United States Patent [19]

Ludwig

[11] **3,907,393**

[45] **Sept. 23, 1975**

[54] **HYBRID TAKEOUT CLIP**

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[73] Assignee: **Walker-Hall-Sears, Inc.**, Houston, Tex.

[22] Filed: **June 28, 1974**

[21] Appl. No.: **484,060**

[52] **U.S. Cl.** ..... **339/47 R**; 339/184 R; 339/258 R

[51] **Int. Cl.²** **H01R 13/28**

[58] **Field of Search** 339/32, 47, 176, 184, 258

[56] **References Cited**

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[57] **ABSTRACT**

The clip of this invention preferably has a tubular insulating sleeve having a pair of opposed transverse wall slots of different lengths and a pair of opposed arcuate lips projecting from one end thereof. A pair of polarized, arcuate takeout terminals are exposed by the slats. The polarized takeout terminals are in electrical contact with a pair of opposed resilient prongs projecting from one end of the sleeve, each prong being covered by a lip and being constructed to slidably receive a takeout terminal of a second like takeout clip.

4 Claims, 7 Drawing Figures

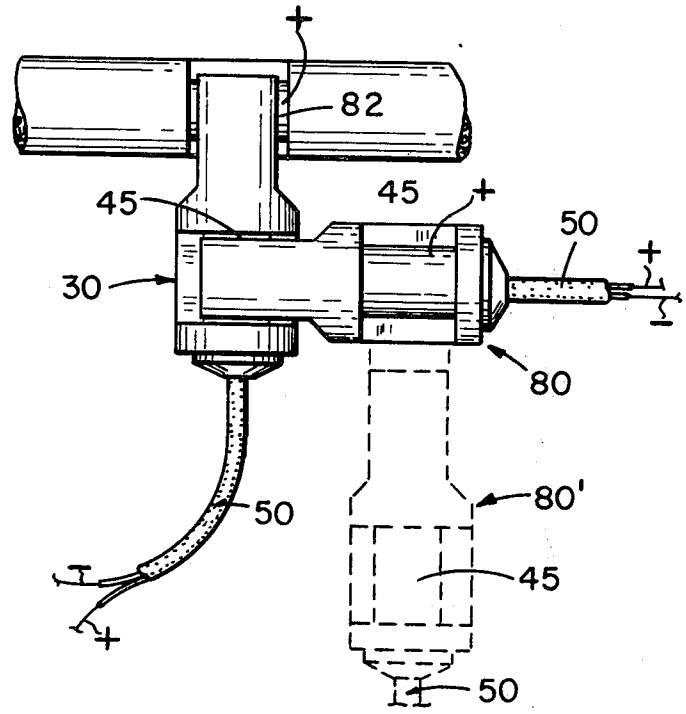
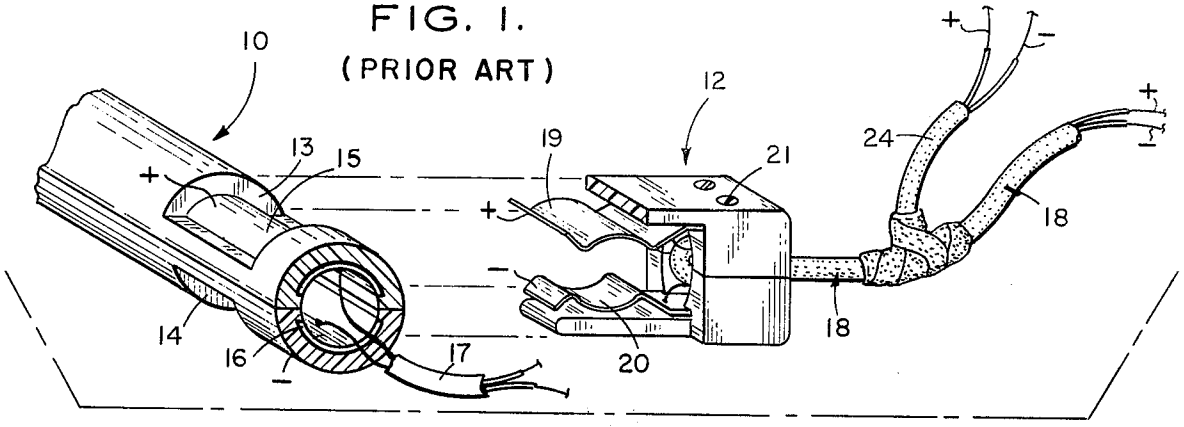


