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A CABLE ORGANISER

Field Of Invention

The present invention relates generally to a cable organiser. In particular, the invention relates to an apparatus for organising cables and for providing easy access to the organised cables.

Background

In the field of telecommunication and data communication, the high volume and rate of data transfer and communication have led to the increasing adoption of optic cables (or fibre optic cables) over conventional electrically conductive cabling. However, one of the problems with using optic cables is in their restrictive handling requirements. Optic cables are unable to bend beyond a certain minimum radius. When data is being transmitted as light signals through these optic cables, over-bending of these cables interferes with the propagation of light therewithin to impair data transmission therethrough. Additionally, these optic cables have special splicing requirements for joining two pieces of cables. It is also desirous to permit quick and efficient patching of one cable to another cable.

In response to this, many special equipment, specifically enclosures, have been created. These enclosures provide a splice area at which the cables can be spliced and a connector carrying panel (or patch panel) to which the cables can be patched.

For example, United States Patent 4,971,421 (Ori) proposes a communication cable enclosure comprising a splice area and a patch area being positioned on a common shelf having a generally planar top. The shelf has two opposed side portions perpendicularly attached to the planar top for slidably retaining the planar top within a housing. The sliding motion of the planar top is functionally akin to a sliding drawer.

United States Patent 4,900,123 (Barlow) proposes an apparatus comprising a housing and a drawer. The described drawer has slideably support means and means for supporting optical fibers. The drawer has means for supporting optical fibres and is for sliding upon the slideably support means.

United States Patent 6,772,887 (Audibert) proposes a cable management enclosure comprising a sliding drawer and a fibre slack manager. The slack manager folds and adapts to the cable during sliding of the drawer into or out of the enclosure.

United States Patent 6,707,978 (Wakileh) proposes a splice panel and a splice drawer slideably mounted to the splice panel. The splice drawer slidably travels along a longitudinal axis.

Respectively, Ori, Barlow, Audibert and Wakileh propose, amongst other elements, trays for supporting optical fibres and corresponding slacks. Furthermore, the trays of these prior art are removably mounted to a rack. However, sliding drawer mechanisms such as those used in each of Ori, Barlow, Audibert and Wakileh, prevent the drawers from being fully withdrawn from the enclosure in order to avoid the dangerous dislodgement of the drawers from the respective enclosures. However, this has also prevented the splice area from being fully exposed to facilitate access thereto, for example, during maintenance thereof.

Additionally, the configuration of the sliding drawers also led to the further deepening of the depth of the enclosure being spatially substantial, thereby contributing to the overall spatially substantial size of the enclosure equipment.

Hence, this clearly affirms a need for a cable organiser for improving accessibility to the cables contained within the enclosure equipment.

Summary

In accordance with an aspect of the invention, there is disclosed a cable organiser comprising a platform. The platform comprises a first portion having a first face and a second portion having a second face with the second portion of the platform being movably coupled to the first portion of the platform and rotatably positionable about a first axis between a retracted position and a released position. When the second portion of the platform is in the released position, the second face is substantially parallel to the first face for attaching at least one cable thereonto with the at least one cable being arranged substantially along a first plane formed by the first face. Additionally, positioning the second portion of the platform to the retracted position displaces at least a portion of the at least one cable about the first axis and onto a second plane formed by the second face with the second face being substantially perpendicular to the first face when in the retracted position.

The cable organiser further comprises a main body with the platform being pivotably coupled to the main body for pivoting thereof about a second axis between an enclosed position (not shown) and an exposed position, the first axis being substantially perpendicular to the second axis. The main body preferably has an encasement for substantially enclosing an enclosure; and an opening for providing access to the enclosure, wherein the platform is substantially received within the enclosure when in the enclosed position, and the platform is substantially removed from the enclosure when in the exposed position.

Brief Description Of The Drawings

Embodiments of the invention are described hereinafter with reference to the following drawings, in which:

FIG. 1 shows a partial perspective view of a cable organiser according to an embodiment of the invention with a platform in an exposed position and the platform having a second portion in a released position;

FIG. 2 shows a partial side elevation according to view 'A' of the platform of FIG. 1 with the second portion in the released position and having a spool attached thereto, and a door in an open position;

FIG. 3 shows a partial side elevation according to view 'A' of the platform of FIG. 1 with the second portion of FIG. 2 in a retracted position and the door of FIG. 2 in a closed position;

FIG. 4 shows a partial plan view of portion 'B' of the platform of FIG. 1 according to view 'C' of FIG. 3 with the door of FIG. 3 being replaced with a cover;

FIG. 5 shows a partial front elevation of the spool of FIG. 2; and

FIG. 6 shows a partial plan view according to view 'C' of the spool of FIG. 5.

