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(54) **Voice/data adapter kit**

(57) An adapter kit (100) includes adapters (102) formed in adapter pairs to accommodate couplers and jacks of various sizes. The adapters (102) are secured to a spline (114) in a releasable manner. The spline (114)

includes a central post (116) with cross bars (118). Blanks (112) are secured to an angled cross bar (120).

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Description

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] Not applicable.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not applicable.

REFERENCE TO A MICROFICHE APPENDIX

[0003] Not applicable.

BACKGROUND OF THE INVENTION

Field of the Invention

[0004] The invention relates to connectors and couplers for providing voice and data communications and, more particularly, to adapters for providing means for accommodating couplers and jacks developed by various manufactures, to standard plate openings.

Background Art

[0005] Efficient organization of various types of devices requiring electrical power or data communications within an office, commercial, industrial or residential environment has been a historical problem. Such devices often include lamps, typewriters and the like. More recently, this problem has been exacerbated by the proliferation of additional devices for communications, such as complex telephone stations, computers, video displays and the like. One problem associated with the efficient organization in the use of such devices relates to the abundance of wiring arrays and the positioning of the energy requiring devices within the environment, particularly in office environments.

[0006] One relatively substantial advance in the art relating to the mounting of electrical receptacles for work surfaces and the like is shown in the commonly owned Byrne, U.S. Patent No. 4,747,788 issued May 31, 1988. In the Byrne patent, a retractable power center includes a rectangular housing formed in the work surface, with a clamping arrangement to secure the housing to the work surface. A lower extrusion is connected to a lower portion of the housing, and a manually moveable power carriage mounts the receptacles. In response to manual application of upward forces on the power carriage, the carriage may be raised upward into an extended, open position. Small bosses extending from the sides of the carriage, and resting on the top portion of the housing, support the carriage in the extended, open position. In the open position, the user can energize desired electrical devices from the receptacles and then lower the carriage into a releaseably secured, retractable posi-

tion.

[0007] A stationary device having electrical services outlets is shown in commonly owned Byrne, U.S. Patent No- 6,042,426 issued March 28, 2000. Therein, a multi-user services module includes a housing portion with a hemispherical configuration. The housing portion is integrally molded to a depending cylindrical housing portion. The cylindrical housing portion is fitted into an opening in a conference table or the like. Power receptacles and data receptacles are molded and installed in the hemispherical housing portion.

[0008] As earlier mentioned, the proliferation of communications and computer equipment has lead to a substantial amount of use of communications interconnection assemblies. For voice and data communications, the interconnection assemblies are typically referred to as comprising a RS-232 communications coupler and communications jack. For purposes of description, these elements are typically collectively referred to as "coupler/jacks."

[0009] In the industry, voice/data coupler/jacks are designed and sold by various manufacturers. These manufacturers include, for example, AT&T (or Lucent Technologies), Panduit, Krone and Ortronics. One problem which exists with respect to the various types of couplers and jacks is that their overall size is not standardized. Accordingly, even if wall or floor plates are utilized which have a standardized opening size, the couplers and jacks of the various manufactures are not standardized in size. Still further, elements associated with wall plates, couplers and jacks and the like are relatively small and sometimes difficult to properly maintain in inventory.

SUMMARY OF THE INVENTION

[0010] In accordance with the invention, a voice/data adapter kit is provided, with the kit including the following items: a base plate; a plurality of adapters, with each of said plurality of adapters having openings of various sizes; and a carrying spline, with said plurality of adapters being releaseably secured to said spline.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

[0011] The invention will now be described with reference to the drawings, in which:

FIG. 1 is a perspective view of the voice/data adapter spline in accordance with the invention, and with the spline releaseably securing a series of adapters thereto;

FIG- 2 is a perspective and exploded view of the assembly of one of the voice/data adapters carried on the spline with a coupler and jack, and base plate mountable into a surface opening;

FIG. 3 is a perspective view of a rear side of one of

the adapters in accordance with the invention, secured to a coupler and jack, and showing the use of a wedge for purposes of securing the same; and FIG. 4 is an enlarged view of the position of the wedge depicted in FIG. 3.

