

(12) PATENT
(19) AUSTRALIAN PATENT OFFICE

(11) Application No. AU 199958627 B2
(10) Patent No. 741863

(54) Title
Electrically conductive pipe clip or cable clip

(51)⁷ International Patent Classification(s)
F16L 025/00 H01R 004/64

(21) Application No: **199958627**

(22) Application Date: **1999.09.13**

(87) WIPO No: **WO00/15996**

(30) Priority Data

(31) Number	(32) Date	(33) Country
29816332	1998.09.15	DE
99109808	1999.05.19	EP

(43) Publication Date : **2000.04.03**

(43) Publication Journal Date : **2000.05.25**

(44) Accepted Journal Date : **2001.12.13**

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(56) Related Art
US 3891291
EP 165691
US 3999825



PCT
WELTORGANISATION FÜR GEISTIGES EIGENTUM
Internationales Büro
INTERNATIONALE ANMELDUNG VERÖFFENTLICHT NACH DEM VERTRAG ÜBER DIE
INTERNATIONALE ZUSAMMENARBEIT AUF DEM GEBIET DES PATENTWESENS (PCT)

(51) Internationale Patentklassifikation ⁷ : F16L 25/00, H01R 4/64	A1	(11) Internationale Veröffentlichungsnummer: WO 00/15996 (43) Internationales Veröffentlichungsdatum: 23. März 2000 (23.03.00)
(21) Internationales Aktenzeichen: PCT/EP99/06748 (22) Internationales Anmeldedatum: 13. September 1999 (13.09.99) (30) Prioritätsdaten: 298 16 332.2 15. September 1998 (15.09.98) DE 99109808.8 19. Mai 1999 (19.05.99) EP (71) Anmelder (für alle Bestimmungsstaaten ausser US): KARIN DAUME MASCHINENTEILE GMBH & CO. KG [DE/DE]; Engenser Weg 1, D-30938 Burgwedel (DE). (72) Erfinder; und (75) Erfinder/Anmelder (nur für US): DAUME, Britta [DE/DE]; Engenser Weg 1, D-30938 Burgwedel (DE). (74) Anwalt: LEINE, Sigurd; Leine & Wagner, Burckhardtstrasse 1, D-30163 Hannover (DE).		
(81) Bestimmungsstaaten: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO Patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), eurasisches Patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), europäisches Patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI Patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Veröffentlicht Mit internationalem Recherchenbericht.		

(54) Title: ELECTRICALLY CONDUCTIVE PIPE CLIP OR CABLE CLIP

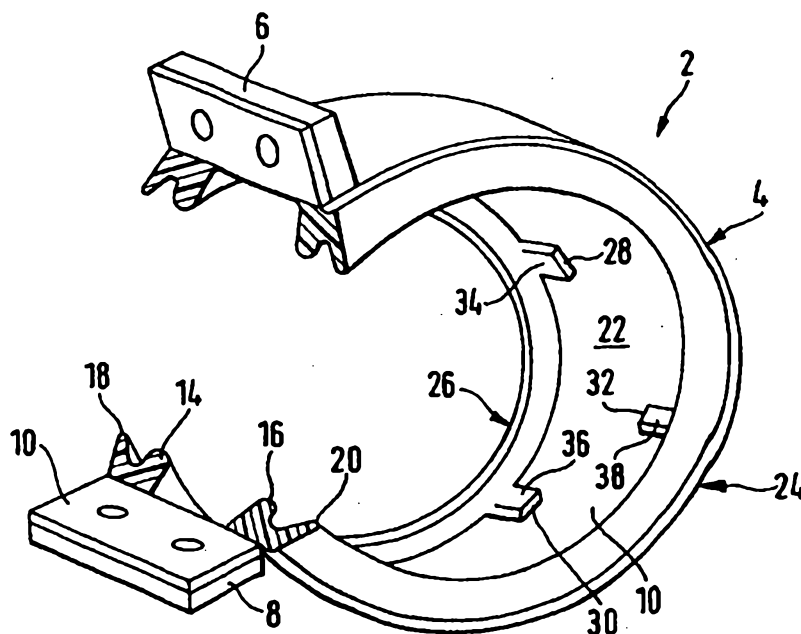
(54) Bezeichnung: ELEKTRISCH LEITENDE ROHR- ODER KABELSCHELLE

(57) Abstract

The invention relates to a device (2) for contacting a pipe or cable in an electrically conductive manner. The inventive device comprises a base body (4) for placing on the body (42) to be contacted, and has a contact element (40) which is held on a side of the base body (4) that, when assembled, faces the body to be contacted. Said contact element is provided for producing an electrically conductive connection with the body (42) to be contacted. According to the invention, adjusting means are provided for adjusting the position of the contact element (40) with regard to the edges of the base body (4).

(57) Zusammenfassung

Eine Einrichtung (2) zum elektrisch leitenden Kontaktieren eines Rohres oder Kabels weist einen Grundkörper (4) zur Anlage an dem zu kontaktierenden Körper (42) und ein an einer in Montageposition dem zu kontaktierenden Körper (42) zugewandten Seite des Grundkörpers (4) gehaltenes Kontaktelement (40) zur Herstellung einer elektrisch leitenden Verbindung mit dem zu kontaktierenden Körper (42) auf. Erfindungsgemäß sind Justiermittel zum Justieren des Kontaktelementes (40) in seiner Lage relativ zu Rändern des Grundkörpers (4) vorgesehen.



Title

Electrically conductive pipe clip or cable clip

Field of the Invention

- 5 The invention relates to a device of the type mentioned in the precharacterising clause of claim 1 for the electrically conductive contacting of an electrically conductive part of a body, in particular an elongated, for example substantially cylindrical body, for example a tube or a cable.

10 Background of the Invention

Such devices are used, for example, to connect a metal tube or a stripped outer conductor of a coaxial cable to an earth cable.

- 15 Known from EP 0 744 788 A1 is a device of the respective type, which comprises a basic member, designed as a clamp which can be clamped around the body to be contacted, to abut against a body to be contacted, and a contact member to produce an electrically conductive connection with the
- 20 body to be contacted, which is retained on side of the basic member facing the body to be contacted in the assembly position. With the known device, the basic member comprises a strip-shaped metal clamp, which is embedded in elastic material, with a contact face for the
- 25 contact element being left free on the side facing the body to be contacted in the assembly position. Moreover, the basic member comprises sealing lips, with which it abuts against the body to be contacted in sealing manner in the assembly position. The contact element, which
- 30 with the known device is formed by a strip made from copper braid, is attached manually by means of adhesive or a welded joint in punctiform manner to the contact face of the basic member. In plan view the contact element has a substantially rectangular design, in the
- 35 desired attachment position its longitudinal edges



running substantially parallel to adjacent edges of the basic member.

