

Nov. 21, 1967

F. MINECK

3,354,420

COAXIAL CABLE CONNECTOR

Filed Sept. 2, 1966

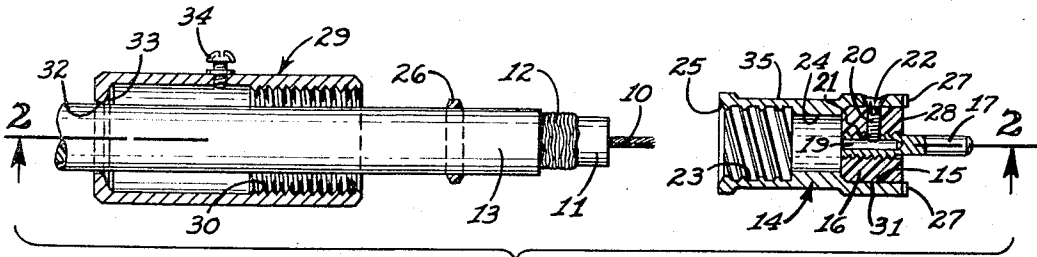


FIG. 1

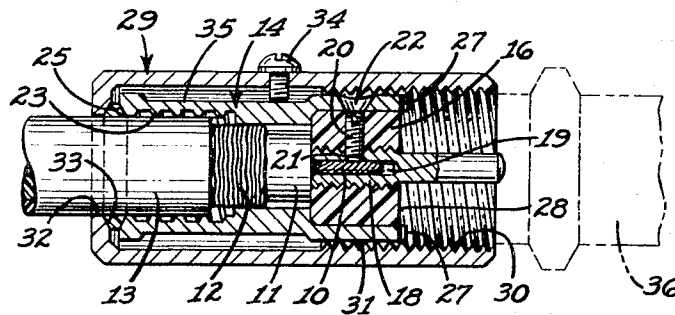


FIG. 2

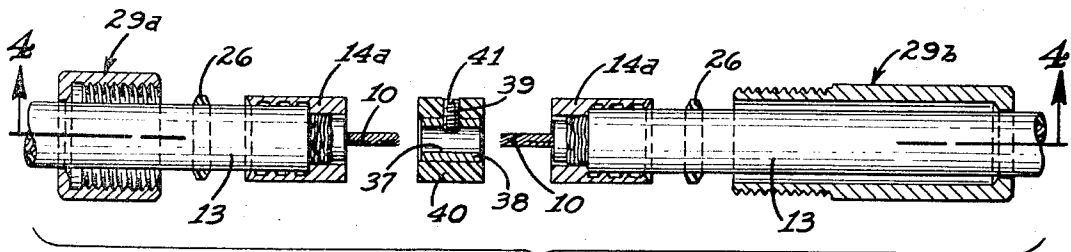


FIG. 3

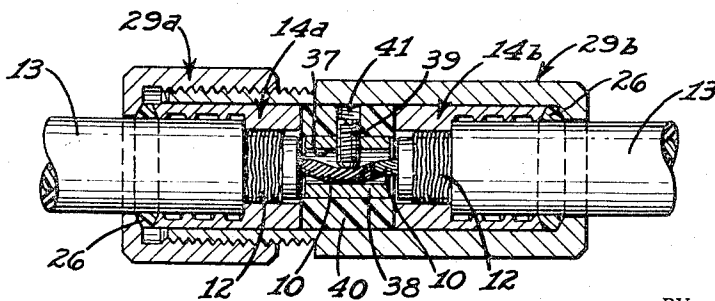


FIG. 4

INVENTOR.
FRED MINECK.

BY
William S. Green
ATTORNEY.

1

3,354,420

COAXIAL CABLE CONNECTOR

Fred Mineck, Montclair, Calif., assignor of fifty percent to Ashal J. Calder, Ontario, Calif.
 Filed Sept. 2, 1966, Ser. No. 576,876
 3 Claims. (Cl. 339-103)

This invention pertains to improvements in a coaxial cable connector.

One of the objects of this invention is to provide a coaxial cable connector which requires no soldering or braising.

Another object of this invention is to provide a coaxial cable connector having a large ground wire mesh shield swedge type compression connection.

Still another object of this invention is to provide a positive outer cable to cap seal by a tapered nylon seal and the like.

A further object is to provide a positive set screw to lock the center cable conductor to the center electrode.

It is also an object to provide a coaxial connector having a set screw to lock the outer cap after tightening.

And a still further object is to provide a coaxial connector which may be re-used.

Further features and advantages of this invention will appear from a detailed description of the drawings in which:

FIG. 1 is an exploded view of a coaxial connector incorporating the features of this invention.

FIG. 2 is an enlarged sectional view of the coaxial connector of FIG. 1 shown assembled.

FIG. 3 is an exploded view of a coaxial cable coupling incorporating the features of this invention.

FIG. 4 is an enlarged sectional view of the coaxial coupling of FIG. 3 shown assembled.

As an example of one embodiment of this invention there is shown a coaxial connector for a coaxial cable having the center conductor 10, the insulative covering 11 for the center conductor 10, the wire mesh ground shield 12, and the outside insulative sheath 13.