Detailed Description

A cable organiser is described hereinafter for addressing the foregoing problems.

A first embodiment of the invention, a cable organiser 20 is described with reference to FIG. 1, which shows a partial perspective view of a cable organiser 20.

The cable organiser 20 comprises a platform 22 as shown in both FIG. 2 and FIG. 3. The platform 22 comprises a first portion 26 having a first face 28 and a second portion 30 having a second face 32. Preferably, each of the first portion 26 and the second portion 30 of the platform 22 is planarly shaped. The second portion 30 is movably coupled to the first portion 26 by hinges 34. The hinges 34 enable the first portion 26 of the platform 22 to be pivoted about a first axis 36 for being positioned between a released position 40 and a retracted position 38 as shown in FIG. 2 and FIG. 3 respectively.

The second face 32 is substantially parallel to the first face 28 when the second portion 30 of the platform 22 is in the released position 40. This enables cables (not shown) to be easily attached thereto with the cables being arranged substantially along

a plane formed by the first face 28 and the second face 32. The first face 28 is substantially perpendicular to the second face 32 when the second portion 30 of the platform 22 is in the retracted position 38. This enables the cables to be arranged along two substantially perpendicular plane formed by the first face 28 and the second face 32 respectively. The cables held and organised by the cable organiser 20 are preferably fibre optic cables.

The platform 22 further comprises a panel portion 44 being coupled substantially perpendicular to the first portion 26 of the platform 22. The panel portion 44 has a plurality of apertures 46 attached thereto. Each of the plurality of apertures 46 has an adaptor 48 disposed therethrough for coupling thereof to the panel portion 44 of the platform 22. At least one extremity of the at least one cable is attached to the adaptor 48 of one of the plurality of apertures 46 of the panel portion 44.

The cable organiser 20 further comprises a main body 50. The main body 50 preferably has a rectilinearly-shaped encasement 51 for substantially enclosing an enclosure 52 therwithin. Additionally, the main body 50 preferably has a rectilinearly shaped opening 54 for providing access to the enclosure 52 therewithin. The platform 22 preferably has a hinge portion 56 formed along the periphery of the panel portion 44 thereof for hinging the platform 22 to the main body 50. This enables the platform 22 to be pivotably coupled to the main body 50 for pivoting thereof about a second axis 58. The second axis 58 is substantially perpendicular to the first axis 36. The platform 22 is positionable between a enclosed position and an exposed position 62.

When the platform 22 is in the enclosed position, the second portion 30 of the platform 22 is in the retracted position 38 and the platform is substantially enclosed within the enclosure 52. The enclosure 52 has a depth 64 extending from the opening 54 to an inner face of the main body 50 which faces the opening 54. The shallow depth 64 of the main body 50 requires the second portion 30 of the platform 22 to be in the retracted position 38 to enable the main body 50 to enclose the platform 22 substantially therewithin.

The shallow depth of the enclosure 52 also allows the main body 50 to be shaped and dimensioned for compactness. As the platform 22 pivots from the main body 50, the retracted position 38 of the second portion 30 also enables the platform 22 to passage through the opening 54 when being positioned between the enclosed position and the exposed position 62. Positioning the second portion 30 in the retracted position 38 also prevents collision of the second portion 30 of the platform 22 with the encasement 51 during positioning thereof between the exposed position 62 and the enclosed position.

The hinge portion 56 of the platform 22 is preferably substantially planar and displaced as a structural kink from the panel portion 44. The hinge portion 56 is also for displacing the panel portion 44 of the platform 22 into the enclosure 52 when in the enclosed position. This creates a spatial clearance 65 between the opening 54 of the main body 50 and the panel portion 44 of the platform 22. When the adaptor 48 is coupled to any one of the apertures 46 formed in the panel portion 44, the adaptor 48 protrudes outwardly from the panel portion 44. With the spatial clearance 65 created, spatial compensation for the protrusion of the adaptor 48 from the panel portion 44 is provided so that the adaptor 48 does not protrude from the opening 54 away from the enclosure 52 when the platform 22 is in the enclosed position..

