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(54) **ELECTRICAL CONNECTOR WITH LATCHING BACKPLATE ASSEMBLY**

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(52) **U.S. Cl.** **439/157**; 439/680
(58) **Field of Search** 439/157, 680, 439/677, 372, 310, 352, 160, 152, 358

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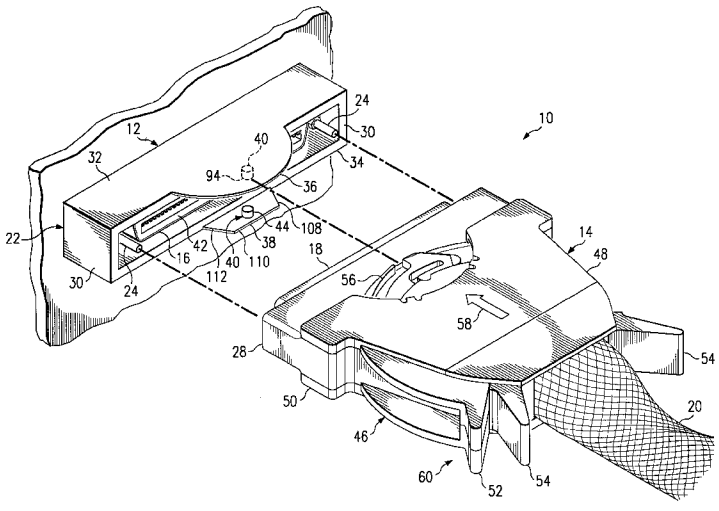
(57) **ABSTRACT**

An electrical connector **(10)** includes a cable dock **(12)** having a first connector **(16)** and a backshell assembly **(14)** having a second connector **(18)**. The second connector **(18)** is adapted for engagement with the first connector **(16)**. The electrical connector **(10)** also includes a locking element **(40)** coupled to the cable dock **(12)** and a latch **(46)** coupled to the backshell assembly **(14)**. The latch **(46)** is operable to engage the locking element **(40)** and, in response to movement of the latch **(46)** relative to the backshell assembly **(14)**, engage the first connector **(16)** with the second connector **(18)**.

28 Claims, 3 Drawing Sheets



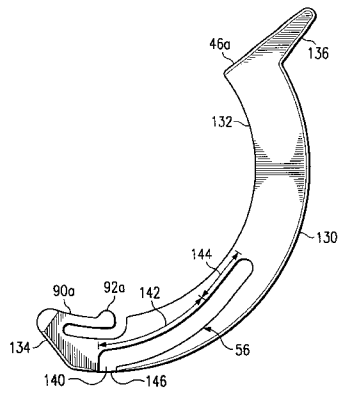
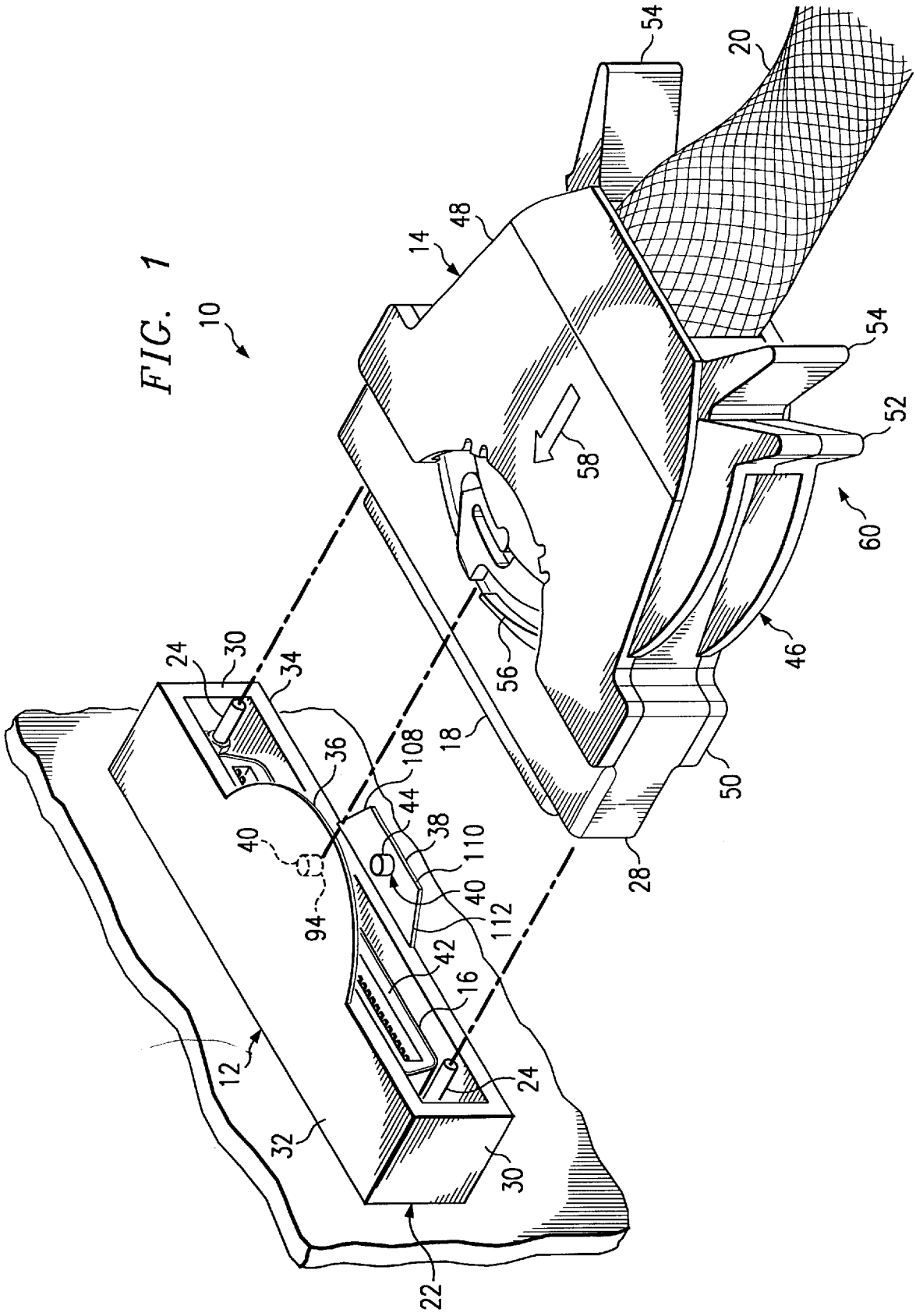