5 A disadvantage with the known device is the fact that, upon the attachment of the contact element, there is the danger of the contact element slipping and being fixed in a position on the basic member in which its longitudinal edges do not run parallel, but in an undesirable manner obliquely to the edges of the basic member, so that the
10 contact element protrudes laterally over the basic member. Upon the assembly of the device, in accordance with the prior art the required contact between the contact element and the body to be contacted can in some circumstances no longer be produced in the desired
15 manner. In this case the contact element has to be released from the basic member and then be attached thereto again in the desired attachment position. This subsequently work is time-consuming and thus costly.

20 Known from US-A-3,891,291 is a tube coupling with a contact element which serves to produce an electrically conductive coupling between the tubes to be connected with one another.

25 From EP-A-0 165 691 and DE-A-26 56 885 are known similar tube couplings.

From US-A-2,432,492 is known a clamp which at the same time serves to hold and to earth a tube or the like.

30

Summary of the Invention

The invention may provide a device for the electrically conductive contacting of a body, in particular an elongated, for example a substantially



cylindrical body, for example a tube or a cable, with a basic member, constructed as a clamp which can be tightened around the body to be contacted, to abut against the body to be contacted, the basic member comprising sealing lips, with which it tightly abuts against the body to be
 5 contacted in the assembly position, and with a contact element retained at one side of the basic member facing the body to be contacted in the assembly position, for producing an electrically conductive connection with the body to be contacted, characterised by adjustment devices for the contact element, which comprise at least one bearing edge or at least one bearing face inclined
 10 towards a retention face, at which the contact element is retained at the basic member, against which the contact element abuts in the attachment position, the or each bearing edge or bearing face being constructed in the axial direction inwardly from the sealing lips on a projection, in particular a web or a rib, which is constructed on the basic member.

15 The invention does not have the disadvantage of the known device, in which an attachment of the contact element in the desired attachment position on the basic member is facilitated.

The fundamental idea of the teaching according to the invention lies in providing adjustment devices by means of which the contact element can be
 20 adjusted upon attachment to the basic member in its position in relation to the edges of the basic member. In this manner, upon the attachment of the contact element to the basic member the contact member is reliably prevented from sliding and protruding over the edge of the basic member during the manufacture of the device according to the invention. This simplifies
 25 manufacture and saves time-consuming and thus costly subsequent work.

The device according to the invention has a robust structure and can be manufactured economically. Furthermore, it is versatile in use.

In accordance with the invention, the adjustment devices comprise at least one bearing edge or at least one bearing face inclined towards a retention
 30 face, at which the contact element is retained on the basic member, against which [bearing edge or face] the contact element abuts in the attachment position, the or each bearing edge or bearing face being constructed in the axial direction inwardly from the sealing lips on a projection, in particular on a web or a rib, which is constructed on the basic member. By the bearing edge or
 35 bearing face an adjustment of position of the contact element with



respect to the edges of the basic member is achieved and thus its attachment in the desired attachment position is facilitated. The shape, size and number of the bearing edges or bearing faces can be selected within wide limits.

Fundamentally it is sufficient if the adjustment devices comprise just one bearing edge or bearing face and the contact element thus only abuts against the bearing edge or bearing face with one region of its edge. However, an advantageous further development specifies that at least two bearing edges or faces spaced with respect to one another are provided, against which the contact element abuts with regions of its edge distant from one another.

With a contact element which is substantially rectangular in plan view, two bearing edges which are substantially parallel to one another and spaced with respect to one another, for example, can be provided, in the attachment position the contact element abutting against one of the bearing edges in each case with opposite regions of its edge. However, bearing edges disposed at an angle with respect to one another, for example bearing edges disposed at right angles to one another, can also be provided. Then the contact element abuts the bearing edges with mutually adjacent regions of its edge. However, four bearing edges may also be provided, against which the contact element abuts with opposite regions of its edge.

A particularly advantageous further development of the teaching according to the invention specifies that the adjustment devices comprise centring means for centring the contact element between opposite edges of the basic



member. In this manner the contact element is centred between edges of the basic member and the adjustment of the position of the contact element is further simplified.

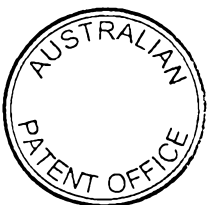
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A further development of the above-mentioned embodiment specifies that the centring means comprise bearing edges spaced from one another, which run substantially parallel to one another and to adjacent edges of the basic member.

10 In this embodiment, a contact element which is substantially rectangular in plan view is retained by its edges parallel to the edges of the basic member and centred thereby.

15 Another further development specifies that the centring means comprise bearing faces spaced from one another and inclined with respect to one another, which extend in the longitudinal and circumferential direction of the basic member and against which the attachment element abuts in the attachment position. In this embodiment too a
20 centring of the contact element is achieved in the desired manner.

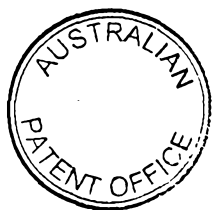
A further development of the above-mentioned embodiment
25 specifies that the bearing faces are inclined away from one another. In this manner the bearing faces form a depression to house the contact element. However, the bearing faces may also be inclined towards one another, as another embodiment specifies. In this embodiment the
30 bearing faces may engage over opposite edges of the contact element, for example.



Fundamentally, the or each web or the or each rib can be formed by a separate component connected to the basic member. However, an advantageous further development specifies that the basic member comprises a part made from elastic material, preferably an elastomer, on which the or each web or the or each rib is formed. The or each web or the or each rib is consequently constructed in one piece with a part of the basic member. This simplifies the manufacture of the device according to the invention. If two bearing edges spaced from one another are provided in this embodiment, with an appropriate choice of the distance between the bearing edges the contact element can be clamped, with elastic deformation of the bearing edges, between said bearing edges, so that it is retained in elastically resilient manner. In this manner additional attachment means for retaining the contact element, for example adhesive or a welded joint, are no longer required.

The material of the basic member can be selected within wide boundaries. The basic member can also be made from several materials. One embodiment specifies that the basic member comprises a strip-shaped metal part. By the strip-shaped metal part the stability of the basic member is increased. In the above-mentioned embodiment, the recess can be formed on the side of the metal part facing the body to be contacted in the assembly position. Since the recess can be simply pressed into the metal part, which can be made from sheet metal, for example, manufacture is further simplified with this embodiment.

However, a further development of the invention with the part made from elastic material specifies that the metal



part is coated at least partially with the elastic material, in particular on its side facing the body to be contacted in the assembly position, or is embedded into the elastic material, with a contact region for the contact element being left free at the side of the metal part facing the body to be contacted in the assembly position. The elastic material can be provided in order to configure the device according to the invention in a more optically attractive manner or to protect the metal part from environmental influences or to electrically insulate the metal part.

