Nov. 22, 1955 R. W. LELAND 2,724,813

TERMINAL CONNECTOR

Filed Aug. 5, 1953

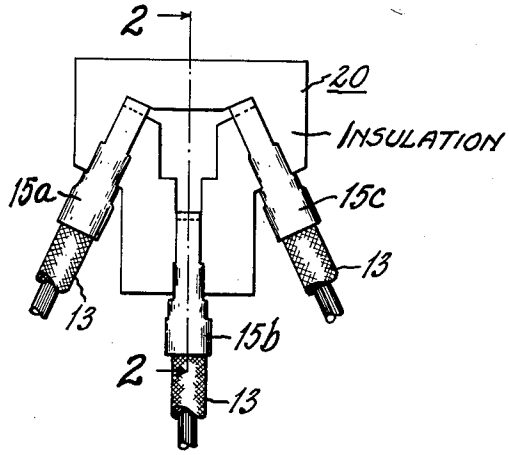


Fig. 1.

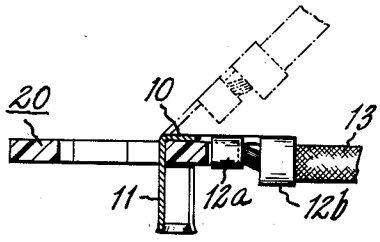


Fig. 2.

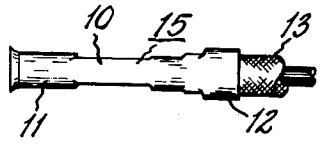


Fig. 4.

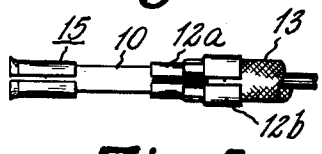


Fig. 5.

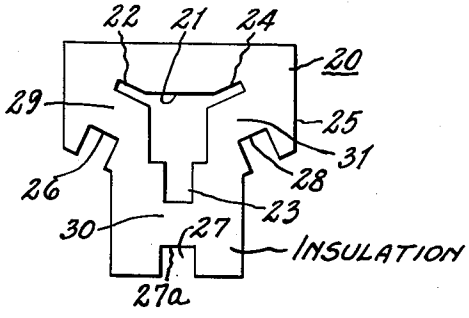


Fig. 3.

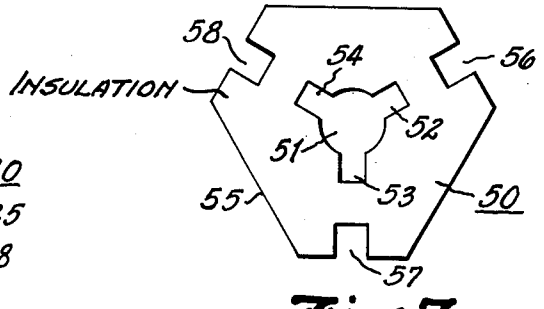


Fig. 7.

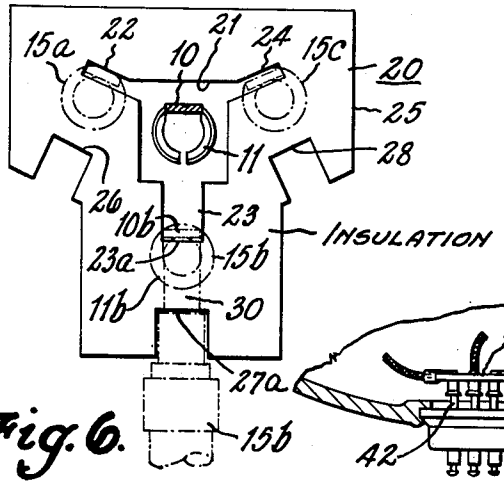


Fig. 6.

Fig. 8.

INVENTOR.
ROBERT W. LELAND
BY John L. Marion
ATTORNEY

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TERMINAL CONNECTOR

Robert W. Leland, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

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4 Claims. (Cl. 339—194)

This invention relates to a terminal connector, and particularly to a multiple terminal connector adapted for gang connection of a plurality of individual wire connections with a corresponding number of post connectors.

An object of the invention is to provide a terminal connector that is inexpensive in manufacture and which can be locked to a carrying plate for placement of the connector in engagement with the terminal post.

