

Description

Field of the Invention

This invention relates to electrical connectors and apparatus, and more particularly to latches for both holding together and separating the two parts of an electrical connector.

Background to the Invention

Electrical connectors for making large numbers of interconnections are used extensively in computers and other similar electronic apparatus. For example, although there is considerable variation in the known connector sizes, connectors for making 26 or more connections are very common. Each individual connection may be made by inserting a pin (male terminal) in a socket (female terminal), or joining two identical "hermaphroditic" terminals. The connectors typically include two components: a header member and a connector member which is removably plugged into the header member along a connector axis. In a typical installation, the header member may be mounted on a printed circuit board or other similar element, and the connector member may be attached to the end of a multiple conductor cable. Many other applications are known to those skilled in the art.

Although the connector may provide a large number of connections, the spacing between the individual connections is typically relatively small (e.g., approximately 2.5mm (.1 inches). Thus the overall dimensions of the connector member and the header member are also relatively small. For example, the mating faces of the connector member and the header member may measure approximately 6mm by 38mm (.25 inches by 1.5 inches) a connector for making 26 connections in two parallel rows on 2.5mm (.1 inch) centres.

Considerable force may be required to plug the connector member into the header member in the abovedescribed connectors because of the large number of electrical connections being made simultaneously. For the same reason, considerable force may be required to unplug the connector member from the header member. It is known to provide latches on the header member for releasably engaging a connector member to additionally secure the connector member to the header member. The known latches also cooperate with ejection surfaces on the connector member for separating the connector member from the header member when the latches are deliberately released. This greatly facilitates unplugging the connector member from the header member and eliminates the need for possibly destructive pulling on the relatively small connector elements or the compo-

nents (e.g., cables or printed circuit boards) to which the connector elements are attached.

The known ejecting latches described above are confined to the area near the interface between the connector member and the header member. This interface may be relatively inaccessible, particularly in applications in which there are several closely spaced connectors.

It is therefore an object of this invention to provide an improved electrical connector of the type described above.

DE-A-2646237 describes electrical connector apparatus which employs a pair of ejecting levers pivotally mounted on a male connector which serves to receive a complementary female connector. The levers have fingers which bear on the female connector and latches which lock in recesses in the female connector when the levers adopt a closed position. As the more or less rectilinear levers are pivoted to an open position, the latches are released and the fingers push on the female connector to assist in separating the connector members.

As is known from DE-A-2646237, the invention provides electrical connector apparatus comprising: a connector member having a substantially rectangular first connector face, first and second substantially planar, substantially parallel side surfaces perpendicular to the first connector face, each of the first and second side surfaces extending rearwardly from respective first and second substantially parallel sides of the first connector face and at least one ejection surface substantially parallel and adjacent to the first connector face and facing in substantially the same direction as the first connector face; a header member having a second rectangular connector face for removably receiving the connector member along a connector axis which is mutually perpendicular to the first and second connector faces for making a plurality of electrical connections between the header member and the received connector member; and an ejecting latch pivotally mounted on the header member adjacent the second connector face, the pivotal axis of the latch being substantially perpendicular to the first and second side surfaces of the received connector member, the latch having a first lever arm extending substantially perpendicularly from the pivotal axis for bearing on the ejection surface of the received connector member, and a second lever arm extending substantially perpendicularly from the pivotal axis angularly across, and substantially parallel and adjacent to, the first and second side surfaces of the received connector member, the second lever arm terminating with an end portion which is located beyond the rear of the received connector member so that the latch can be pivoted by engaging the end portion, thereby caus-

ing the first lever arm to push against the ejection surface of the connector member to eject the received connector member away from the header member. In contrast to DE-A-2646237, and in accordance with the invention in its ejecting position the second lever arm extends substantially perpendicular to the first connecting face whereby obstruction from an adjacent connector member is avoided. In a preferred construction there are a pair of latches and the second lever arms of each of these latches is angularly inclined relative to the end portion thereof. The second lever arms can then be substantially parallel to one another when the connector member has been pushed from the header member.

Further features of the invention, its nature and various advantages will be more apparent from the accompanying drawings and the following detailed description of the invention.

Brief Description of the Drawings

Figure 1 is a cross sectional view of several header member constructed in accordance with the principles of this invention. Figure 1 is taken along the line 1-1 in Figure 2.

