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(72) Inventor: **Bosatelli, Domenico**
24069 Cenate Sotto (Bergamo) (IT)

(74) Representative: **Forattini, Amelia**
c/o Internazionale Brevetti
Ingg. ZINI, MARANESI & C. S.r.l.
Piazza Castello 1
20121 Milano (IT)

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(71) Applicant: **Gewiss S.P.A.**
24069 Cenate Sotto (Bergamo) (IT)

(54) **Connector for electrical systems**

(57) A connector for electrical systems has a first casing that includes pins and can be coupled to a second casing that includes receptacles, characterized in that the first casing can be coupled to the second casing

by means of an anchoring-lever connection constituted by an anchoring lever that is pivoted to one of the casings and engages two studs that are associated with the other casing.

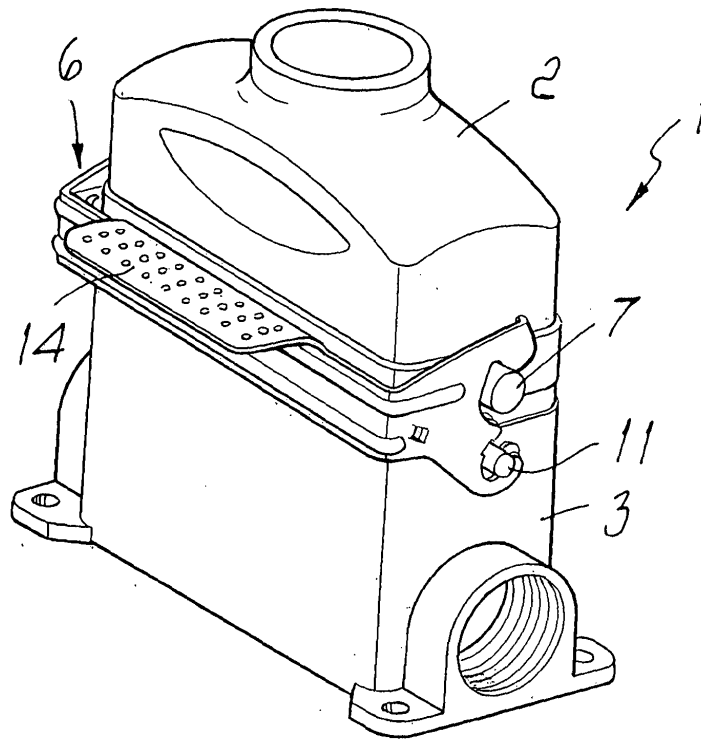


Fig. 1

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Description

[0001] The present invention relates to a connector for electrical systems.

[0002] The aim of the present invention is to provide a connector that is improved with respect to currently known connectors.

[0003] An object of the invention is to provide a connector that is simple and reliable in use.

[0004] Another object of the invention is to provide a connector that is constituted by a small number of components, fully to the benefit of production economy.

[0005] That aim and those and other objects that will become better apparent hereinafter are achieved by a connector for electrical systems as claimed in the appended claims.

[0006] Further characteristics and advantages of the invention will become better apparent from the description of preferred but not exclusive embodiments thereof, illustrated by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a perspective view of the connector according to the invention;

Figure 2 is a longitudinal sectional view of a pin;

Figure 3 is a longitudinal sectional view of a receptacle;

Figure 4 is a perspective view of the anchoring lever;

Figure 5 is a partial perspective view of the anchoring lever for a single-lever connector;

Figure 6 is a front view of the contoured spring of the anchoring lever;

Figure 7 is a sectional front elevation view of the connector according to the invention;

Figure 8 is a perspective view of the connector according to a further aspect of the invention, provided with two anchoring levers.

[0007] With reference to the cited figures, a connector according to the invention, generally designated by the reference numeral 1, comprises an inline casing 2 having pins 4 and that can be coupled to a fixed flush-mount casing 3 having receptacles 5.

[0008] According to the invention, the inline casing can be coupled to the fixed casing by an anchoring-lever connection, which is constituted by an anchoring lever 6 that is pivoted to the fixed casing 3 at a pivot 11 and is suitable to engage a pair of studs 7 that are associated with the inline casing 2.