FIG. 1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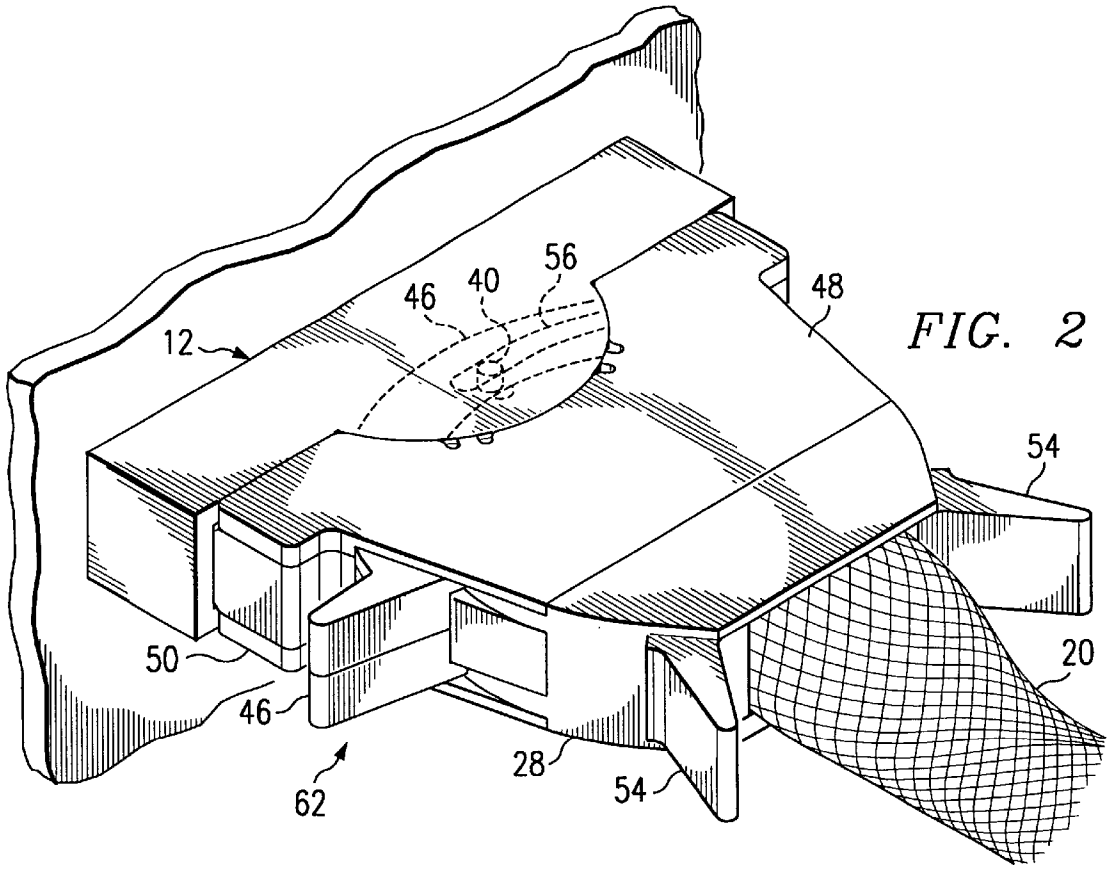
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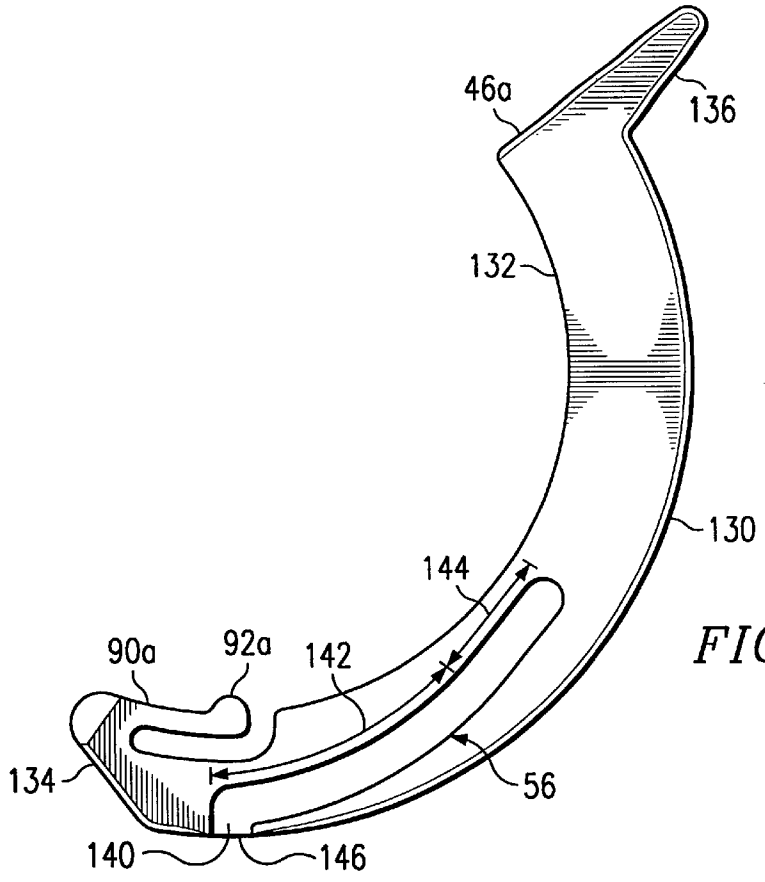
FIG. 2