The shape and size of the contact element can be chosen within wide boundaries. The contact element is expediently formed by a flat stranded wire or a flat strip or a braided strip made of metal. Such contact elements can be produced simply and economically.

A further development which is advantageous in particular for the contacting of tubes specifies that the basic member is constructed in such a manner that in the assembly position it engages around the body to be contacted in the manner of a ring or a sleeve. In this embodiment the basic member is securely retained on the body to be contacted.

Fundamentally, the basic member can have a rigid construction. However, it may also have a flexible construction. This facilitates assembly.

The basic member can be constructed in several parts. With a device according to the invention which is provided to contact a tube, the basic member can consist,



for example, of several parts following one another in the circumferential direction of the tube to be contacted, for example of two semi-annular parts. However, the basic member expediently has a one-piece construction open in the circumferential direction and at its free ends comprises angled or bent brackets, which can be connected to one another in the assembly position, preferably by means of a screw connection or a clamping device. In this embodiment, the assembly of the device according to the invention is simple by virtue of the single-part construction of the basic member.

In embodiments which comprises several webs provided with bearing edges or faces, it is fundamentally sufficient if all webs extend from one edge of the basic member towards the other edge. However, an advantageous further development specifies that in each case at least one web extends from the region of two opposite edges of the basic member towards the other edge in such a manner that the contact element abuts against the webs in the attachment position with two opposite regions of its edge. In this embodiment the contact element is centred between the webs.

Another further development of the embodiments with the webs specifies that webs following one another in the longitudinal and respectively the circumferential direction of the basic member are disposed on different lines running in the longitudinal direction of the basic member and different circumferential lines. In this embodiment, webs following one another in the longitudinal and circumferential direction of the basic



member retain the contact element at opposite regions of its edge, so that centring is also achieved.

A further development of the above-mentioned embodiment specifies that at least two webs are provided which are disposed on a line running at right angles to the longitudinal direction of the basic member or on a line running in the axial direction. In this embodiment the contact element abuts the webs with regions of its edge lying opposite at right angles to its longitudinal direction, so that centring is improved even more.

An extremely advantageous further development specifies that at least two webs, against which the contact element abuts in the attachment position, comprise undercut portions in such a manner that at the respective webs are formed bearing faces inclined towards one another, with which the webs engage over opposite regions of the edge of the contact element in the attachment position. With this embodiment, the contact element is retained with form fit by the bearing faces of the webs, so that additional retention means, for example adhesive, are not required. This simplifies manufacture and lowers costs.

Finally, a further development of the embodiments with the metal part specifies that the metal part comprises at least one opening, preferably on either side of the contact element at least one opening, through which the elastic material extends in such a manner that the elastic material on the side of the metal part facing towards the contact element is connected with the elastic material on the side of the metal part facing away from the contact element. In this manner elastic material on



the side of the metal part facing towards the contact element is prevented from lifting from the metal part. Such a lifting could result in an impairment of the electric contact between the contact element and the metal part, in particular if the contact element is exclusively retained on the metal part by
5 the elastic material.

Brief Description of the Drawings

The invention is explained in further detail below by
10 means of the attached drawings, in which exemplified embodiments are represented.

Figure 1 shows in a diagrammatical perspective view a first exemplified embodiment of the device according to the invention in the form of a
15 clamp,

Figure 2 shows a view of the radial inner face of the device shown in Figure 1 without the contact
20 element,

Figure 3 shows in the same representation as Figure 2 the device shown in Figure 2 with a contact
25 element fixed to the basic member,

Figure 4 shows a section along a line IV-IV through the device shown in Figure 3 in the assembly
position,

30 Figure 5 shows in a diagrammatical perspective view the device shown in Figure 1 in the assembly position,

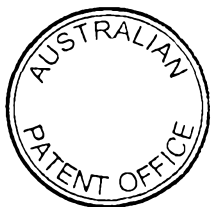


Figure 6 shows in the same representation as Figure 3 a second exemplified embodiment of the device according to the invention,

5 Figure 7 shows in the same representation as Figure 3 a third exemplified embodiment of the device according to the invention,

10 Figure 8 shows in the same representation as Figure 3 a fourth exemplified embodiment of the device according to the invention,

15 Figure 9 shows in the same representation as Figure 3 a fifth exemplified embodiment of the device according to the invention without the contact element,

Figure 10 shows a section along a line XII-XII in Figure 9,

20 Figure 11 shows in the same representation as Figure 9 the device shown in Figure 9 with a contact element retained on the basic member,

25 Figure 12 shows a section along a line XIV-XIV in Figure 11 and

30 Figure 13 shows in the same representation as Figure 10 a sixth exemplified embodiment of the device according to the invention.



Detailed Description of the Preferred Embodiments

In the figures of the drawings, identical or corresponding components are provided with the same reference numbers.

5 Represented in Figure 1 is a first exemplified embodiment of a device 2 according to the invention, which comprises a flexible basic member 4 constructed as a clamp, which in this exemplified embodiment has a single-piece construction open in the circumferential direction and
10 comprises brackets 6, 8 angled at its free ends, which in the assembly position can be connected to one another in a manner to be described in further detail below.

The basic member 4 comprises a strip-shaped metal part 10
15 as well as a part 12 made from elastic material, in the exemplified embodiment an elastomer, into which the metal part 10 is embedded by its axial edges and thus is connected with the part 12 made from elastic material (Figure 4).

20 At the side facing a body to be contacted in the assembly position, the part 12 made from elastic material forms sealing lips 14, 16 as well as further sealing lips 18, 20 in the axial direction outwardly from the sealing lips 14, 16. In the assembly position the basic member 4 with the sealing lips 14, 16 and the further sealing lips 18, 20 abuts in sealing manner against an outer face of the
25 body to be contacted, so that a space formed in the assembly position between the body to be contacted and
30 the basic member 4 is sealed to prevent penetration of air and/or moisture.



Moreover, the device 2 also comprises a contact element, not represented in Figure 1, for producing an electrically conductive connection with the body to be contacted, which in the assembly position is retained, for example by means of adhesive, at the side of the basic member facing the body to be contacted, thus in the exemplified embodiment shown in Figure 1 at a radial inner face 22 of the basic member 4, which forms a retention face.

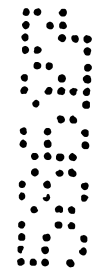
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The device 2 also comprises adjustment devices for the contact element, which in this exemplified embodiment are formed by bearing edges 28, 30, 32, which are formed at webs 34, 36, 38, which are formed on the sealing lips 14, 16 of the part 12 made from elastic material.

