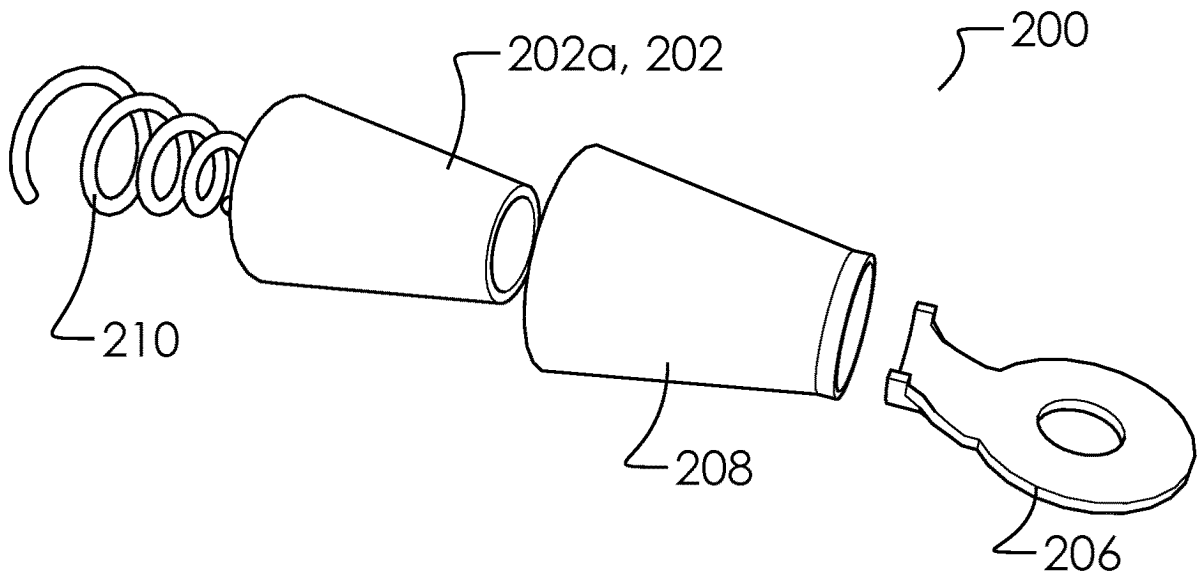
Primary Examiner — Ross N Gushi

(74) *Attorney, Agent, or Firm* — Shannon Warren

(57) **ABSTRACT**

An electrical coupling for making a secure and reliable connection between a frayed end of one or more wires. The electrical coupling comprises a terminal, a casing, a conical portion, and a threading portion. The electrical coupling is configured to receive and squeeze down the frayed end of the one or more wires due to the tapering and narrowing shape of the conical portion within an inner sidewall between a first inner diameter and a second inner diameter. The conical portion comprises a side wall. The side wall is configured to taper in from a first end to a second end to form a conical shape. The conical portion comprises a first open end having the first inner diameter.