46a
136
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90a
92a
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56
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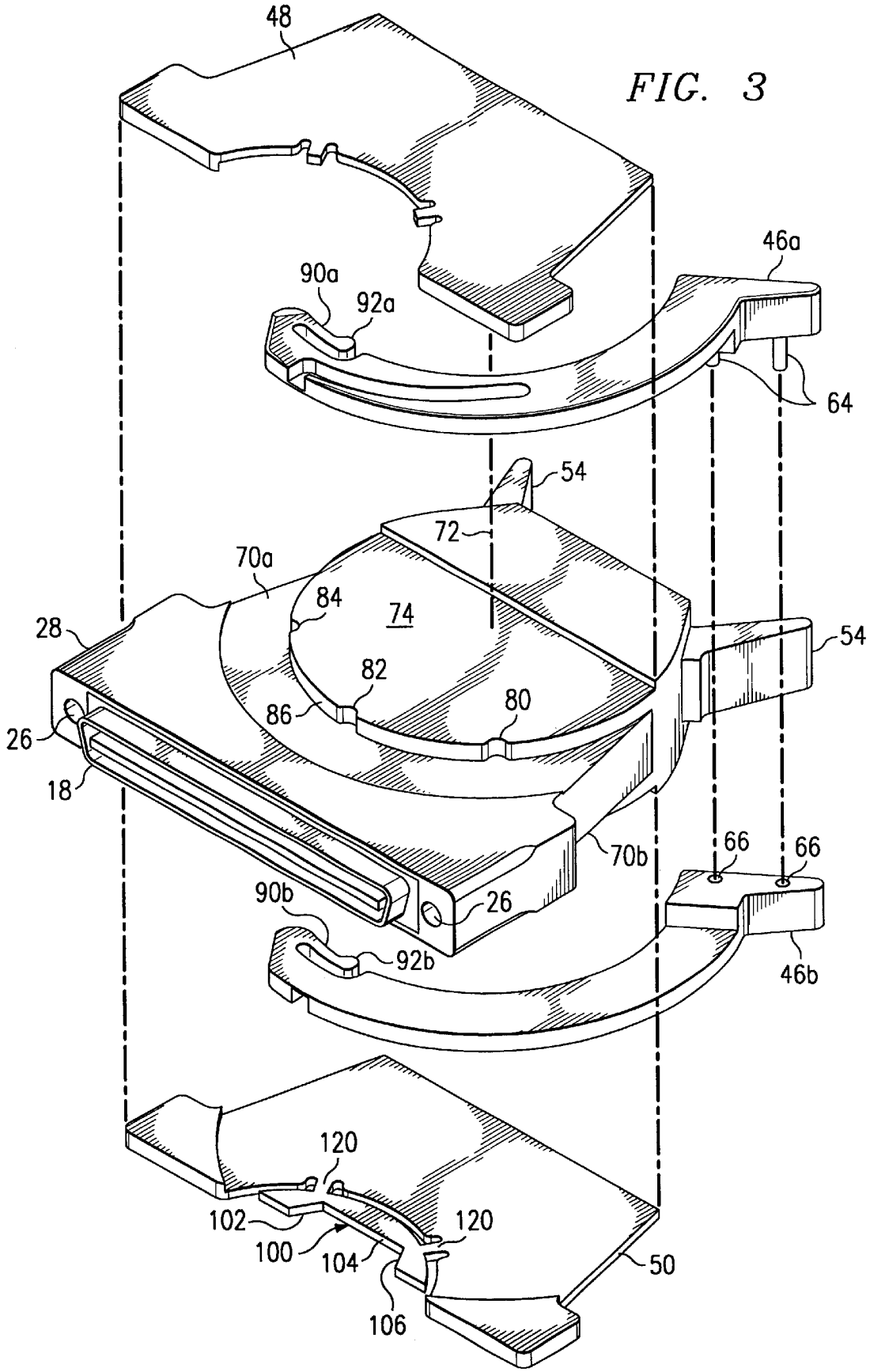
146

FIG. 4

FIG. 3


48
46a
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90b
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92b
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120
102
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100
104
50
106

ELECTRICAL CONNECTOR WITH LATCHING BACKPLATE ASSEMBLY

TECHNICAL FIELD OF THE INVENTION

This invention relates in general to the field of electrical connectors, and more particularly, to an electrical connector with latching backplate assembly.