Figure 2 is a view taken along the line 2-2 in Figure 1.

Figures 3 and 4 are views respectively similar to Figures 1 and 2 showing a connector member plugged into header member constructed in accordance with the principles of the invention.

Detailed Description of the Invention

Illustrative connector header members 20a-c and x constructed in accordance with the principles of this invention are shown in Figures 1-4. All of the header members shown in the drawings are identical to one another, and all or any one are therefore referred to generically by reference number 20 with no letter suffix. Each header member 20 includes a main body 22 having a substantially rectangular connector interface 24 which is adapted to mate with the connector interface 84 of compatible connector member 80 when the connector member is plugged into the header member by relative motion of the header and connector members parallel to connector axis 12. Although many other equivalent header configurations are known to those skilled in the art, illustrative header member 20 is adapted to be plugged into a printed circuit board 14 near the edge of the board so that connector interface 24 is substantially perpendicular to the plane of the board.

Ejecting latches 40a and 40b are pivotally mounted on or in main body 22 adjacent the respective opposite ends of connector interface 24.

Ejecting latches 40a and 40b are mirror images of one another about an intermediate mirror plane. The pivotal mounting of each ejector latch 40 comprises oppositely extending lugs 42 which project into mating recesses in main body 22. Accordingly, the pivotal axis of each ejecting latch 40 passes through the lugs 42 of that ejecting latch parallel to or coincident with axis 44.

Each ejecting latch 40 includes first (50) and second (60) lever arms, each of which extends approximately perpendicularly from the pivotal axis of that latch. The first lever arm 50 of each ejecting latch extends from the associated pivotal axis generally toward the rear of header member 20 (i.e., behind connector interface 24). The second lever arm 60 of each ejecting latch extends from the associated pivotal axis in a direction generally away from the associated first lever arm 50.

As mentioned above, each header member 20 is adapted to receive a connector member 80 so that the header member connector interface 24 and the connector member connector interface 84 mate as shown in Figures 3-4. Connector member 80 includes a main body 82 having first and second substantially planar, substantially parallel side surfaces 90 and 92 extending rearwardly from respective first and second substantially parallel sides of connector interface 84. Third and fourth side surfaces 94 and 96 extend rearwardly from respective third and fourth substantially parallel sides of connector face 84. Side surfaces 94 and 96 are substantially perpendicular to side surfaces 90 and 92. Although other equivalent connector configurations are known to those skilled in the art, illustrative connector member 80 is adapted to be connected to the end of multiple conductor cable 16. The end of cable 16 enters connector member 80 via the rear 98 of the connector member.

Main body 82 includes ejection surfaces 86a and 86b adjacent to and facing in substantially the same direction as connector interface 84. When connector member 80 is plugged into header member 20, each of ejection surfaces 86a and 86b is in face-to-face proximity to an ejection surface 52 on each of ejecting latches 40a and 40b. Each ejection surface 52 is near the end of the associated first lever arm 50 remote from the pivotal axis of the associated ejecting latch. Ejection surfaces 52 face in generally the same direction as connector interface 24, although the direction in which surfaces 52 face changes as the associated ejecting latch is pivoted.

When connector member 80 is plugged into header member 20, the second lever arms 60 of associated ejecting latches 40 traverse side surface 90 of the connector member. The end portion 62 of each second lever arm 60 remote from the associated ejection latch pivotal axis projects beyond

the rear end 98 of connector member 80. In the depicted preferred embodiment, the second lever arms 60 of ejecting latches 40a and 40b are synclinal in the direction toward the rear 98 of connector 80 when the connector is plugged into its header.

When it is desired to disconnect connector member 80 from header member 20, end portions 62 of ejecting latches 40a and 40b are pushed apart as shown in relation to connector 10x in Figure 4. This causes ejecting latches 40a and 40b to pivot clockwise and counter-clockwise, respectively, as viewed in Figure 4. This in turn causes ejection surfaces 52 to push ejection surfaces 86 in the direction toward the rear of connector member 80, thereby pushing the connector member away from header member 20 parallel to connector axis 12. The distance of travel of ejection surfaces 86 parallel to connector axis 12 before either of ejecting latches 40 hits the ejecting latch 40 of an adjacent connector (such as connector 10c adjacent to connector 10x) is preferably at least approximately equal to the distance required to substantially break the electrical connections between connector member 80 and header member 20. Accordingly, after ejecting latches 40 have been pivoted as described above, the major portion of the resistance to unplugging connector member 80 from header member 20 has been overcome, and the connector member can be pulled away without risk of damage to any portion of the connector. The construction of ejecting latches 40, and especially the projection of end portions 62 rearwardly beyond the rear of connector member 80; makes it possible to manipulate the ejecting latches even when the connectors are arranged in very dense configurations as shown, for example, in Figures 1, 2 and 4.