[0009] The anchoring lever 6 is monolithic and has reference members 8 and 9 that are adapted to retain a contoured spring 10, which acts as a device for anchoring the inline casing 2 to the stud 7.

[0010] The spring 10 has been designed with a closed contour in order to provide better elasticity and stability over time.

[0011] In the coupling region there is a cusp 12 that

ensures that the engagement with the pivot 11 is maintained even in critical conditions, for example in the presence of vibrations or impacts.

[0012] The reference members 9, provided at a rectangular opening 13, are useful in the clinching operation for retaining the contoured spring 10 in position.

[0013] The reference member 8 prevents the contoured spring 10 from undergoing, upon anchoring, an inward flexing or movement.

[0014] The anchoring lever 6 has a handle 14 that can be gripped by the operator in order to close or open the connector.

[0015] The connector has receptacles and pins, which both have, in their rear region, a cable clamping system constituted by a screw 15 that does not act directly on the cable but acts by means of a blade 16 that is inserted in the connecting seat and distributes all its clamping force on the cable in the seat.

[0016] The blade 16 has a suitable shape, designed so that it can remain in its seat by virtue of a hole 17 that is provided at the seat and a tab 18 that is provided on the blade itself.

[0017] The anchoring hole 17 lies opposite the screw 15 in order to increase as much as possible the length of the spring and thus make it very flexible, with no risk of yielding.

[0018] By way of its particular configuration, the blade 16 is always in a fixed cable insertion position when the screw 15 is unscrewed.

[0019] The blade 16 can be inserted with a snap action in its seat, facilitating its assembly in the clamping system.

[0020] Figure 8 illustrates a connector 101 provided with two anchoring levers 106.

[0021] More particularly, similarly to connector 1, the connector according to this further aspect of the invention, generally designated by the reference numeral 101, comprises an inline casing 102, having pins and that can be coupled to a fixed flush-mount casing 103, which has the receptacles.

[0022] According to the invention, the inline casing 102 can be coupled to the fixed casing 103 by means of an anchoring-lever connection that is constituted by two anchoring levers 106, which are pivoted to the fixed casing 103 in respective pairs of pivots 111 and engage respective pairs of studs 107 that are associated with the inline casing 102.

[0023] Each anchoring lever 106 is monolithic and is substantially similar to the lever 6 described above.

[0024] In practice it has been found that the invention achieves the intended aim and objects, a connector having been provided which has a locking and release system of the anchoring-lever type that is quick and easy.

[0025] The connector according to the invention is susceptible of numerous modifications and variations, within the scope of the appended claims. All the details may be replaced with technically equivalent elements.

[0026] The materials used, as well as the dimensions,

may of course be any according to requirements and to the state of the art.

Claims

1. A connector for electrical systems, comprising a first casing that comprises pins and can be coupled to a second casing that comprises receptacles, **characterized in that** the first casing can be coupled to the second casing by means of an anchoring-lever connection constituted by an anchoring lever that is pivoted to one of the casings and is adapted to engage two studs that are associated with the other casing. 5
2. The connector according to claim 1, **characterized in that** said anchoring lever is monolithic. 10
3. The connector according to claim 1 or 2, **characterized in that** said anchoring lever comprises reference members that are adapted to retain a contoured spring, which provides anchoring to the stud of the associated casing. 15
4. The connector according to one or more of the preceding claims, **characterized in that** said spring has a closed contour that is adapted to provide greater elasticity and stability over time. 20
5. The connector according to one or more of the preceding claims, **characterized in that** said spring has a cusp in the coupling region, said cusp being adapted to ensure that the engagement with the pivot is maintained even in critical conditions, for example in the presence of vibrations or impacts. 25
6. The connector according to one or more of the preceding claims, **characterized in that** it comprises reference members, formed at a rectangular opening, for the clinching operation for retaining said contoured spring in position. 30
7. The connector according to one or more of the preceding claims, **characterized in that** it comprises a reference member that ensures that said contoured spring does not flex or move inward upon anchoring. 35
8. The connector according to one or more of the preceding claims, **characterized in that** said anchoring lever has a handle that can be gripped by the operator in order to close or open the connector. 40
9. The connector according to one or more of the preceding claims, **characterized in that** each one of said receptacles and said pins has, in its rear region, a cable clamping system that is constituted by a screw that acts on the cable by means of an elastic blade that is inserted in the connection seat and distributes all its clamping force on the cable in the seat. 45
10. The connector according to one or more of the preceding claims, **characterized in that** said blade has a shape designed so that it can remain in its seat by way of a hole provided at said seat and a tab provided on said blade. 50
11. The connector according to one or more of the preceding claims, **characterized in that** said anchoring hole lies opposite the screw in order to increase as much as possible the length of the spring and thus make it very flexible without the risk of yielding. 55
12. The connector according to one or more of the preceding claims, **characterized in that** said blade is always in a fixed cable insertion position when the screw is unscrewed.
13. The connector according to one or more of the preceding claims, **characterized in that** said blade can be inserted with a snap action in the seat, facilitating its assembly in the clamping system.
14. The connector according to one or more of the preceding claims, **characterized in that** it comprises two anchoring levers.