BACKGROUND OF THE INVENTION

Computer systems and other types of electronic components and systems generally include input/output ports for providing communication links between electronic components. Electrical connector systems are widely employed to connect the various electronic components together when a relatively large number of electrical connections must be made at the same time. Electrical connector systems generally employ a cable dock coupled to the input/output port of an electronic component and a backshell assembly coupled to a communication medium. Either the cable dock or the backshell assembly generally includes an array of male contacts while the other includes a corresponding and matching array of mating female contacts. Each male contact extends into a corresponding female contact when the cable dock and backshell assembly are brought together, thereby establishing a desired pattern of electrical connections.

The backshell assembly is generally secured to the cable dock using a jackscrew coupling. For example, a plurality of jackscrews are coupled to the backshell assembly and each screws into a corresponding threaded receptacle on the cable dock. Threading the jackscrews into the threaded receptacles engages the corresponding electrical connection contacts and prevents disconnection of the backshell assembly from the cable dock.

Jackscrew-coupled electrical connector systems, however, suffer several disadvantages. For example, computer systems and other types of electronic equipment generally require a large quantity of communication connections. Thus, a correspondingly large number of jackscrews must be actuated to connect the backshell assemblies to corresponding cable docks. The jackscrews are generally small in diameter, thereby resulting in a great deal of difficulty in securing the large number of electrical connections. Additionally, over-tightening of the jackscrews during connection of the cable dock with the backshell assembly results in increased difficulty in disconnecting the cable dock from the backshell assembly.

SUMMARY OF THE INVENTION

Accordingly, a need has arisen for an improved electrical connector system and method that provides increased ease of connection and disconnection of electrical components. The present invention provides an electrical connector system and method that addresses shortcomings of prior electrical connector systems and methods.

According to one embodiment of the present invention, an electrical connector system includes a cable dock having a first connector and a backshell assembly having a second connector. The second connector is adapted for engagement with the first connector. The electrical connector system also includes a locking element coupled to the cable dock and a latch coupled to the backshell assembly. The latch is operable to engage the locking element and, in response to movement of the latch relative to the backshell assembly, engage the first connector with the second connector.

According to another embodiment of the present invention, a method for coupling an electrical connector assembly includes aligning a first connector coupled to a cable dock with a second connector coupled to a backshell assembly. The first connector is adapted for engagement with the second connector. The method also includes receiving a locking element coupled to the cable dock in a latch. The latch is coupled to the backshell assembly. The method further includes engaging the first connector with the second connector by actuating the latch relative to the backshell assembly.

The invention provides several technical advantages. For example, in one embodiment of the invention, a latch coupled to the backshell assembly engages a locking element coupled to the cable dock. Actuation of the latch relative to the backshell assembly causes linear movement of the backshell assembly into engagement with the cable dock. The latch may also comprise a feedback feature to provide an operator of the electrical connector system with an indication that the latch is fully engaged or fully disengaged.

Other technical advantages will be readily apparent to one skilled in the art from the following figures, descriptions, and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

For a more complete understanding of the present invention and the advantages thereof, reference is now made to the following descriptions taken in connection with the accompanying drawings, in which:

FIG. **1** is a diagram illustrating an electrical connector system in accordance with an embodiment of the present invention;

FIG. **2** is a diagram illustrating engagement of the electrical connector system illustrated in FIG. **1** in accordance with an embodiment of the present invention;

FIG. **3** is a diagram illustrating an exploded view of the electrical connector system illustrated in FIGS. **1** and **2** in accordance with an embodiment of the present invention; and

FIG. **4** is a diagram illustrating a latch element of the electrical connector system illustrated in FIGS. **1–3** in accordance with an embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

FIG. **1** is a diagram illustrating an electrical connector system **10** in accordance with an embodiment of the present invention, and FIG. **2** is a diagram illustrating engagement of the electrical connector system **10** illustrated in FIG. **1** in accordance with an embodiment of the present invention. System **10** comprises a cable dock **12** and a backshell assembly **14**. Cable dock **12** and backshell assembly **14** each include an electrical connector **16** and **18**, respectively, adapted for engagement with each other. For example, electrical connector **16** may include female receptacles adapted to receive corresponding male contacts of connector **18** (not explicitly shown) to form desired electrical connections between a cable or conduit **20** coupled to backshell assembly **14** and corresponding electronic connections coupled to cable dock **12** (not explicitly shown).

Cable dock **12** includes a support frame **22** extending about electrical connector **16** and a plurality of guide pins **24** for aligning electrical connector **16** with electrical connector **18**. For example, guide pins **24** may be formed and posi-

tioned to align with corresponding openings **26** of backshell assembly **14**, as best illustrated in FIG. **3**. Referring to FIGS. **1** and **2**, frame **22** is constructed having a generally rectangular configuration corresponding to a generally rectangular configuration of a backshell housing **28** of backshell assembly **14**; however, frame **22** and backshell housing **28** may be constructed having other suitable corresponding geometric configurations for engaging electrical connectors **16** and **18**.

Frame **22** comprises laterally disposed support walls **30**, a top support wall **32** and a bottom support wall **34**. Frame **22** also comprises an arcuately formed polarity guide **36** extending outwardly from top support wall **32** towards backshell assembly **14** and a trapezoidally formed polarity guide **38** extending outwardly from bottom support wall **34** towards backshell assembly **14**. As will be described in greater detail in conjunction with FIG. **3**, polarity guides **36** and **38** substantially prevent misalignment of connector **16** with connector **18**.