If desired, in addition to the abovedescribed connector member ejecting function, ejecting latches 40 can also be used to releasably latch connector member 80 to header members 20. In the depicted preferred embodiment, this is accomplished by means of a lug 64 on the second lever arm 60 of each ejecting latch 40. Each lug 64 projects into a recess 100 in the adjacent third or fourth side surfaces 94 or 96 of connector member 80 when the connector member is plugged into header member 20 and the second lever arms 60 of the ejecting latches are pivoted toward one another. Lugs 64 and recesses 100 cooperate with one another to help secure connector member 80 to header member 20. When ejecting latches 40 are pivoted apart in order to eject connector member 80 from header member 20, lugs 64 withdraw from recesses 100 so as not to inhibit ejection of the connector member.

Claims

1. Electrical connector apparatus comprising: a connector member (80) having a substantially rectangular first connector face (84), first and second substantially planar, substantially parallel side surfaces (90,92) perpendicular to the first connector face (84), each of the first and second side surfaces (90, 92) extending rearwardly from respective first and second substantially parallel sides of the first connector face (84) and at least one ejection surface (86) substantially parallel and adjacent to the first connector face (84) and facing in substantially the same direction as the first connector face (84); a header member (20) having a second rectangular connector face (24) for removably receiving the connector member (80) along a connector axis (12) which is mutually perpendicular to the first and second connector faces (84,24) for making a plurality of electrical connections between the header member (20) and the received connector member (80); and an ejecting latch (40) pivotally mounted on the header member (20) adjacent the second connector face (24), the pivotal axis of the latch (40) being substantially perpendicular to the first and second side surfaces (90,92) of the received connector member (80), the latch having a first lever arm (50) extending substantially perpendicularly from the pivotal axis for bearing on the ejection surface (86) of the received connector member (80), and a second lever arm (60) extending substantially perpendicularly from the pivotal axis angularly across, and substantially parallel and adjacent to, the first and second side surfaces (90,92) of the received connector member (80), the second lever arm (60) terminating with an end portion (62) which is located beyond the rear of the received connector member (80) so that the latch (40) can be pivoted by engaging the end portion (62), thereby causing the first lever arm (50) to push against the ejection surface (86) of the connector member (80) to eject the received connector member (80) away from the header member (20); characterised in that in the ejecting position of the latch (40) the second lever arm (60) extends substantially perpendicular to said first connecting face (84)
2. Connector apparatus according to claim 1 wherein the connector member (80) further comprises third and fourth side surfaces (94,96) substantially perpendicular to the first and second side surfaces (90,92) each of the third and fourth side surfaces (94,96) extending rearwardly from respective third and fourth



the rear end 98 of connector member 80. In the depicted preferred embodiment, the second lever arms 60 of ejecting latches 40a and 40b are synclinal in the direction toward the rear 98 of connector 80 when the connector is plugged into its header.

When it is desired to disconnect connector member 80 from header member 20, end portions 62 of ejecting latches 40a and 40b are pushed apart as shown in relation to connector 10x in Figure 4. This causes ejecting latches 40a and 40b to pivot clockwise and counter-clockwise, respectively, as viewed in Figure 4. This in turn causes ejection surfaces 52 to push ejection surfaces 86 in the direction toward the rear of connector member 80, thereby pushing the connector member away from header member 20 parallel to connector axis 12. The distance of travel of ejection surfaces 86 parallel to connector axis 12 before either of ejecting latches 40 hits the ejecting latch 40 of an adjacent connector (such as connector 10c adjacent to connector 10x) is preferably at least approximately equal to the distance required to substantially break the electrical connections between connector member 80 and header member 20. Accordingly, after ejecting latches 40 have been pivoted as described above, the major portion of the resistance to unplugging connector member 80 from header member 20 has been overcome, and the connector member can be pulled away without risk of damage to any portion of the connector. The construction of ejecting latches 40, and especially the projection of end portions 62 rearwardly beyond the rear of connector member 80; makes it possible to manipulate the ejecting latches even when the connectors are arranged in very dense configurations as shown, for example, in Figures 1, 3 and 4.

