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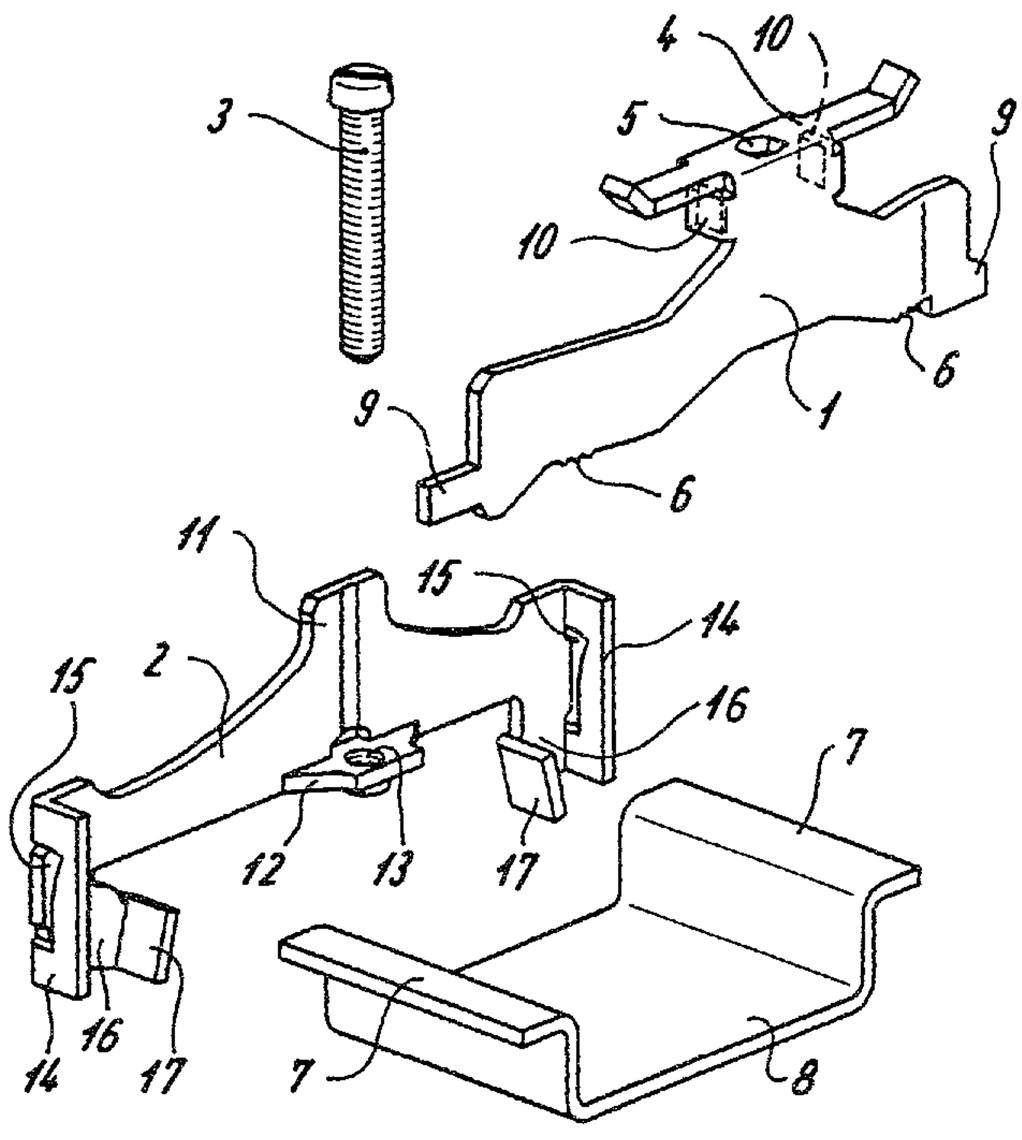
(54) **CONNECTEUR DE CORNIERE OMEGA**
(54) **WIRE CONNECTOR FOR TOP-HAT RAILS**



(57) In this wire connector for top-hat rails, a contact rail piece (1) that can be installed on the top-hat rail (7, 8) and a back-up plate (2) that can be moved relative to this by means of a clamping screw (3), and which incorporates hooked areas (16) that fit beneath the top-hat rail arms (7) are each configured so as to have one arm and are arranged in the area above the top-hat rail so as to be parallel to each other. A wire connector of this kind entails low material expenditures and provides for a low installed height.

