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(54) **A CORD COVER**

(57) A cord cover 100 for concealing excess cord 2 form an electric male plug 20 is provided, wherein the cord cover comprises a tubular element 4 with a first axial end 6 and a second axial end 8; and-an end closure element 10;
wherein the tubular element 4 at its first axial end 6 comprises an end surface 12;
wherein the second axial end 8 of the tubular element 4 comprises an opening 14;
wherein the geometry and the dimensions of the opening 14 in the second axial end 8 of the tubular element 4 is adapted to the geometry and the dimensions of the end closure element 10 in such a way that the end closure element 10 is configured to be held in place in the opening 14 in the second axial end 8 of the tubular element 4;
wherein the end surface 12 at the first axial end 6 of the tubular element 4 comprises one or two or more holes 16,16a,16b for accommodating two or more pins 18a,18b of an electrical male plug 20;
wherein the interior 22 of the tubular element 4 hereby may accommodate excess cord 2 when the pins 18a,18b of an electric male plug 20 with associated cord 2 has been directed through the holes 16,16a,16b at the end surface 12 of the tubular element 4;
wherein the tubular element 4 at its first axial end 6 is having a maximum outer extension in a direction perpendicular to the axial direction of maximum 40 mm.

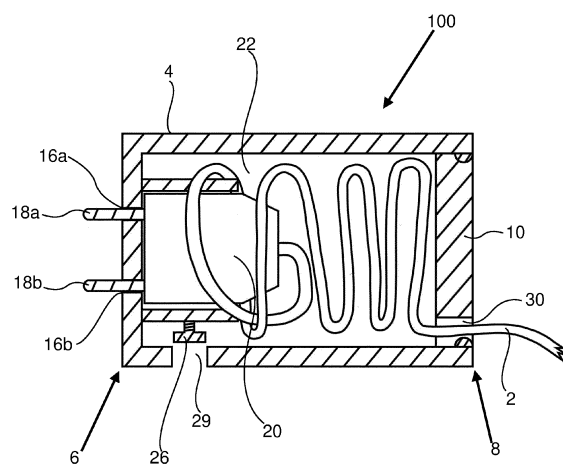


Fig. 2

Description

Field of the invention

[0001] The present invention relates in a first aspect to a cord cover for concealing excess cord of an electric male plug. In a second aspect the present invention relates to an electric male plug comprising a cord cover according to the first aspect of the invention. In a third aspect the present invention relates to an electric apparatus comprising an electric male plug according to the first aspect of the invention. In a fourth aspect the present invention relates to a use of the cord cover according to the first aspect of the invention or of a electric male plug according to the second aspect of the invention for an electric apparatus.

Background of the invention

[0002] During the last century it has been common to provide buildings such as homes and offices with sockets for supplying electric voltage to which various electric apparatuses may be connected. Such sockets are usually arranged in the walls of the building.

[0003] Sockets usually comprises two or three holes within which metal bushing are accommodated, which are connected to the grid. Likewise an electric apparatus comprises a connecting cord, one end of which comprises an isolated housing and two or more electrically conducting pins having dimensions that are adapted to the holes in the socket. Hereby, as it is familiar, one may connect an electric apparatus to the grid voltage by arranging the pins of the male plug of the apparatus into the holes in the socket.

[0004] With the view to make electric apparatus flexible as to placement of the apparatus in relation to a socket, such apparatuses are often provided with a relative long cord. Lengths of cords of electric apparatuses of 1.5 meters or more are not uncommon.

[0005] Although such long cords as mentioned provide a certain degree of flexibility as to the distance to the nearest socket to with the apparatus is to be connected, long cords nevertheless may pose some problems.

[0006] These problems especially manifest themselves in instances in which it is desired to connect an electric apparatus to a socket which is in immediate vicinity of an electric socket. In such situations a relatively long cord will be in the way and represent an unattractive appearance,

[0007] Excess cord will thereby be aesthetically undesirably and will also be able to represent a safety hazard in that one's movements unintentionally could grab the excess cord whereby one may fall or whereby the electric apparatus may tip over.