The webs 34, 36 extend from the axial edge 26 of the basic member 4 inwardly in the axial direction, whereas the web 38 extends in the axial direction inwardly from the opposite axial edge 26, the webs 34, 36 being disposed on a circumferential line 33 and the web 38 being disposed on a circumferential line 35 axially displaced from the circumferential line 33.

Figure 2 shows a view of the radial inner face 22 of the device 2.

Figure 3 shows the device 2 with a contact element 40 retained thereon, which in this exemplified embodiment is made from electrically conductive graphite and in the top view has a substantially rectangular construction. The contact element 40 is connected by adhesive to the radial



inner face 22 of the basic member 4 and is retained thereon in this manner.

From Figure 3 it can be seen that, in the attachment position represented there, the contact element 40 abuts, by opposite regions of its edge, the bearing edges 28, 30, 32 of the webs 34, 36, 38, which form centring means for centring the contact element 40 between the opposite axial edges 24, 26 of the basic member 4. By the bearing edges 28, 30, 32 it is ensured that the contact element 40 is retained in the desired position, in which its longitudinal sides run substantially parallel to the axial edges 24, 26 of the basic member, and does not laterally project. In this manner time-consuming and thus costly subsequent work is avoided, which would then be necessary if the contact element 40 were not in the desired attachment position.

Figure 4 shows a section along a line IV-IV in Figure 3, with the device 2 being represented in the assembly position in which the basic member 4 with the sealing lips 14, 16 and the further sealing lips 18, 20 abuts a body to be contacted, in the arrangement shown in Figure 4 a coaxial cable 42. For contacting a stripped outer conductor 44 of the coaxial cable 42 in a contact region 46, the contact element 40 projects in the radial direction to the coaxial cable 42 to the extent that in the case of sealing lips 14, 16 or respectively 18, 20 abutting a casing 48 of the coaxial cable 42, said contact element abuts the stripped outer conductor 44 standing back in the radial direction and thus produces an electrically conductive connection thereto.



From Figure 4 it can be seen that the contact element 40 is tightly retained at opposite regions of its edge by the webs 34, 38 and thus is centred between the axial edges 24, 26 of the basic member 4 in the desired attachment position.

Figure 5 shows the device 2 shown in Figure 1 in the assembly position, in which the basic member 4 encompasses the coaxial cable 42 to be contacted in the manner of a sleeve. To attach the device 2 to the coaxial cable 42, the basic member 4 constructed as a clamp is tightened around the coaxial cable 42 to be contacted by means of metal screws 50, 52, which extend through through-holes formed in the bracket 8 and engage in threaded holes formed in the bracket 6. Upon clamping the basic member 4, the sealing lips 14, 16 and the further sealing lips 18, 20 tightly come to abut the casing 48 of the coaxial cable 42, so that they seal the space formed in the assembly position between the coaxial cable 42 and the basic member to prevent penetration of air and/or moisture.

Upon clamping the basic member 4, the contact element 40 also comes to abut the stripped outer conductor 44, so that an electrically conductive connection is produced between the outer conductor 44 and the metal part 10 of the basic member 4 via the contact element 40. Since the metal part 10 extends right into the brackets 6, 8, an electrically conductive connection to a conductor, for example an earth cable 54 shown diagrammatically in Figure 5, can be produced by means of the screws 50, 52. For this the earth cable 54 can be connected to the screw 50 by means of a lug. Thus an electrically conductive



connection can be produced between the earth cable 54 and the outer conductor 44 of the coaxial cable 42 in the desired manner, so that this outer conductor 44 is earthed.

5

Represented in Figure 6 is a second exemplified embodiment of the device 2 according to the invention, which differs from the exemplified embodiment shown in Figures 1 to 5 in that the bearing edges 28, 32 are
 10 formed on ribs 56, 58 which run substantially parallel to the adjacent axial edges 24, 26 of the basic member 4. To form the ribs 56, 58, the part 12 made from elastic material may be pulled around, for example, the axial edges 24, 26 of the basic member 4. It can be seen that
 15 the contact element 40 abuts the ribs 56, 58 over its entire length with opposite regions of its edge and thus is centred between the axial edges 24, 26 of the basic member 4.

20 Represented in Figure 7 is a third exemplified embodiment of the device 2 according to the invention, which differs from the exemplified embodiment shown in Figure 6 in that in the region of the bracket 6 at the radial inner face 22 of the basic member 4 there is formed a rib 60
 25 substantially U-shaped in plan view, whose bearing edges 62, 64, 66 form faces facing the contact element 40, against which the contact element 40 abuts in the attachment position and thus is centred between the opposite axial edges 24, 26 and opposite circumferential
 30 edges 68, 70 of the basic member 4.

Represented in Figure 8 is a fourth exemplified embodiment of the device 2 according to the invention,



which differs from the exemplified embodiment shown in Figure 6 in that just one rib 56 with a bearing edge 28 is provided, against which the contact element abuts. To fix its position, the contact element 40 can be connected to the radial inner face of the basic member 4 at a region of its edge faced away from the rib 56 by means of a linear glued joint, for example, which in Figure 10 is symbolised by a broken line 77. Instead of the linear glued joint, one or more punctiform glued joints may also be provided.

Represented in Figure 9 is a fifth exemplified embodiment of the device 2 according to the invention, which differs from the exemplified embodiment shown in Figure 3 in that two webs 78, 80 are provided, of which the web 80 extends from the axial edge 26 of the basic member 4 towards the opposite axial edge 24 and the web 78 extends from the axial edge 24 towards the opposite edge 26. The webs 78, 80 are disposed substantially on a line running in the axial direction of the basic member 4.

From Figure 10 it can be seen that the webs 78, 80 comprise undercut portions 81, 82, in such a manner that at the webs 78, 80 are formed bearing faces 84, 86 sloping towards one another, with which the webs 78, 80 in the attachment position engage over opposite regions 88, 90 of the edge of the contact element 40, as can be seen from Figures 11 and 12. To attach the contact element 40, which in this exemplified embodiment is formed by a flat, flexible braided strip made from metal, to the basic member 4, said contact element is pushed by its edges 88, 90, possibly with elastic deformation of the webs 78, 80, into the region of the undercut portions



81, 82, whereby the webs 78, 80 engage over the edges 88, 90 of the contact element 40 and the bearing faces 84, 86 come to abut against the contact element 40. In this manner the contact element 40 is securely retained on the
5 basic member 4 without additional retention means, for example adhesive, and is centred between the axial edges 24, 26 of the basic member 4.