Cable dock **12** also includes a pair of oppositely disposed locking elements **40** extending inwardly toward each other. Locking elements **40** are medially disposed relative to a longitudinal direction of support walls **32** and **34** and are spaced apart from an outwardly facing surface **42** of connector **16**. In the embodiment illustrated in FIGS. **1** and **2**, locking elements **40** comprise latch pins **44**; however, locking elements **40** may be constructed having other suitable geometric configurations for cooperating with a latch **46** coupled to backshell assembly **14**. The engagement and cooperation of locking elements **40** and latch **46** will be described in greater detail below.

Backshell assembly **14** includes a top cover plate **48** and a bottom cover plate **50**. Cover plates **48** and **50** are disposed on each side of latch **46** and prevent disengagement of latch **46** from backshell assembly **14**. For example, in the embodiment illustrated in FIGS. **1** and **2**, latch **46** is constructed having a substantially arcuate configuration extending laterally outward from a single side of backshell assembly **14**. Cover plates **48** and **50** prevent disengagement of latch **46** from backshell assembly **14** while providing actuation of latch **46** relative to backshell assembly **14**. However, it should be understood that latch **46** may be otherwise configured alleviating a requirement of cover plates **48** and **50**. Cover plates **48** and **50** may be coupled to backshell housing **28** using fasteners (not explicitly shown) or other suitable methods or devices.

Latch **46** includes a laterally disposed handle **52** for actuation of latch **46**. Backshell housing **28** also includes a pair of laterally disposed handles **54** disposed rearwardly of connector **18** to accommodate physical manipulation of backshell assembly **14**. For example, handles **54** may be used to manipulate backshell assembly **14** into alignment with cable dock **12** and may be used to disengage backshell assembly **14** from cable dock **12**. Generally, handles **54** may impede access to jackscrews that may be coupled to prior backshell assemblies. However, the present invention allows for the formation and positioning of handles **54** without impairing engagement mechanisms of the connector system.

In operation, backshell assembly **14** is aligned with cable dock **12** by aligning guide pins **24** with openings **26** in backshell assembly **14**. Backshell assembly **14** is positioned relative to cable dock **12** such that locking elements **40** are received in guides **56** of latch **46**. Guides **56** are formed on each side of latch **46** corresponding to the locations of locking elements **40** and are adapted to engage locking elements **40**. After locking elements **40** are positioned within guides **56**, latch **46** is actuated relative to backshell assembly **14** to linearly move backshell assembly **14** toward cable dock **12** in the direction indicated generally by arrow **58** to engage connector **18** with connector **16**. For example, handle **52** of latch **46** may be actuated from a position indicated generally by arrow **60**, as best illustrated in FIG. **1**, to a position indicated generally by arrow **62**, as best illustrated in FIG. **2**. As latch **46** moves from position **60** to position **62**, guides **56** cause linear movement of backshell assembly **14** toward cable dock **12** and corresponding engagement of connector **16** with connector **18**.

Thus the present invention provides increased ease of use than prior electrical connector systems by reducing the force required to be applied by a user of system **10** to engage connectors **16** and **18**. For example, prior jackscrew electrical connector systems generally require the user to engage the corresponding connectors prior to jackscrew engagement. The jackscrews are generally used to secure the connectors together after engagement of the connectors. Thus, an engagement force directed generally linearly between the connectors must be applied by the user to engage the corresponding connectors. In accordance with the present invention, the moment arm defined by guide **56** and handle **52** of latch **46** causes a reduction in the amount of force required to be applied by the user to engage connectors **16** and **18**. Additionally, the interaction of guides **56** and locking elements **40** automatically align the engagement force linearly between connectors **16** and **18**.

FIG. **3** is a diagram illustrating an exploded view of backshell assembly **14** in accordance with an embodiment of the present invention. As illustrated in FIG. **3**, latch **46** comprises a pair of latch elements **46***a* and **46***b* disposed on opposite sides of backshell housing **28**. In this embodiment, latch element **46***a* includes a pair of pins **64** for engaging corresponding openings **66** in latch element **46***b* to secure latch elements **46***a* and **46***b* together. However, other suitable methods or devices may be used for securing together latch element **46***a* and **46***b*.

Backshell housing **28** includes a pair of grooves **70***a* and **70***b* disposed on each side of backshell housing **28** and adapted for receiving a corresponding latch element **46***a* and **46***b*, respectively. In this embodiment, latch elements **46***a* and **46***b* are formed having a generally arcuate configuration corresponding with a generally arcuate configuration of grooves **70***a* and **70***b* such that actuation of latch **46** relative to backshell assembly **14** causes rotational movement of latch elements **46***a* and **46***b* within grooves **70***a* and **70***b*, respectively, generally about an axis **72**. As illustrated in FIG. **3**, axis **72** is substantially orthogonal to linear movement of backshell assembly **14** along the direction indicated by arrow **58** and substantially orthogonal to a surface **74** of backshell housing **28**.

