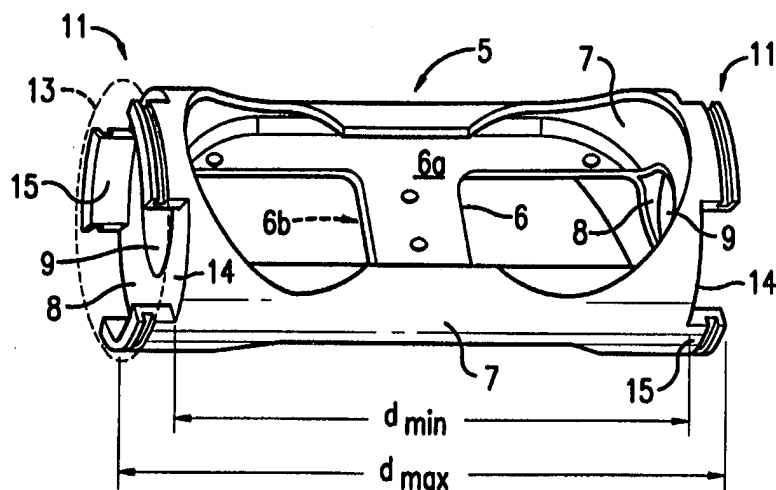




## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification<sup>6</sup> : <b>G02B 6/36</b></p>	<p><b>A1</b></p>	<p>(11) International Publication Number: <b>WO 98/15863</b></p> <p>(43) International Publication Date: 16 April 1998 (16.04.98)</p>
<p>(21) International Application Number: PCT/US97/18116</p> <p>(22) International Filing Date: 8 October 1997 (08.10.97)</p> <p>(30) Priority Data: 08/728,647                      10 October 1996 (10.10.96)                      US</p> <p>(71) Applicant: TYCO SUBMARINE SYSTEMS LTD. [US/US]; 101 Crawford's Corner Road, Holmdel, NJ 07723 (US).</p> <p>(72) Inventor: AMIRKALALI, Mohamad, A.; Unit #3, 57 Bridge- water Drive, Oceanport, NJ 07757 (US).</p> <p>(74) Agents: PIETRANTONIO, Frank et al.; Kenyon &amp; Kenyon, 1025 Connecticut Avenue, N.W., Washington, DC 20036 (US).</p>		<p>(81) Designated States: AU, CA, JP, KR, MX, NZ, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).</p> <p><b>Published</b> <i>With international search report.</i> <i>With amended claims.</i></p> <p><b>Date of publication of the amended claims:</b> 22 May 1998 (22.05.98)</p>

(54) Title: FLOATING FIBER STORAGE ASSEMBLY



(57) Abstract

A "floating" fiber storage assembly is provided for use with a fiber-optic cable joint (1) that connects two or more cables (3, 4). The device includes a fiber storage tray (5) for storing the spliced optical fibers of the cables, although any fiber storage device (such as a cylinder) may be used. The fiber storage tray (5) has a locking end (11) with a connection interface (13), comprised of one or more locking cut-outs (14) and locking tabs (15), for slidably engaging a terminating socket assembly (12). When the connection interface (13) is slidably engaged with the terminating socket assembly (12), the fiber storage tray (5) is loosely connected to the terminating socket assembly (12). To prevent the fiber storage tray (5) and the terminating socket assembly (12) from easily disengaging, a locking band may engage a substantially continuous locking groove formed when the storage tray (5) and the socket assembly (12) are loosely connected.

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## AMENDED CLAIMS

[received by the International Bureau on 31 March 1998 (31.03.98);  
new claims 9-28 added; original claims unchanged (6 pages)]

storage tray with respect to said terminating  
socket assembly.

6. The device as recited in claim 1, further  
comprising:

a spacer device interposed between said fiber  
storage tray and said terminating socket  
assembly, said spacer device for ensuring a  
separation distance between said fiber storage  
tray and said terminating socket assembly.

7. The device as recited in claim 6, wherein said  
spacer device restricts the longitudinal motion of said  
fiber storage tray.

8. The device as recited in claim 6, wherein said  
spacer device retains said fiber storage tray in a  
relatively fixed position with respect to said  
terminating socket assembly and a second terminating  
socket assembly.

9. A fiber storage assembly for use with a terminating  
socket assembly having a locking member and a locking  
channel, comprising:

a fiber storage tray for storing spliced optic  
fibers;

a locking end of said fiber storage tray;

a connection interface of said locking end for  
loosely coupling said fiber storage tray to said  
terminating socket assembly;

a locking cut-out of said connection interface  
sized to receive said locking member; and

a locking tab of said connection interface sized to  
slidably engage said locking channel.

