Sept. 27, 1955 J. B. MUCKLER 2,719,279

SLIDING COAXIAL CONNECTOR

Filed Dec. 1, 1952

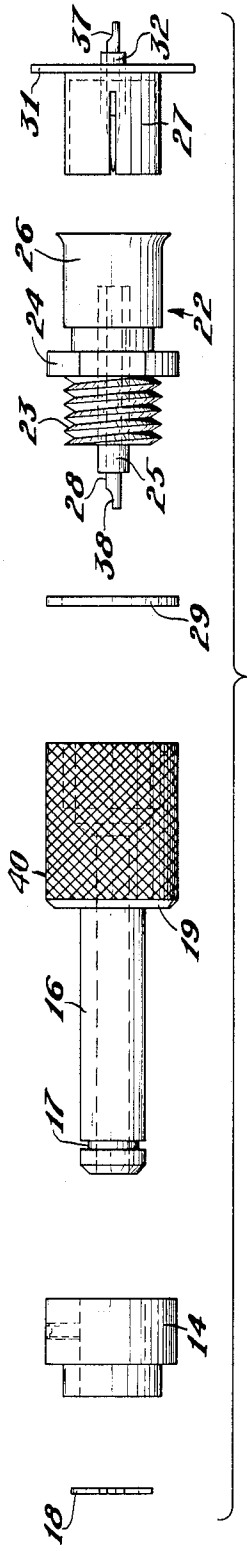

Fig 1

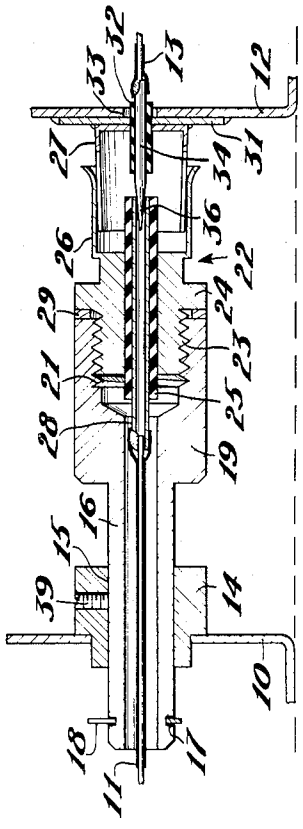

Fig 2

INVENTOR.
JACK B. MUCKLER
BY Marvin Moody
ATTORNEY

United States Patent Office 2,719,279 Patented Sept. 27, 1955

2,719,279

SLIDING COAXIAL CONNECTOR

Jack B. Muckler, Cedar Rapids, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa, a corporation of Iowa

Application December 1, 1952, Serial No. 323,344

5 Claims. (Cl. 339—177)

This invention relates in general to electrical connectors, and in particular to an electrical connector which may be quickly and easily disconnected.

As electronic equipment has become more and more complicated, it has been necessary to divide various portions of receivers and other equipment into a number of separate units which are connected together by external leads. This allows complete units to be replaced or removed without interfering with the connections of the remaining equipment. For example, a receiver may have three or four sub-assemblies constructed as separate units which might plug in to the other units to comprise the complete receiver.

It is an object of this invention, therefore, to provide a slidable electrical connector which may be rapidly connected or disconnected.

Another object of this invention is to provide a relatively strong positive electrical connector for joining a pair of chassis.

Further objects, features and advantages of the invention will become apparent from the following description and claims when read in view of the drawings, in which:

Figure 1 is an exploded view of the slide connector of this invention; and

Figure 2 is a sectional view illustrating the connector in the engaged position.

Figure 2 illustrates a portion of a first chassis **10** which has an electrical output that is connected to the wire **11**. A second chassis is shown as **12** and has an electrical conductor **13**. It is desired to electrically connect the wire **11** with the wire **13** in a fashion such that they may be rapidly disconnected.

To accomplish this, a bearing member **14** is mounted in an opening formed in the chassis **10** by welding or other suitable means. It is formed with a central opening **15** through which a plunger member **16** is received. The plunger member **16** has a groove **17** formed adjacent an end and a clip **18** is received therein. The clip is large enough in diameter to prevent the plunger from being removed from the bearing **14**.

The opposite end of the plunger member **16** is enlarged to form a portion **19** which is formed with an internally threaded portion **21**. A coupling member **22** is formed with an externally threaded portion **23** and has a shoulder **24** formed adjacent the threaded portion **23**. A hollow cup-shaped connector portion **26** is formed at the end opposite the threaded portion **23** and is large enough to allow it to slidably receive therein a cylindrical member **27**.

The member **22** has an axial opening formed therethrough which holds insulating material **25**. A cylindrical conducting member **28** extends through insulating material **25**.