When in the exposed position 62, the platform 22 is substantially removed from within the confines of the encasement 51. This enables the second portion 30 of the platform 22 to be positioned to the released position 40 to enable the cables to be substantially exposed. Substantially exposing the cables enables maintenance work to be easily performed thereon.

The cable organiser 20 is shaped and dimensioned for mounting onto a conventional equipment rack (not shown), with the equipment rack being for containing equipment and enclosures functionally similar to the cable organiser 20.

The cables are preferably optical cables with the cable organiser 20 being preferably for organising and providing a splice area for the cables. The main body 50 preferably has a hole 66 formed in the encasement 51 thereof for the passage of the cables

therethrough. The cables are held by holders (not shown) to and extend along the internal surface of the encasement 51 towards the hinge portion 56 of the platform 22.

The cables extending from the main body 50 runs initially towards the hinge portion 56 before subsequently being directed to the first portion 26 and the second portion 30 of the platform 22 to prevent tensioning of the cables when the platform 22 travels between the enclosed position and the exposed position 62.

The platform 22 further comprises a retaining structure 100 coupled to the first face 28 of the first portion 26. The retaining structure 100 is shaped as fingers extending away from the first face 28 and interleaved for substantially defining and clasping over a channel 102. The retaining structure 100 is for receiving and retaining a portion of the cables extending over the first face 28 of the first portion 26 within the channel 102 and shaped for facilitating easy removal of the cables therefrom.

The plurality of apertures 46 of the panel portion 44 of the platform 22 are arranged in an ordered matrix configuration substantially therealong. However, the panel portion 44 has a travel portion 67 extending along the spatially inferior portion of the panel portion where no apertures 46 are formed therealong.

From the hinge portion 56, the cables extending across the hinge portion 56 runs along the first face 28 of the first portion 26. The travel portion 67 of the panel portion 44 of the platform facilitates running of the cables substantially proximal thereto without being impeded by the adaptors 48 extending from the panel portion 44. From the first portion 26 of the platform 22, the cables extend onto the second face 32 of the second portion 30 of the platform 22 towards a spool 68.

The cables are coiled at least once around the spool 68 before extending back onto the first portion 26 of the platform 22 where the free end of each thereof is connected to one of the adaptors 48 for patching to a connectorised cable. The spool 68 enables the cable slack of the cables to be substantially received and organised thereby.

However, when each of the cables is spliced, a spliced portion is formed (not shown). The spliced portion is preferably received within a splice sleeve (not shown) which has a larger girth and is structurally more rigid than each of the cables. This hinders the spliced portion of each of the cables from being properly coiled around the spool 68.

Therefore, as shown in FIG. 5 and FIG. 6, the spool 68 preferably comprises column-shaped structures 200 extending between two plates 202 and spatially disposed for substantially defining and surrounding a cavity 204. The cables are coiled around the spool 68 by being extended initially around the structures 200. Each of the cables then extends into the cavity 204 to allow the spliced portion thereof to be disposed therewithin. The cables subsequently run out of the cavity 204 and further around the structures 200 before finally extending away from the spool 68.

The spool 68 is preferably held by a lead-screw 69 to the second portion 30 of the platform 22. This is so that when the quantity of the cables increases, more than one spool 68 can be secured to the lead-screw 69 in a stack configuration.

The cable organiser 20 further comprises a door 70 coupled to and displaced away from the panel portion 44 of the platform 22. The door 70 is positionable between an open position 72, for providing access to the panel portion 44, and a closed position 74, for impeding access to the panel portion 44. When the door 70 is in the closed position 74 with the platform being in the enclosed position, the door 70 preferably flushes with the periphery of the opening 54. A catch (not shown) preferably holds the door 70 in the closed position 74 to prevent accidental or unintended opening thereof from the closed position 74.

