Nov. 13, 1928.

1,691,072

H. B. JONES

CONNECTION DEVICE

Filed May 15, 1925

Fig. 1.

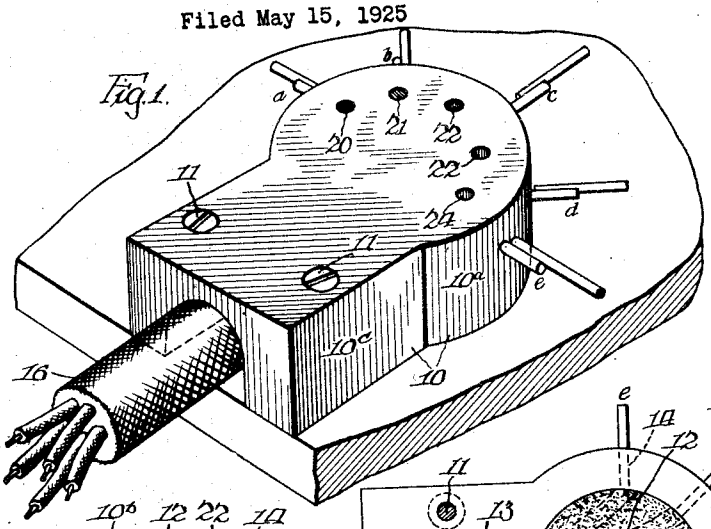


Fig. 2.

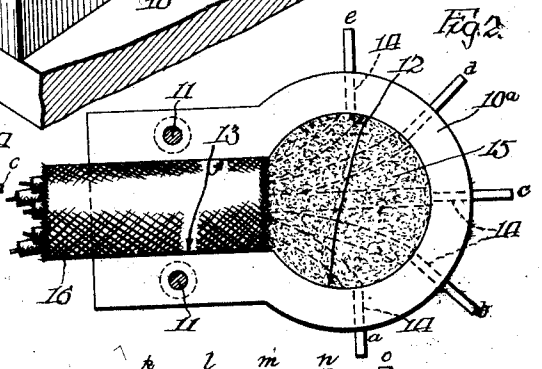


Fig. 3.

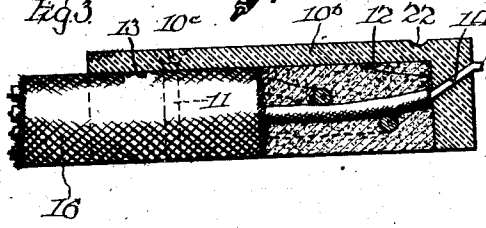


Fig. 4.

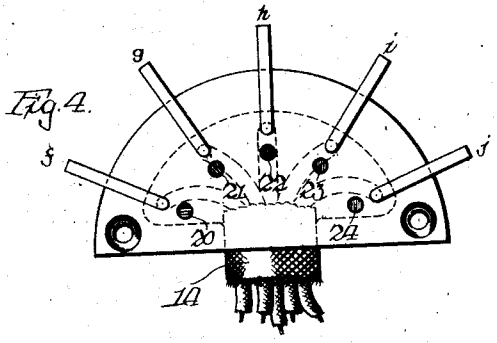


Fig. 5.

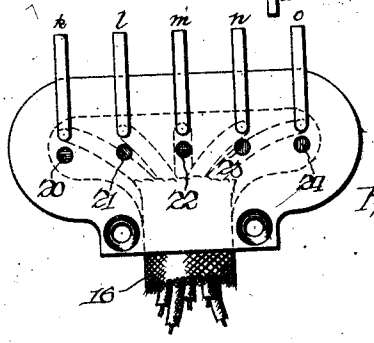


Fig. 6.

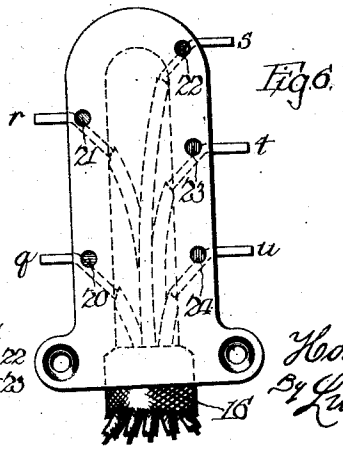
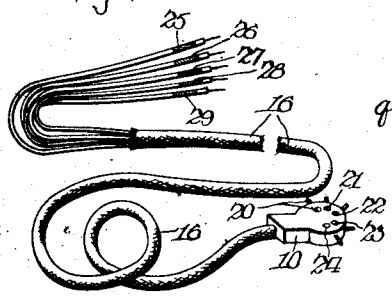


Fig. 7.