If desired, in addition to the abovedescribed connector member ejecting function, ejecting latches 40 can also be used to releasably latch connector member 80 to header members 20. In the depicted preferred embodiment, this is accomplished by means of a lug 64 on the second lever arm 60 of each ejecting latch 40. Each lug 64 projects into a recess 100 in the adjacent third or fourth side surfaces 94 or 96 of connector member 80 when the connector member is plugged into header member 20 and the second lever arms 60 of the ejecting latches are pivoted toward one another. Lugs 64 and recesses 100 cooperate with one another to help secure connector member 80 to header member 20. When ejecting latches 40 are pivoted apart in order to eject connector member 80 from header member 20, lugs 64 withdraw from recesses 100 so as not to inhibit ejection of the connector member.

Claims

1. Electrical connector apparatus comprising: a connector member (80) having a substantially rectangular first connector face (84), first and second substantially planar, substantially parallel side surfaces (90,92) perpendicular to the first connector face (84), each of the first and second side surfaces (90, 92) extending rearwardly from respective first and second substantially parallel sides of the first connector face (84) and at least one ejection surface (86) substantially parallel and adjacent to the first connector face (84) and facing in substantially the same direction as the first connector face (84); a header member (20) having a second rectangular connector face (24) for removably receiving the connector member (80) along a connector axis (12) which is mutually perpendicular to the first and second connector faces (84,24) for making a plurality of electrical connections between the header member (20) and the received connector member (80); and an ejecting latch (40) pivotally mounted on the header member (20) adjacent the second connector face (24), the pivotal axis of the latch (40) being substantially perpendicular to the first and second side surfaces (90,92) of the received connector member (80), the latch having a first lever arm (50) extending substantially perpendicularly from the pivotal axis for bearing on the ejection surface (86) of the received connector member (80), and a second lever arm (60) extending substantially perpendicularly from the pivotal axis angularly across, and substantially parallel and adjacent to, the first and second side surfaces (90,92) of the received connector member (80), the second lever arm (60) terminating with an end portion (62) which is located beyond the rear of the received connector member (80) so that the latch (40) can be pivoted by engaging the end portion (62), thereby causing the first lever arm (50) to push against the ejection surface (86) of the connector member (80) to eject the received connector member (80) away from the header member (20); characterised in that in the ejecting position of the latch (40) the second lever arm (60) extends substantially perpendicular to said first connecting face (84).
2. Connector apparatus according to claim 1 wherein the connector member (80) further comprises third and fourth side surfaces (94,96) substantially perpendicular to the first and second side surfaces (90,92) each of the third and fourth side surfaces (94,96) extending rearwardly from respective third and fourth



substantially parallel sides of the first connector face (84), and wherein the latch (20) is pivotally mounted adjacent one of the third and fourth side surfaces (94,96) of the received connector member (80).

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3. Connector apparatus according to claim 2 wherein the second lever arm (60), when viewed perpendicular to the first and second side surfaces (90,92), intersects the projection of the one of the third and fourth received connector member side surfaces (94,96) adjacent to which the latch (40) is pivotally mounted.

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4. Connector apparatus according to claim 3 wherein the portion of the second lever arm (60) which traverses at least one of the first and second side surfaces (90,92) of the received connector member (80) is pivoted toward the intersected projection of the one of the third and fourth received connector member side surfaces (94,96) adjacent to which the latch (40) is pivotally mounted.

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5. Connector apparatus according to any one of claims 1 to 4 wherein the connector member (80) and the latch (40) include cooperating latching means (64, 100) for preventing the received connector member (80) from moving away from the header member (20) except when the latch (40) is pivoted to push the received connector member (80) away from the header member (20).

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6. Connector apparatus according to claim 5 wherein the cooperating latching means comprise: a first latching surface (86) on the connector member facing away from the first connector face (84); and a second latching surface (52) on the first lever arm (50) in face-to-face contact with the first latching surface on the received connector except when the latch (40) is pivoted to push the received connector member (80) away from the header member (20).

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7. Connector apparatus according to any one of claims 1 to 6, wherein said latch (40a) is a first latch and there is further provided a second similar latch (40b) pivotally mounted on the header member (20).