ABSTRACT

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In this wire connector for top-hat rails, a contact rail piece (1) that can be installed on the top-hat rail (7, 8) and a back-up plate (2) that can be moved relative to this by means of a clamping screw (3), and which incorporates hooked areas (16) that fit beneath the top-hat rail arms (7) are each configured so as to have one arm and are arranged in the area above the top-hat rail so as to be parallel to each other. A wire connector of this kind entails low material expenditures and provides for a low installed height.

Figure 3.

The present invention relates to a wire connector for top-hat rails, with a contact rail piece that can be installed on the top-hat rail and a back-up plate that incorporates hooks that fit beneath the arms of the top-hat rail, said back-up plate being moveable relative to the contact rail piece.

Wire connectors of this kind are used, in particular, in terminal blocks for non-fused grounded connectors, where they serve to connect the ground wire and provide for its electrical connection to the top-hat rail that serves as a supporting rail and carries zero potential.

In the known wire connectors of this kind (DE-GM 77 36 440), the contact rail piece and the back-up plate are each configured as U-shaped, two-armed, bent sheet metal parts, in which connection in the area above the top-hat rail the contact rail piece lies essentially on top, above the back-up plate, the two arms of which enclose the lower area of the contact rail piece on both sides. The lower end areas of the back-up plate lock like hooks beneath the arms of the top-hat rail. The back-up plate can be moved relative to the contact rail piece by means of a clamping screw and can be clamped against the underside of the top-hat rail arms.

Although the known configuration permits reliable installation of the wire connectors on the top-hat rail, it entails relatively high material costs, and because of the fact that the contact rail and the back-up plate are arranged essentially one above the other it leads to a relatively large overall installed height, particularly when one considers the mechanical strength that is required.

For this reason, it is the task of the present invention to create a wire connector that is considerably lower and which entails lower material costs.

The invention is characterized in that the contact rail piece and the back-up plate are arranged in the area above the top-hat rail parallel to each other, each being of a one-arm configuration.

Because of the single-arm configuration of the contact rail piece and the back-up plate, the use of materials for this wire connector has been considerably reduced. Because of the fact that in the area above the top-hat rail the one-arm contact rail piece and the one-arm back-up plate are arranged parallel and adjacent to each other, the resulting installed height is extremely low.

In addition, a configuration of this kind can be made so stable mechanically that secure installation on the top-hat rail and the absorption of sufficiently high clamping forces can be ensured. According to preferred embodiments additional special configurations may be provided to further increase the stability of the system, both with regard to the absorption of force as well as with regard to the trouble-free clamping on the top-hat rail. Of particular interest here is the guidance of the one-arm back-up plate, and of the one-arm contact rail piece to each other, which can be moved in parallel, as well as the reinforcement of the

hook areas of the one-arm back-up plate which fit under the top-hat rail arms, by means of transverse angled tabs.

A preferred embodiment of the wire connector according to the present invention is described in greater detail below with reference to the drawings appended hereto. These drawings show the following:

Figure 1: an exploded view of a wire connector showing its individual components;

Figure 2: a perspective view of the wire connector as in figure 1;

Figure 3: the wire connector as in figure 2 installed on a top-hat rail.

The wire connector consists essentially of a contact rail piece 1, a back-up plate 2, and a clamping screw 3. The contact rail piece 1 is in the form of a one-arm bent sheet metal part and has at its upper end a small contact rail 4 that is formed in one piece with it and bent down, to which the ground wire can be connected by means of a tension clip connection or the like. Within the angled small connector rail there is a passage drilling 5 for the clamping screw 3. In addition, the contact rail piece 1 has slightly roughened contact zones 6 which, after installation, rest on the upper side of the arm 7 of the top-hat rail 8. The contact rail piece 1 also has guide tabs 9 that are

adjacent to the contact zones 6 and outside these. Finally, the contact rail piece 1 has further angled tabs 10 in the area of the upper end, beneath the small connector rail 4.