Alternatively, the door 76 is replaceable with a cover 76 as shown in FIG. 4. The cover 76 is removably mountable over and onto the periphery of the panel portion 44. The cover 76 preferably comprises a clear planar panel, for example a perspex panel, framed by a metallic border extending along the periphery thereof. The cover 76 is preferably formed and shaped with a concavity 78 which opposes the panel portion 44 when being mounted thereto. The concavity 78 prevents the cover 76 from spatially coinciding with the spatial clearance 65. The cover 76 also functions as a structural

barrier over the adaptors 48 and the cables extending therefrom to substantially prevent damage thereto.

In the foregoing manner, a cable organiser is described according to one embodiment of the invention for addressing the foregoing disadvantages of conventional enclosures. Although only one embodiment of the invention is disclosed, it is apparent to one skilled in the art in view of this disclosure that numerous changes and/or modification can be made without departing from the scope and spirit of the invention.

Claims

1. A cable organiser comprising:

a platform comprising:

a first portion having a first face; and

a second portion having a second face, the second portion of the platform being movably coupled to the first portion of the platform and rotatably positionable about a first axis between a retracted position and a released position,

wherein when the second portion of the platform is in the released position, the second face is substantially parallel to the first face for attaching at least one cable thereonto, the at least one cable being arranged substantially along a first plane formed by the first face, and

wherein positioning the second portion of the platform to the retracted position displaces at least a portion of the at least one cable about the first axis and onto a second plane formed by the second face, the second face being substantially perpendicular to the first face when in the retracted position.

2. The cable organiser as in claim 1, the second portion of the platform being pivotably coupled to the first portion of the platform for pivoting about a first axis.

3. The cable organiser as in any of claims 1 and 2, the platform further comprising:

a panel portion being coupled substantially perpendicular to the first face of the first portion of the platform and having a plurality of apertures formed therethrough, at least one extremity of the at least one cable being attached to one of the plurality of apertures of the panel portion.

4. The cable organiser as in any of claims 1 to 3, further comprising:

a plurality of adaptors, one of the plurality of adaptors for coupling the at least one extremity of the at least one cable to one of the plurality of apertures of the panel portion.

5. The cable organiser as in any of claims 1 to 4, further comprising:

a spool for receiving at least a portion of the at least one cable when coiled therearound, the spool being coupled to the second portion of the platform.

6. The cable organiser as in any of claims 1 to 5, further comprising a

a retaining structure coupled to the first face of the first portion, the retaining structure being shaped as fingers extending away from the first face and interleaved for substantially defining and clasping over a channel for receiving and retaining a portion of the cables extending over the first face of the first portion therewithin.

7. The cable organiser as in any of claims 1 to 6, each of the at least one cable being an optical fibre.

8. The cable organiser as in any of claims 1 to 7, further comprising:

a main body, the platform being pivotably coupled to the main body for pivoting thereof about a second axis between a enclosed position and an exposed position, the first axis being substantially perpendicular to the second axis.

9. The cable organiser as in claim 8, the main body comprising:

an encasement for substantially enclosing an enclosure; and

an opening for providing access to the enclosure,

wherein the platform is substantially received within the enclosure when in the enclosed position, and the platform is substantially removed from the enclosure when in the exposed position.

10. The cable organiser as in claim 8, the panel portion of the platform comprising:

a hinge portion for hinging the panel portion to the main body to thereby pivotably couple the platform to the main body, the hinge portion being substantially kinked-shaped for displacing the panel portion of away

from the opening and into the enclosure of the main body when the platform is in the enclosed position.

11. The cable organiser as in claim 10, a portion of the periphery of at least one first portion and the second portion of the platform distal to the hinge portion being tapered for facilitating positioning of the platform between the enclosed position and the exposed position when the second portion is in the retracted position.

12. The cable organiser as in claim 11, the platform further comprising:

a door coupled the panel portion of the platform and being spatially displaced from the panel portion opposingly away from the first and second portions of the platform, the door being positionable between an open position, for providing access the panel portion, and a closed position, for impeding access to the panel portion.

13. The cable organiser as in claim 11, the platform further comprising:

a cover being removably mountable over and onto the periphery of the panel portion of the platform.

14. The cable organiser as in claim 13, the cover being shaped and formed with a concavity opposing the panel portion when the cover is being mounted thereto,

wherein when the cover is mounted to the panel portion of the platform, the cover forms a structural barrier over and substantially prevents access to the adaptors and the cable coupled thereto.