[0008] Additionally, loose excess cord may pose to be a hygienic problem in that such a cord is an element that has a tendency to attract dust and grease.

[0009] The same problems are present in case it is

desired to connect the electric male plug to the socket via an extension cord or an electric power distributing socket.

[0010] In order to solve this problem FR 2 711 017 discloses a wire storage box. This wire storage box comprises a box having a lid to be mounted on the box. The box furthermore comprises a cut-out into which a cord may be arranged. Moreover, the box on one of its surfaces comprises one or more holes, into which a bushing may be arranged. This bushing extends from that surface and comprises holes which are adapted to an electric male plug in a way that when the bushing is arranged in the associated hole in the box, a plug can be led into the box and further into the interior of the bushing and the pin of the male plug may subsequently be led through the holes in the bushing itself and hereafter the electric plug with the associated wire storage box can be arranged into a socket. The cord is arranged in the cut-out of the box. The interior of the box is large enough for winding up a certain length of cord and thereby the cord of an electric apparatus may be adapted to the desired length, when the male plug of the apparatus is arranged into the box and the bushing as described above.

[0011] The wire storage box disclosed in FR 2 711 017 has the disadvantage that it is rather large and clumsy and not suitable for the type of sockets which comprise a depression into which an electric plug may be arranged and which thereby will surround the housing of the plug.

[0012] Moreover, the presence of the loose bushing, into which the electric male plug is to be arranged, a certain degree of instability results, in the sense that the bushing may fall out whereby the functionality of the wire storage box is lost.

[0013] Additionally, the cut-out, through which the wire is being led, implies inflexibility limitations as to in which orientation the cord is entered into the box, because the wire storage box in FR 2 711 017 only allows one orientation due to the fixed cut-out.

[0014] Moreover it will not be possible to insert the wire storage box of FR 2 711 017 in an electric female sockets having a switch or with certain specific deep arrangement or designs.

[0015] Accordingly, a need exists for an improved cord cover for concealing cords of electric apparatuses.

[0016] It is an objective of the present invention to provide such a cord cover.

Brief description of the invention

[0017] This objective is achieved according to the present invention in its first, second, third and fourth aspect, respectively.

[0018] Accordingly, according to the first aspect of the invention a cord cover for concealing excess cord of an electric male plug is provided, wherein the cord cover comprises:

- a tubular element having a first axial end and a sec-

ond axial end;

- an end closure element;

wherein the tubular element at its first axial end comprises an end surface;

wherein the second axial end of the tubular element comprises an opening;

wherein the geometry and the dimensions of the opening in the second axial end of the tubular element is adapted to the geometry and the dimensions of the end closure element in such a way that the end closure element is configured to be held in place in the opening in the second axial end of the tubular element;

wherein the end surface of the first axial end of the tubular element defines one or two or more holes for accommodating two or more pins of an electrical male plug;

wherein the interior of the tubular element hereby may accommodate excess cord when the pins of an electric male plug with associated cord has been directed through the hole(s) at the end surface of the tubular element;

wherein the tubular element at its first axial end is having a maximum outer extension in a direction perpendicular to the axial direction of 40 mm.

[0019] According to the second aspect of the present invention there is provided an electric male plug comprising:

- a cord cover according to the first aspect of the invention;
- two or more electrically conducting pins;
- an electric cord comprising two or more electric leads;

wherein in respect of one or two or more of the holes at the end surface, each hole is provided with one of these electrically conducting pins;

wherein two or more of the electrically conducting pins each is being electrically connected to its own individual electric lead in one end of the electric cord.

[0020] According to the third aspect of the invention there is provided an electric apparatus comprising an electric male plug according to the second aspect of the invention, wherein the electric apparatus is electrically connected to the second end of the cord.

[0021] According to the fourth aspect of the invention there is provided a use of a cord cover according to the first aspect of the invention or of an electric male plug according to the second aspect of the invention for an electric apparatus.

[0022] With the invention in its various aspects is achieved that a cord can be concealed in a cord cover in a more flexible way, when the cord is connected to an electric male plug, in that the cord cover is having a design which enables that it may be arranged in all or most types of sockets or power distribution sockets and which moreover is more sturdy which in turn allows a more rough handling.