The connector incorporating the features of this invention comprises the conductor engaging sleeve 14 having a bore 15 in which is secured the insulative bushing 16. The center conductor terminal pin 17 has a threaded or serrated shank portion 18 which is rigidly fixed centrally of the insulative sleeve 16 and has a bore 19 arranged to receive the center conductor 10 of the cable. A radially disposed set screw 20 is carried in the insulative bushing 16 and extends through an aligned threaded opening 21 in the shank 18 and engages and locks the center conductor 10 in the bore 19 in the terminal pin 17. An access opening 22 is formed in the sleeve 14 in alignment with the set screw 20 for manipulation of the same in securing and releasing the center conductor 10 from the terminal pin 17.

A coarse threaded bore 23 is formed in the other end of the sleeve 14 and is arranged to be screwed over the outside of the outside insulative sheath 13 of the cable. An intermediately located wire mesh ground shield engaging bore 24 is formed in the sleeve 14 arranged to engage the exposed portion of the ground conductor 12. The outer end of the threaded bore 23 is provided with a chamfered counterbore 25 arranged to engage a seal ring 26 snugly fitting over the outside of surface of the outside

2

insulated sheath 13. The usual rotation preventing tongues 27 are on the outer face 28 of the sleeve 14.

The coupling and releasing member 29 has the threaded bore 30 of conventional dimensions which slides over the diameter portion 31 on the sleeve 14. A smaller bore 32 just slightly larger than the outside diameter of the outside insulative sheath 13 of the cable has a chamfered inside counterbore 33 arranged to oppositely engage the seal ring 26 relative to the chamfered counterbore 25 of the sleeve 14 when the connector is assembled as shown in FIG. 2. A positioning screw 34 is threadedly mounted in the coupling and releasing member 29 with its inner end relatively movable in the wide annular groove 35 formed in the periphery of the conductor engaging sleeve 14. With the connector assembled with its threaded bore 30 and tongues 27 and face 28, and terminal pin connected to the usual coupling 36, FIG. 2, the chamfered counterbore surfaces 25-33 engage each side of the seal 26 securely sealing and gripping the outside diameter of the sheath 13 to prevent it from escaping from the connector under tension. The screw 34 may then be tightened home against the annular groove surface 35 thus positively locking the sleeve 14 and the coupling member together.

Where it is desirable to connect the two ends of a coaxial cable directly together, there is provided the arrangement shown in FIGS. 3 and 4 wherein the center conductors 10 of both cables are secured together in the bore 37 of the connector bushing 38 by the clamping set-screw 39. The bushing 38 is surrounded by and fixed to an insulative bushing 40 having an access hole 41 for manipulating the setscrew 39. The conductor sleeves mounted on the ground shield 12 and the sheath 13 as in the case of the sleeve 14 of FIGS. 1 and 2, are positioned each side of the bushings 38-40 as shown in FIG. 4. The two inter-mating threaded coupling members 29a and 29b are then coupled together pulling parts 14a and 40 together and compressing the seal rings 26 on the cable sheaths 13 as described for FIGS. 1 and 2.

While the apparatus herein disclosed and described constitutes a preferred form of the invention, it is also to be understood that the apparatus is capable of mechanical alteration without departing from the spirit of the invention and that such mechanical arrangements and commercial adaptation as fall within the scope of the appended claims are intended to be included herein.

Having thus fully set forth and described this invention what is claimed and desired to be obtained by United States Letters Patent is:

1. A connector for a coaxial cable having:
 - (A) a center conductor,
 - (B) and insulative covering for said center conductor,
 - (C) a ground shield around said insulative covering,
 - (D) and an outer covering sheath around said ground shield,
 - (E) a shield-engaging sleeve having elements for connection to a mating connector and including a threaded bore portion engaging said outer sheath terminating in a seal-engaging surface,
 - (F) a coupling and releasing member having a threaded bore portion for engaging a threaded portion on the mating connector and a reduced portion including a seal-engaging surface,
 - (G) and a seal ring fitting on the outside diameter of said sheath arranged to be compressed between said

3

seal engaging surfaces when said conductor engaging sleeve and said coupling members are threadedly assembled together.

2. A connector for a coaxial cable as set forth in claim 1 wherein there is provided a positioning and clamp screw in said coupling and releasing member arranged to be tightened to engage said shield-engaging sleeve to lock the connector in assembled position and releasable to limit relative axial movement of said sleeve and coupling member for connecting and releasing said connector.

3. A connector for a coaxial cable as set forth in claim 1 wherein the elements for connection to the mating connector of item E includes a common connector bushing having a center conductor gripping means and a pair of interfitting coupling and releasing members as in item

4

F for axially securing two of said sleeves against the ends of said common connector bushing.

References Cited

UNITED STATES PATENTS

2,238,834	4/1941	Travers	339—103
3,104,145	9/1963	Somerset	339—103
3,110,756	11/1963	Genung et al.	339—177 X
3,170,748	2/1965	Van Horssen	339—177 X

FOREIGN PATENTS

143,328	5/1920	Great Britain.
---------	--------	----------------

RICHARD E. MOORE, *Primary Examiner.*