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8. Connector apparatus according to claim 2, wherein said latch (40a) is a first latch pivotally mounted adjacent the third side surface of the connector member (80) and there is a second similar latch (40b) pivotally mounted adjacent the fourth side surface of the connector mem-

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ber (80) for cooperating with a second ejection surface (86) on the connector member (80) in the same manner that the first latch (40a) cooperates with the associated ejection surface (86).

9. Connector apparatus according to claim 7 or 8 wherein the second lever arm (60) of each latch (40a, 40b) is angularly inclined relative to the end portion (62) thereof.

10. Connector apparatus according to claim 7, 8 or 9 wherein the second lever arms (60) of the first and second latches (40a, 40b) are synclinal toward the rear of the received connector member (80).

11. Connector apparatus according to any one of claims 7 to 10 wherein the second lever arms (60) of the first and second latches (40a, 40b) are pivoted away from one another to push the received connector member (80) from the header member (20).

12. Connector apparatus according to any one of claims 7 to 11 wherein the second lever arm (60) of each of the first and second latches (40a, 40b) traverses only one the first and second side surfaces (90, 92) of the received connector member (80).

13. Connector apparatus according to any one of claims 7 to 12 wherein the second lever arms (60) of the first and second latches (40a, 40b) are substantially parallel to one another when the received connector member (80) has been pushed from the header member (20).

14. Connector apparatus according to any one of claims 7 to 13 wherein the second lever arms (60) of both of the first and second latches (40) traverse the same one of the first and second side surfaces of the received connector member (80).

Patentansprüche

1. Elektrische Steckervorrichtung, mit einem Steckerteil (80), welches eine im wesentlichen rechteckförmige erste Steckerfläche (84), erste und zweite im wesentlichen ebene und im wesentlichen parallele Seitenflächen (90, 92) aufweist, die zur ersten Steckerfläche (84) senkrecht verlaufen, wobei jede der ersten und zweiten Seitenflächen (90, 92) rückwärts von den jeweils ersten und zweiten im wesentlichen parallelen Seiten der ersten Steckerfläche (84) verlaufen, und mit wenigstens einer



