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Ma

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(54) **ELECTRICAL CONNECTOR WITH PROTECTIVE COVER**

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(56) **References Cited**

U.S. PATENT DOCUMENTS

4,750,890 A * 6/1988 Dube et al. 439/70
4,865,554 A * 9/1989 Matsuoka et al. 439/70
5,013,256 A * 5/1991 Matsuoka et al. 439/264
5,161,983 A * 11/1992 Ohno et al. 439/71
5,387,121 A * 2/1995 Kurz 439/342
6,016,254 A * 1/2000 Pfaff 439/71
6,027,345 A 2/2000 McHugh et al.
6,146,151 A 11/2000 Li
6,146,152 A 11/2000 McHugh et al.
6,164,978 A 12/2000 McHugh et al.
6,350,138 B1 * 6/2001 Atobe 439/266
6,293,806 B1 9/2001 Yu

* cited by examiner

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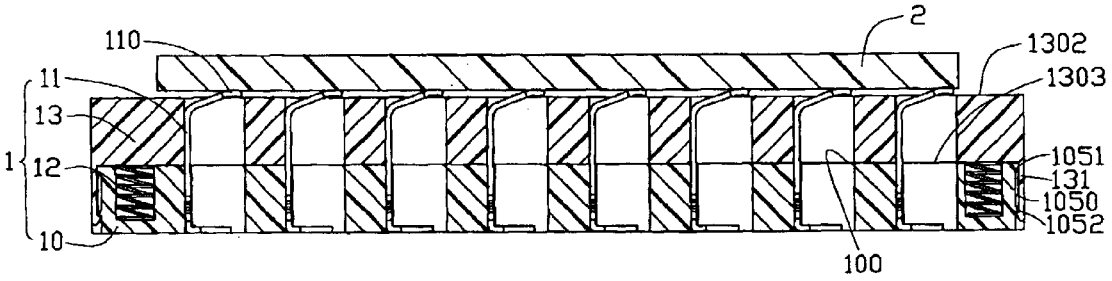
(57) **ABSTRACT**

An electrical connector includes an insulative housing **(10)** defining a first surface **(100)** and a second surface **(101)**, a plurality of contacts **(11)** received in the housing, a cover **(13)** slidably mounted on the housing and a spring **(12)** positioned between the housing and the cover. The housing defines a plurality of restricting slots **(1050)** having a first protruding portion **(1051)** and a second protruding portion **(1052)**. The cover defines a plurality of openings **(1301)** and a plurality of hooks **(131)** cooperating with the corresponding restricting slot of the housing. When the cover is at a first position where the hooks cooperate with the first protruding portions, the contact is between the upper surface of the cover and the first surface of the housing, when the cover is at a second position where the hooks cooperate with second protruding portion, the contact is beyond the openings of the cover.

13 Claims, 4 Drawing Sheets