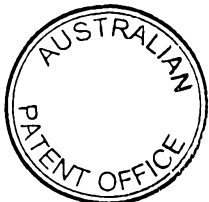
Represented in Figure 13 is a sixth exemplified
10 embodiment of a device 2 according to the invention, which substantially differs from the exemplified embodiment shown in Figure 12 in that the metal part 10 comprises, on either side of the contact element 40 not shown in Figure 15, openings 88, 90, through which the
15 elastic material of the part 12 extends in such a manner that the elastic material on the side of the metal part 10 facing the contact element 40 is connected to the elastic material on the side of the metal part 10 facing away from the contact element 40. In this manner the
20 elastic material is prevented from lifting on the side facing the contact element 40. Thus, even if the contact element 40 is retained on the metal part 10 without additional retention means, an electrically conductive connection is always guaranteed between the metal part 10
25 and the contact element 40.

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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. A device for the electrically conductive contacting of a body, in particular an elongated, for example a substantially cylindrical body, for example a tube or a cable, with a basic member, constructed as a clamp
 5 which can be tightened around the body to be contacted, to abut against the body to be contacted, the basic member comprising sealing lips, with which it tightly abuts against the body to be contacted in the assembly position, and with a contact element retained at one side of the basic member facing the body to be contacted in the assembly position, for producing an electrically
 10 conductive connection with the body to be contacted, characterised by adjustment devices for the contact element, which comprise at least one bearing edge or at least one bearing face inclined towards a retention face, at which the contact element is retained at the basic member, against which the contact element abuts in the attachment position, the or each bearing edge or
 15 bearing face being constructed in the axial direction inwardly from the sealing lips on a projection, in particular a web or a rib, which is constructed on the basic member.
2. A device according to claim 1, characterised in that at least two bearing edges or bearing faces spaced with respect to each other are provided, against
 20 which the contact element abuts with regions of its edge distant from one another.
3. A device according to claim 1 or claim 2, characterised in that the adjustment devices comprise centring means for centring the contact element between opposite edges of the basic member.
- 25 4. A device according to claim 3, characterised in that the centring means comprise bearing edges spaced from one another, which run substantially parallel to one another and to adjacent edges of the basic member.
5. A device according to claim 3, characterised in that the centring means comprise bearing faces spaced from one another and inclined with respect to
 30 one another, which extend in the longitudinal direction and respectively in the circumferential direction of the basic member and against which the contact element abuts in the attachment position.
6. A device according to claim 5, characterised in that the bearing faces are inclined away from one another or in that the bearing faces are inclined
 35 towards one another.



7. A device according to claim 1, characterised in that the basic member comprises a part made from elastic material, preferably an elastomer, on which the or each web or respectively the or each rib is formed.

8. A device according to claim 1, characterised in that the basic member
5 comprises a strip-shaped metal part.

9. A device according to claim 7 and claim 8, characterised in that the metal part is coated at least partially with the elastic material, in particular on its side facing away from the body to be contacted in the assembly position, or is embedded in the elastic material, a contact region for the contact
10 element being left free at the side of the metal part facing the body to be contacted in the assembly position.

10. A device according to any one of the preceding claims, characterised in that the contact element is formed by a flat stranded wire or a flat strip or a braided strip made from metal.

11. A device according to any one of the preceding claims, characterised in
15 that the basic member is constructed in such a manner that in the assembly position it engages around the body to be contacted in particular in the manner of a ring or a sleeve.

12. A device according to any one of the preceding claims, characterised in
20 that the basic member has a flexible construction.

13. A device according to any one of the preceding claims, characterised in that the basic member has a one-piece construction open in the circumferential direction and at its free ends comprises angled or bent brackets, which in the assembly position can be connected to one another,
25 preferably by means of a screw device or a clamping device.

14. A device according to claim 1, characterised in that at least one web extends from the region of two opposite edges for the basic member towards the other edge in such a manner that the contact element abuts the webs in the attachment position with two opposite regions of its edge.

15. A device according to claim 1, characterised in that webs following one
30 another in the longitudinal direction and respectively circumferential direction of the basic member are disposed on different lines extending in the longitudinal direction of the basic member and different circumferential lines.

16. A device according to claim 14 or claim 15, characterised in that at
35 least two webs are provided which are disposed on a line extending at right



angles to the longitudinal direction of the basic member and respectively on a line extending in the axial direction.

17. A device according to any one of claims 14 to 16, characterised in that at least two webs against which the contact element abuts in the attachment
5 position with opposite regions of its edge, comprise undercut portions in such a manner that at the respective webs bearing faces inclined towards one another are formed, with which the webs engage over the opposite regions of the edge of the contact element in the attachment position.
18. A device according to any one of claims 8 to 17, characterised in that
10 the metal part comprises at least one opening, preferably at least one opening on either side of the contact element, through which the elastic material extends in such a manner that the elastic material on the side of the metal part facing the contact element is connected to the elastic material on the side of the metal part facing away from the contact element.
19. A device for the electrically conductive contacting of a body
15 substantially as described herein with reference to the drawings.

Dated this tenth day of October 2001

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Patent Attorneys for the Applicant:

