



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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With international search report.

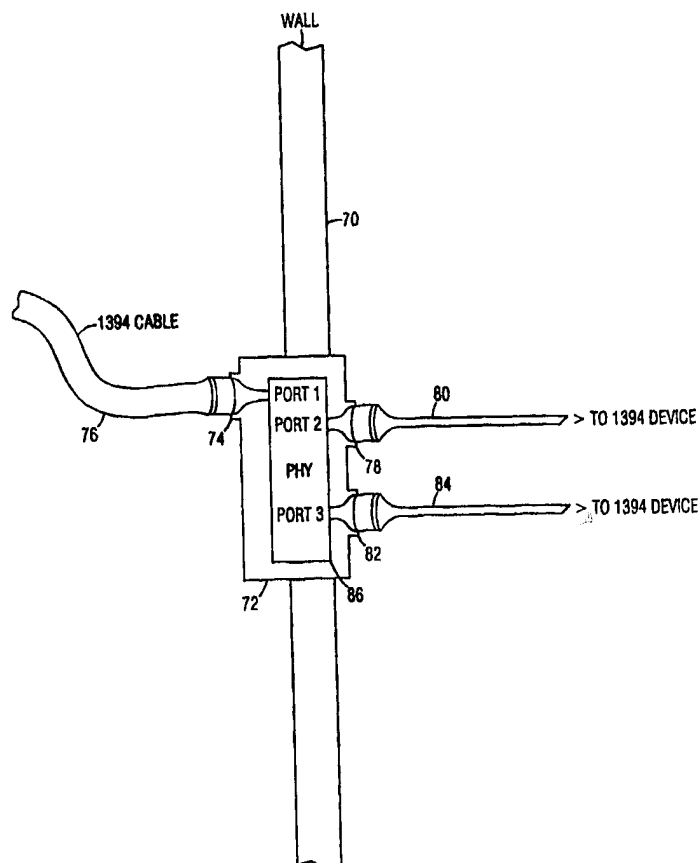
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(54) Title: IEEE 1394 ACTIVE WALL DISCONNECT AND AIRCRAFT QUALIFIED CABLE

## (57) Abstract

An IEEE 1394 cable (76) includes two individually shielded twisted data pairs of wires, carrying differential signals TPA and TPB, and two power conductors, carrying power signals VP and VG. The two twisted data pairs of wires are each individually shielded by a braided shield. The cable (76) also includes an overall braided shield and a no smoke, no halogen, flame retardant jacket. Preferably, the cable has a length of 4.5 meters and includes 26 gauge wire for the two twisted data pairs. Longer, alternate embodiments of the cable incorporate heavier gauge wire for the two twisted data pairs. Preferably, the gauge wire used for the two power conductors is constant for the different lengths of cable. An active disconnect (72) is used to provide an active repeater between IEEE 1394 cables. The active disconnect (72) provides ports, into which cables are connected, and a physical connection including electronics necessary to form an active node on the IEEE 1394 serial bus (76). The active disconnect (72) receives signals from one port and resynchronizes, encodes and transmits those signals out of the other ports. The active disconnect (72) draws power from the power conductors of the IEEE 1394 cables (80 and 84) which are coupled to it.



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## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US97/15811

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(6) : H01B 7/34

US CL : 174/27

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 174/27, 103; 340/425.1, 825.25

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

U.S.P.T.O. - APS, STN

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ---- A	US 2,386,753 A (SHIELD) (16.10.45), col. 1, lines 40-55, Fig. 1	1-2 ---- 3-10, 22
A	US 3,785,432 A (KABAT et al.) (15.01.74).	11-21, 23-27
A	US 5,483,656 A (OPRESCU et al.) (09.01.96).	11-21, 23-37
A	US 5,493,657 A (VAN BRUNT et al.) (20.02.96).	11-21, 23-27
A	US 5,504,757 A (COOK et al.) (02.04.96).	11-21, 23-37

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Z" document member of the same patent family
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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US97/15811

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Please See Extra Sheet.

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US97/15811

## BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I, claims 1-10, drawn to an IEEE 1394 cable,  
Group II, claims 11-17, drawn to an active disconnect,  
Group III, claims 18-22, drawn to a serial bus system,  
Group IV, claims 23-27, drawn to an entertainment system.

The inventions listed as Groups I, II, III, and IV do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:  
No special technical feature is in common between any one group and the others.