The back-up plate 2 is also configured as a one-arm bent sheet metal part which, as can be seen in particular in figure 2 and figure 3, is arranged parallel in the area above the top-hat rail 8, parallel and adjacent to the contact rail piece 1. An upper end piece 11 of the back-up plate 2 lies between the angled tabs 10 in the area of the upper end of the contact rail piece 1, where it is adequately guided. In the middle area of the back-up plate 2 there is a lower angled tab 12 in which there is a threaded hole 13 for the clamping screw 3. In both of the outer areas of the zone of the back-up plate 2 there are angled tabs 14 in which there are guide recesses 15 through which the guide tabs 9 of the contact rail piece 1 pass after the assembly of the back-up plate 2 and the rail 1, thereby effecting guidance of the two parts that can be moved in parallel to each other.

In addition, the back-up tab 2 has at its lower end hook areas 16 that fit beneath the arms 7 of the top-hat rail; in order to increase stability with regard to the absorption of clamping forces, these hook areas incorporate transverse angled tabs 17.

It is expedient that the angled tabs 10 be so arranged that they support the small contact rail 4 because the latter will be

subjected to pressure from a screw driver when a line is being connected.

CLAIMS:

1. A wire connector for top-hat rails, with a contact rail piece that can be installed on the top-hat rail and a back-up plate that incorporates hooks that fit beneath the arms of the top-hat rail, said back-up plate being moveable relative to the contact rail piece, characterized in that the contact rail piece and the back-up plate are arranged in the area above the top-hat rail parallel to each other, each being of a one-arm configuration.

2. A wire connector as defined in claim 1, characterized in that the contact rail piece and the back-up tab are guided so as to be moveable parallel to each other.

3. A wire connector as defined in claim 2 characterized in that the contact rail piece has on its outside guide tabs that are supported in guide recesses by angled tabs that are formed on the back-up plate.

4. A wire connector as defined in any one of claims 1 to 3, characterized in that the contact rail piece has at its top angled tabs that fit round the upper end of the back-up tab on both sides.

5. A wire connector as defined in any one of claims 1 to 4, characterized in that the back-up plate incorporates transverse angled tabs in its hook areas that fit under the top-hat rail arms.

6. A wire connector as defined in any one of claims 1 to 5, characterized in that the contact rail piece has at its upper end a contact rail for connecting the ground wire, said connector over a bent-down section.

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7. A wire connector as defined in claim 6, characterized in that the contact rail piece incorporates angled tabs at the top, these supporting the contact rail on its under side.

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PATENT AGENTS

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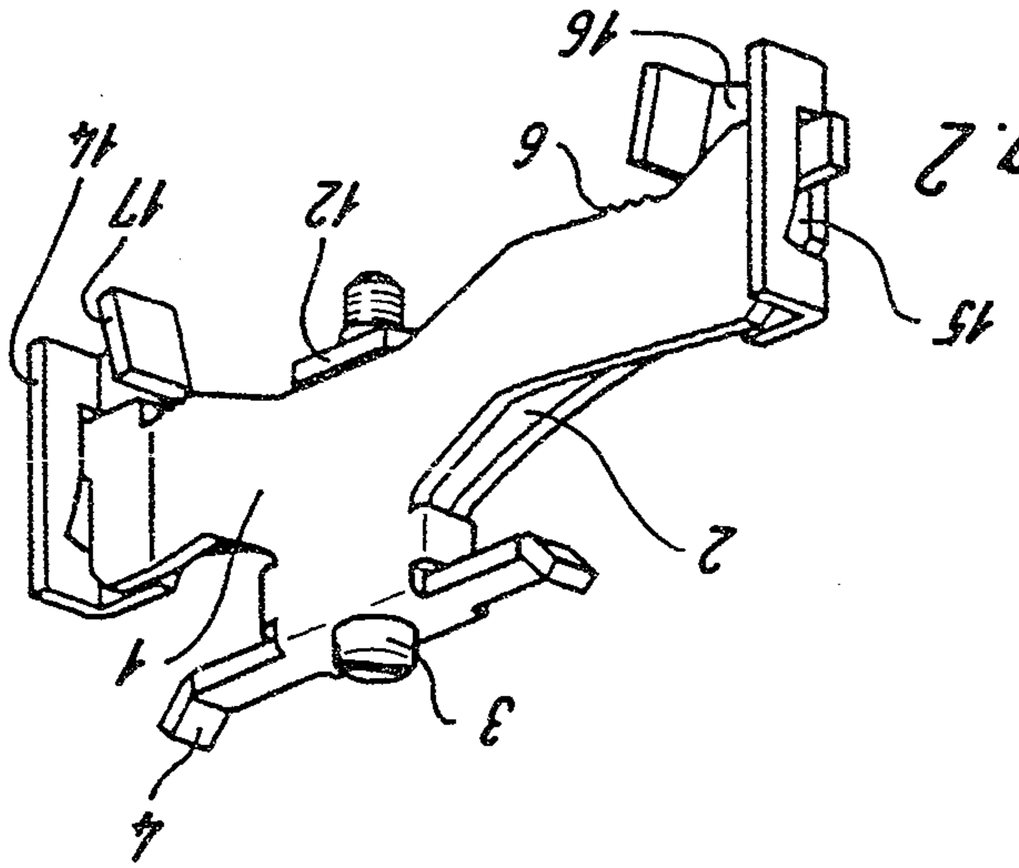