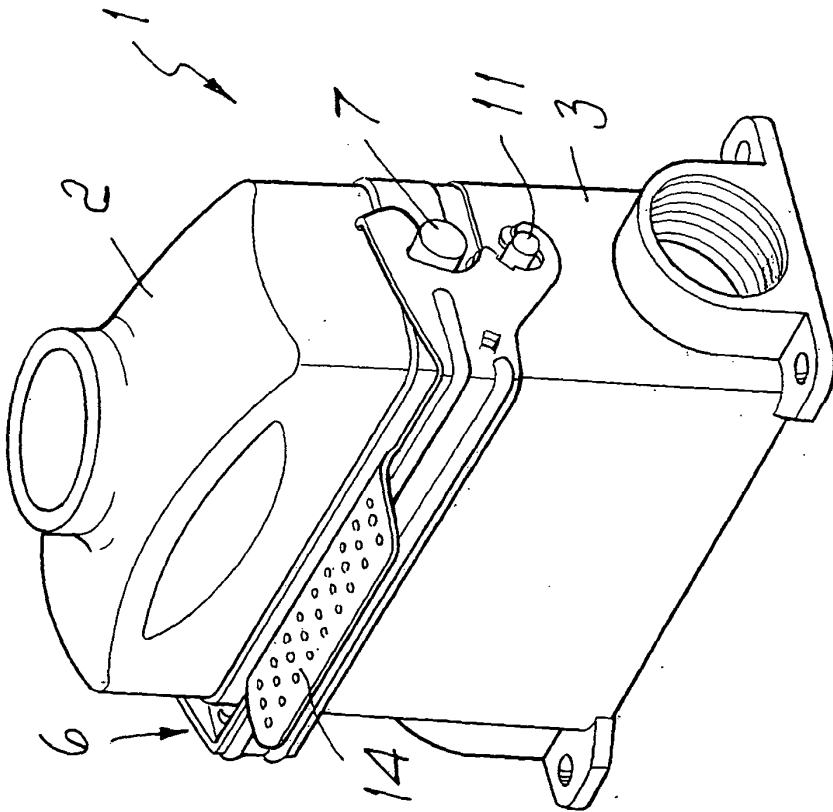


FIG. 1

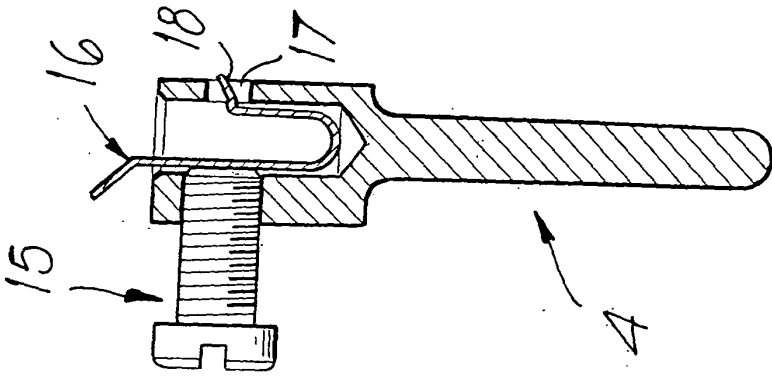


FIG. 2