Backshell housing **26** also includes recesses or notches **80**, **82** and **84** formed in a forwardly facing sidewall **86** of each groove **70***a* and **70***b*. Recesses **80**, **82** and **84** cooperate with a corresponding cantilever portions **90***a* and **90***b* of latch elements **40***a* and **40***b*, respectively, to secure latch in desired positions relative to backshell assembly **14** and to provide feedback to a user of system **10** that latch **46** is fully engaged or disengaged. For example, cantilever portions **90***a* and **90***b* each include a rearwardly extending protrusion **92***a* and **92***b*, respectively, adapted for engagement with corresponding recesses **80**, **82** and **84** as latch elements **46***a* and **46***b* slide within grooves **70***a* and **70***b*. In operation, protrusions **92***a* and **92***b* are positioned in engagement with recess **82** in preparation for receiving locking elements **40** of cable dock **12**. The cooperation of protrusions **92***a* and **92***b* and recess **82** retain latch **46** in the desired position for

receiving and engaging locking elements **40**. The position for initially receiving and engaging locking elements **40** is illustrated as position **60** of latch **46**, as best illustrated in FIG. **1**.

Referring to FIG. **3**, actuation of latch **46** from position **60** causes cantilever portions **90***a* and **90***b* to flex in a forward direction, thereby allowing disengagement of protrusions **92***a* and **92***b* from recess **82**. As latch **46** moves from the position **60** to the position **62**, protrusions **92***a* and **92***b* travel within grooves **70***a* and **70***b*, respectively, until protrusions **92***a* and **92***b* engage recess **84**. The interaction of protrusions **92***a* and **92***b* with recess **84** retains latch **46** in a desired position to secure engagement of electrical connectors **16** and **18**. Additionally, interaction of protrusions **92***a* and **92***b* with recesses **80**, **82** and **84** provide feedback to a user of system **10** that latch **46** has reached predetermined positions for receiving locking elements **40** or securing engagement of electrical connectors **16** and **18**.

In the embodiment illustrated in FIG. **3** and described above, three recesses **80**, **82** and **84** are illustrated to provide for symmetrical assembly and construction of backshell assembly **14**. However, only a pair of recesses **80** and **82** or **82** and **84** are generally required for engagement with protrusions **92***a* and **92***b* during actuation of latch **46**. For example, as described above, protrusions **92***a* and **92***b* engage recesses **82** and **84** during actuation of latch **46** from the position **60** to position **62**. However, backshell assembly **14** may be assembled having handle **52** of latch **46** disposed on an opposite side of backshell housing **28** from that illustrated in FIGS. **1–3**, thereby providing engagement of protrusions **92***a* and **92***b* of latch **46** with recesses **80** and **82**. Thus, the present invention also provides for a variety of design configurations.

System **10** also substantially prevents misalignment of connector **16** with connector **18**. For example, as illustrated in FIG. **3**, cover plate **50** includes a plurality extension **100** adapted for engagement with polarity guide **38**, as best illustrated in FIG. **1**, to substantially prevent misalignment of electrical connector **16** with electrical connector **18**. For example, polarity extension **100** includes sidewalls **102**, **104** and **106** formed having a generally trapezoidal configuration relative to each other for engagement with corresponding sidewalls **108**, **110** and **112**, respectively, of polarity guide **38**. As best illustrated in FIG. **1**, polarity guide **36** is formed having a generally arcuate configuration, thereby substantially preventing polarity a generally trapezoidally formed polarity extension **100** from being positioned adjacent polarity guide **36**. Thus, polarity guides **36** and **38** and polarity extension **100** substantially prevent misalignment of electrical connector **18** with electrical connector **16**. It should also be understood that polarity guides **36** and **38** and polarity extension **100** may be constructed having other suitable geometric configurations to prevent misalignment of connectors **16** and **18**.

Additionally, both cover plates **48** and **50** may be constructed having polarity extension **100**, thereby providing for ease of manufacture and assembly. For example, as best illustrated in FIG. **3**, polarity extension **100** is coupled to cover plate **50** by a plurality of stems **120**. Stems **120** may be constructed having a cross-sectional area such that polarity extension **100** may be removed from cover plate **50** by bending polarity extension **100** relative to cover plate **50** or by cutting stems **120** to remove polarity extension **100**, thereby resulting in the formation of cover plate **48**. Thus, cover plates **48** and **50** may be constructed substantially identical to each other and polarity extension **100** may be removed from cover plate **48** at a predetermined step during the construction of backshell assembly **14** to accommodate engagement of polarity extension **100** of cover plate **50** with polarity guide **38**.

In the embodiment illustrated in FIGS. **1–3**, a pair of oppositely disposed locking elements **40** are used to engage a corresponding pair of guides **56** disposed on opposite sides of backshell assembly **14** to provide symmetrical linear forces to engage connectors **16** and **18**. However, it should be understood that a single locking element **40** and guide **56** may also be used to engage connectors **16** and **18**. Additionally, in the embodiment illustrated in FIGS. **1–3**, latch **46** comprises a single handle **52** extending laterally to a single side of backshell assembly **14**. However, it should be understood that latch **46** may also be constructed having a pair of handles **52**, each of the pair of handles **52** extending laterally to an opposite side of backshell assembly **14** in a substantially diametrically opposed relationship to each other to accommodate actuation of latch **46** from both sides of backshell assembly **14**. For example, opposing forces to actuate latch **46** may be applied to handles **52** in substantially opposite directions to cause rotation of latch **46** about axis **72**. Thus, the present invention provides increased design flexibility than prior electrical connector systems.