Brief description of the figures

[0023]

Fig. 1a is a diagram which in a cross-sectional view shows the design of a cord cover according to the first aspect of the present invention.

Fig. 1b is a diagram which in a cross-sectional view shows an alternative design of a cord cover according to the first aspect of the present invention.

Fig. 1c is a plan view which shows in an electric male plug with cord for accommodation in the interior of the cord cover illustrated in Fig. 1a.

Fig. 2 is a diagram showing in a cross-sectional view the working mode of the cord cover of Fig. 1a.

Fig. 3 is a diagram showing in a cross-sectional view the design of an electric male plug according to the second aspect of the present invention.

Fig. 4 is a diagram showing in a cross-sectional view the design of an electric male plug according to a special embodiment of the second aspect of the present invention.

Fig. 5 is a diagram showing in a cross-sectional view the design of an electric male plug according to another special embodiment of the second aspect of the present invention.

Detailed description of present invention

[0024] The first aspect of the invention relates to a cord cover for concealing excess cord of an electric male plug, wherein the cord cover comprises:

- a tubular element having a first axial end and a second axial end;
- an end closure element;

wherein the tubular element at its first axial end comprises an end surface;

wherein the second axial end of the tubular element comprises an opening;

wherein the geometry and the dimensions of the opening in the second axial end of the tubular element is adapted to the geometry and the dimensions of the end closure element in such a way that the end closure element is configured to be held in place in the opening in the second axial end of the tubular element;

wherein the end surface at the first axial end of the tubular element comprises one or two or more holes for accommodating two or more pins of an electrical male plug;

wherein the interior of the tubular element hereby may accommodate excess cord when the pins of an electric male plug with associated cord has been led through the hole(s) at the end surface of the tubular element;

wherein the tubular element at its first axial end is having maximum outer extension in a direction perpendicular to the axial direction of 40 mm.

[0025] According to the first aspect of the present invention there is accordingly provided a cord cover which in a simple and safe way will conceal excess cord from an electric apparatus, in that a male plug of the apparatus can be accommodated in the tubular element of the cord cover and wherein the pins of the male plug can be led through hole(s) at the end surface of the tubular element.

[0026] In one embodiment of the cord cover according to the first aspect of the invention the geometry and the dimensions of the tubular element is being adapted in such a way that the tubular element may receive and accommodate a standard male plug selected amongst the types: Type C (7/16) or Type A (NEMA-1), wherein the pins of the male plug thereby may be led through the hole(s) at the end surface of the tubular element.

[0027] Hereby is achieved that the cord cover may be used in conjunction with electric apparatus which are provided with the most common types of male plugs.

[0028] In one embodiment of the cord cover according to the first aspect of the invention, the outer extension of the tubular element, at the first axial end thereof, is selected in such a way that it will fit into a female socket of the types E (CEE 7/5) or F (CEE 7/3).

[0029] Hereby is achieved that the cord cover may be used in conjunction with sockets and/or electric distribution sockets of the most common types.

[0030] In one embodiment of the cord cover according to the first aspect of the invention the outer axial length of the tubular element is selected from the ranges of 4 -

11 cm, such as 5 - 10 cm, for example 6 - 9 cm or 7 - 8 cm.

[0031] Hereby is achieved a fine balance between a possibility of concealing a desired length of a cord on the one hand and keeping the outer dimensions of the cord cover within limits that on the other hand do not appear visually undesirably for example in a home.

[0032] In one embodiment of the cord cover according to the first aspect of the invention the maximum outer extension of the whole of the tubular element, in a direction perpendicular to the axial extension, is selected from the ranges 38 - 70 mm, such as 40 - 65 mm, for example 45 - 60 mm, such as 50 - 55 mm.

[0033] Hereby is achieved a fine balance between a possibility of concealing a desired length of a cord on the one hand and keeping the outer dimensions of the cord cover within limits that on the other hand do not appear visually undesirably for example in a home.