FIG. 1.
(PRIOR ART)



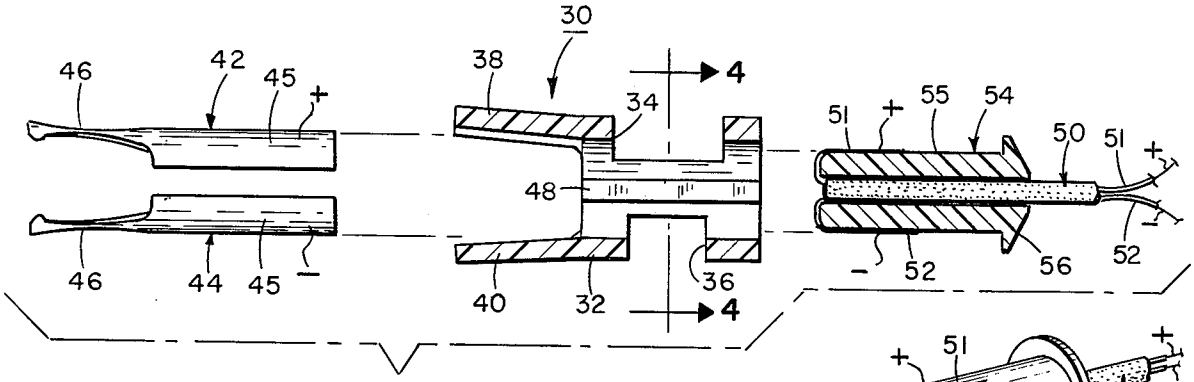


FIG. 2.

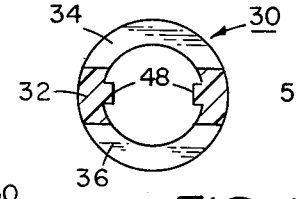


FIG. 4.

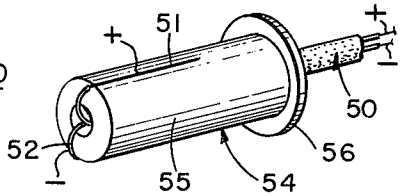


FIG. 3.

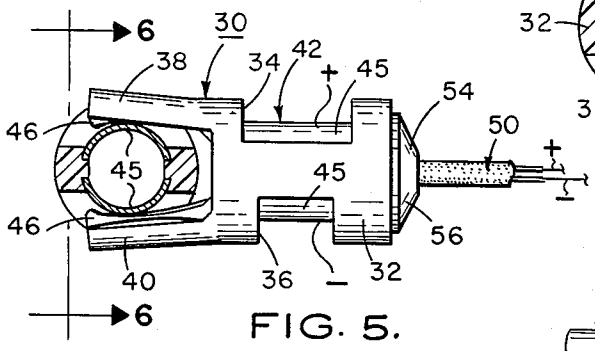


FIG. 5.

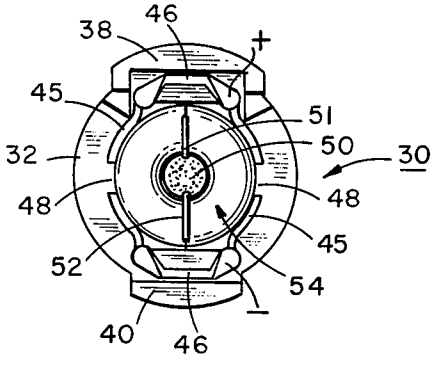


FIG. 6.