5 Claims, 8 Drawing Sheets



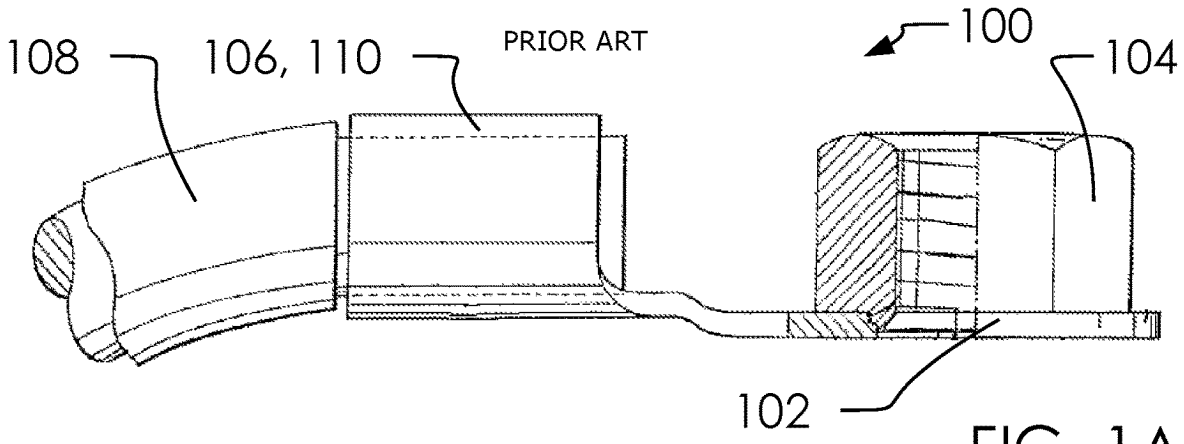


FIG. 1A

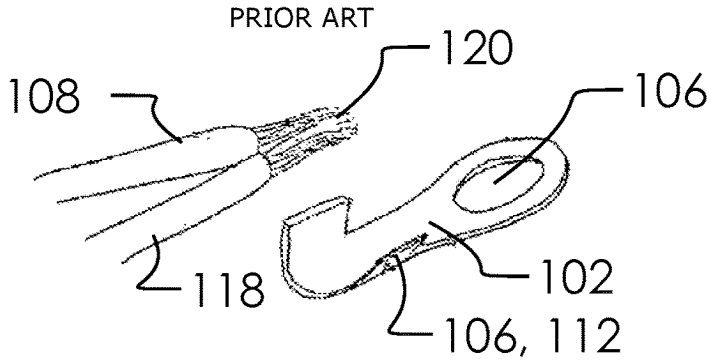


FIG. 1B

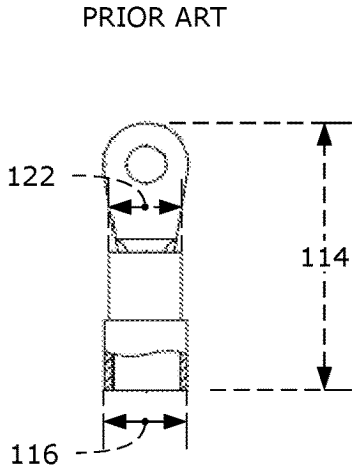


FIG. 1C

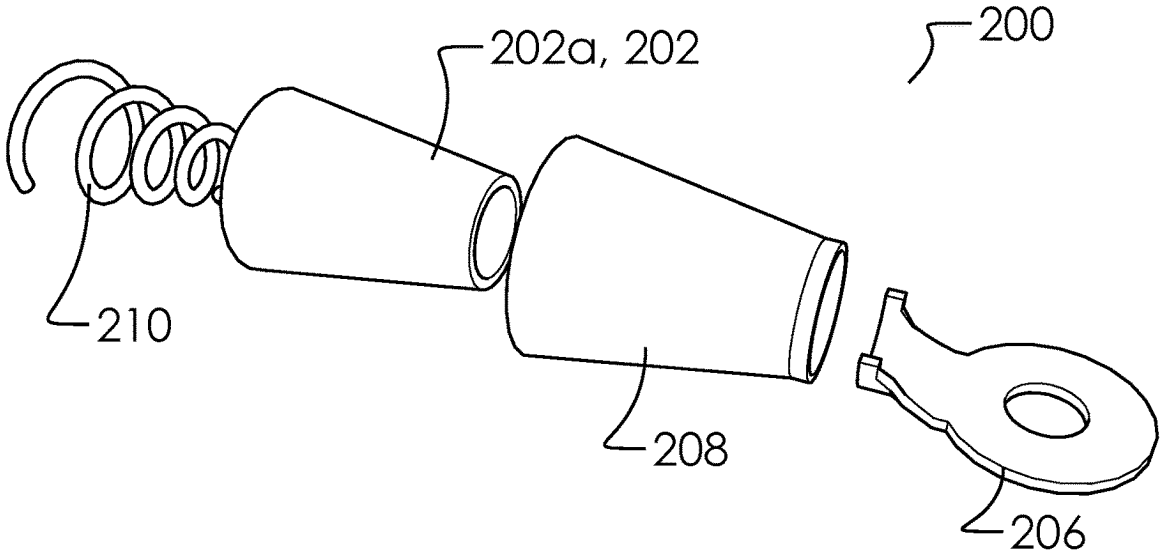


FIG. 2A