- Ausstoßfläche (86), die im wesentlichen parallel und benachbart zur ersten Steckerfläche (84) verläuft und im wesentlichen in die gleiche Richtung wie die erste Steckerfläche (84) weist, mit einem End- oder Kopfteil (20) mit einer zweiten rechteckförmigen Steckerfläche (24), um entferntbar das Steckerteil (80) entlang einer Steckerachse (12) aufzunehmen, welche wechselseitig senkrecht zur ersten und zur zweiten Steckerfläche (84, 24) ist, um eine Vielzahl von elektrischen Verbindungen zwischen dem End- oder Kopfteil (20) und dem aufgenommenen Steckerteil (80) herzustellen, und mit einer Ausstoßklinge (40), die an dem End- oder Kopfteil (20) nahe der zweiten Steckerfläche (24) schwenkbar befestigt ist, wobei die Schwenkachse der Klinge (40) im wesentlichen senkrecht zur ersten und zur zweiten Seitenfläche (90, 92) des aufgenommenen Steckerteiles (80) verläuft und wobei die Klinge einen ersten Hebelarm (50) aufweist, der im wesentlichen senkrecht zur Schwenkachse verläuft, um auf der Ausstoßfläche (86) des aufgenommenen Steckerteiles (80) aufzusitzen, und einen zweiten Hebelarm (60) aufweist, der im wesentlichen senkrecht zur Schwenkachse verläuft und im Winkel über und im wesentlichen parallel und nahe der ersten und der zweiten Seitenfläche (90, 92) des aufgenommenen Steckerteiles (80) verläuft, wobei der zweite Hebelarm (60) mit einem Endabschnitt (62) endet, der jenseits des hinteren Endes des aufgenommenen Steckerteiles (80) gelegen ist, so daß die Klinge (40) durch Eingriff am Endabschnitt (62) verschwenkt werden kann und dabei der erste Hebelarm (50) veranlaßt wird, gegen die Ausstoßfläche (86) des Steckerteiles (80) zu stoßen, um das aufgenommene Steckerteil (80) von dem End- oder Kopfteil (20) wegzustoßen, dadurch gekennzeichnet, daß in der Ausstoßstellung der Klinge (40) der zweite Hebelarm (60) sich im wesentlichen parallel zur ersten Verbindungsfläche (84) erstreckt.
2. Steckervorrichtung nach Anspruch 1, bei der das Steckerteil (80) ferner dritte und vierte Seitenflächen (94, 96) aufweist, die im wesentlichen senkrecht zur ersten und zweiten Seitenfläche (90, 92) verlaufen, wobei jede der dritten und vierten Seitenflächen (94, 96) sich hinterhalb der jeweiligen dritten und vierten im wesentlichen parallelen Seiten der ersten Steckerfläche (84) erstrecken und bei der die Klinge (20) schwenkbar nahe einer der dritten und vierten Seitenflächen (94, 96) des aufgenommenen Steckerteiles (80) befestigt ist.
 3. Steckervorrichtung nach Anspruch 2, bei der der zweite Hebelarm (60), wenn man senkrecht zur ersten und zweiten Seitenfläche (90, 92) blickt, die Projektion der einen der dritten und vierten aufgenommenen Steckerteil-Seitenflächen (94, 96) schneidet, wobei nahe dieser Seitenflächen die Klinge (40) schwenkbar befestigt ist.
 4. Steckervorrichtung nach Anspruch 3, bei der der Abschnitt des zweiten Hebelarms (60), der wenigstens eine der ersten und zweiten Seitenflächen (90, 92) des aufgenommenen Steckerteiles (80) quert, zur Schnittprojektion der einen dritten und vierten Seitenflächen (94, 96) des aufgenommenen Steckerteiles verschwenkbar ist, wobei nahe dieser Seitenflächen die Klinge (40) schwenkbar befestigt ist.
 5. Steckervorrichtung nach einem der Ansprüche 1 bis 4, bei der das Steckerteil (80) und die Klinge (40) zusammenwirkende Klinkenvorrichtungen (64, 100) aufweisen, um das aufgenommene Steckerteil (80) daran zu hindern, sich von dem End- oder Kopfteil (20) wegzubewegen, ausgenommen dann, wenn die Klinge (40) verschwenkt wird, um das aufgenommene Steckerteil (80) von dem End- oder Kopfteil (20) wegzustoßen.
 6. Steckervorrichtung nach Anspruch 5, bei der die zusammenwirkenden Klinkenvorrichtungen enthalten: eine erste Klinkenfläche (86) an dem Steckerteil, die von der ersten Steckerfläche (84) weg weist, und eine zweite Klinkenfläche (52) an dem ersten Hebelarm (50) in einer Fläche-an-Fläche-Berührung mit der ersten Klinkenfläche an dem aufgenommenen Stecker, ausgenommen, wenn die Klinge (40) verschwenkt wird, um das aufgenommene Steckerteil (80) von dem End- oder Kopfteil (20) wegzustoßen.
 7. Steckervorrichtung nach einem der Ansprüche 1 bis 6, bei dem die Klinge (40a) eine erste Klinge ist und darüber hinaus eine zweite ähnliche Klinge (40b) vorgesehen ist, die schwenkbar an dem End- oder Kopfteil (20) befestigt ist.
 8. Steckervorrichtung nach Anspruch 2, bei der die Klinge (40a) eine erste Klinge ist, die schwenkbar nahe der dritten Seitenfläche des Steckerteiles (80) befestigt ist und bei der eine zweite ähnliche Klinge (40b) schwenkbar nahe der vierten Seitenfläche des Steckerteiles (80) befestigt ist, so daß sie mit einer zweiten Ausstoßfläche (86) an dem Steckerteil (80) in der



gleichen Weise zusammenwirken kann wie die erste Klinke (40a) mit der zugeordneten Ausstoßfläche (86) zusammenwirkt.