[0034] In an embodiment of the cord cover according to the first aspect of the invention, the tubular element comprises at its first axial end fastening means for fastening an electric male plug, when this is accommodated in the interior of the tubular element, and when the pins of the male plug is led through the hole(s) at the end surface of the tubular element.

[0035] Hereby, firm holding of the male plug in the tubular element is assured.

[0036] In one embodiment of the cord cover according to the first aspect of the invention, the fastening means comprises one or more screws; and/or the fastening means comprises a duct in the interior of the tubular element, which via friction is able to retain an electric male plug, when this is accommodated in the duct of the interior of the tubular element, and when the pins of the male plug is led through the hole(s) at the end surface of the tubular element.

[0037] Such fastening means are well suited for firmly holding the male plug in the tubular element.

[0038] In one embodiment of the cord cover according to the first aspect of the invention, the tubular element is being manufactured from an electrically insulating material, such as a polymer, such as plastic and/or the end closure element is being manufactured from an electrically insulating material, such as a polymer, such as plastic

[0039] Hereby sufficient electric insulation towards surroundings is provided.

[0040] In one embodiment of the cord cover according to the first aspect of the invention the tubular element at the second axial end thereof comprises a recess for accommodation of a cord and/or the end closure element comprises at a rim thereof a recess for accommodation of a cord.

[0041] Hereby is ensured easy accommodation of a cord in the area between the tubular element and the end closure element.

[0042] In one embodiment of the cord cover according to the first aspect of the invention the geometry and the dimensions of the opening in the second axial end of the

tubular element is adapted to the geometry and the dimensions of the end closure element in such a way that the end closure element may be held in place in the opening at the second axial end of the tubular element solely by friction.

[0043] Hereby is ensured sufficient holding of the end closure element in the tubular element.

[0044] In one embodiment of the cord cover according to the first aspect of the invention, the second axial end of the tubular element comprises a first set of engagement means and the end closure element comprises a second set of engagement means; wherein the first set of engagement means is being configured to enter into engagement with the second set of engagement means and hold these two engagement means together via friction.

[0045] Hereby is further ensured sufficient holding of the end closure element in the tubular element.

[0046] In one embodiment of the cord cover according to the first aspect of the invention, the end surface of the tubular element, in at least part of its extension, is an integrated part of the body belonging to the tubular element.

[0047] Hereby is ensured an especially good securing of the position of an electric male plug in the tubular element, when that male plug is arranged therein.

[0048] In one embodiment of the cord cover according to the first aspect of the invention, the end surface of the tubular element in the whole of its extension is an integrated part of the body belonging to the tubular element.

[0049] Hereby is ensured an especially good securing of the position of an electric male plug in the tubular element, when that male plug is arranged therein.

[0050] In one embodiment of the cord cover according to the first aspect of the invention, the hole(s) at the end surface of the tubular element is/are through-going hole(s).

[0051] Hereby is ensured that the pins of an electric male plug may be led through at the end surface of the tubular element.

[0052] In an embodiment the individual holes for the two or more pins are in the form of a common hole which enables accommodation of two or more of the two or more pins.

[0053] According to the second aspect of the present invention there is provided an electric male plug comprising:

- a cord cover according to the first aspect of the present invention;
- two or more electrically conducting pins;
- an electric cord comprising two or more electric leads;

wherein, in respect of one or two or more of the holes at the end surface, each hole is provided with one

of these electrically conducting pins;

wherein two or more of the electrically conducting pins each are being electrically connected to its own individual electric lead at one end of the electric cord.

[0054] In one embodiment of the male plug according to the second aspect of the invention, the two or more electrically conducting pins are each being fixed in a respective hole at the end surface.

[0055] Hereby is ensured a sturdy male plug which withstands rough handling.

[0056] In an alternative embodiment the individual holes for each of the two or more pins is in the form of a common hole which enables accommodation of two or more of the two or more pins.

[0057] In one embodiment of the male plug according to the second aspect of the invention, the two or more electrically conducting pins, at the end thereof which appear in the interior of the tubular element, are electrically insulated from the surroundings, such as by encapsulation.

[0058] Hereby sufficient electric insulation towards the surroundings for improved safety is ensured.