FIG. **4** is a diagram illustrating a single latch element **46***a* in accordance with an embodiment of the present invention. It should be understood that, in accordance with the embodiment illustrated in FIGS. **1–3**, various features of latch element **46***a* are also constructed on latch element **46***b*. Latch element **46***a* includes a forwardly disposed edge **130** directed toward cable dock **12** and a rearwardly disposed edge **132** directed away from cable dock **12**. Guide **56** is configured having a width adapted to receive locking elements **40** and generally extends away from an end **134** of latch element **46***a* toward a handle portion **136** of latch element **46***a*. Guide **56** includes a receiving region **140**, a guide region **142**, and a dwell region **144**. Receiving region **140** comprises an opening **146** formed in edge **130** for receiving a locking element **40**. For example, receiving region **140** extends rearwardly away from edge **130** to allow locking element **40** to enter guide **56** and travel within contiguous portions of guide **56** upon actuation of latch **46**.

Guide **56** is formed gradually extending away from edge **110** such that actuation of latch element **46***a* causes locking element **40** to be drawn away from edge **130**, thereby providing linear movement of backshell assembly **14** relative to cable dock **12**. For example, guide region **142** is contiguous with receiving region **140** and extends away from edge **110** along a generally curved or acuate slope to provide linear movement of backshell assembly **14** relative to cable dock **12**.

Contiguous with guide region **142** is dwell region **144**. Dwell region **144** is formed substantially concentric with the axis **72** of rotation of latch **46** such that linear movement of backshell assembly **14** relative to cable dock **12** substantially ceases as locking element **40** travels within dwell region **144**. Thus, dwell region **144** substantially prevents disengagement of connector **18** from connector **16**. For example, dwell region **144** substantially prevents linear movement of backshell assembly **14** relative to cable dock **12** which may otherwise result from a force applied to backshell assembly **14** in a direction substantially opposite that of direction **58**. Thus, dwell region **144** substantially prevents inadvertent actuation of latch **46** relative to backshell assembly which may result from a force applied to backshell assembly **14** in a direction substantially opposite that of direction **58**.

The above described process may also be reversed to disengage connector **18** from connector **16**. For example,

latch **46** may be actuated relative to backshell assembly **14** from position **62** to position **60**. As a disengagement force is applied to latch **46**, protrusions **92***a* and **92***b* disengage recess **84**, thereby allowing slidable movement of latch **46** within grooves **70***a* and **70***b*. As latch **46** is actuated, latch elements **46***a* and **46***b* rotate relative to backshell assembly **14** about axis **72**, thereby causing corresponding movement of guide **56** relative to locking elements **40**. Movement of guide **56** relative to backshell assembly **14** causes linear movement of backshell assembly **14** relative to cable dock **12** in a direction opposite that indicated by arrow **58** as locking elements **40** travel within guide region **142** of guide **56**. As latch **46** reaches position **60**, protrusions **92***a* and **92***b* engage recesses **82**, thereby indicating to a user of system **10** that locking elements **40** may be disengaged from latch **46** and corresponding disengagement of backshell assembly **14** from cable dock **12**.

Additionally, handles **54** of backshell housing **54** may be used to accommodate actuation of latch **46**. For example, a user of system **10** may grip handle **52** of latch **46** and one of handles **54** to apply a squeezing force to handle **52** and handle **54** to cause actuation of latch **46**. Thus, the present invention provides for increased ease of disengagement of backshell assembly **14** from cable dock **12**.

Although the present invention and its advantages have been described in detail, it should be understood that various changes, substitutions, and alterations, can be made therein without departing from the spirit and scope of the present invention as defined by the appended claims.

What is claimed is:

1. An electrical connector system, comprising:

a cable dock having a first connector;

a backshell assembly having a second connector, the second connector adapted for engagement with the first connector;

a locking element coupled to the cable dock; and

a latch coupled to the backshell assembly, the latch operable to engage the locking element and, in response to movement of the latch relative to the backshell assembly, engage the first connector with the second connector, wherein the latch comprises a cantilever portion operable to engage a corresponding recess disposed on the backshell assembly to secure the latch in a substantially fixed position relative to the backshell assembly.

2. The system of claim **1**, wherein the latch comprises an arcuately formed latch element, and wherein the movement of the latch causes corresponding rotation of the latch element about an axis, the axis substantially orthogonal to linear movement of the first connector relative to the second connector.

3. The system of claim **1**, wherein the latch comprises a guide adapted to receive the locking element.

4. The system of claim **3**, wherein the guide comprises:

a guide region operable to cause linear movement of the second connector relative to the first connector during movement of the latch; and

a dwell region contiguous with the guide region, the dwell region operable to secure the first connector in a substantially fixed linear position relative to the second connector during movement of the latch.

5. The system of claim **1**, further comprising a polarity guide coupled to the cable dock and adapted for engagement with a corresponding polarity extension disposed on the backshell assembly to align the first connector with the second connector.

6. The system of claim **1**, wherein the cable dock comprises a plurality of guide pins operable to engage a plurality of corresponding openings disposed in the backshell assembly to align the first connector with the second connector.

7. The system of claim **6**, wherein the backshell assembly comprises a plurality of handles disposed rearwardly from the second connector, the handles operable to support an opposing force in response to a force applied to the latch.

8. A method for connecting and disconnecting an electrical connector assembly, comprising:

aligning a first connector coupled to a cable dock with a second connector coupled to a backshell assembly, the first connector adapted for engagement with the second connector;

receiving a locking element coupled to the cable dock in a latch, the latch coupled to the backshell assembly;

engaging the first connector with the second connector by actuating the latch relative to the backshell assembly; and

disengaging the first connector from the second connector by actuating the latch in a direction opposite a direction to engage the first and second connectors, wherein disengaging further comprises disengaging a cantilever portion of the latch from a recess disposed on the backshell assembly.

9. The method of claim **8**, wherein receiving the locking element comprises receiving the locking element in a guide formed on the latch.