Fig. 2

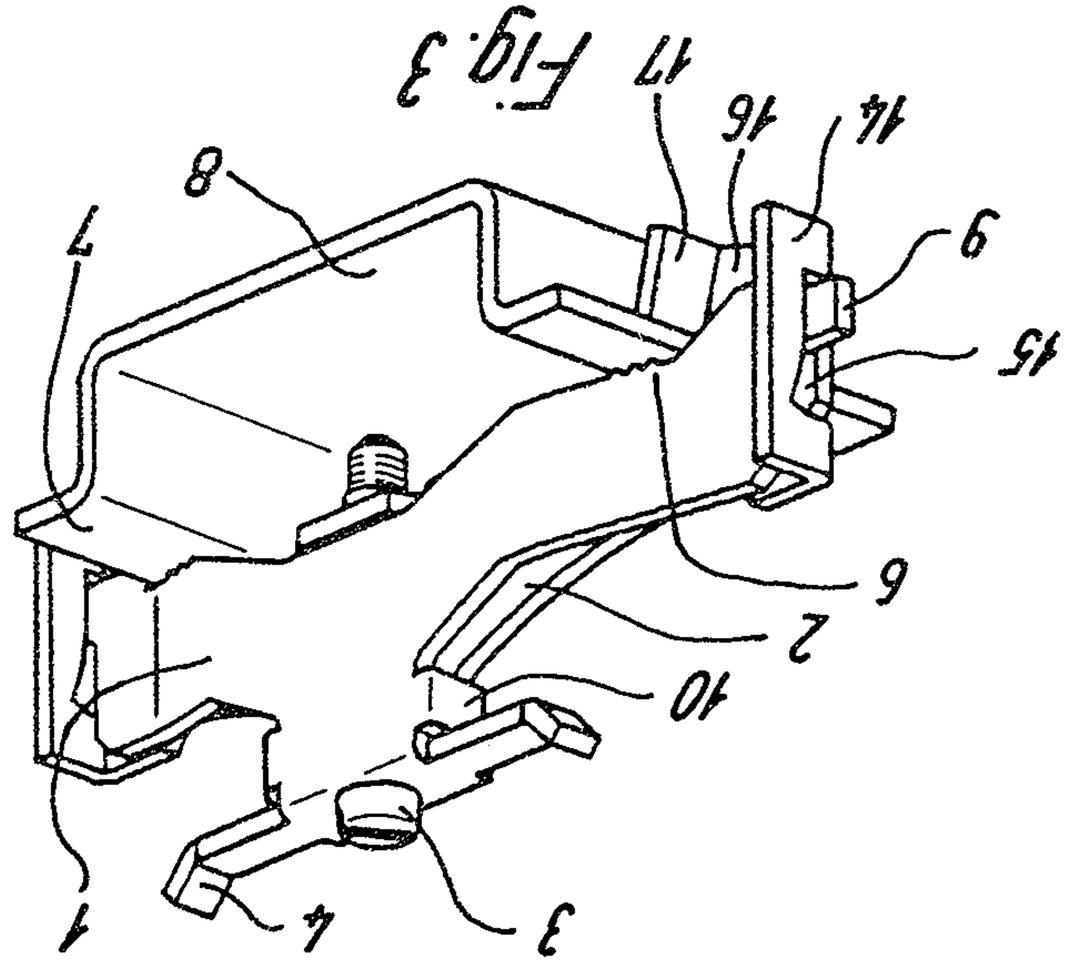

Fig. 3

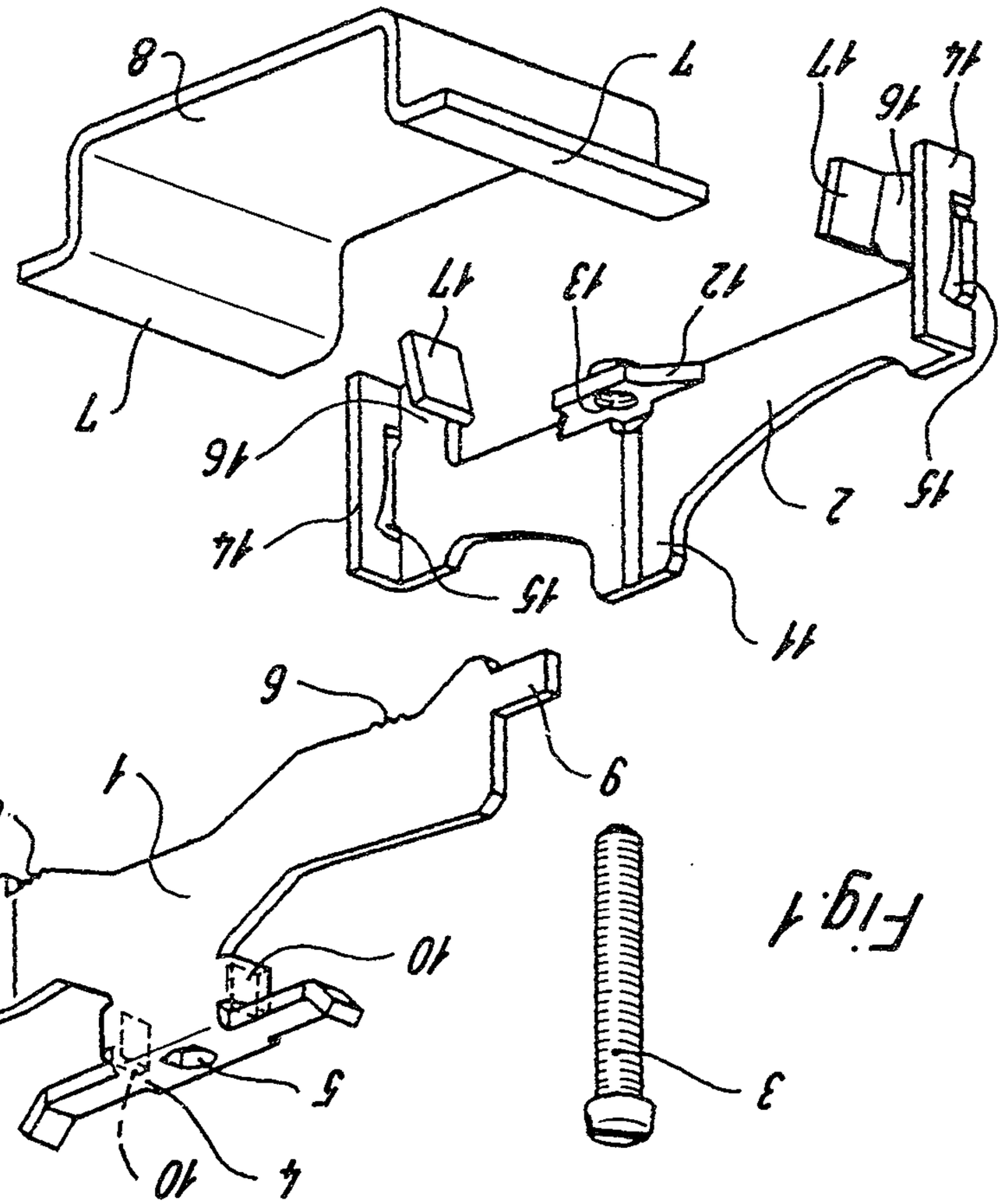