DETAILED DESCRIPTION OF THE INVENTION

[0012] The principles of the invention are disclosed, by way of example, in a voice/data adapter kit 100, as illustrated with respect to FIGS. 1 - 4. The voice/data adapter kit 100 includes a plurality of voice/data adapters, and the base plate. The plurality of voice/data adapters accommodates couplers and jacks developed by various manufacturers and having varying sizes. Further, the voice/data adapter kit 100 includes a carrying spline to which the plurality of adapters are releaseably secured. In this manner, the varying adapters can be conveniently purchased and stored for inventory.

[0013] Turning to the drawings, the voice/data adapter kit 100 is depicted in part in FIG. 1. Specifically, the voice/data adapter kit 100 includes a plurality of voice/data adapters 102. In the particular embodiment of a voice/data adapter kit in accordance with the invention as illustrated in FIGS. 1 - 4, the voice/data adapters 102 include adapters 104, 106, 108, 110 and 112. In the particular embodiment illustrated as voice/data adapter kit 100 there are a pair of each of the adapters 104, 106, 108, 110 and 112. Although shown in this pair relationship, it should be emphasized that any number of voice/data adapters 102 may be incorporated in a voice/data adapter kit, in accordance with the invention, and still fall within the scope of the novel concepts of the invention. The purpose for the pair relationships is that it is not uncommon for a floor, wall or other surface opening, into which couplers and jacks will be inserted and engaged with other communications cabling, to employ a pair of voice or data communications couplers and jacks.

[0014] In this particular configuration of an adapter kit 100, the adapter pair 104 may be constructed so as to accommodate couplers and jacks falling within Categories 6, 5E and 5, and manufactured by Ortronics. Correspondingly, the adapter pair 106 may accommodate couplers and jacks falling within Category 5 and manufactured by AT&T and Lucent Technologies. Correspondingly, adapter pair 108 may comprise adapters accommodating Category 5 couplers and jacks manufactured by Panduit. Still further, adapter pair 110 may accommodate couplers and jacks falling within the scope of Category 5 and manufactured by Krone or Hubbell. In addition, in the particular embodiment of an adapter kit 100 in accordance with the invention, the adapter pair 112 actually comprise "blanks." That is, they would be utilized to cover an opening in a base plate, when no coupler and jack will be utilized for that particular opening. Again, in accordance with the invention, it is advantageous to have these adapter pair blanks 112 conveniently

located and available with the other adapter pairs.

[0015] As further shown in FIG. 1, the voice/data adapters 102 are each secured to a connector or carrying or connecting spline 114. The purpose of the connecting spline 114 is to releaseably secure the voice/data adapters 102. Specifically, the connecting spline 114 includes a central post 116 having the configuration illustrated in FIG. 1. Connected to or otherwise integral with the central post 116 are a series of cross bars 118. In the particular embodiment illustrated in FIG. 1, there are a series of five identical cross bars 118, having a spaced relationship and a parallel configuration. At the lower part of the central post 116 is an angled cross bar 120. The voice/data adapter pairs 104, 106, 108 and 110 are each connected at their upper portion to a separate one of the cross bars 118. The adapter blanks 112 are releaseably secured to the angled cross bar 120 at the lower portions thereof. The connecting spline 114 is relatively conventional in nature and composition. For example, articles of manufacture similar to the connecting spline 114 have been used in the prior art for purposes of conveniently securing small assembly elements for toys, garden equipment and comparable items where assembly is required. The voice/data adapters 102 are secured to the cross bars 118 and angled cross bar 120 in a manner so that a relatively small amount of manually exerted forces can "break away" the selected voice/data adapter 102 from the connecting spline 114.