A washer **29** is received between the members **22** and **19** when they are in the assembled relationship shown in Figure 2. The member **27** is connected to a disc **31** which is soldered or otherwise connected to the chassis **12**. Insulating material **32** is connected to the member **27** and passes through an opening **33** formed in the plate **31** and chassis **12** to insulate an engaging pin **34** from these members. The engaging pin **34** is formed with a tapered point **36** and has a hollow portion **37** at the opposite end so that it may be soldered to the conductor **13**.

The conducting member **28** supported in the member **22** is also formed with a cup-shaped portion **38** which may be soldered or otherwise connected to the end of the conductor **11**.

A set screw **39** may be threadedly received in the member **14** so as to lock the plunger **16** if desired.

In operation, the apparatus is assembled as shown in Figure 2 and the chassis **10** and **12** are aligned so that the portion **26** fits over the member **27**, allowing the tapered portion **36** of pin **34** to engage the hollow conducting member **28**. Since the pin **34** is connected to the conductor **13** and the member **28** is connected to the conductor **11**, electrical contact will be made between these conductors.

When it is desired to remove one of the chassis **10** or **12** for any reason, the members may be disconnected by grasping a knurled portion **40** formed on the member **19** and by moving it to the left relative to Figure 2. This disengages the member **26** and conductor **28** from the members **27** and pin **34**, respectively.

It is to be noted that the plunger **16** is free to move to the left relative to Figure 2 a sufficient distance to allow the member **26** to clear the member **27**.

Advantages of the present connector are that it eliminates the need of flexible connections between adjoining chassis and it substantially speeds up the time required to connect and disconnect a pair of chassis.

The apparatus is relatively rigid and may be locked in place by the set screw **39** if desired so as to eliminate disconnections caused by vibrations or jar.

Although this invention has been described with respect to a particular embodiment thereof, it is not to be so limited as changes and modifications may be made therein which are within the full intended scope of the invention, as defined by the appended claims.

I claim:

1. A sliding electrical connector for making connections between a pair of bodies comprising, a bearing member mounted in one of the bodies and formed with a central opening therethrough, a plunger member slidably received through the axial opening formed in said bearing member, a cylindrical coaxial member mounted to the second body, said plunger member formed into a coaxial conductor, and said plunger member detachably connectable with said cylindrical member.

2. A sliding coaxial connector for making electrical contact between a pair of bodies comprising, a bearing member mounted in one of said bodies and formed with an opening therethrough, a plunger member slidably received in said bearing member, retaining means mounted on said plunger member to prevent it from being withdrawn from said bearing member, a cylindrical coaxial conductor member attached to the second body, and said plunger member engageable with said cylindrical member.

3. A sliding coaxial connector for connecting electrically a pair of bodies comprising, a bearing member formed in one of said bodies, a plunger member slidably received through said bearing member, a retaining means mounted on said plunger member, a coupling member threadedly received in said plunger member, an axial opening formed through said plunger member, an insulated cylindrical conducting member mounted in said coupling member, a first conductor passing through said

plunger member and engageable with said cylindrical conducting member, a second cylindrical member mounted to the second body and formed with a central insulated engaging pin and an external conducting member, and said coupling member engageable with said second cylindrical member so as to make electrical contact between the first cylindrical conducting member and said engaging pin.

4. A sliding coaxial connector for making electrical contact between a pair of bodies comprising, a bearing member mounted in one of said bodies, a plunger member slidably received in said bearing member, said plunger member formed with an axial opening, a coupling member threadedly received in said plunger member, a cylindrical conductor mounted in said coupling member and insulated therefrom, a first conductor connected to said first body and extending through said axial opening in said plunger member and connected to said cylindrical conductor, said cylindrical conductor formed with a central opening, a cylindrical member attached to the second body, an engaging pin insulatingly supported by said cylindrical member, said coupling member engageable with said cylindrical member, and the engaging pin received within the axial opening formed in said cylindrical conductor.

5. A sliding coaxial connector for making electrical

contact between a pair of bodies comprising, a bearing member mounted to one body, a plunger slidably received within said bearing and formed with a shoulder engageable with said bearing, a retainer ring attached to one end of said plunger member so as to prevent it from being withdrawn from said bearing, a coupling means threadedly received in said plunger member, an axial opening formed through said plunger member, a hollow conductor insulatingly supported by said coupling member in alignment with the opening formed through said plunger member, a cylindrical member attached to the second body, an engaging pin insulatingly supported by said cylindrical member, and said plunger movable to cause the coupling member to engage the cylindrical member and the engaging pin to be received within the opening of said hollow conductor.

References Cited in the file of this patent

UNITED STATES PATENTS

1,808,570	Powers	June 2, 1931
2,229,006	Rudd	Jan. 14, 1941
2,332,529	Reppert	Oct. 26, 1943
2,352,159	Brodie	June 27, 1944
2,449,073	Johannesen	Sept. 14, 1948