Another object of the invention is to provide a multiple or gang terminal connector having a plurality of individual connector elements each of which is secured to a common carrier plate for simultaneous gang connection of the plurality of connectors with a corresponding number of terminal posts.

It is also an object of the invention to provide a method for manufacturing and assembling a plurality of individual terminal connectors onto a carrier plate whereby to form a gang connector.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein a preferred form of the invention is clearly shown.

Figure 1 is a plan view of a multiple or gang terminal connector constructed in accordance with this invention.

Figure 2 is a cross sectional view taken along line 2—2 of Figure 1.

Figure 3 is a plan view of the carrier plate to which the terminal connectors are attached.

Figure 4 is a plan view of a terminal connector prior to installation on the plate of Figure 3.

Figure 5 is an elevational view of the terminal connector of Figure 4 as taken from the opposite side thereof.

Figure 6 is a schematic view illustrating the method of assembly of the terminal connectors on the carrier plate.

Figure 7 is a plan view of a modified form of carrier plate for the terminal connectors.

Figure 8 is a transverse cross sectional view of a portion of an electric motor illustrating the use of the terminal connector of this invention.

The individual terminal connectors of this invention are illustrated in Figures 4 and 5. Each of the connectors **15** comprises a ribbon-like shank portion **10** that has the enlarged heads **11** and **12** at opposite ends thereof. The enlarged head **11** comprises a hollow tubular member, as illustrated in Figure 2, that forms a post connector for attachment to a terminal post. The enlarged head **12** comprises a pair of bands **12***a* and **12***b* that encircle a connector wire **13** for attachment thereof to the terminal connector **15**.

The enlarged heads **11** and **12** both project from the same side of the ribbon-like shank **10**, as illustrated in Figure 2.

The connectors **15** are adapted to be placed into a carrier plate **20**. The plate **20** comprises a sheet of electrical insulating material having a central opening **21** that extends through the plate. Slots **22**, **23**, and **24** radiate from the central opening **21** toward the edge periphery

of the plate **20**. Each of these slots is adapted to receive a terminal connector **15** in a manner hereinafter described.

The edge periphery **25** of the plate **20** has the edge slots **26**, **27** and **28** formed therein that extend inwardly from the edge periphery of the plate **20** toward the respective radiating slots **22**, **23** and **24** respectively, thus providing plate portions **29**, **30** and **31** respectively between the respective cooperating pairs of slots.

As illustrated in Figures 2 and 6 a terminal connector **15** is inserted through the opening **21** in the plate **20** normal to the plate. The terminal connector can then be moved into either of the radiating slots **22**, **23** or **24**, as illustrated by the dot-dash lines of the respective terminal connectors **15***a*, **15***b* and **15***c* respectively in Figure 6.

Assuming the terminal connector **15** will be advanced into radiating slot **23**, the shank portion **10** of the terminal connector will be placed against the forward edge **23***a* of the slot **23**, as shown by the position of the shank **10***b*. This places the enlarged head or post connector **11***b* beneath the plate portion **30** of the plate **20** whereby the terminal connector **15***b* cannot be moved normal to the plate **20**. This position of the enlarged head **11** is more clearly illustrated in Figure 2.

With the terminal connector in the terminal connector position **15***b*, as shown in Figure 6, the shank portion **10** of the connector is then bent at right angles to the enlarged head **11** whereby to place the shank portion **10** upon the face of the plate portion **30**, as shown in Figure 2 when the shank portion **10** is thus bent, as shown in Figure 2, the enlarged head portion **12** will be positioned in the edge slot **27** in the plate **20** with the collar **12***a* of the enlarged head substantially engaging the forward edge **27***a* of the plate portion **30** between the slots **23** and **27**. This locks the terminal connector in position on the plate **20**.

In Figures 3 and 6 it will be noted that the slots **22** and **24** are of narrower width than the slot **23**. This is for the reason that the terminal connector **15***b*, see Figure 6, is placed with the wide portion of the shank **10** in the slot **23** whereas the terminal connectors **15***a* and **15***c* are placed with the narrow portion of the shank **10**, that is the thickness of the shank, in the respective slots **22** and **24**.

In each instance however, each of the terminal connectors **15***a*, **15***b* and **15***c* are assembled between the cooperating slots **22—26**, **23—27**, and **24—28** in exactly the same manner as hereinbefore described. With the arrangement of the device as illustrated in Figures 1–6, the three terminal connectors **15***a*, **15***b* and **15***c* all leave the plate **20** from substantially the same side thereof.