10. The method of claim **9**, wherein engaging the first connector with the second connector comprises:

linearly moving the second connector relative to the first connector by passing the locking element through a guide region of the groove; and

securing the first connector in a substantially fixed linear position relative to the second connector by passing the locking element through a dwell region of the groove, the dwell region contiguous with the guide region.

11. The method of claim **8**, wherein aligning the first connector comprises aligning a polarity guide coupled to the cable dock with a corresponding polarity extension coupled to the backshell assembly.

12. The method of claim **8**, wherein aligning the first connector further comprises aligning a plurality of guide pins coupled to the cable dock with a plurality of corresponding openings disposed in the backshell assembly.

13. The method of claim **8**, wherein actuating the latch comprises rotating an arcuately formed latch element about an axis, the axis substantially orthogonal to linear movement of the first connector relative to the second connector.

14. The method of claim **8**, further comprising disengaging the first connector from the second connector by actuating the latch in a direction opposite a direction to engage the first and second connectors.

15. The method of claim **14**, wherein disengaging comprises:

passing the locking element through a guide of the latch; and

disengaging the locking element from the guide.

16. The method of claim **15**, wherein passing the locking element through the guide comprises:

passing the locking element through a dwell region of the guide, the dwell region maintaining the second connector in a substantially fixed linear position relative to the first connector; and

passing the locking element through a guide region of the guide to linearly move the second connector apart from the first connector, the guide region contiguous with the dwell region.

17. An electrical connector system comprising:

a cable dock having a first connector;

a backshell assembly having a second connector adapted for engagement with the first connector;

a locking element disposed on the cable dock; and

a latch coupled to the backshell assembly, the latch having a first end and a second end, the second end having a guide adapted to receive the locking element, and wherein movement of the first end of the latch relative to the backshell assembly causes corresponding movement of the guide relative to the locking element, the movement of the guide relative to the locking element causing linear movement of the first connector into engagement with the second connector, wherein the latch comprises a cantilever portion disposed on the second end, the cantilever portion operable to engage a corresponding recess formed in the backshell assembly to indicate engagement of the first connector with the second connector.

18. The system of claim 17, wherein the guide comprises:

a guide region operable to cause linear movement of the second connector relative to the first connector during the movement of the first end of the latch; and

a dwell region contiguous with the guide region, the dwell region operable to secure the first connector in a substantially fixed linear position relative to the second connector during movement of the first end of the latch.

19. The system of claim 17, wherein the latch comprises a forward edge and a rearward edge, the forward edge disposed toward the cable dock, and wherein the guide extends from the forward edge and curves rearwardly toward the rearward edge.

20. The system of claim 17, wherein the latch comprises an arcuately formed latch element, and wherein movement of the first end causes rotational movement of the latch element about an axis, the axis substantially orthogonal to the linear movement of the first and second connector.

21. The system of claim 17, wherein the cable dock comprises a plurality of guide pins operable to engage a plurality of corresponding openings disposed in the backshell assembly to align the first connector with the second connector.

22. The system of claim 17, further comprising a polarity guide coupled to the cable dock and adapted for engagement with a corresponding polarity extension disposed on the backshell assembly to align the first connector with the second connector.

23. The system of claim 17, wherein the latch comprises a handle, the handle extending laterally to a single side of the backshell assembly.

24. The system of claim 17, wherein the locking element comprises a latch pin, and wherein the guide is adapted to receive the latch pin.

25. A method for connecting and disconnecting an electrical connector assembly, comprising:

aligning a first connector coupled to a cable dock with a second connector coupled to a backshell assembly, the first connector adapted for engagement with the second connector;

receiving a locking element coupled to the cable dock in a guide formed on a latch, the latch coupled to the backshell assembly; and

engaging the first connector with the second connector by actuating the latch relative to the backshell assembly, wherein engaging further comprises:

linearly moving the second connector relative to the first connector by passing the locking element through a guide region of the groove; and

securing the first connector in a substantially fixed linear position relative to the second connector by passing the locking element through a dwell region of the groove, the dwell region contiguous with the guide region, wherein securing further comprises securing the first connector in the substantially fixed linear position by disposing a cantilever portion of the latch in a corresponding recess formed in the backshell assembly.

26. The method of claim 25, wherein aligning the first connector comprises aligning a polarity guide coupled to the cable dock with a corresponding polarity extension coupled to the backshell assembly.

27. The method of claim 25, wherein aligning the first connector further comprises aligning a plurality of guide pins coupled to the cable dock with a plurality of corresponding openings disposed in the backshell assembly.

28. The method of claim 25, wherein actuating the latch comprises rotating an arcuately formed latch element about an axis, the axis substantially orthogonal to linear movement of the first connector relative to the second connector.

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UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

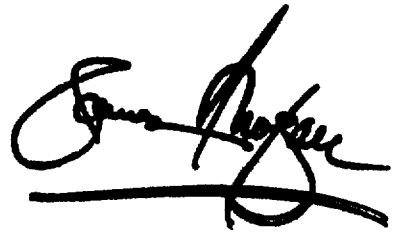
PATENT NO. : 6,293,813 B1
DATED : September 25, 2001
INVENTOR(S) : Andrew L. Johnston et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title page,
Item [73], Assignee, after "Silicon Graphics", insert -- **Inc.** --.

Signed and Sealed this

Nineteenth Day of March, 2002



Attest:

Attesting Officer

JAMES E. ROGAN
Director of the United States Patent and Trademark Office