F B RICE & CO



FIG.1

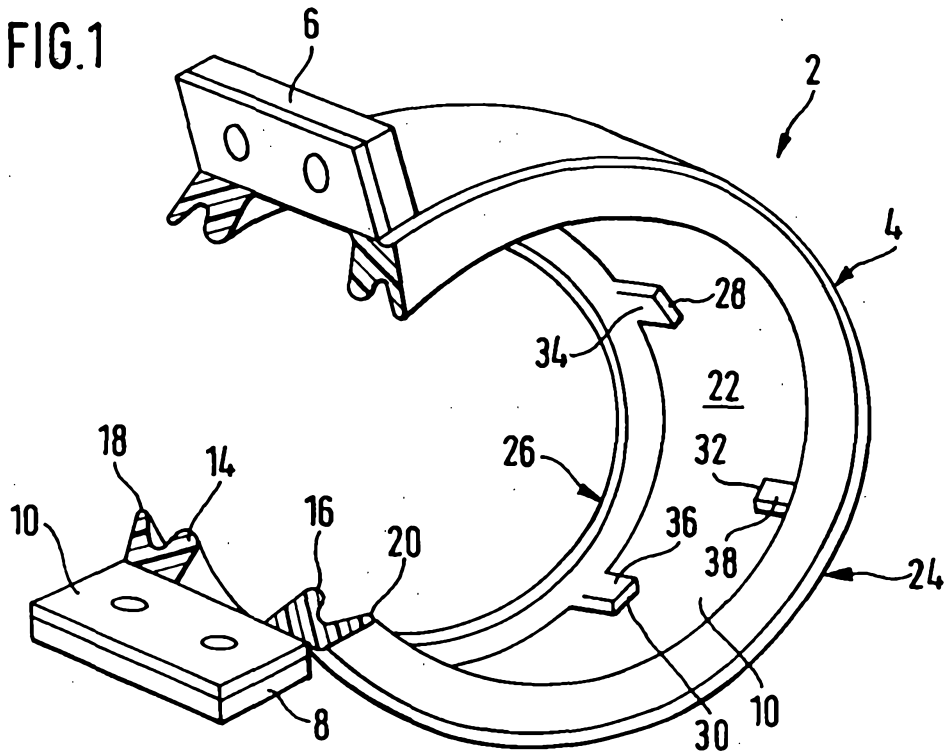


FIG.2

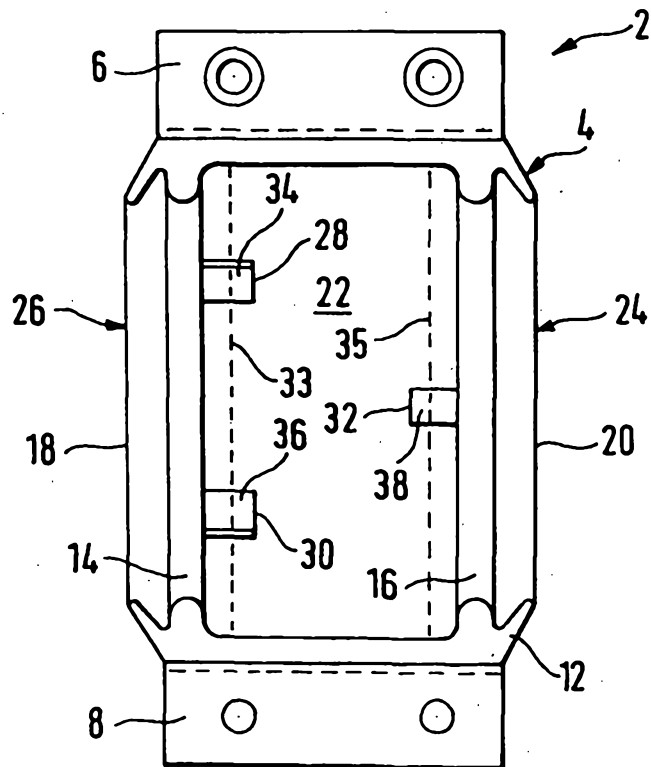


FIG. 3