9. Steckervorrichtung nach Anspruch 7 oder 8, bei der der zweite Hebelarm (60) jeder Klinke (40a, 40b) winkelmäßig relativ zu dem Endabschnitt (62) desselben geneigt ist. 5
10. Steckervorrichtung nach Anspruch 7, 8 oder 9, bei der die zweiten Hebelarme (60) der ersten und der zweiten Klinke (40a, 40b) synklynal zum rückwärtigen Endbereich des aufgenommenen Steckerteiles (80) sind. 10
11. Steckervorrichtung nach einem der Ansprüche 7 bis 10, bei der die zweiten Hebelarme (60) der ersten und der zweiten Klinke (40a, 40b) voneinander weggeschwenkt sind, um das aufgenommene Steckerteil (80) von dem End- oder Kopfteil (20) zu stoßen. 15 20
12. Steckervorrichtung nach einem der Ansprüche 7 bis 11, bei der der zweite Hebelarm (60) jeder der ersten und der zweiten Klinke (40a, 40b) nur eine der ersten und zweiten Seitenflächen (90, 92) des aufgenommenen Steckerteiles (80) quert. 25
13. Steckervorrichtung nach einem der Ansprüche 7 bis 12, bei der die zweiten Hebelarme (60) der ersten und der zweiten Klinke (40a, 40b) im wesentlichen parallel zueinander sind, wenn das aufgenommene Steckerteil (80) von dem End- oder Kopfteil (20) gestoßen wurde. 30 35
14. Steckervorrichtung nach einem der Ansprüche 7 bis 13, bei der die zweiten Hebelarme (60) von sowohl der ersten als auch der zweiten Klinke (40) die gleiche der ersten und zweiten Seitenflächen des aufgenommenen Steckerteiles (80) queren. 40

Revendications

1. Dispositif de connexion électrique comprenant: un organe connecteur (80) ayant une première face de connecteur (84) sensiblement rectangulaire, une première et une deuxième surfaces latérales (90, 92) qui sont sensiblement planes et sensiblement parallèles, disposées perpendiculairement à la première face (84) du connecteur, chacune de la première et de la deuxième surfaces latérales (90, 92) s'étendant vers l'arrière à partir, respectivement, d'un premier et d'un deuxième côtés, sensiblement parallèles, de la première face (84) du connecteur, et au moins une surface d'éjection (86) 45 50
2. Dispositif de connexion selon la revendication 1, dans lequel l'organe connecteur (80) comprend également une troisième et une quatrième surfaces latérales (94, 96) sensiblement perpendiculaires à la première et à la deuxième surfaces latérales (90, 92), chacune des troisième et quatrième surfaces latérales (94, 96) s'étendant vers l'arrière à partir, respectivement, des troisième et quatrième côtés, sensiblement parallèles l'un à l'autre, de la première face de connecteur (84), et dans lequel le loquet (20) est monté de façon pivotante adjacent à l'une des troisième et quatrième 55

sensiblement parallèle à la première face (84) du connecteur et disposée pour lui être adjacente et orientée sensiblement dans la même direction que la première face (84) du connecteur; une embase (20) ayant une deuxième face (24) rectangulaire de connecteur adaptée à recevoir de façon amovible l'organe connecteur (80) le long d'un axe (12) de connecteur qui est mutuellement perpendiculaire aux première et deuxième faces (84, 24) du connecteur pour la réalisation d'une pluralité de connexions électriques entre l'embase (20) et l'organe connecteur (80) qui y a été reçu; et un loquet d'éjection (40) monté de façon pivotante sur l'embase (20) adjacente à la deuxième face (24) du connecteur, l'axe de pivotement du loquet (40) étant sensiblement perpendiculaire aux première et deuxième surfaces latérales (90, 92) de l'organe connecteur (80) qui a été reçu, le loquet ayant un premier bras de levier (50) qui s'étend sensiblement perpendiculairement à partir de l'axe de pivotement afin de s'appuyer sur la surface d'éjection (86) de l'organe connecteur (80) reçu, et un deuxième bras de levier (60) qui est sensiblement perpendiculaire à l'axe de pivotement et coupe l'angle entre la première et la deuxième surfaces latérales (90, 92), en étant sensiblement parallèle et adjacent à celles-ci, de l'organe connecteur (80) reçu, le deuxième bras de levier (60) se terminant par une partie d'extrémité (62) qui se trouve au-delà de l'arrière de l'organe connecteur (80) reçu permettant ainsi le pivotement du loquet (40) en saisissant sa partie d'extrémité (62) pour provoquer ainsi la sollicitation de la surface d'éjection (86) de l'organe connecteur (80) par le premier bras de levier (50) afin de réaliser l'éjection de l'organe connecteur (80) reçu de l'embase (20); caractérisé en ce que, dans la position d'éjection du loquet (40), le deuxième bras de levier (60) est sensiblement perpendiculaire à ladite première face de connexion (84).



surfaces latérales (94, 96) de l'organe connecteur (80) reçu.