Fig. 1

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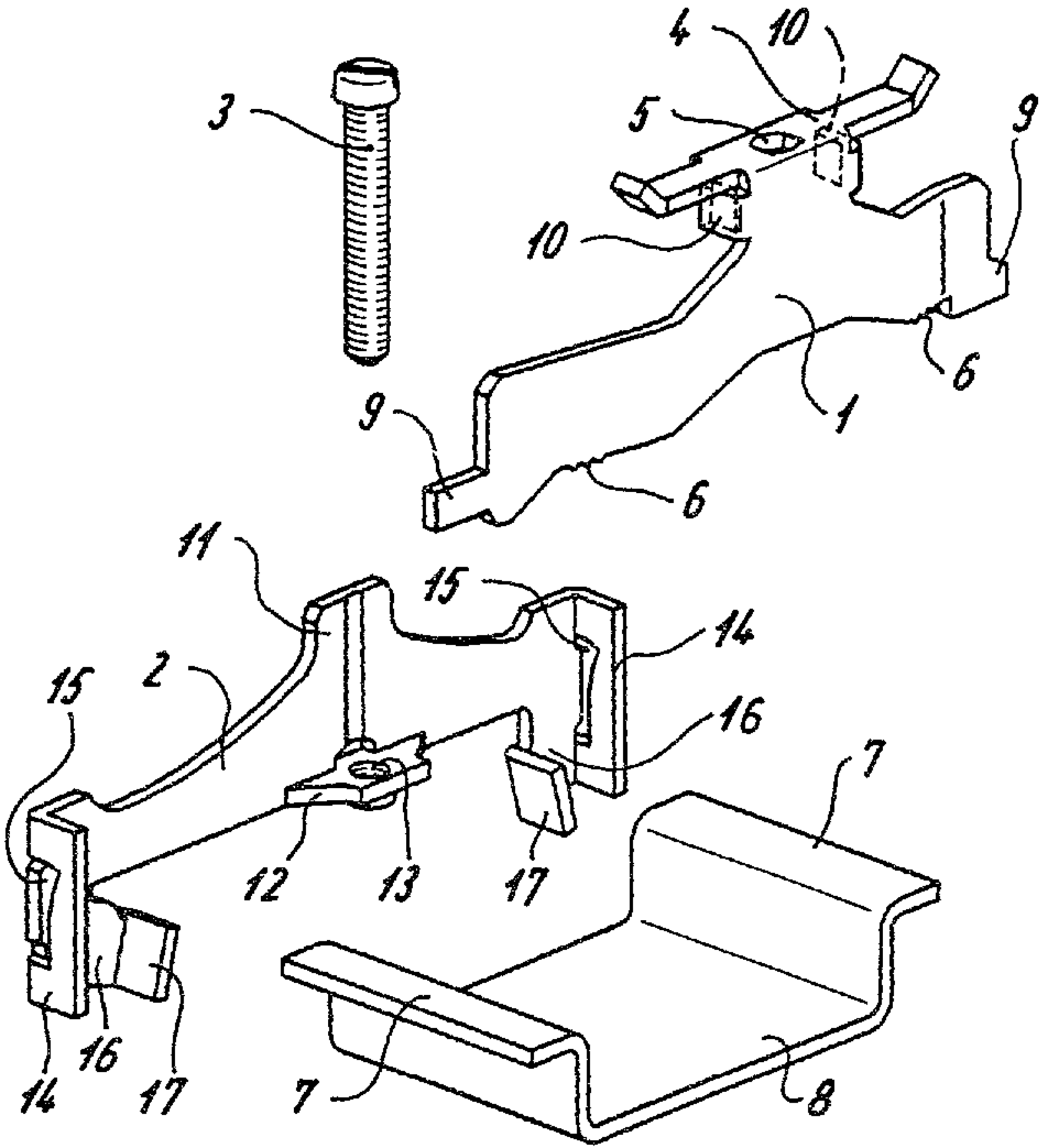
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