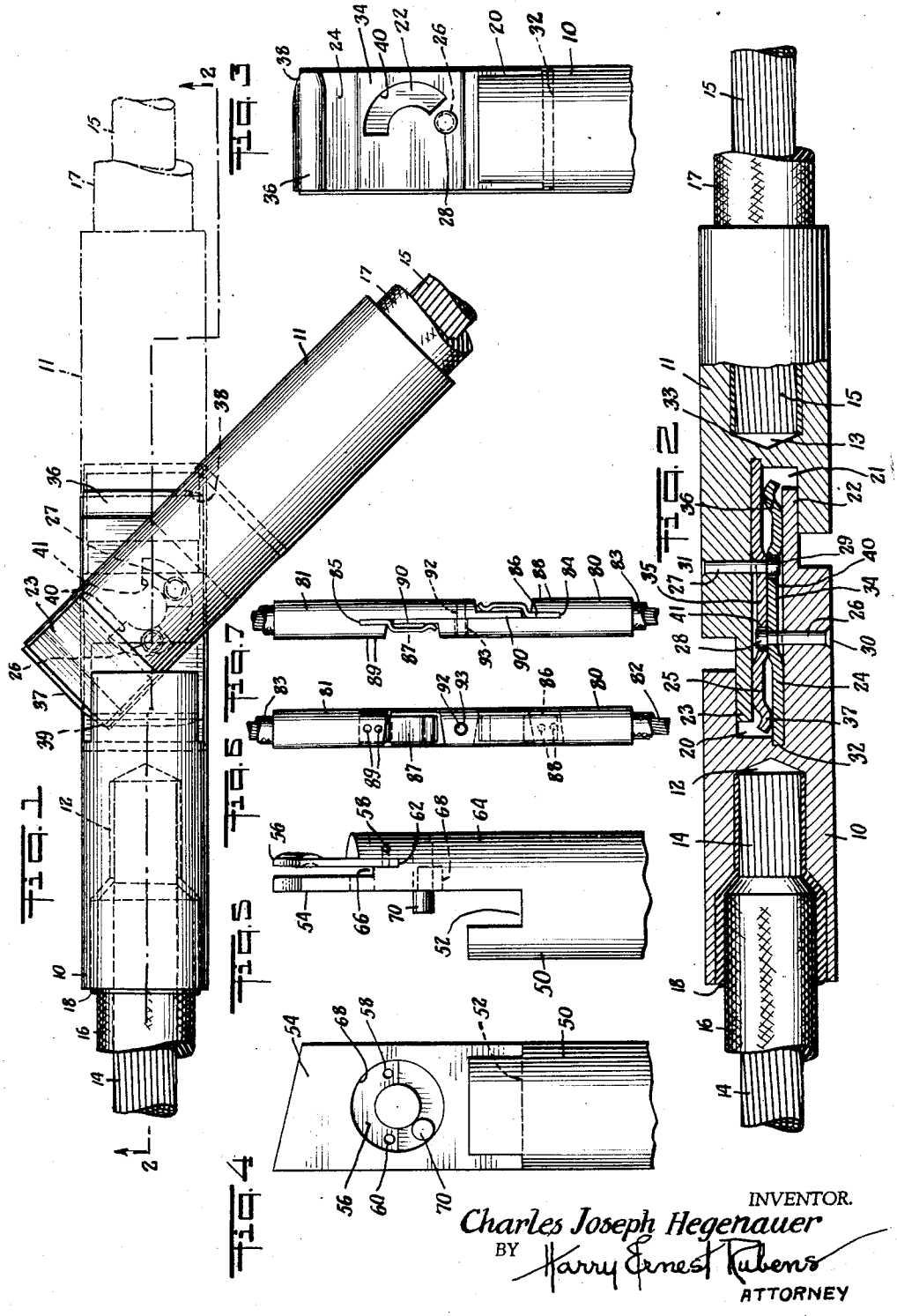
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CONSTANT PRESSURE CLASP CONNECTOR

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INVENTOR.
Charles Joseph Hegenauer
BY Harry Ernest Rubens
ATTORNEY

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CONSTANT PRESSURE CLASP CONNECTOR

Charles Joseph Hegenauer, Hastings on Hudson, N. Y., assignor to Burndy Engineering Company, Inc., a corporation of New York

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My invention relates to clasp connectors for joining conductors end to end. Clasp connectors are designed to sever an electrical connection, and are especially useful where electrical equipment must be disconnected at periodic intervals for inspection or test purposes.

These connectors are provided with pivoting means and knife-like blades interlocking in milled out portions to establish the connection, when the two halves are pivoted into the longitudinal axis of the conductors.

Objects of my invention consist in providing spring blades made of conductive, resilient and wear resistant metal, such as phosphor bronze, compressed tightly during the interlocking operation, to insure a constant pressure contact at all times and automatically compensate for wear and manufacturing variations; to provide a fulcrum groove in the spring itself and not in the softer material of which the connector body is made; to provide a fulcrum groove which will not lock in the dead center position; to provide a design which will permit current travel without heating up the connector; and to provide a connector having a minimum number of parts, easy to manufacture and simple to install, and to provide a movement of blade on blade to reduce the wear in opening and closing.

I accomplish these and other objects and obtain new results as will be apparent from the device described in the following description, particularly pointed out in the attached claims, and illustrated in the accompanying drawing, in which:

Fig. 1 is a side view of my connector, partially opened.