[0016] Turning to FIG. 2, the voice/data adapter kit 100 also includes a base plate 122. Although various types of base plates may be utilized without departing from the novel concepts of the invention, the particular base plate 122 has a rectangular configuration with a front surface 124. Extending through the front surface 124 are a pair of plate openings 126 and 128. Also shown in FIG. 2 is a wall, floor or other surface opening 130. Although not shown in FIG. 2, the opening 130 may include various communications cables and wires, for voice, data or other computer and communications purposes. The cable or wiring (not shown) would be adapted to communicably connect to the couplers and jacks described in subsequent paragraphs herein.

[0017] Turning to the configuration of the base plate 122, each of the openings 126 and 128 is identical to the other opening. The openings 126, 128 each have a substantially square or rectangular configuration, with upper and lower notches 130 positioned therein as illustrated in FIG. 3. As described herein, the base plate 122 is included as part of the voice/data adapter kit 100.

[0018] With further reference to FIG. 2, one of the voice/data adapters 102 is illustrated therein, in perspective view. As illustrated in FIG. 2, the particular voice/data adapter 102 may be any of the adapters 104, 106, 108 or 110. The particular adapter 102 illustrated in FIG. 2 has a substantially square or rectangular outer configuration, with a top portion 132, sides 134 and lower portion 136. A variable opening 138 extends through the adapter 102. Extending rearwardly from the top por-

tion 132 is a latch 140 having the particular configuration as illustrated in both FIG. 2 and FIG. 3. A substantially similar latch 140 extends rearwardly from the bottom portion 136 of the adapter 102. The bottom latch 140 can be partially seen in FIG. 2.

[0019] In accordance with the invention, the voice/data adapter kit 100 includes the adapters 102, connector spline 114 and the base plate 122. Not included within the kit is a coupler and jack 142, as illustrated in FIG. 2. The coupler and jack 142 is conventional in design and known in the prior art. As previously described herein, the coupler and jack 142 is not only conventional in design but various sizes of couplers and jacks 142 are manufactured by various companies. In accordance with the invention, and for purposes of accommodating the variously sized couplers and jacks 142, the opening 138 of the adapter 102 varies in size. However, further in accordance with the invention, the overall, outer dimensions of the adapter 102 do not vary. That is, outer dimensions of the adapter 102 are standardized so as to appropriately fit into the standardized size of the plate openings 126, 128. In this manner, with the adapter kit including a number of variously sized adapters 102 releasably secured to the connecting spline 114, a kit can be acquired by the installer, and used to accommodate variously sized coupler and jacks 142 acquired from different manufactures.

[0020] With regard to assembly, FIG. 2 illustrates that the coupler/jack 142 includes top and bottom connector ledges 144, and lateral tabs 146.

[0021] With the foregoing configuration, and for purposes of assembly, the coupler and jack 142 is first "snap fitted" into the variably sized opening 138 of the adapter 102. When the adapter 102 and the coupler and jack 142 have been snap fitted together; the coupled assembly may then be "snap fitted" into one of the openings 126, 128 of the base plate 122. FIG. 2 illustrates the opening 128 as having an adapter 102 and a coupler and jack 142 already snap fitted into the opening 128. With this assembly, the base plate 122 can then be connected to or otherwise appropriately fitted within the surface opening 130. For example, the base plate 122 may include snaps 148 for this purpose.

[0022] The voice/data adapter kit 100 may include other concepts, specifically associated with particular couplers and jacks manufactured by various companies. For example, AT&T and Lucent Technologies manufacture a coupler and jack which is characterized as a "Category 5 rocker type." For purposes of securing these particular couplers and jacks to an adapter 102, a pair of wedges 150 are utilized. As an example, FIG. 3 illustrates a rear perspective view of an adapter 102 snap fitted with one of the AT&T and Lucent Technologies coupler and jack 142. For purposes of appropriately securing this particular coupler and jack 142 to the adapter 102, a pair of wedges 150 may be utilized. FIG. 3 illustrates only one of the wedges 150. The other wedge 150 would be secured on the other side (not

shown) of the coupler and jack 142. FIG. 4 illustrates an enlarged view illustrating the location in which one of the wedges 150 would be inserted.