3. Dispositif de connexion selon la revendication 2, dans lequel le deuxième bras de levier (60), vu perpendiculairement aux première et deuxième surfaces latérales (90, 92), intersecte la projection de l'une des troisième et quatrième surfaces latérales adjacentes (94, 96) de l'organe connecteur, auxquelles est monté de façon pivotante le loquet (40).
4. Dispositif de connexion selon la revendication 3, dans lequel la partie du deuxième bras de levier (60) qui traverse au moins l'une de la première et de la deuxième surfaces latérales (90, 92) de l'organe connecteur (80) reçu pivote vers la projection intersectée de l'une des troisième et quatrième surfaces latérales adjacentes (94, 96) de l'organe connecteur reçu, auxquelles est monté de façon pivotante le loquet (40).
5. Dispositif de connexion selon l'une quelconque des revendications 1 à 4, dans lequel l'organe connecteur (80) et le loquet (40) comportent des moyens coopérants de verrouillage (64, 100) pour empêcher le déplacement de l'organe connecteur (80) reçu à partir de l'embase (20) sauf dans le cas où le loquet (40) est basculé afin de solliciter l'organe connecteur (80) reçu dans un sens où il s'éloigne de l'embase (20).
6. Dispositif de connexion selon la revendication 5, dans lequel les moyens coopérants de verrouillage comprennent: une première surface (86) de verrouillage sur l'organe connecteur, dirigée en sens opposé à la première face (84) du connecteur; et une deuxième surface (52) de verrouillage sur le premier bras de levier (50) disposée face à face en contact avec la première surface de verrouillage sur l'organe connecteur reçu, sauf dans le cas où le loquet (40) est basculé afin de solliciter l'organe connecteur (80) reçu dans un sens d'éloignement de l'embase (20).
7. Dispositif de connexion selon l'une quelconque des revendications 1 à 6, dans lequel ledit loquet (40a) est un premier loquet, et un deuxième loquet similaire (40b) est présent qui est monté de façon pivotante sur l'embase (20).
8. Dispositif de connexion selon la revendication 2, dans lequel ledit loquet (40a) est un premier loquet monté de façon pivotante adjacent à la

troisième surface latérale de l'organe connecteur (80), et un deuxième loquet similaire (40b) est présent monté de façon pivotante adjacent à la quatrième surface latérale de l'organe connecteur (80) afin de coopérer avec une deuxième surface d'éjection (86) de l'organe connecteur (80) de la même façon que coopèrent le premier loquet (40a) et la surface d'éjection (86) qui lui est associée.

9. Dispositif de connexion selon la revendication 7 ou 8, dans lequel le deuxième bras de levier (60) de chaque loquet (40a, 40b) est incliné angulairement par rapport à la partie d'extrémité (62) de ce loquet.
10. Dispositif de connexion selon la revendication 7, 8 ou 9, dans lequel les deuxième bras de levier (60) des premier et deuxième loquets (40a, 40b) ont une même inclinaison vers l'arrière de l'organe connecteur (80) reçu.
11. Dispositif de connexion selon l'une quelconque des revendications 7 à 10, dans lequel les deuxième bras de levier (60) des premier et deuxième loquets (40a, 40b) pivotent dans un sens où ils s'éloignent l'un de l'autre afin d'éloigner l'organe connecteur (80) reçu de l'embase (20).
12. Dispositif de connexion selon l'une quelconque des revendications 7 à 11, dans lequel le deuxième bras de levier (60) de chacun du premier et du deuxième loquets (40a, 40b) ne traverse que l'une de la première et de la deuxième surfaces latérales (90, 92) de l'organe connecteur (80) reçu.
13. Dispositif de connexion selon l'une quelconque des revendications 7 à 12, dans lequel les deuxième bras de levier (60) du premier et du deuxième loquets (40a, 40b) sont sensiblement parallèles l'un à l'autre quand l'organe connecteur (80) reçu a été éloigné par sollicitation de l'embase (20).
14. Dispositif de connexion selon l'une quelconque des revendications 7 à 13, dans lequel les deuxième bras de levier (60) du premier et du deuxième loquets (40) traversent la même surface latérale d'entre ladite première et ladite deuxième surfaces latérales de l'organe connecteur (80) reçu.