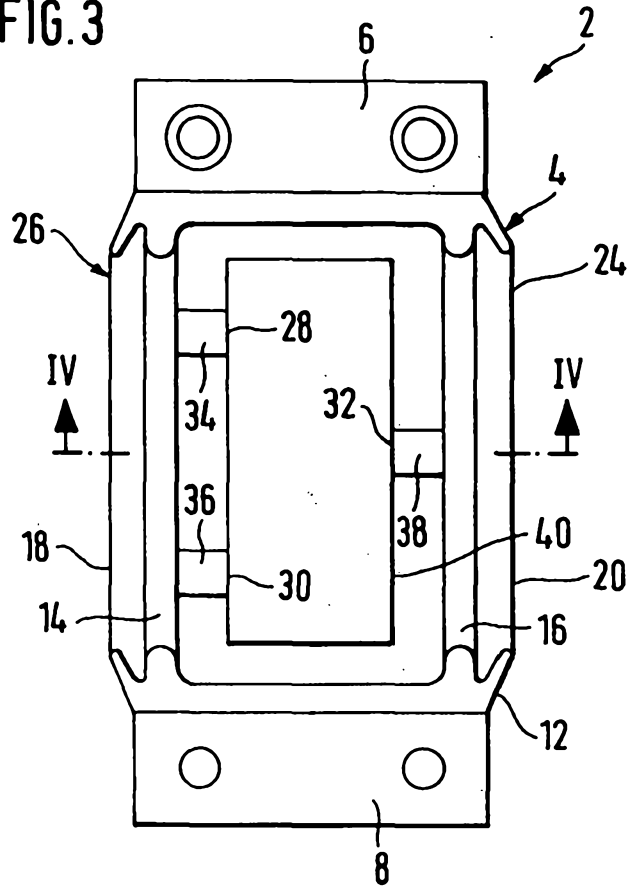
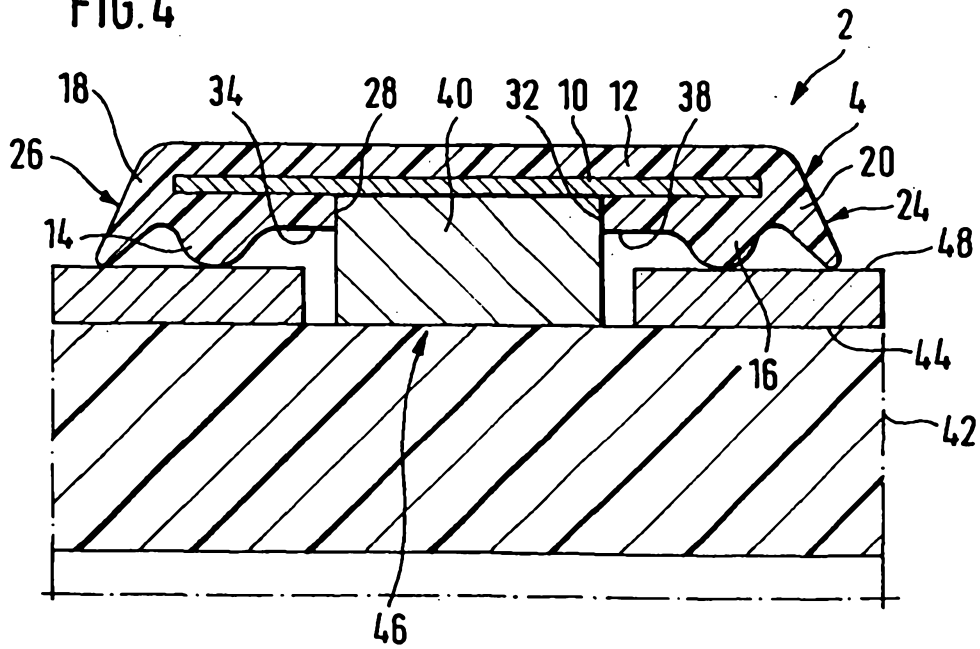
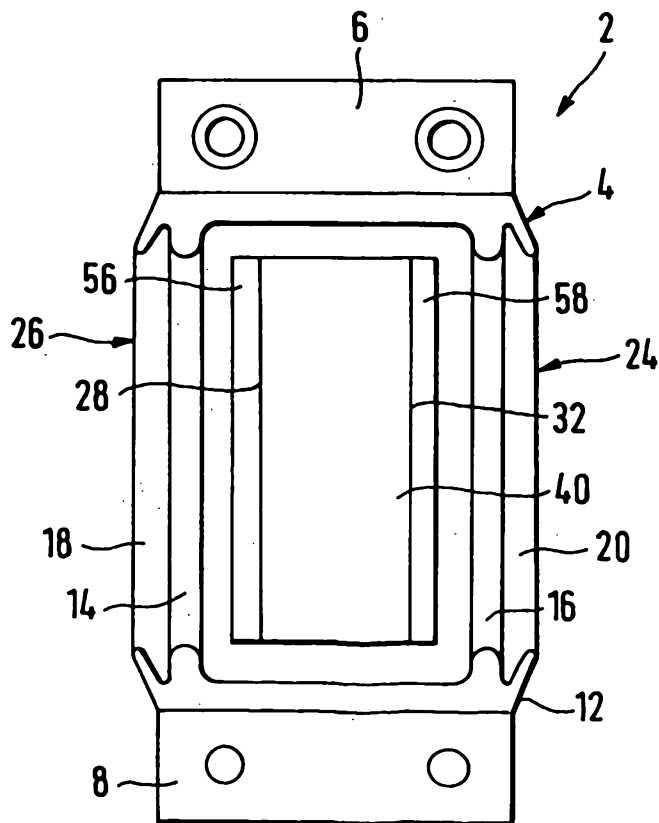
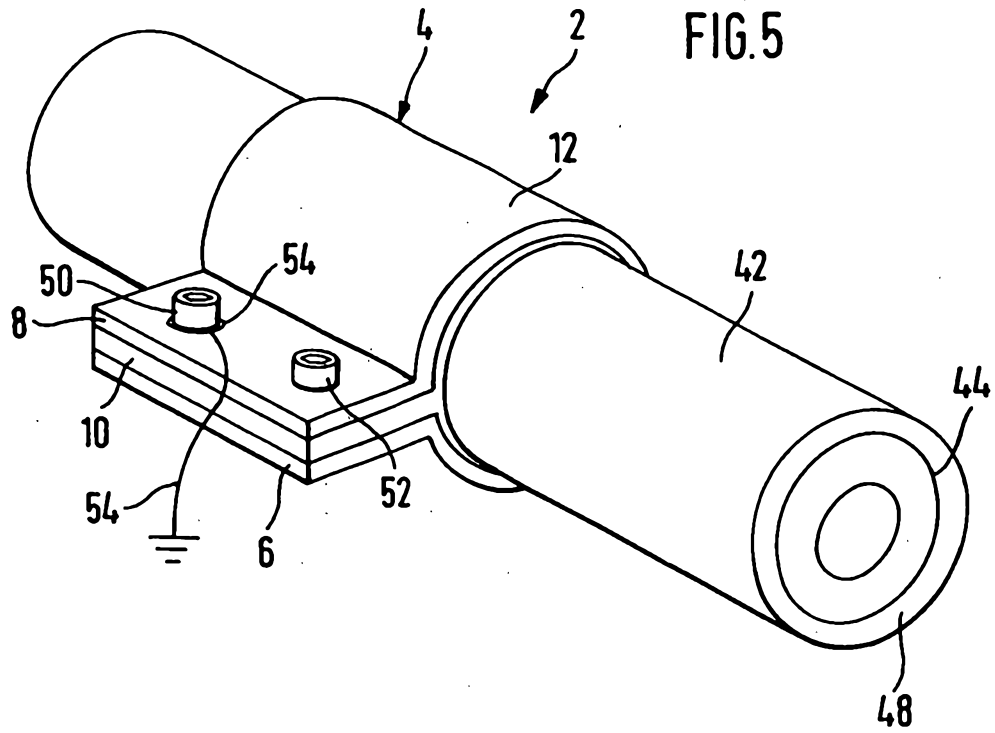