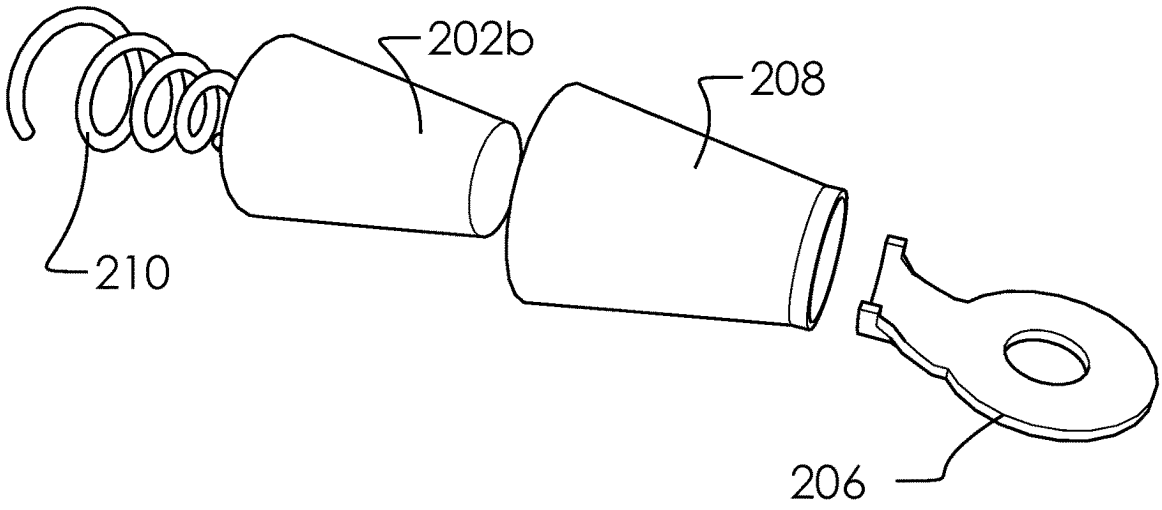


FIG. 2B

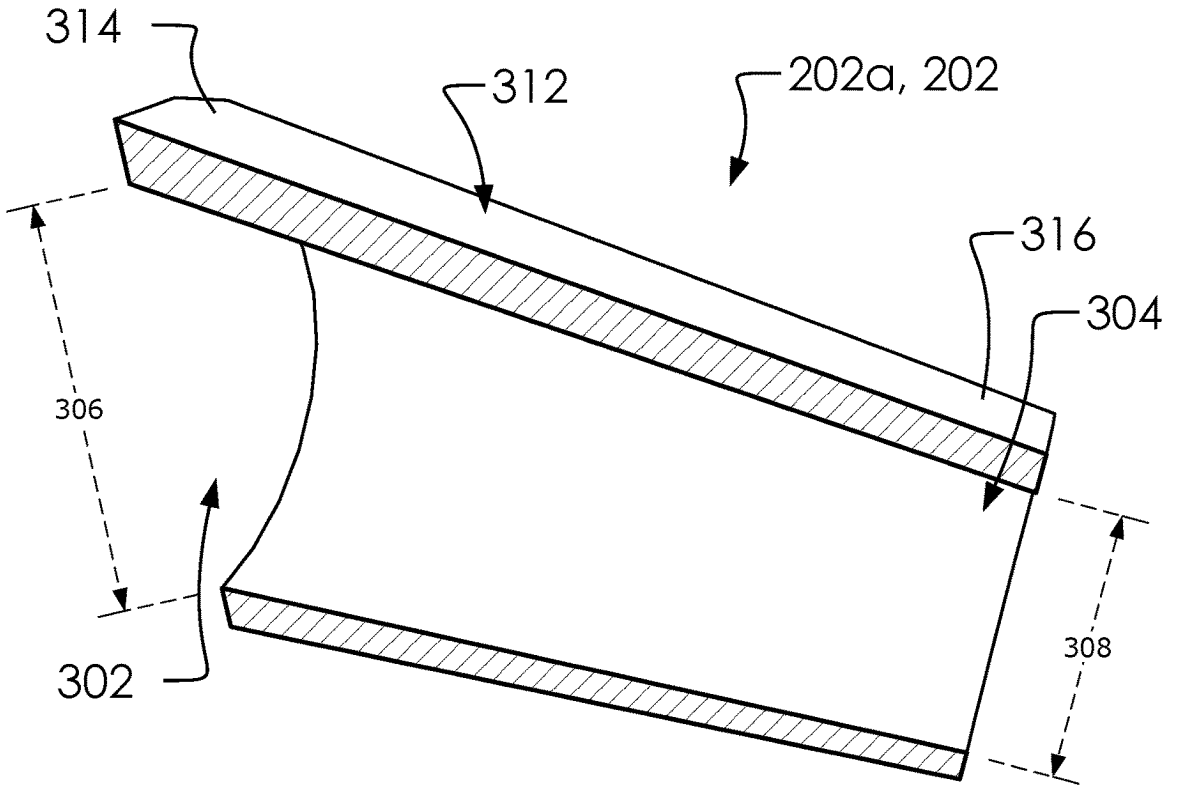


FIG. 3A

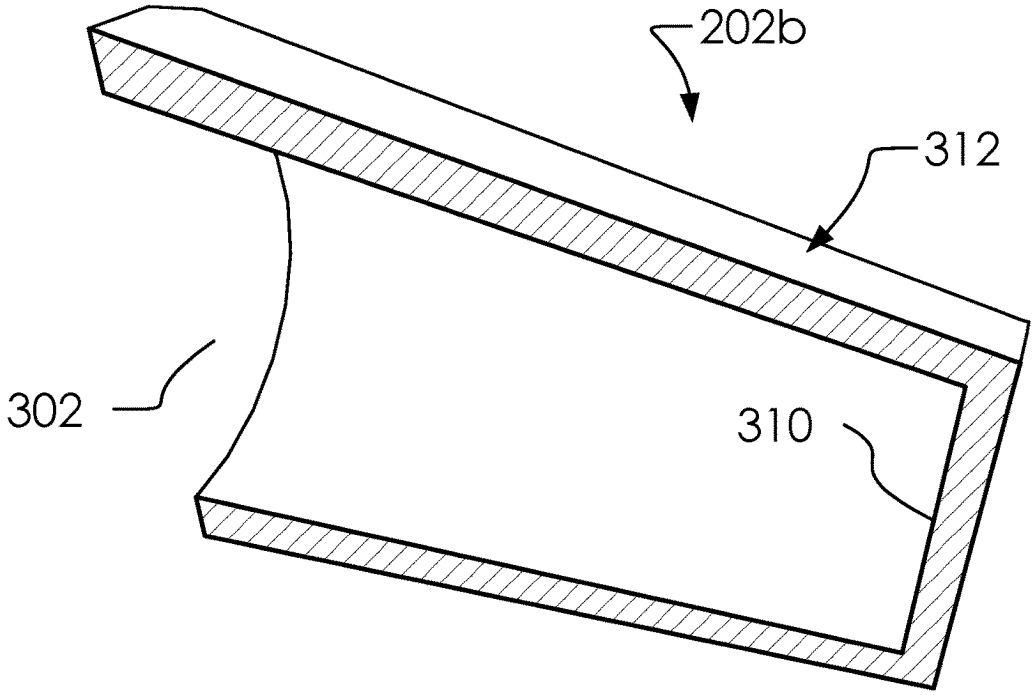


FIG. 3B

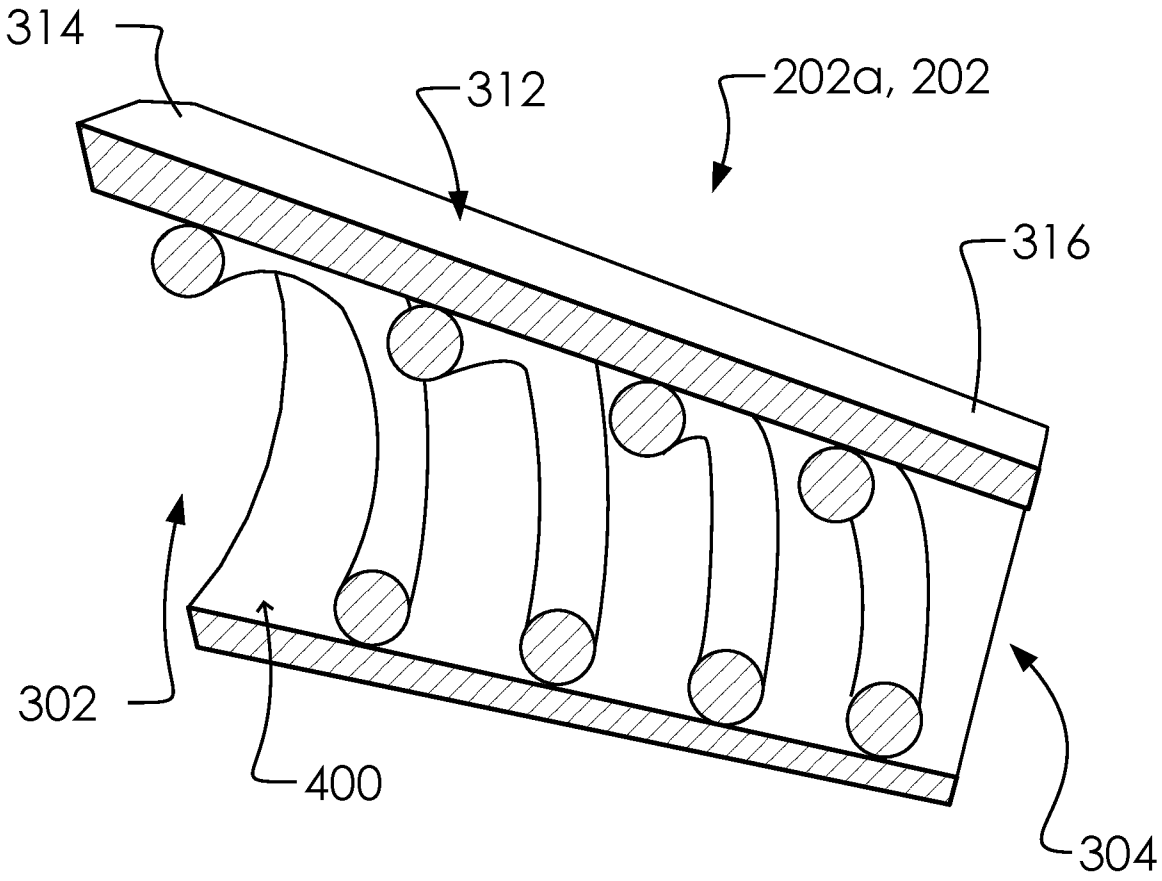


FIG. 4

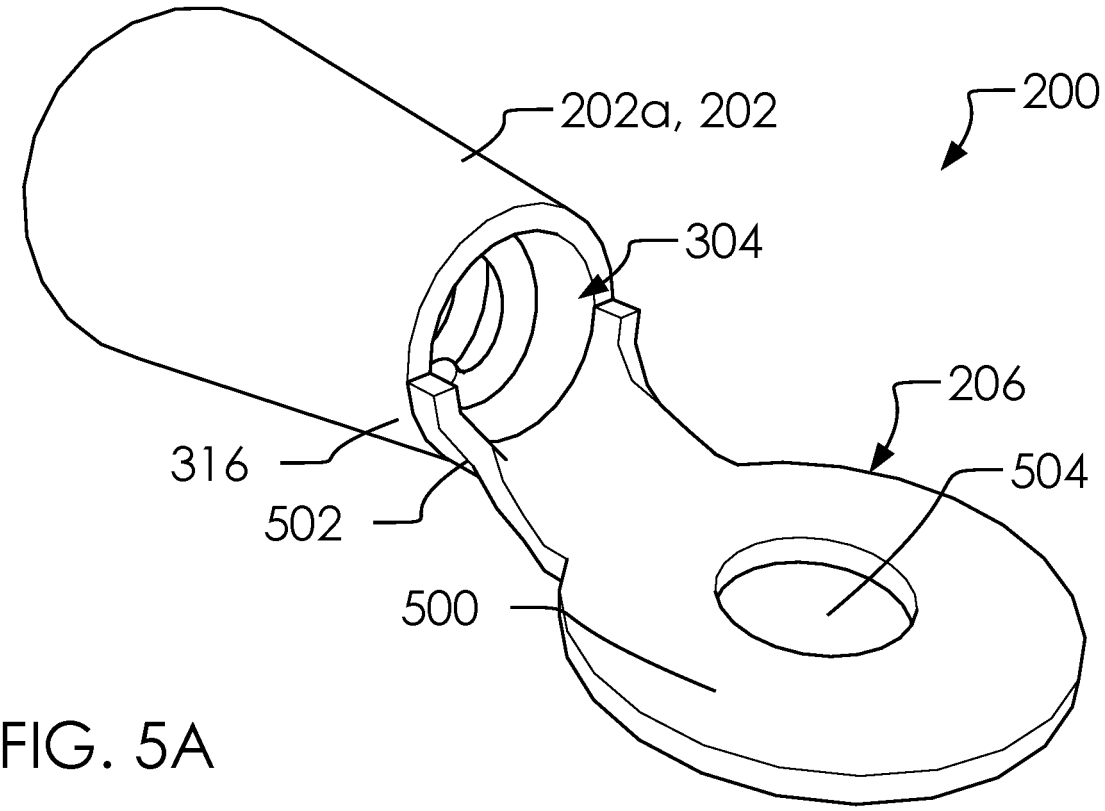


FIG. 5A