[0023] The foregoing has described a voice/data adapter kit 100 in accordance with the invention. It is apparent that various configurations of the voice/data adapter kit 100 may be utilized, without departing from the principal novel concepts of the invention. For example, different numbers of adapters (both open and blank) may be utilized with an appropriately sized connecting spline. Also, adapters may be included for purposes of accommodating couplers and jacks from a number of other manufacturers. Also, base plates incorporated within the kit 100 may be of various sizes and configurations. The primary importance is that the openings 126, 128 are appropriately standardized to the outer dimensions of the adapters 102. Also, the base plates could utilize any number of openings, and may be sized with any number of outer dimensions.

[0024] It will be apparent to those skilled in the pertinent arts that other embodiments of the invention can be designed. That is, the principles of the invention are not limited to the specific embodiments described herein. Accordingly, it will be apparent to those skilled in the art that modifications and other variations of the above-described illustrative embodiments of the invention may be effected without departing from the spirit and scope of the novel concept of the invention.

Claims

1. A voice/data adapter kit for purposes of accommodating couplers and jacks of various sizes, said kit comprising:

a base plate having one or more openings adapted to receive one or more couplers and jacks;

a plurality of voice/data adapters, with said plurality of adapters having central openings for releasably securing couplers and jacks having variously sized outer dimensions; and

a connector spline releasably carrying said plurality of voice/data adapters, with the carrying connection of said voice/data adapters to the connector spline being one whereby any one of the voice/data adapters may be disconnected from said connecting spline by manually exerted relatively small forces on a selected voice/data adapter.

2. A voice/data adapter kit in accordance with claim 1, characterized in that:

said at least one opening of said base plate is of a size and dimension so as to accommodate outer dimensions of each of said plurality of

said voice/data adapters; and
 said base plate is adapted to be interconnected
 or otherwise secured to a surface opening.

3. A voice/data adapter kit in accordance with claim 1,
characterized in that said connecting spline comprises:

a central post having an elongated configuration;
 and
 a plurality of cross bars, each of said cross bars
 integral with or otherwise connected to said
 central post at various longitudinal locations
 along said central post.
4. A voice/data adapter kit in accordance with claim 1,
characterized in that said plurality of said voice/
 data adapters comprise at least one blank.
5. A voice/data adapter kit in accordance with claim 1,
characterized in that said plurality of said voice/
 data adapters are arranged in sizes such that said
 plurality comprises a plurality of equally sized pairs
 of said voice/data adapters.
6. A voice/data adapter kit in accordance with claim 1,
characterized in that said kit further comprises at
 least one wedge, for purposes of securing a coupler
 and jack to at least one of said plurality of said voice/
 data adapters.
7. A voice/data adapter kit in accordance with claim 1,
characterized in that each of said voice/data
 adapters is adapted to receive an appropriately
 sized coupler and jack in a snap fit configuration.
8. A voice/data adapter kit in accordance with claim 1,
characterized in that an interconnected voice/data
 adapter and a coupler and jack are adapted to be
 snap fitted into said at least one opening of said
 base plate.
9. A voice/data adapter kit in accordance with claim 1,
characterized in that an interconnected voice/data
 adapter, coupler and jack and base plate are adapt-
 ed to be snap fitted into a surface opening.
10. A voice/data adapter kit, **characterized in that** said
 voice/data adapters comprise two blanks.
11. A voice/data adapter kit in accordance with claim 1,
characterized in that said voice/data adapters
 comprise four pairs of differently sized adapters,
 and a pair of blanks.