In Figure 8 there is illustrated the use of the multiple or gang terminal connector, identified by the numeral **40**, in an electric motor for connecting the leads from the windings of the motor to a connector plug **41** that is provided with terminal posts **42** with which the terminal connectors **15***a*, **15***b*, and **15***c* cooperate. The arrangement is such that gang connection of the terminal connectors can be made with the several terminal posts **42** on the plug **41**.

In Figure 7 there is illustrated a slightly modified arrangement of carrier plate **50**. This carrier plate **50** has a central opening **51** from which there extends the radiating slots **52**, **53**, and **54**. The periphery **55** of the plate **50** is provided with slots **56**, **57** and **58** that extend inwardly from the edge periphery toward the respective slots **52**, **53**, and **54**. Thus the plate **50** is comparable to the structure of the plate **20** heretofore described.

The plate **50** is adapted to receive a plurality of the terminal connectors **15** that are assembled onto the plate between the respective cooperating slots **52—56**, **53—57**,

and **54—58** in exactly the same manner as heretofore described with reference to the placing of the terminal connector **15***b* on the plate **20** and between the cooperating slots **23—27** thereof.

While the form of embodiment of the invention as herein disclosed constitutes a preferred form, it is to be understood that other forms might be adopted as may come within the scope of the claims which follow.

What is claimed is as follows:

1. A terminal connector comprising, a plate member having an opening therein with a slot radiating from the opening, said plate also having a slot extending inwardly toward said radiating slot from the edge periphery of the plate, and a terminal connector having a shank portion engaging one face of the plate between said slots and the outermost wall of said radiating slot, said shank portion having an enlarged head portion on one end thereof engaging the face of said plate on the side thereof opposite to the engagement by said shank portion and having a second enlarged head portion on the opposite end thereof extending into said edge slot thereby retaining the portion of the plate between said slots enclosed by said shank portion and said heads to lock said terminal connector to said plate.

2. A multiple terminal connector comprising, a plate member having an opening therein and a plurality of slots radiating from the opening toward the periphery of the plate, said plate also having a plurality of edge slots each extending inwardly from the edge periphery of the plate and aligned with one of said radiating slots, and a plurality of terminal connectors on said plate each extending between aligned slots and locked in position on said plate, each of said terminal connectors comprising a shank portion having an enlarged head portion on each end thereof, said enlarged head portion projecting from the same side of the shank portion, said terminal connectors each being positioned on said plate with the shank portion engaging the plate between said slots and a head portion at one end thereof engaging the face of the plate opposite to that engaged by said shank portion and with the head portion at the opposite end of the shank extending into said edge slot whereby to lock the terminal connector on said plate.

3. A multiple terminal connector comprising, a plate member having an opening therein and a plurality of slots radiating from the opening toward the periphery of the plate, said plate also having a plurality of edge slots each extending inwardly from the edge periphery of the plate and aligned with one of said radiating slots, and a plurality of terminal connectors on said plate each extending between aligned slots and locked in position on said plate, each of said terminal connectors comprising a shank portion having an enlarged head portion on each end thereof, said enlarged head portions projecting from the same side of the shank portion, said terminal connectors each being positioned on said plate with the shank portion engaging the plate between said slots and a head portion at one end thereof engaging the face of the plate opposite to that engaged by said shank portion and extending substantially normal to the face of the plate engaged thereby and with the head portion at the opposite end of the shank extending into said edge slot with the head portion being disposed substantially in the plane of the plate whereby to lock the terminal connector on said plate.

4. A multiple terminal connector comprising, a plate member having the central opening therein and a plurality of slots radiating from the opening toward the edge periphery of the plate, said plate also having a plurality of edge slots extending inwardly from the edge periphery of the plate toward the radiating slots and aligned respectively with the said radiating slots, and a terminal connector having a ribbon-like shank portion provided with a hollow post connection on one end thereof and an enlarged head forming a wire connection at the opposite end thereof, said post connection and wire connection extending from the same side of the ribbon-like shank portion, a terminal connector being positioned between cooperating aligned slots in said plate with the said shank portion engaging one face of the plate between said slots and with the post connection engaging the opposite face of said plate and extending substantially normal therefrom and with said head portion positioned in the edge slot and disposed substantially in the plane of said plate.

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