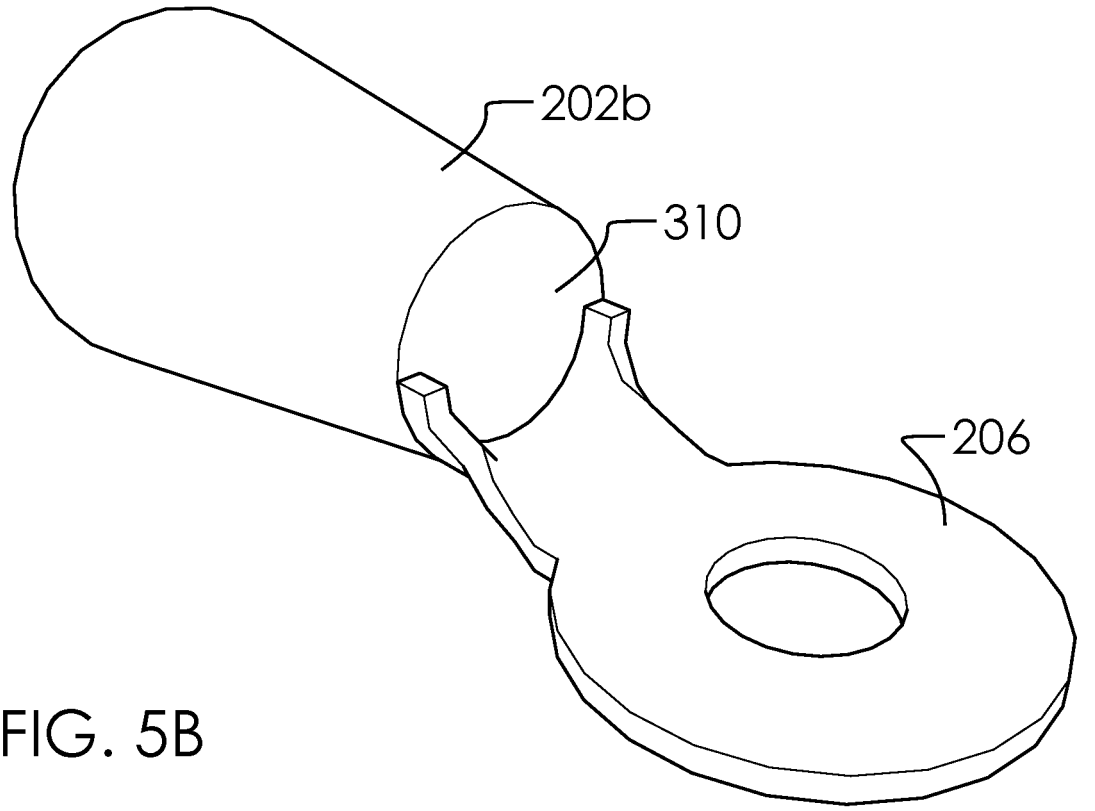


FIG. 5B

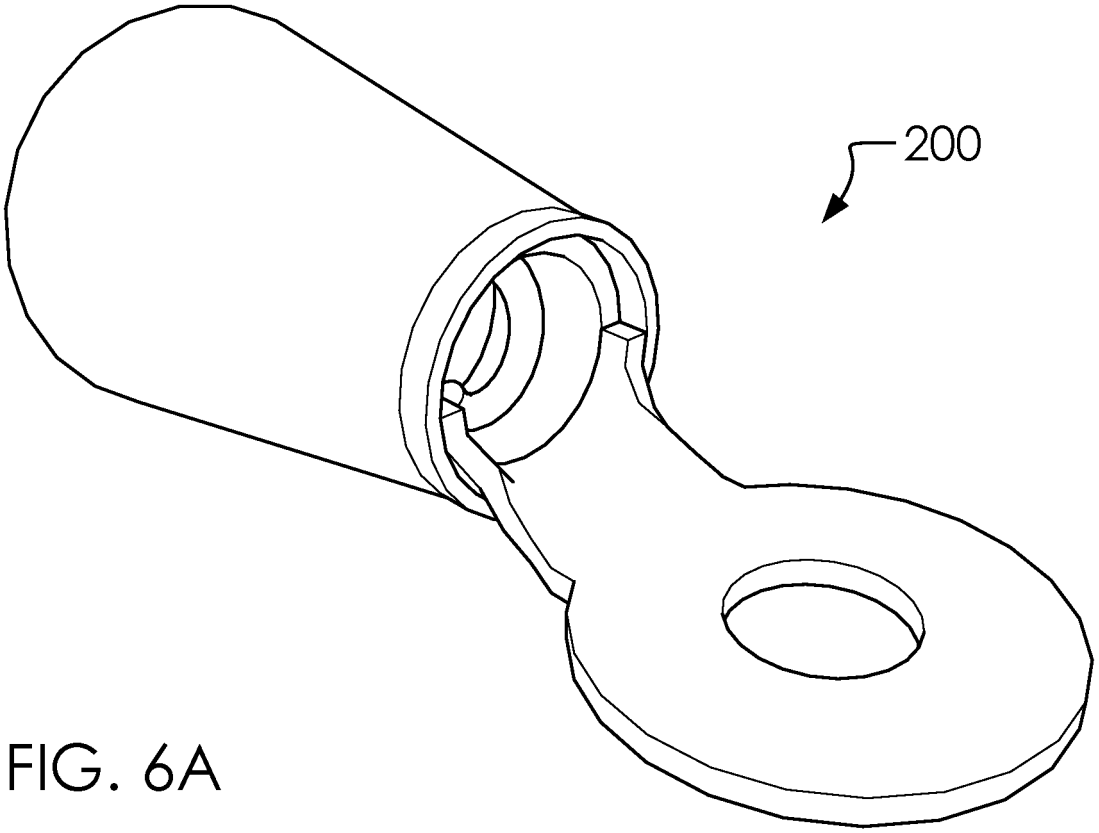


FIG. 6A

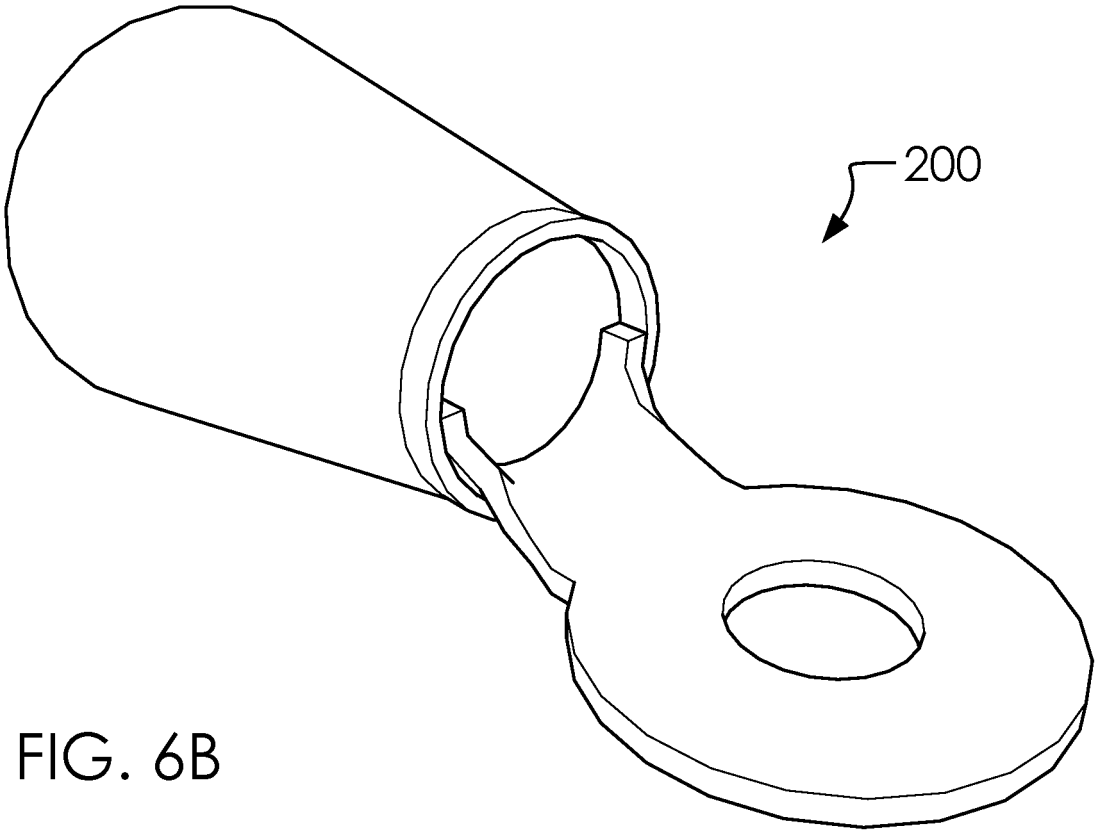


FIG. 6B

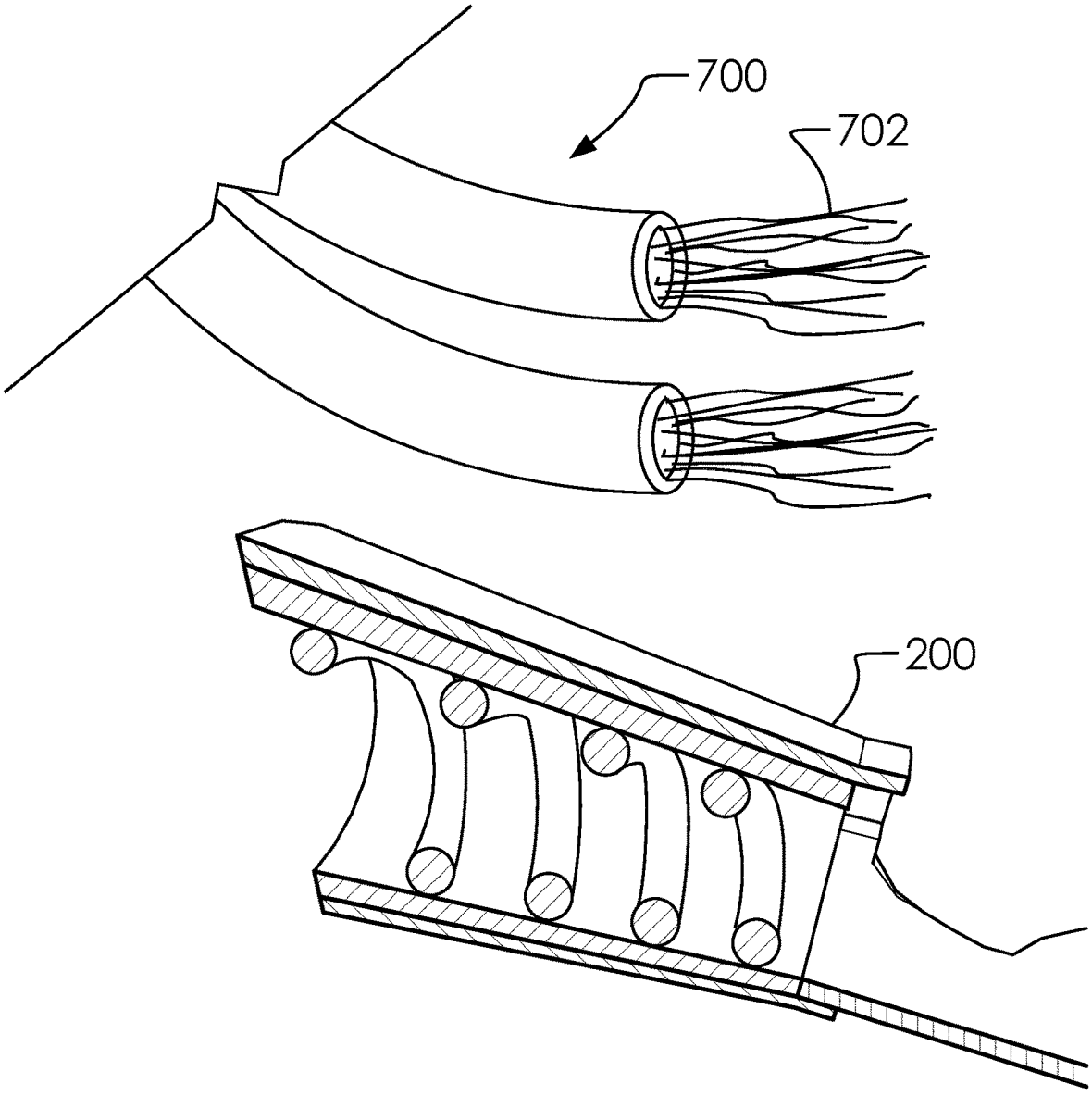


FIG. 7

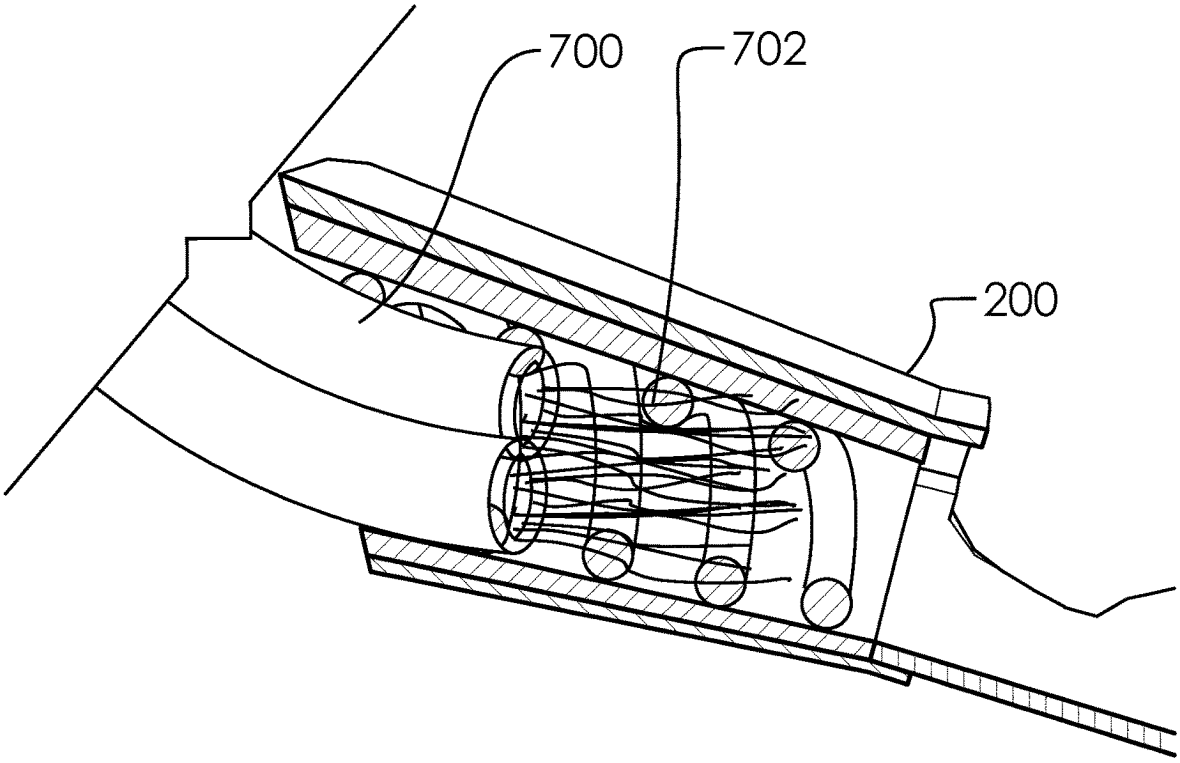


FIG. 8

ELECTRICAL COUPLING

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims benefit to and incorporates by reference U.S. provisional patent application No. 63/316,651 filed on 2022 Mar. 4.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT (IF APPLICABLE)

Not applicable.