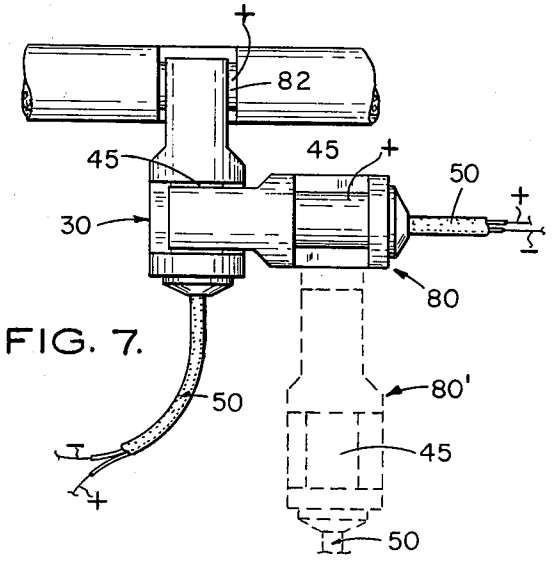


FIG. 7.

HYBRID TAKEOUT CLIP

BACKGROUND OF THE INVENTION

Takeout devices are known and widely used, for example, in the seismic industry. A typical such device comprises a split tubular sleeve mounted about a cable and having opposed transverse wall slots of different lengths exposing internal, polarized, arcuate takeout plates in electrical contact with the wires of a cable received by or extending through the tubular sleeve. Such a device forms a male connector.

Another device typically constructed of a split, hollow rectangular shaped body is also mounted about a cable, and has a pair of opposed, resiliently-mounted arcuate prongs of different widths constructed to slidably receive the take-out plates of the male connector. This device forms a female connector whose split body is held together by transverse screws which frequently become unscrewed under field use.

It is a main object of the present invention to eliminate the need for a separate male connector and a separate female connector and to provide a hybrid takeout clip which can serve the function of either connector.

It is another object of the present invention to provide a hybrid takeout clip which is relatively inexpensive to manufacture, which is of stacked construction requiring a minimum of parts and labor, which requires no soldered connections, which is long lasting under field use, and which has a tubular configuration to occupy a minimum of space.

SUMMARY OF THE INVENTION

The hybrid takeout clip of this invention comprises an insulating sleeve having a pair of opposed transverse wall slots of different longitudinal lengths for exposing a pair of polarized plates connected to the wires of an electric cable mounted inside the sleeve. A pair of opposed resiliently-mounted prongs, electrically communicating with the takeout plates, project outwardly from one end of the sleeve. The prongs are constructed to slidably receive the takeout plates of another-like hybrid clip.

In a preferred embodiment, the sleeve is of tubular construction and the means for electrically connecting the wires of a takeout cable to the takeout plates comprises a tubular plug having an outer cylindrical wall constructed to snugly fit inside the sleeve with the wires of the cable being sandwiched between the takeout plates and the cylindrical wall of the plug.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows a prior art male takeout connector, a female takeout connector, and the manner of connecting a third cable to one of the two other cables coupled to the connectors;

FIG. 2 is an exploded view, partly in section, of the hybrid takeout clip of this invention;

FIG. 3 is a perspective view of the plug for coupling the wires of the takeout cable to the takeout plates;

FIG. 4 is a sectional view on line 4—4 in FIG. 2;

FIG. 5 is a view in perspective of the takeout clip of this invention shown coupled to a second like takeout clip;

FIG. 6 is an end view taken on line 6—6 in FIG. 5; and

FIG. 7 illustrates the manner of coupling three takeout clips of this invention to each other and to a conventional male takeout connector.

In the drawings the same reference characters are used to designate the same or similar parts for ease of understanding of the invention.

FIG. 1 illustrates a prior art male takeout connector, generally designated as **10**, and a female takeout connector, generally designated as **12**. The male connector **10** comprises a split tubular body having a pair of opposite transverse wall slots **13** and **14** of different longitudinal lengths for exposing a pair of opposed, different width, arcuate takeout plates **15** and **16**, electrically soldered to the polarized wires of an electric cable **17**.