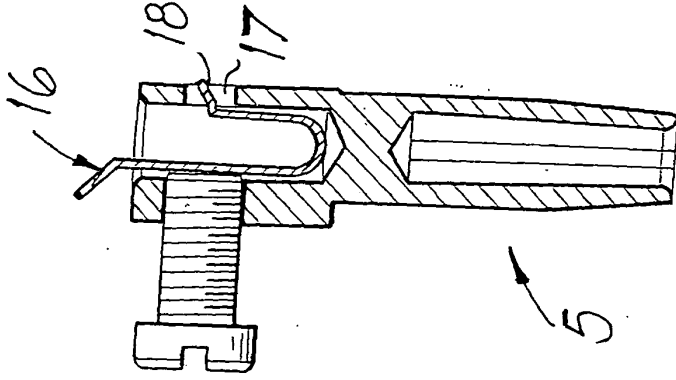


FIG. 3

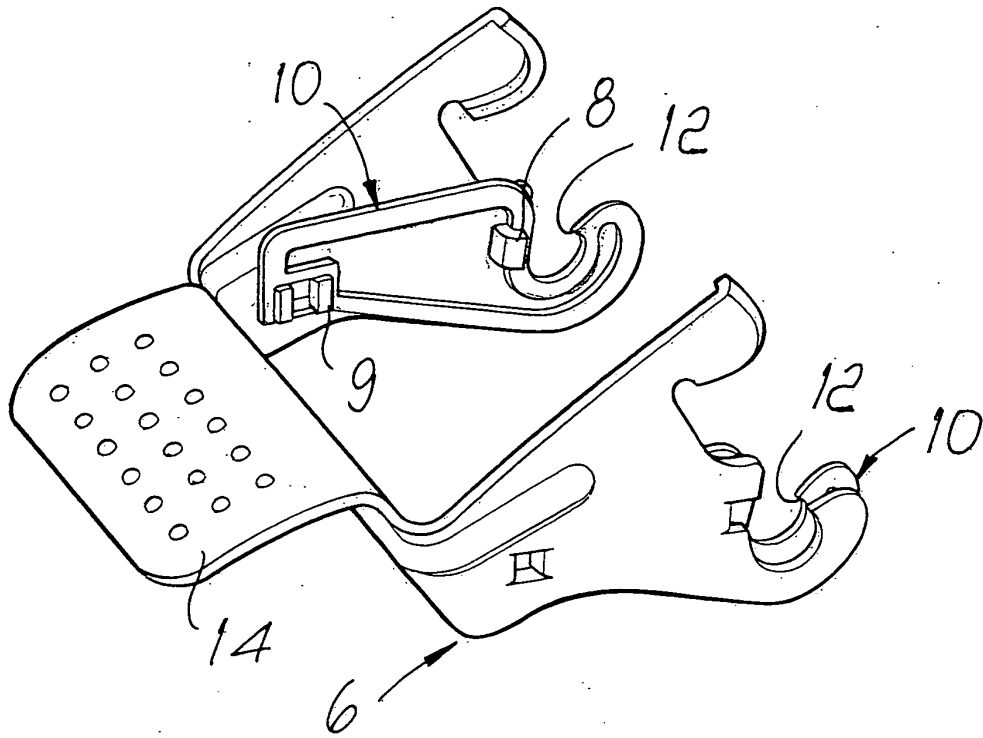


FIG. 4