REFERENCE TO SEQUENCE LISTING, A TABLE, OR A COMPUTER PROGRAM LISTING COMPACT DISC APPENDIX (IF APPLICABLE)

Not applicable.

BACKGROUND OF THE INVENTION

Examples of cable lugs can be found in US20140287612A1, U.S. Pat. No. 5,842,894A, US20070264861A1, and US20190165497A1. However, no combination of prior art is known to the application to present a challenge to the patent eligibility of the current application.

BRIEF SUMMARY OF THE INVENTION

An electrical coupling for making a secure and reliable connection between a frayed end of one or more wires. Said electrical coupling comprises a terminal, a casing, a conical portion, and a threading portion. Said electrical coupling is configured to receive and squeeze down said frayed end of said one or more wires due to the tapering and narrowing shape of said conical portion within an inner sidewall between a first inner diameter and a second inner diameter. Said conical portion comprises a side wall. Said side wall is configured to taper in from a first end to a second end to form a conical shape. Said conical portion comprises a first open end having said first inner diameter. Said conical portion is configured to receive said frayed end of said one or more wires into said first open end at said first end for electrical connection with said terminal. A first end of said terminal is configured to connect with said second end of said conical portion. Said conical portion, said threading portion and said terminal are conductive and configured to transmit electricity from a portion of said conical portion to a terminal head. Said conical portion comprises an enclosed conical portion. Said enclosed conical portion comprises an enclosed second end. Said enclosed second end of said enclosed conical portion is configured to enclose and interface with said frayed end of said one or more wires. Said first end of said terminal is configured to attach to a portion of said enclosed second end of said enclosed conical portion. Said threading portion is configured to attach to said inner sidewall of said conical portion. Both said conical portion and said threading portion comprise a conductive material.

Said electrical coupling for making a secure and reliable connection between said frayed end of said one or more wires. Said electrical coupling comprises said terminal, said casing, said conical portion, and said threading portion. Said electrical coupling is configured to receive and squeeze down said frayed end of said one or more wires due to the tapering and narrowing shape of said conical portion within said inner sidewall between said first inner diameter and said second inner diameter. Said conical portion comprises said side wall. Said side wall is configured to taper in from said first end to said second end to form a conical shape. Said conical portion comprises said first open end having said first inner diameter. Said conical portion is configured to receive said frayed end of said one or more wires into said first open end at said first end for electrical connection with said terminal. Said first end of said terminal is configured to connect with said second end of said conical portion. Said conical portion, said threading portion and said terminal are conductive and configured to transmit electricity from a portion of said conical portion to said terminal head.

Said electrical coupling for making a secure and reliable connection between said frayed end of said one or more wires. Said electrical coupling comprises said terminal, said casing, said conical portion, and said threading portion. Said electrical coupling is configured to receive and squeeze down said frayed end of said one or more wires due to the tapering and narrowing shape of said conical portion within said inner sidewall between said first inner diameter and said second inner diameter. Said conical portion comprises said side wall. Said side wall is configured to taper in from said first end to said second end to form a conical shape. Said conical portion comprises said first open end having said first inner diameter. Said conical portion is configured to receive said frayed end of said one or more wires into said first open end at said first end for electrical connection with said terminal. Said first end of said terminal is configured to connect with said second end of said conical portion. Said conical portion, said threading portion and said terminal are conductive and configured to transmit electricity from a portion of said conical portion to said terminal head. Said threading portion is configured to attach to said inner sidewall of said conical portion. Both said conical portion and said threading portion comprise a conductive material. Said threading portion is bonded into said conical portion. Said threading portion is loosely fit within said inner sidewall. Said terminal comprises said terminal head, said first end and a terminal aperture. Said casing comprises a non-conductive material.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

FIGS. **1**A, **1**B and **1**C illustrate various embodiments of a prior art cable lug **100**.

FIGS. **2**A, and **2**B illustrate an exploded perspective overview of an electrical coupling **200** comprising an open conical portion **202***a* and an enclosed conical portion **202***b*.

FIGS. **3**A, and **3**B illustrate a cross-section perspective overview of said open conical portion **202***a* and said enclosed conical portion **202***b*, respectively.

FIG. **4** illustrates a cross-section perspective overview of said open conical portion **202***a* with a threading portion **210**.

FIGS. **5**A, and **5**B illustrate a perspective overview of a terminal **206** and said threading portion **210** with said open conical portion **202***a* and said enclosed conical portion **202***b*, respectively.

FIGS. **6**A, and **6**B illustrate a perspective overview of said electrical coupling **200** with said open conical portion **202***a* and said enclosed conical portion **202***b*, respectively.

FIG. **7** illustrates one or more wires **700** with said electrical coupling **200** with said one or more wires **700** outside of said electrical coupling **200**.

FIG. **8** illustrates said one or more wires **700** with said electrical coupling **200** with said one or more wires **700** inside of said electrical coupling **200**.

DETAILED DESCRIPTION OF THE INVENTION

The following description is presented to enable any person skilled in the art to make and use the invention as claimed and is provided in the context of the particular examples discussed below, variations of which will be readily apparent to those skilled in the art. In the interest of clarity, not all features of an actual implementation are described in this specification. It will be appreciated that in the development of any such actual implementation (as in any development project), design decisions must be made to achieve the designers' specific goals (e.g., compliance with system- and business-related constraints), and that these goals will vary from one implementation to another. It will also be appreciated that such development effort might be complex and time-consuming, but would nevertheless be a routine undertaking for those of ordinary skill in the field of the appropriate art having the benefit of this disclosure. Accordingly, the claims appended hereto are not intended to be limited by the disclosed embodiments, but are to be accorded their widest scope consistent with the principles and features disclosed herein.

FIGS. **1**A, **1**B and **1**C illustrate various embodiments of a prior art cable lug **100**.

In one embodiment, said prior art cable lug **100** can comprise a contact plate **102**, a nut **104**, a clamping portion **106**, and a cable **108**. In one embodiment, said clamping portion **106** can comprise an enclosed embodiment **110**, and a butterfly embodiment **112**.

In one embodiment, said cable **108** can comprise a plurality of cables as illustrated in FIG. **1**B. Further, said cable **108** can comprise a nonconductive exterior **118** and a conductive interior **120**, as is known in the art.

Finally, as known in the art, said clamping portion **106** can comprise a height **114** and a first diameter **116** and a second diameter **122**, as illustrated in FIG. **1**C. accordingly, said clamping portion **106** is known to taper in steps, as illustrated.

FIGS. **2**A, and **2**B illustrate an exploded perspective overview of an electrical coupling **200** comprising an open conical portion **202***a* and an enclosed conical portion **202***b*.