Fig. 2 is a sectional view of the completely closed connector taken along the line 2—2 of Fig. 1.

Fig. 3 is a plan view of the mechanism of one body section.

Fig. 4 is a plan view of the mechanism of one half of the body section of a different type.

Fig. 5 is a side view of the same.

Fig. 6 is a plan view of the completely assembled connector of still another type.

Fig. 7 is a side view of the same.

Referring more in detail to the drawing, and more especially to Fig. 1, reference numerals 10 and 11 designate the two parts of the connector body.

For simplicity, ease of manufacture and operation, body part 10 is made identical with body part 11.

In the following description the even numbered numerals will refer to details of body part 10, and the odd numbered numerals following, to corresponding elements of body part 11.

At one end of part 10, (see Fig. 2), a socket 12 is provided to accommodate the conductor 14 which may be insulated as at 16. Solder 18 is used to attach the conductor 10 permanently to the part 10 to insure permanent electrical contact. While such soldered connection is shown, it will be understood that any means for electrically and mechanically attaching a cable to an electrical connector may be used in place thereof.

As shown in Fig. 2, the remaining end of part 10 is provided with a milled out recess 20 and an extending spring supporting section 22 for supporting the spring 24, permanently attached thereto by a pin 26 provided with an enlarged shoulder 28 with the remaining end of the pin riveted as at 30 to part 10. One end of the spring 24 is seated in the recess 32 of body 10 to prevent movement.

The spring 24 has a raised central portion or pad 34 which compresses slightly where the two halves 10 and 11 are interlocked together, giving a smooth, velvety action, and automatically compensating for wear and manufacturing variations.

The free end of the spring is rolled transversely as at 36 and tapered as at 38 to provide an easy entrance of the unyieldy portion of the adjacent spring 25, and furnishes sufficient pressure to insure clean wiping and certain contact therewith, regardless of the wear due to repeated opening and closing of both halves of the connector.

Between the pin 26, and the rolled 36 end of the spring, is a fulcrum slot 40 shown in plan view in Fig. 3. It is stamped into the spring 24, and is in segmental annular form covering an arc of slightly more than 135 degrees. This permits the shoulder 29 of interlocking pin 27 to be inserted therein and to travel along the arc of the slot, allowing the two halves to open and close, and is designed to prevent the two sides of the connector from locking past dead center.

In operation the two halves 10 and 11 are held at right angles to each other, with the heads 28 and 29, positioned in slots 40 and 41 respectively. The two halves are rotated together in a single plane until the two halves are in the same longitudinal axis as shown in Fig. 1 and 2 respectively, wherein the dotted lines represent the position of part 11, when the connector is in closed position.

In Figs. 4 and 6, two other types are shown which do not possess the advantages of the connector shown in Figs. 1, 2 and 3. In Fig. 4, the connector body 50 is provided with cut-out 52, extension arm 54 and spring 56 riveted, as at 58 and 60 into the recess 62, located between the extension arm 54 and the extending wall 64 of the connector body 50. A cut-out portion 66 in extension arm 54 permits the spring 56 to be flexed without hindrance. A circular cut-out annular section 68 is formed on the wide wall of the extension arm 54 into which a pin 70 is fixedly mounted. The two halves (only one being shown) are mounted together, similarly to the previous example given, the pin of one, being inserted into the annular cut-out section of the other. A simpler type used for smaller sized conductors, is shown in Figs. 6 and 7.

The two body portions 80 and 81 are provided with conductors 82 and 83. Recesses 84 and 85 are provided for springs 86 and 87, respectively. Rivets 88 and 89 hold the springs 86 and 87 to position, while the springs are forced over arm extensions 90 of the two end bodies. The pivot pin 92 of body portion 80 is inserted in the aperture 93 of body portion 81.

My preferred embodiment is characterized by the passage of spring metal over spring metal, which causes less wear and scoring than in the devices shown in Figs. 4 and 6 where the harder spring metal engages the softer metal of the body scoring it and causing excessive wear. In my preferred embodiment the fulcrum grooves are provided in the springs themselves, and with predetermined angular stops to prevent further movement of the pins, and avoiding locking past dead center. Additionally, less metal is cut away in my preferred embodiment eliminating reduced cross-sections of the metal, contributing to lower heating losses.

I have thus described my invention, but I desire it understood that it is not confined to the particular forms or uses shown and described, the same being merely illustrative, and that the invention may be carried out in other ways without departing from the spirit of my invention, and, therefore, I claim broadly the right to employ all equivalent instrumentalities coming within the scope of the appended claims, and by means of which objects of my invention are attained and new results accomplished, as it is obvious that the particular embodiments herein shown and described are only some of the many that may be employed to attain these objects and accomplish these results.

I claim:

1. A clasp connector comprising two interlocking body portions; a pair of flat metal sheet springs, one locked to each of the body sections, and each provided with an annular cut-out slot; a pair of pivot pins, one permanently attached to each of the body portions and adapted to be inserted into the slot of the spring of the opposite body section, whereby the two body sections may be pivoted about each other and interlocked into position.

2. A clasp connector according to claim 1, wherein the annular cut-out slots extend angularly for substantially 135 degrees.

3. A clasp connector for transmitting electric current comprising two interlocking body sections; means for pivoting one body section on the other to unlocking position whereby the two body sections may be unlocked and separated; a pair of springs, one attached to each of the body sections, said springs moving one upon the other to transmit the current and to insure good electrical contact when the two body sections are interlocked.

CHARLES JOSEPH HEGENAUER.