[0059] In one embodiment of the male plug according to the second aspect of the invention, the tubular element in its interior comprises a winding element for winding a cord, and which thereby is being configured for being wound by excess cord, when being arranged in the interior of the tubular element of the electric male plug.

[0060] Hereby easy winding of excess cord in the tubular element is ensured.

[0061] In one embodiment of the male plug according to the second aspect of the invention, the winding element is being configured to be displaceable, at least partly, in a longitudinal direction out of and into the tubular element at the second axial end thereof.

[0062] Hereby even more easy winding of excess cord in the tubular element is ensured.

[0063] In one embodiment of the male plug according to the second aspect of the invention, the winding element comprises a first axial end and a second axial end; wherein the first axial end of the winding element is being configured to be arranged near the first axial end of the tubular element; and wherein the second axial end of the winding element is being configured to be arranged near the second axial end of the tubular element; wherein the first axial end of the winding element comprises an end part, wherein the electrically conducting pins are being arranged in this end part; wherein the first axial end of the tubular element defines an opening; wherein the geometry and the dimensions of this opening on the one hand, and the geometry and the dimensions of the end part of the winding element on the other hand, are adapted to each other in such a way that the end part, at least partly, can be accommodated in this opening; the end part of the winding element thereby becoming part of the end surface of the tubular element, when the winding

element is being displaced all the way up to the first axial end of the tubular element.

[0064] This embodiment is an alternative way in which to achieve an easy winding of excess cord in the tubular element.

[0065] In one embodiment of the male plug according to the second aspect of the invention, the male plug comprises locking means for locking the position of the winding element in relation to the rest of the tubular element, when the winding element is being displaced all the way up to the first axial end of the tubular element.

[0066] In one embodiment of the male plug according to the second aspect of the invention, the locking means comprises one or more screws for locking the position of the winding element in relation to the rest of the tubular element; or the locking means comprises engagement means, which are being arranged on the winding element and on the rest of the tubular element, respectively, wherein these engagement means are configured to, via friction to be able to lock the position of the winding element in relation to the rest of the tubular element by entering into engagement with each other.

[0067] According to these two embodiments an improved integrity of the male plug is achieved, even though the winding element will be displaceable in relation to the tubular element.

[0068] In one embodiment of the male plug according to the second aspect of the invention the winding element is being connected to the end closure element.

[0069] Hereby easy handling of the male plug is obtained.

[0070] In one embodiment of the male plug according to the second aspect of the invention, the locking means comprises one or two turn-and-click-lock mechanisms which are configured to, by a turning movement, to attach and lock the end closure element to the rest of the tubular element, and/or which are configured to, by a turning movement, to attach and lock the end part to the rest of the tubular element.

[0071] Hereby easy handling of the male plug is obtained.

[0072] According to the third aspect an electric apparatus is provided which comprises an electric male plug according to the second aspect, wherein the electric apparatus is being electrically connected to the second end of the cord.

[0073] According to the fourth aspect a use of a cord cover according to the first aspect of the invention or of an electric male plug according to the second aspect of the invention for an electric apparatus is provided.

[0074] In an embodiment of the use according to the fourth aspect, the use is for hiding excess cord of an electric apparatus.

[0075] Referring now to the figures in order to illustrate the present invention, Fig. 1a illustrates in a cross-sectional view a principle diagram of a cord cover according to the first aspect of the present invention.

[0076] Fig. 1a shows the cord cover 100 for concealing

excess cord 2 of an electric male plug.

[0077] The cord cover 100 comprises a tubular element 4 having a first axial end 6 and a second axial end 8 along with an end closure element 10.

5 **[0078]** The tubular element 4 comprises at its first axial end 6 an end surface 12 and comprises at its second axial end of the tubular element 4 an opening 14.

[0079] The geometry and the dimensions of the opening 14 of the second axial end 8 of the tubular element 4 is adapted to the geometry and the dimensions of the end closure element 10 in such a way that the end closure element 10 may be held in place in the opening 14 of the second axial end 8 of the tubular element 4.