FIG. 4





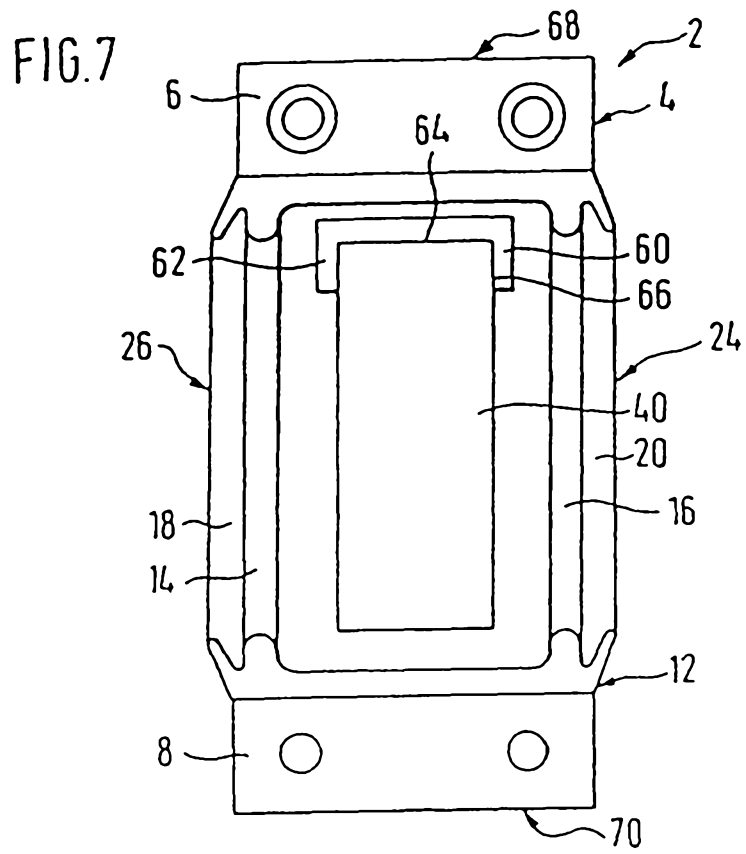


FIG. 8

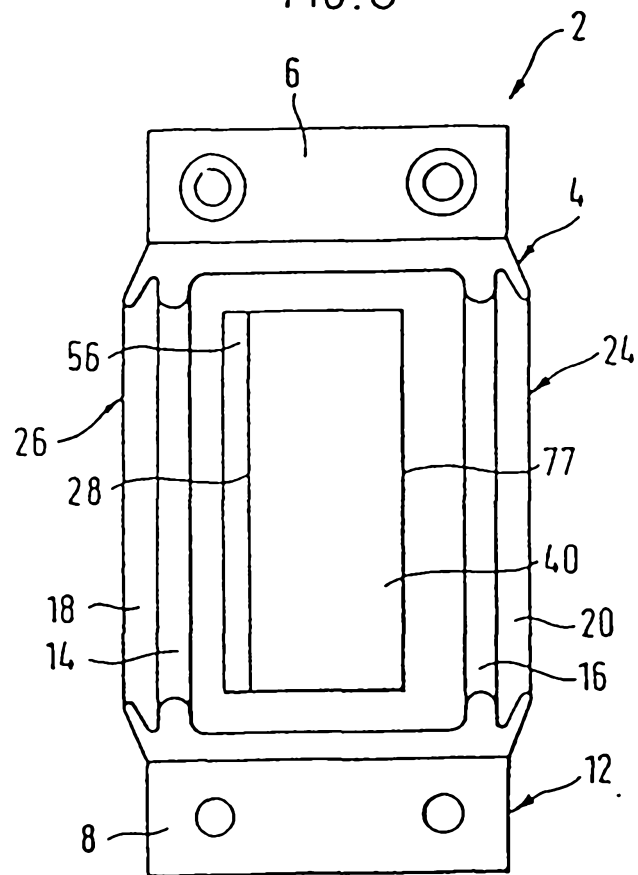


FIG.9

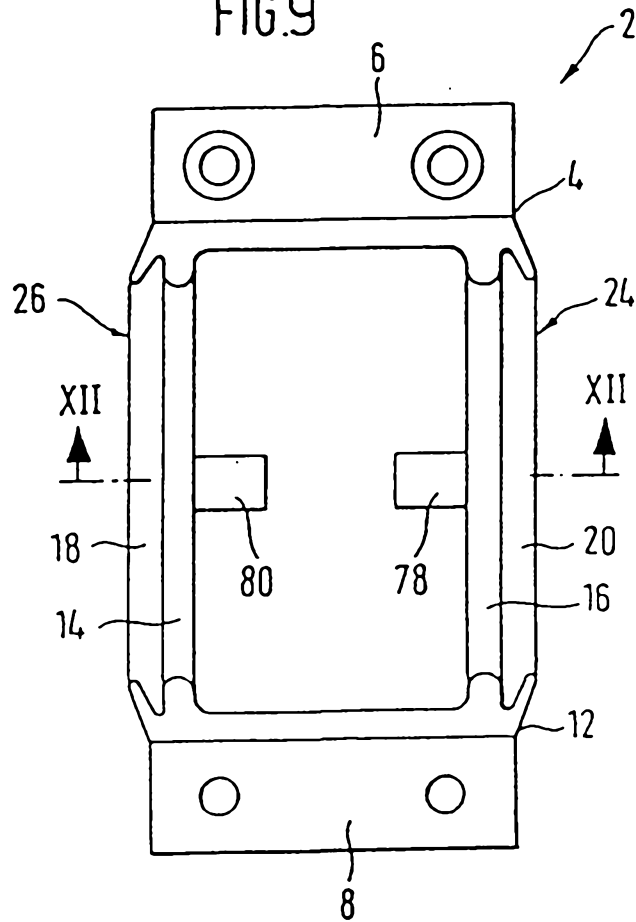


FIG.10

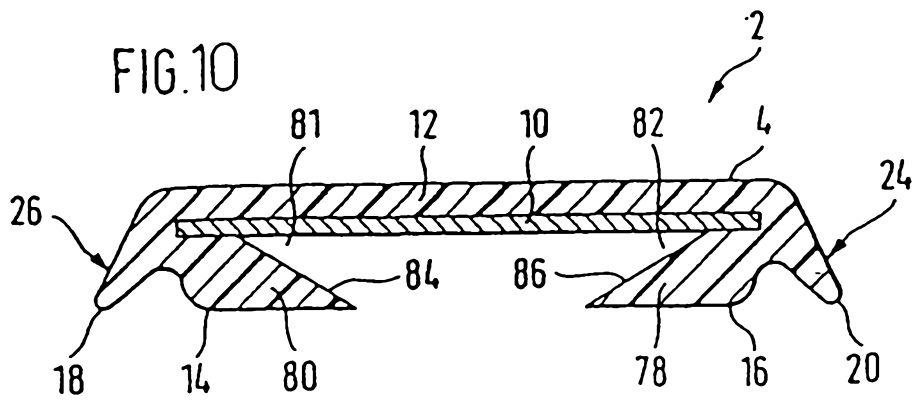


FIG.11

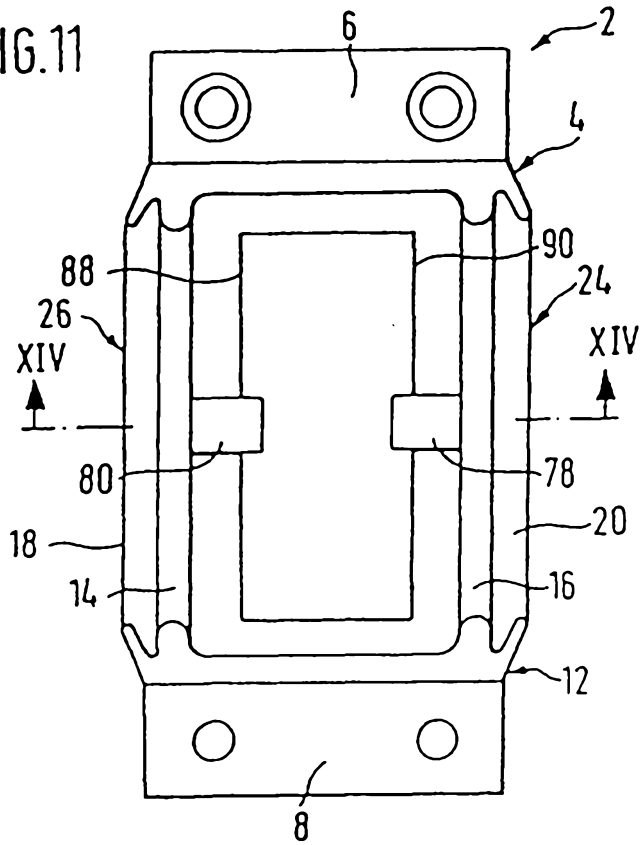


FIG.12

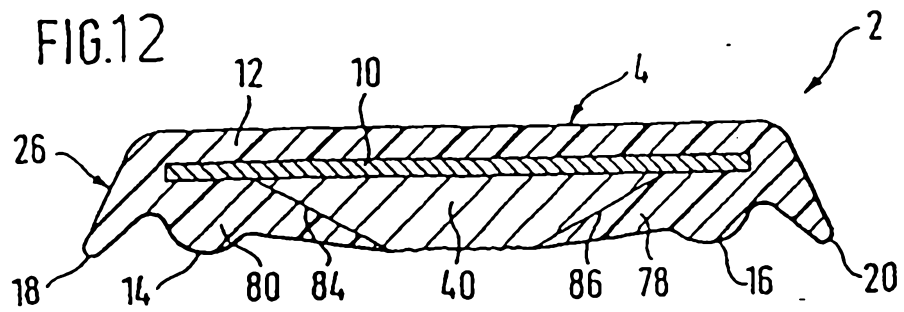


FIG.13