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UNITED STATES PATENT OFFICE.

HOWARD B. JONES, OF EVANSTON, ILLINOIS.

CONNECTION DEVICE.

Application filed May 15, 1925. Serial No. 30,456.

These improvements relate to devices for making a plurality of electrical connections. In one aspect the improvements relate to the unit including a section of cable, and in another aspect to the terminal device at one end of the cable.

The improvements have been devised particularly as an adjunct to radio receiving sets, and the prime object is to provide a simple and cheap form of connection device whereby the usual battery wires may be led to the set and connections made therefrom to the instruments within the set in a simple, easy and convenient manner, with features of identification of the wires substantially insuring proper connections in the beginning and from time to time as parts may be disassembled, and to provide a device occupying substantially the minimum of space and one susceptible of being connected up with substantially the minimum of labor and mental effort.

In the drawings Figure 1 is a sectional view of the preferred form of the terminal device on a scale about twice the size I employ in practice; Fig. 2 is a bottom plan of the terminal device of Fig. 1; Fig. 3 is a medial longitudinal section through the structure of Figs. 1 and 2; Figs. 4, 5 and 6 are top views of modified forms of the device; and Fig. 7 is a small perspective of the connection device unit as made and sold by me as an article of commerce.

Referring to the preferred form of Figs. 1, 2 and 3, the body 10 in my practice is of molded rubber compound vulcanized hard and ordinarily known as hard rubber. In my practice its length is about one and three-eighths inches. It has a flat bottom whereby it may rest evenly upon the base board of the set or the side or end wall of the cabinet thereof. Screws 11 through suitable holes hold this terminal head 10 firmly in position.

As shown in Figs. 2 and 3 the body is provided with a hollow interior 12 defined in these figures by a circular wall 10^a at the sides and by the top wall 10^b, and leading to the hollow interior 12 there is a passageway 13 preferably only slightly larger than the diameter of the cable 16, and the body is only slightly higher than the thickness of the cable whereby the device as a whole is maintained small and low and adapted to occupy but small space. This passageway 13 preferably extends through a shank-like extension 10^c, in my practice about half an inch long, adapted to exert some holding effect upon the cable and relieve the individual wires within the hollow interior of strains which are incidental to moving the cable about when the terminal head is rigidly affixed.

Leading from the hollow interior 12 through the side walls 10^a I provide a plurality of openings 14 which are only slightly larger in diameter than that of the bare wires respectively of the cable, and these holes 14 are preferably bored so as to slant upward and outward, as shown in Fig. 3, whereby the bare wire ends may be the more easily inserted and forced through these holes from the direction of the open bottom of the terminal head member 10.

In applying the cable to the terminal head I first remove the cable wrapping from a short section at its end and remove insulation from the individual wires so as to leave about a half an inch of the wires exposed. The ends of the five wires are then inserted respectively in the five openings 14, whereupon a push upon the cable toward the hollow interior 12 forces the wires through the openings 14 with the wires spread apart. Thereupon the cable is laid back into the channel 13, the individual wires adjusted slightly if necessary, and then a suitable plastic material 15, such as what is known as sealing compound in electrical work, is poured into the hollow interior 12 and forced tightly among the wires therein and smoothed off even with the bottom. The sealing compound on hardening not only forms a good insulation between the wires but, importantly, serves as a means for securing the cable and the respective wires thereof in their desired relative positions, and firmly secures the terminal head upon the cable.

In Figs. 4, 5 and 6, I have shown the device in different shapes having certain advantages respectively in particular installations, and in Figs. 4 and 5 the bare wire ends *f* to *j* inclusive and *k* to *o* inclusive issue from holes in the top wall of the terminal head and are bent over so as to lie upon and project beyond this terminal device. In Fig. 6 the bare wires *q* to *u* inclusive, project through holes in the side wall after the manner illustrated in Figs. 1, 2 and 3. In some installations it is advantageous to have the wires issue straight ahead as in Fig. 5, while in others a radial arrangement as in Figs. 1 and 4, or a lateral arrangement as in Fig. 6, will be preferred,

depending upon the direction the connection wires shall take within the set.