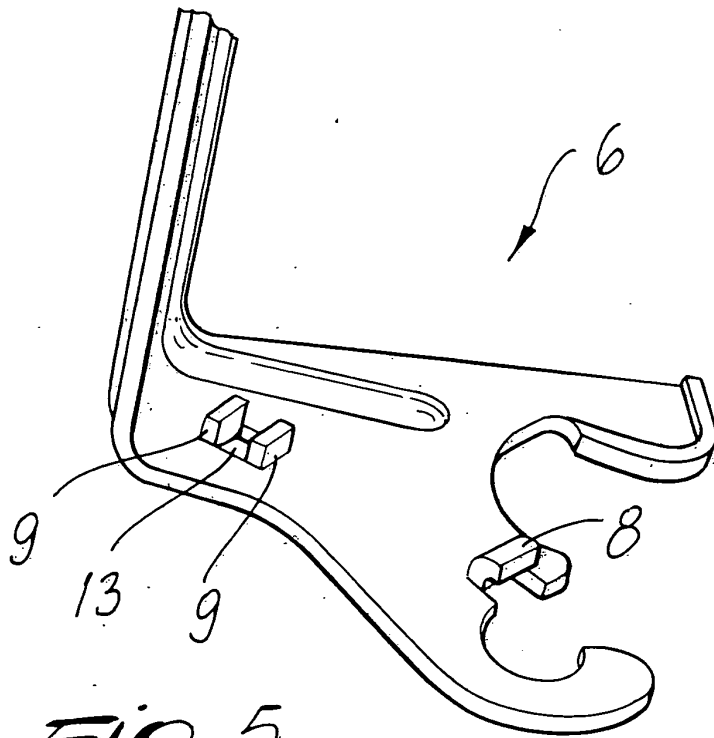
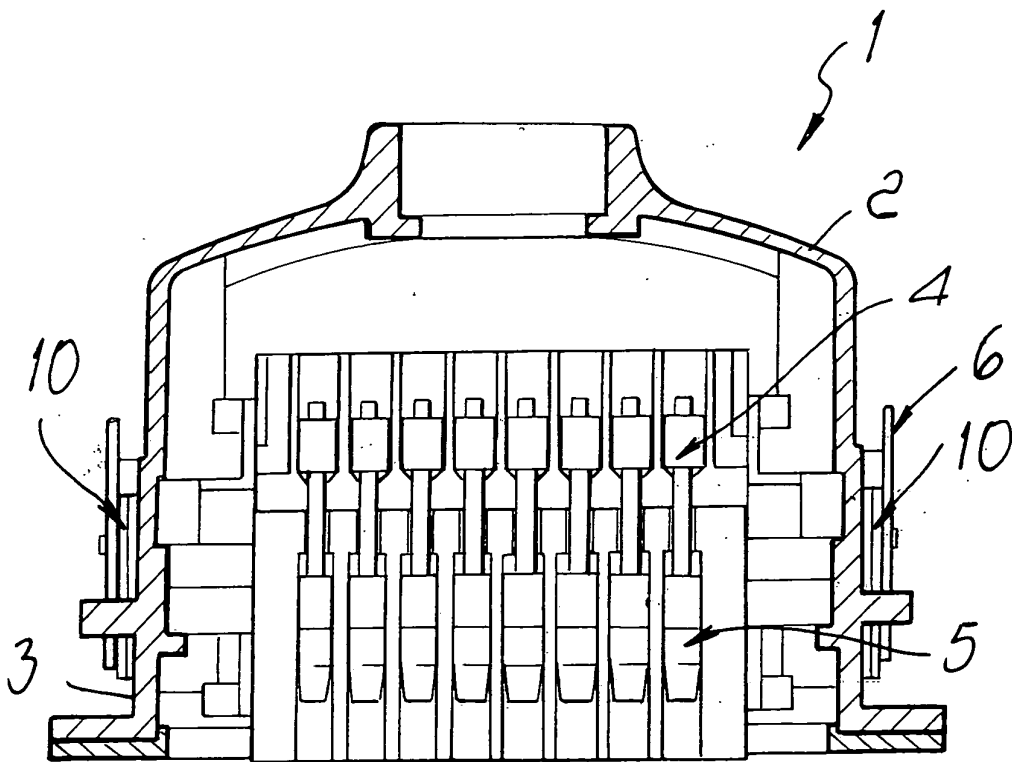
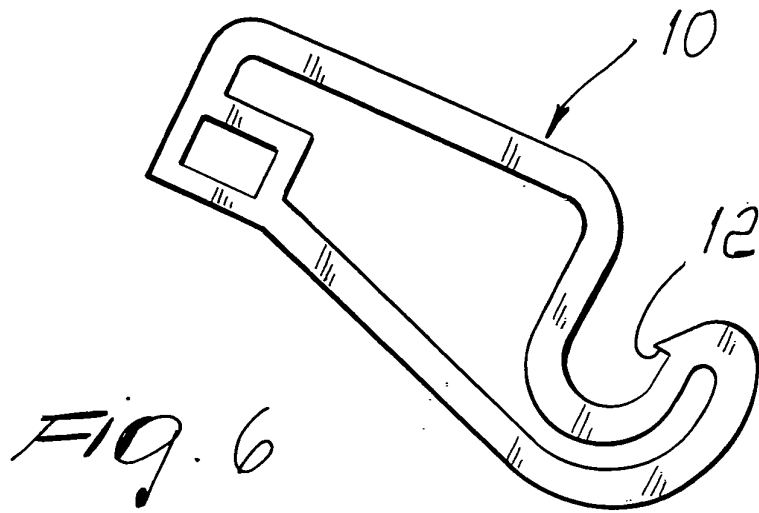


