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(54) OPTICAL CONNECTOR CABLE

(71) We, STANDARD TELEPHONES AND CABLES LIMITED, a British Company of 190 Strand, London W.C.2., England do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to optical fibre cables, and especially to such cables for submarine use.

Where optical fibre cables are used for relatively long distances, repeaters have to be provided at intervals determined by the attenuation of the optical fibres. These repeaters are powered electrically with the power supplied from the terminal via metallic conductors. In designing a cable to meet these requirements it is essential that the cable when intended for underseas use should have good flexibility and should be resistant to high pressures and to the action of the sea.

An object of the invention is to provide an optical fibre cable in which the above requirements are met economically.

According to the invention we provide an optical fibre cable which includes a central strength member surrounded by a tubular electrical conductor on the outer surface of which there is located a plurality of optical fibres, the whole being enclosed in a cylindrical dielectric sheath, and in which the strength member is a stranded construction.

An embodiment of the invention will now be described with reference to the accompanying drawing, which is a cross-section of an optical fibre cable embodying the invention.

In the cable shown there is a substantially

cylindrical strength member 1 on the cable neutral axis, the strength member being formed by steel strands plaited or deformed together. This is surrounded by a tubular conductor 2 formed of copper tape on the outside of which are located optical fibres 6 spaced by filamentary fillers as indicated at 3. As shown there are four optical fibres 6 equi-spaced around the tubular conductor, although other numbers of an arrangements of fibres could be used. Thus it will be seen that the optical fibres are spaced from each other by filamentary fillers in the cable shown. The above elements are within a cylindrical sheath 4 of a dielectric material. This latter may, e.g. in the case of a submarine cable be within a further sheath 5 which can be armoured if necessary.

In the cable shown the strength member is made from high tensile steel and has an outer diameter of 8.75 mm. The tubular conductor has an outside diameter of 9.78 mm. and is made from copper tape 0.51 mm thick and 30.7 mm wide. The dielectric is polyethylene with an outside diameter of 24.75 mm.

WHAT WE CLAIM IS:—

1. An optical fibre cable which includes a central strength member surrounded by a tubular electrical conductor on the outer surface of which there is located a plurality of optical fibres, the whole being enclosed in a cylindrical dielectric sheath, and in which the strength member is of stranded construction.

2. An optical fibre cable as claimed in claim 1, and in which the strength member is made from steel strands.

3. An optical fibre cable as claimed in claim 1 or 2, and in which the tubular con-

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ductor is of copper tape.

4. An optical fibre cable as claimed in claim 1, 2 or 3 and in which the fibres are spaced from each other by filamentary fillers.
5. An optical fibre cable which includes a stranded central strength member formed from a number of steel strands, a tubular electrical conductor surrounding and overlaying the stranded strength member a plurality of optical fibres located on the outer surface of the tubular conductor, which fibres are spaced from each other by filamentary fillers, and a sheath of a dielectric material overlaying the fibres and the fillers.
6. An optical fibre cable as claimed in claim 5, and which includes an outer armoured sheath overlaying the dielectric sheath.
7. An optical fibre cable substantially as described with reference to the accompanying drawing.

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