In one embodiment, said electrical coupling **200** can comprise a terminal **206**, a casing **208**, a conical portion **202**, and a threading portion **210**.

In one embodiment, said conical portion **202** can comprise either said open conical portion **202***a* or said enclosed conical portion **202***b*.

FIGS. **3**A, and **3**B illustrate a cross-section perspective overview of said open conical portion **202***a* and said enclosed conical portion **202***b*, respectively.

In one embodiment, said conical portion **202** can comprise a side wall **312**. Wherein, said side wall **312** can taper in from a first end **314** to a second end **316** to form a conical shape. Said conical portion **202** can comprise a first open end **302** having a first inner diameter **306**. Said conical portion **202** can be configured to receive one or more wires into said first open end **302** at said first end **314** for electrical connection with said terminal **206**.

In one embodiment, said conical portion **202** can comprise said open conical portion **202***a*. Wherein, said open conical portion **202***a* can comprise a second open end **304** having a second inner diameter **308**.

In one embodiment, said conical portion **202** can comprise said enclosed conical portion **202***b*. wherein, said enclosed conical portion **202***b* can comprise an enclosed second end **310**.

FIG. **4** illustrates a cross-section perspective overview of said open conical portion **202***a* with said threading portion **210**.

In one embodiment, said threading portion **210** can attach to an inner sidewall **400** of said conical portion **202**, as illustrated. In one embodiment, both said conical portion **202** and said threading portion **210** can comprise a conductive material, such as metal, as is known in the art. In one embodiment, said threading portion **210** can be bonded into said conical portion **202** or loosely fit within said inner sidewall **400**.

In one embodiment, said threading portion **210** can attach within said open conical portion **202***a* and said enclosed conical portion **202***b* as illustrated and discussed in FIG. **4**.

FIGS. **5**A, and **5**B illustrate a perspective overview of said terminal **206** and said threading portion **210** with said open conical portion **202***a* and said enclosed conical portion **202***b*, respectively.

In one embodiment, said terminal **206** can comprise a terminal head **500**, a first end **502** and a terminal aperture **504**. In one embodiment, said first end **502** of said terminal **206** can connect with said second end **316** of said conical portion **202**. Wherein, said conical portion **202**, said threading portion **210** and said terminal **206** can be conductive and configured to transmit electricity from a portion of said conical portion **202** to said terminal head **500**.

In one embodiment, said first end **502** of said terminal **206** can attach around a portion of said second open end **304** of said open conical portion **202***a*.

In one embodiment, said first end **502** of said terminal **206** can attach to a portion of said enclosed second end **310** of said enclosed conical portion **202***b*.

FIGS. **6**A, and **6**B illustrate a perspective overview of said electrical coupling **200** with said open conical portion **202***a* and said enclosed conical portion **202***b*, respectively.

In one embodiment, said casing **208** can comprise a non-conductive material.

FIG. **7** illustrates one or more wires **700** with said electrical coupling **200** with said one or more wires **700** outside of said electrical coupling **200**.

FIG. **8** illustrates said one or more wires **700** with said electrical coupling **200** with said one or more wires **700** inside of said electrical coupling **200**.

In one embodiment, said electrical coupling **200** can be configured to receive and squeeze down a frayed end **702** of said one or more wires **700** due to the tapering and narrowing shape of said conical portion **202** within said inner sidewall **400** between said first inner diameter **306** and said second inner diameter **308**.

One advantage of said enclosed second end **310** of said enclosed conical portion **202***b* can comprise an additional and likely surface to touch said frayed end **702** of said one or more wires **700**.

In one embodiment, said electrical coupling **200** can be used in conjunction with solder.

In one embodiment, said conical portion **202** can be smashed to further enclose and secure said frayed end **702** within said conical portion **202**.

The following sentences comprise a summary of the original claims and can be considered a preferred embodiment of the current disclosure.

Said electrical coupling **200** for making a secure and reliable connection between said frayed end **702** of said one

or more wires **700**. Said electrical coupling **200** comprises said terminal **206**, said casing **208**, said conical portion **202**, and said threading portion **210**. Said electrical coupling **200** can be configured to receive and squeeze down said frayed end **702** of said one or more wires **700** due to the tapering and narrowing shape of said conical portion **202** within said inner sidewall **400** between said first inner diameter **306** and said second inner diameter **308**. Said conical portion **202** comprises said side wall **312**. Said side wall **312** can be configured to taper in from said first end **314** to said second end **316** to form a conical shape. Said conical portion **202** comprises said first open end **302** having said first inner diameter **306**. Said conical portion **202** can be configured to receive said frayed end **702** of said one or more wires **700** into said first open end **302** at said first end **314** for electrical connection with said terminal **206**. Said first end **502** of said terminal **206** can be configured to connect with said second end **316** of said conical portion **202**. Said conical portion **202**, said threading portion **210** and said terminal **206** can be conductive and configured to transmit electricity from a portion of said conical portion **202** to said terminal head **500**. Said conical portion **202** comprises said enclosed conical portion **202***b*. Wherein, said enclosed conical portion **202***b* comprises said enclosed second end **310**. Said enclosed second end **310** of said enclosed conical portion **202***b* is configured to enclose and interface with said frayed end **702** of said one or more wires **700**. Said first end **502** of said terminal **206** can be configured to attach to a portion of said enclosed second end **310** of said enclosed conical portion **202***b*. Said threading portion **210** can be configured to attach to said inner sidewall **400** of said conical portion **202**. Both said conical portion **202** and said threading portion **210** comprise a conductive material.

Said electrical coupling **200** for making a secure and reliable connection between said frayed end **702** of said one or more wires **700**. Said electrical coupling **200** comprises said terminal **206**, said casing **208**, said conical portion **202**, and said threading portion **210**. Said electrical coupling **200** can be configured to receive and squeeze down said frayed end **702** of said one or more wires **700** due to the tapering and narrowing shape of said conical portion **202** within said inner sidewall **400** between said first inner diameter **306** and said second inner diameter **308**. Said conical portion **202** comprises said side wall **312**. Said side wall **312** can be configured to taper in from said first end **314** to said second end **316** to form a conical shape. Said conical portion **202** comprises said first open end **302** having said first inner diameter **306**. Said conical portion **202** can be configured to receive said frayed end **702** of said one or more wires **700** into said first open end **302** at said first end **314** for electrical connection with said terminal **206**. Said first end **502** of said terminal **206** can be configured to connect with said second end **316** of said conical portion **202**. Said conical portion **202**, said threading portion **210** and said terminal **206** can be conductive and configured to transmit electricity from a portion of said conical portion **202** to said terminal head **500**.

Said conical portion **202** comprises said open conical portion **202***a*. Said open conical portion **202***a* comprises said second open end **304** having said second inner diameter **308**.

Said first end **502** of said terminal **206** can be configured to attach around a portion of said second open end **304** of said open conical portion **202***a*.

Said conical portion **202** comprises said enclosed conical portion **202***b*. Wherein, said enclosed conical portion **202***b* comprises said enclosed second end **310**.

Said enclosed second end **310** of said enclosed conical portion **202***b* is configured to enclose and interface with said frayed end **702** of said one or more wires **700**.

Said first end **502** of said terminal **206** can be configured to attach to a portion of said enclosed second end **310** of said enclosed conical portion **202***b*.

Said threading portion **210** can be configured to attach to said inner sidewall **400** of said conical portion **202**. Both said conical portion **202** and said threading portion **210** comprise a conductive material.

Said threading portion **210** can be bonded into said conical portion **202**.