FIG. 5



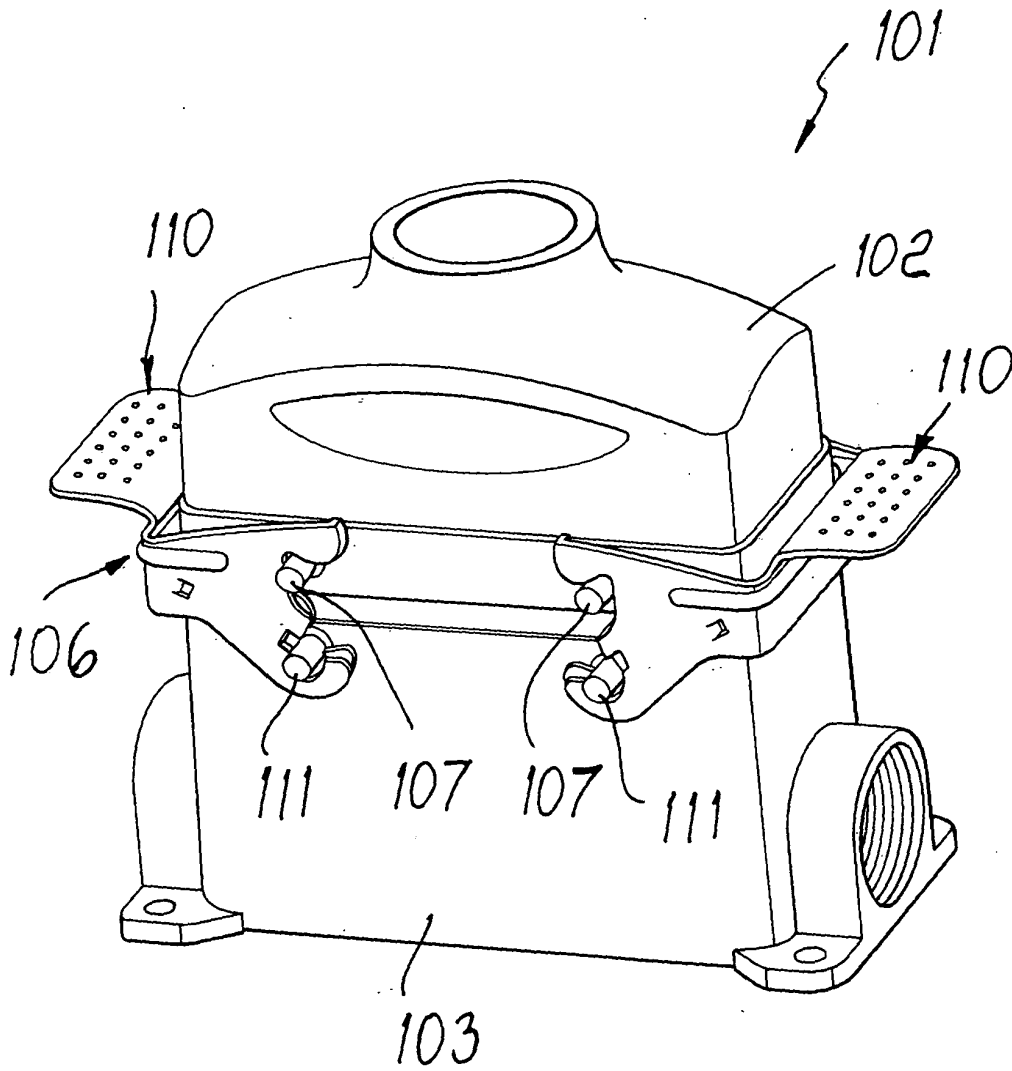


Fig. 8