In all of the forms shown identifying means for the wire ends are illustrated as small cup-shaped recesses 20, 21, 22, 23 and 24, and these are colored, by means of paint applied thereto, in such a predetermined order as blue, green, yellow, red and pink. According to a system of identification adopted by me and used extensively by various manufacturers of receiving sets at the present time, blue indicates plus B detector, green minus A, yellow minus B, red plus A, and pink plus B amplifier.

Fig. 7 illustrates the connection unit complete, although shown broken as to its length. It consists of a length of cable 16 connected to the terminal head 10 as already described, the wires being from five to eight feet in length according to particular requirements, and the cable wrapping being removed from say a foot and a half to two feet of the wires at their free ends, and the extreme ends of the wires being freed from insulation for attachment to the battery terminals. Adjacent to the ends of these wires the insulation is painted at 25, 26, 27, 28 and 29 with the same colors respectively shown at 20 to 24 inclusive, namely: blue, green, yellow, red and pink, whereby the wire with the blue marking is known to be the same as the one which issues adjacent to the blue marking on the terminal device, and so on with respect to all of the other colors. The result is that the person installing the device can connect the free ends of the wires with the several terminals of the batteries as called for by the system, and, having installed the head member 10 he can easily solder to the protruding wire ends *a*, *b*, *c*, *d* and *e* (Fig. 2), or the other wire ends illustrated in Figs. 4, 5 and 6, short lead wires making connection with the proper receiving set parts.

With such a unit the labor and head work of connecting the set with the batteries is very much simplified, and, when the installation is made, the fact that there is but a single cable issuing from the set and leading to the batteries rather than a number of separate wires, likely to get mixed and tangled, is an advantage. The small and compact terminal element to which the proper connections can readily be made, which occupies substantially the minimum of space, and which is neat and attractive in appearance, and in which the wires are well insulated and strongly held, provides a very desirable substitute for the usual relatively long strip of insulating material containing numerous binding posts and occupying considerable space in radio receiving sets. Since the batteries are frequently in the cellar, the feature of identifying both ends of the wires avoids all necessity for attempts to trace the wires by means of currents or otherwise.

I am aware that various kinds of terminal devices have heretofore been suggested to receive the end of a cable and to distribute wires therefrom, but I am not aware that any such prior device is in so simple a form, consists of so few parts, and, withal, has such possibilities of advantageous use in a radio receiving set or in like situations as is the case with the present structure, and in this connection it is pointed out that my present device, in addition to its other advantages, is notably cheap in manufacture, is peculiarly strong, and is not likely to cause functional annoyance—features of great importance in radio work.

I contemplate as being included in these improvements such changes, departures and modifications from what is specifically illustrated and described herein as fall within the scope of the appended claims.

I claim:

1. A multiple-wire cable unit of the character described comprising a multiple-wire cable and a small and compact terminal head of insulating material formed to seat substantially flat and having an open bottom leading to a hollow interior, the head having a passageway into which the cable extends, walls of the head having openings spaced apart through which respectively the wires of the cable extend, with means holding the cable and the head strongly together.

2. The combination of claim 1 hereof in which said hollow interior is filled with plastic sealing material holding the cable and said body together.

3. The combination of claim 1 hereof in which said body has identifying means for the individual wires associated with said openings respectively and on the outside of the body.

4. The combination of claim 1 hereof in which said body is substantially small and is not much higher than the thickness of the cable to be used therewith and is formed as an integral unit.

5. The combination of claim 1 hereof in which the other end of the cable has insulated wires thereof projecting therefrom free of cable wrappings to a materially great distance for connection to respective battery terminals spaced apart, said wires having identifying means thereon respectively, there being corresponding identifying means on the terminal device and associated with the wires respectively issuing from the terminal device whereby each wire is correspondingly identified at each end portion thereof.

6. The combination of claim 1 hereof in which said head is shallow, narrow and short, with top and side walls, and of integral construction, with sealing material in the hollow interior, and with said passageway for the cable in the form of a recess extending from the bottom toward the top wall.

HOWARD B. JONES.