Said threading portion **210** can be loosely fit within said inner sidewall **400**.

Said terminal **206** can comprise said terminal head **500**, said first end **502** and said terminal aperture **504**.

Said casing **208** can comprise a non-conductive material.

Said electrical coupling **200** for making a secure and reliable connection between said frayed end **702** of said one or more wires **700**. Said electrical coupling **200** comprises said terminal **206**, said casing **208**, said conical portion **202**, and said threading portion **210**. Said electrical coupling **200** can be configured to receive and squeeze down said frayed end **702** of said one or more wires **700** due to the tapering and narrowing shape of said conical portion **202** within said inner sidewall **400** between said first inner diameter **306** and said second inner diameter **308**. Said conical portion **202** comprises said side wall **312**. Said side wall **312** can be configured to taper in from said first end **314** to said second end **316** to form a conical shape. Said conical portion **202** comprises said first open end **302** having said first inner diameter **306**. Said conical portion **202** can be configured to receive said frayed end **702** of said one or more wires **700** into said first open end **302** at said first end **314** for electrical connection with said terminal **206**. Said first end **502** of said terminal **206** can be configured to connect with said second end **316** of said conical portion **202**. Said conical portion **202**, said threading portion **210** and said terminal **206** can be conductive and configured to transmit electricity from a portion of said conical portion **202** to said terminal head **500**. Said threading portion **210** can be configured to attach to said inner sidewall **400** of said conical portion **202**. Both said conical portion **202** and said threading portion **210** comprise a conductive material. Said threading portion **210** can be bonded into said conical portion **202**. Said threading portion **210** can be loosely fit within said inner sidewall **400**. Said terminal **206** comprises said terminal head **500**, said first end **502** and said terminal aperture **504**. Said casing **208** comprises a non-conductive material.

The following listing of the parts in the figures is provided for the convenience of the reader.

Said prior art cable lug **100**,
said contact plate **102**,
said nut **104**,
said clamping portion **106**,
said cable **108**,
said enclosed embodiment **110**,
said butterfly embodiment **112**,
said height **114**,
said first diameter **116**,
said nonconductive exterior **118**,
said conductive interior **120**,
said second diameter **122**,
said electrical coupling **200**,
said conical portion **202**,
said open conical portion **202***a*,
said enclosed conical portion **202***b*,

said terminal **206**,
said casing **208**,
said threading portion **210**,
said first open end **302**,
said second open end **304**,
said first inner diameter **306**,
said second inner diameter **308**,
said enclosed second end **310**,
said side wall **312**,
said first end **314**,
said second end **316**,
said inner sidewall **400**,
said terminal head **500**,
said first end **502**,
said terminal aperture **504**,
said one or more wires **700** and
said frayed end **702**.

Various changes in the details of the illustrated operational methods are possible without departing from the scope of the following claims. Some embodiments may combine the activities described herein as being separate steps. Similarly, one or more of the described steps may be omitted, depending upon the specific operational environment the method is being implemented in. It is to be understood that the above description is intended to be illustrative, and not restrictive. For example, the above-described embodiments may be used in combination with each other. Many other embodiments will be apparent to those of skill in the art upon reviewing the above description. The scope of the invention should, therefore, be determined with reference to the appended claims, along with the full scope of equivalents to which such claims are entitled. In the appended claims, the terms "including" and "in which" are used as the plain-English equivalents of the respective terms "comprising" and "wherein."

The invention claimed is:

1. An electrical coupling for making a secure and reliable connection between a frayed end of one or more wires, wherein:

said electrical coupling comprises a terminal, a casing, a conical portion, and a threading portion;

said electrical coupling is configured to receive and squeeze down said frayed end of said one or more wires due to the tapering and narrowing shape of said conical portion within an inner sidewall between a first inner diameter and a second inner diameter;

said conical portion comprises a side wall;

said side wall is configured to taper in from a first end to a second end to form a conical shape;

wherein said conical portion is integrally formed with a smooth, continuous tapering sidewall free of bends, steps, or segmented prongs;

said conical portion comprises a first open end having said first inner diameter;

said conical portion is configured to receive said frayed end of said one or more wires into said first open end at said first end for electrical connection with said terminal;

a first end of said terminal is configured to connect with said second end of said conical portion;

said conical portion, said threading portion and said terminal are conductive and configured to transmit electricity from a portion of said conical portion to a terminal head;

said conical portion comprises an enclosed conical portion;

wherein, said enclosed conical portion comprises an enclosed second end;

said enclosed second end fully caps and directly contacts the frayed ends of said one or more wires;

said first end of said terminal is configured to attach to a portion of said enclosed second end of said enclosed conical portion;

said threading portion is configured to attach to said inner sidewall of said conical portion;

wherein said threading portion is helically bonded or press-fit to said inner sidewall of said conical portion;

wherein said threading portion is bonded into said conical portion; and

both said conical portion and said threading portion comprise a conductive material.

2. An electrical coupling for making a secure and reliable connection between a frayed end of one or more wires, wherein:

said electrical coupling comprises a terminal, a casing, a conical portion, and a threading portion;

said electrical coupling is configured to receive and squeeze down said frayed end of said one or more wires due to the tapering and narrowing shape of said conical portion within an inner sidewall between a first inner diameter and a second inner diameter;

said conical portion comprises a side wall;

said side wall is configured to taper in from a first end to a second end to form a conical shape;

wherein said conical portion is integrally formed with a smooth, continuous tapering sidewall free of bends, steps, or segmented prongs;

said conical portion comprises a first open end having said first inner diameter;

said conical portion is configured to receive said frayed end of said one or more wires into said first open end at said first end for electrical connection with said terminal;

wherein said threading portion is helically bonded or press-fit to said inner sidewall of said conical portion;

wherein said threading portion is bonded into said conical portion; and

both said conical portion and said threading portion comprise a conductive material.

3. The electrical coupling of claim **2**, wherein:

said terminal comprises said terminal head, said first end and a terminal aperture.

4. The electrical coupling of claim **2**, wherein:

said casing comprises a non-conductive material.

5. An electrical coupling for making a secure and reliable connection between a frayed end of one or more wires, wherein:

said electrical coupling comprises a terminal, a casing, a conical portion, and a threading portion;

said electrical coupling is configured to receive and squeeze down said frayed end of said one or more wires due to the tapering and narrowing shape of said conical portion within an inner sidewall between a first inner diameter and a second inner diameter;

said conical portion comprises a side wall;

said side wall is configured to taper in from a first end to a second end to form a conical shape;

wherein said conical portion is integrally formed with a smooth, continuous tapering sidewall free of bends, steps, or segmented prongs;

said conical portion comprises a first open end having said first inner diameter;

said conical portion is configured to receive said frayed end of said one or more wires into said first open end at said first end for electrical connection with said terminal;

a first end of said terminal is configured to connect with said second end of said conical portion;

said conical portion, said threading portion and said terminal are conductive and configured to transmit electricity from a portion of said conical portion to a terminal head;

said threading portion is configured to attach to said inner sidewall of said conical portion;

wherein said threading portion is helically bonded or press-fit to said inner sidewall of said conical portion;

both said conical portion and said threading portion comprise a conductive material;

said threading portion is bonded into said conical portion;

said threading portion is loosely fit within said inner sidewall;

said terminal comprises said terminal head, said first end and a terminal aperture;

said casing comprises a non-conductive material;

wherein an enclosed second end fully caps and directly contacts the frayed ends of said one or more wires.

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