10. The device as recited in claim 9, wherein said locking tab defines a locking groove.
11. The device as recited in claim 10, wherein said locking tab and said locking member define a substantially continuous locking groove when said fiber storage tray is loosely coupled to said terminating socket assembly.
12. The device as recited in claim 10, wherein said locking tab and said locking member define a substantially continuous annular locking groove when said fiber storage tray is loosely coupled to said terminating socket assembly.
13. The device as recited in claim 11, further comprising a locking band for engaging said substantially continuous locking groove such that the movement of said fiber storage tray with respect to said terminating socket assembly is restricted.
14. The device as recited in claim 9, further comprising a spacer device interposed between said fiber storage tray and said terminating socket assembly.
15. The device as recited in claim 9, further comprising means for restricting the longitudinal motion of said fiber storage tray with respect to said terminating socket assembly.
16. The device as recited in claim 9, further comprising means for ensuring a separation distance between said fiber storage tray and said terminating socket assembly.

17. A fiber storage assembly for use with a terminating socket assembly, comprising:

a fiber storage tray for storing spliced optic fibers;

a locking end of said fiber storage tray;

a connection interface of said locking end for loosely coupling said fiber storage tray to said terminating socket assembly; and

wherein said connection interface loosely connects said locking end of said fiber storage tray to said terminating socket assembly.

18. The device as recited in claim 17, further comprising a spacer device interposed between said fiber storage tray and said terminating socket assembly.

19. The device as recited in claim 17, further comprising means for restricting the longitudinal motion of said fiber storage tray with respect to said terminating socket assembly.

20. The device as recited in claim 17, further comprising means for ensuring a separation distance between said fiber storage tray and said terminating socket assembly.

21. The device as recited in claim 17, wherein said terminating socket assembly has a locking member, and said connection interface has a locking cut-out sized to receive said locking member.

22. The device as recited in claim 17, wherein said terminating socket assembly has a locking channel, and said connection interface has a locking tab sized to slidably engage said locking channel.

23. A fiber storage assembly for use with a terminating socket assembly having a plurality of locking members and a plurality of locking channels, comprising:

a fiber storage tray for storing spliced optic fibers;

a locking end of said fiber storage tray, said locking end having an end wall;

a connection interface of said locking end for loosely coupling said fiber storage tray to said terminating socket assembly;

a plurality of locking cut-outs of said connection interface, each locking cut-out of said plurality of locking cut-outs being sized to receive one of said plurality of locking members; and

a plurality of locking tabs of said connection interface, one or more of said plurality of locking tabs extending beyond said end wall, and each locking tab of said plurality of locking tabs being sized to slidably engage one of said plurality of locking channels.

24. The device as recited in claim 23, further comprising a spacer device interposed between said fiber storage tray and said terminating socket assembly.

25. A fiber storage assembly for use with a first terminating socket assembly having a first plurality of locking members and a first plurality of locking channels, and a second terminating socket assembly having a second plurality of locking members and a second plurality of locking channels, comprising:

a fiber storage tray for storing spliced optic fibers;

a first locking end of said fiber storage tray;

a second locking end of said fiber storage tray;

a first connection interface of said first locking end for loosely coupling said fiber storage tray to said first terminating socket assembly;

a second connection interface of said second locking end for loosely coupling said fiber storage tray to said second terminating socket assembly;

a first plurality of locking cut-outs of said first connection interface, each locking cut-out of said first plurality of locking cut-outs being sized to receive one of said first plurality of locking members of said first terminating socket assembly;

a second plurality of locking cut-outs of said second connection interface, each locking cut-out of said second plurality of locking cut-outs being sized to receive one of said second plurality of locking members of said second terminating socket assembly;

a first plurality of locking tabs of said first connection interface, each locking tab of said first plurality of locking tabs being sized to slidably engage one of said first plurality of locking channels;

a second plurality of locking tabs of said second connection interface, each locking tab of said second plurality of locking tabs being sized to slidably engage one of said second plurality of locking channels;

wherein said first connection interface loosely connects said first locking end of said fiber storage tray to said first terminating socket assembly by slidably engaging said first terminating socket assembly; and

wherein said second connection interface loosely connects said second locking end of said fiber storage tray to said second terminating socket assembly by slidably engaging said second terminating socket assembly.

26. The device as recited in claim 25, further comprising a first spacer device interposed between said first locking end and said first terminating socket assembly, and a second spacer device interposed between said second locking end and said second terminating socket assembly.

27. The device as recited in claim 25, further comprising means for restricting the longitudinal motion of said fiber storage tray between said first terminating socket assembly and said second terminating socket assembly.

28. The device as recited in claim 25, further comprising means for ensuring a separation distance between said first locking end and said first terminating socket assembly, and between said second locking end and said second terminating socket assembly.