The female connector **12** has a split, rectangular shaped housing adapted to be mounted about an electric cable **18** for electrically connecting the wires thereof to a pair of resiliently-mounted outwardly-projecting, arcuate polarized prongs **19** and **20** of different widths such as to slidably receive the takeout plates **15** and **16**, respectively. The two sections of the housing are held together by screws **21** which frequently come off under field use. Should it be desired to electrically connect the polarized wires of a third cable **24** to the second cable **18** (or to the first cable **17**), a splice is made in the second cable **18** and the splice is covered with insulating electric tape.

In accordance with this invention, the disadvantages of the prior art separate male and female connectors are obviated by the provision of a single, hybrid takeout clip, generally designated as **30**, which can serve the function of either connector. Clip **30** comprises a tubular insulating sleeve **32** having a pair of opposed transverse slots **34, 36** of different longitudinal length and a pair of opposed resilient arcuate lips **38, 40** projecting outwardly from one end of sleeve **32**. The lips have different widths. A pair of metallic segments **42, 44** are provided. One end **45** of each segment is arcuate in shape and may be sustained by an angle of, say, about **150°**. The other end **46** of each segment is of reduced width so as to become resilient relative to its adjoining stiff arcuate plate portion **45**.

The inner cylindrical wall of the tubular sleeve **32** has a pair of diametrically opposed shoulders **48** (FIG. **4**). The arcuate plate portions **45** of segments **42, 44** are slidably received on the opposite side of shoulders **48** with the end portions **46** (hereinafter called prongs) being covered by lips **38, 40.**

To electrically connect the polarized wires **51, 52** of an electric cable **50** to the arcuate plates **45**, there is provided a tubular body **54** having a cylindrical portion **55** and an enlarged head portion **56**. The length of the tubular portion **55** is nearly equal to the length of the cylindrical portion of sleeve **32**. The ends of wires **51** and **52** are stripped of insulation and are positioned on the outer cylindrical wall of plug **54**.

To assemble the hybrid takeout clip of this invention, the plates **45** are slidably received inside tubular sleeve **32** on the opposite side of shoulders **48**. Plug **54** is pressed inside the cylindrical cavity formed by the inner cylindrical walls of plates **45** so as to establish a pressure fit between the polarized wires **51** and **52** and the polarized plates **45**. This pressure fit obviates the need for soldered connections, as was required in the prior art male connector shown in FIG. **1**.

In use, the arcuate plates **45** are exposed as polarized takeout terminals for connection to a pair of polarized

takeout prongs **46** of a second like takeout hybrid clip **80** or these polarized prongs may be connected to the takeout terminals **82** of a conventional male connector (FIG. 7). A third hybrid clip **80'** is shown in dotted lines in position for connection to clip **80.**

While this invention has been described with reference to a preferred embodiment thereof, it will be apparent that constructional modifications are possible without departing from the scope of the following claims:

What is claimed is:

1. A hybrid takeout clip comprising:

an insulating sleeve having a pair of opposed transverse wall slots;

a pair of opposed takeout plates covering said slots; and

a pair of opposed resilient prongs electrically connected to said takeout plates and projecting outwardly of said sleeve, said opposed transverse wall slots exposing said takeout plates for connection to the prongs of a second like takeout clip.

2. A takeout clip comprising:

a tubular insulating sleeve having a pair of opposed transverse wall slots of different length and a pair of arcuate lips of different width projecting from one end thereof;

a pair of metallic segments, each segment having an arcuate takeout plate and a resilient prong, said segments being constructed to be slidably received inside said tubular sleeve whereby and said prongs are covered by said lips; and

said opposed transverse wall slots exposing said takeout plates for connection to the prongs of a second like takeout clip.

3. The takeout clip of claim **2** and further comprising a cylindrical plug having a longitudinal bore therethrough for receiving the wires of an electric cable through the bore, the bare metallic end portions of the wires being disposed on the outer cylindrical wall of the plug constructed to be inserted inside said tubular sleeve and covered by said arcuate takeout plates.

4. The takeout clip of claim **3** wherein said plug has an enlarged head at one end thereof.

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