10 **[0080]** This holding in place is brought about via friction, in that it is seen that the second axial end 8 of the tubular element 4 comprises a first set of engagement means 32 and that the end closure element 10 comprises a second set of engagement means 34; wherein the first set of engagement means 32 are being configured to enter into engagement with the second set of engagement means 34 and hold these two engagement means together via friction.

15 **[0081]** It is also seen in Fig. 1a that the end surface 12 at the first axial end 6 of the tubular element 4 comprises two holes 16a, 16b for accommodating two pins 18a, 18b of a male plug.

20 **[0082]** Also seen in Fig. 1a is that the interior 22 of the tubular element 4 defines a cavity 22 which thereby may accommodate excess cord 2 of an electric male plug, when the pins 18a, 18b of the electric male plug 20, attached to cord 2, has been led through the holes 16a, 16b at the end surface 12 of the tubular element 4.

25 **[0083]** As the tubular element 4 at its first axial end 6 is having a maximum outer extension in a direction perpendicular to the axial direction of maximum 40 mm, the tubular element may be arranged in any type of electric socket or electric distribution socket.

30 **[0084]** Fig. 1c shows a plan view a drawing of an electric male plug 20 having two electric pins 18a, 18b and an associated cord. The male plug 20 is intended for being accommodated in the interior 22 of the tubular element 4.

35 **[0085]** Now returning to Fig. 1a, it is also seen that the cavity 22 in the interior of the tubular element 4 comprises a duct 28 which via friction may hold an electric male plug in place, when being accommodated in the interior 22 of the tubular element and when the pins 18a, 18b of the male plug have been led through the holes 16a, 16b at the end surface 12 of the tubular element 4.

40 **[0086]** Fastening means 24 in the form of a screw 26 enables squeezing of the male plug 20 in the duct 28. The screw hole 29 makes it possible to reach the screw 26 with a screw driver.

45 **[0087]** Fig. 1a moreover shows that the end closure element 10 at a rim thereof comprises a recess 30 for accommodating the cord 2.

50 **[0088]** Fig. 1b illustrates in a cross-sectional view a principle diagram of an alternative design of the cord cov-

er illustrated in Fig. 1a.

[0089] Comparing the embodiment shown in Fig. 1b with that of Fig. 1a reveals that the individual holes 16a,16b for each of the two or more pins 18a,18b as shown in Fig. 1a has been converted into a common hole 16 which is configured to accommodate both pins 18a,18b of the male plug illustrated in Fig. 1c. The common hole 16 is arranged at the surface 12 of the first end 6 of the tubular element 4 in that the surface of the first end 6 now comprises the rim of the tubular element 4 and the end surface of the duct 28.

[0090] Fig. 2 is a principle diagram showing in a cross-sectional view the working mode of the cord cover of Fig. 1a.

[0091] Fig. 2 shows the electric male plug of Fig. 1c which has been accommodated in the cavity 22 in the interior of the tubular element 4 and that the male plug is arranged in the duct 28. Part of the cord 2 has been wound and concealed in the interior 22 of the tubular element 4. The end closure element 10 is via friction held in place in the second axial end of the tubular element 4.

[0092] Hereby the cord cover 100 enables concealing excess cord 2.

[0093] It is seen that part of the cord 2, appearing inside the tubular element can be wound around the electric male plug 20.

[0094] Fig. 3 is a principle diagram showing in a cross-sectional view the design of an electric male plug according to the second aspect of the present invention.

[0095] Fig. 3 shows the male plug 200 comprising a cord cover 100 according to the first aspect of the present invention. In addition, the male plug comprises two electric pins 38a,38b along with an electric cord 2 which in turn comprises two leads 40a,40b.

[0096] It is seen that in respect of the two holes 16a,16b at the end surface 12 of the tubular element 4, each hole has been provided with one of these electrically conducting pins 38a,38b.

[0097] Besides, the two electrically conducting pins 38a,38b are each electrically connected to its own individual electrical lead 40a,40b at one end of the electric cord 2 and the two electrically conducting pins 38a,38b are each being fixated in its respective hole 16a,16b at the end surface 12 of the cord cover 100.

[0098] Further, the two electrically conducting pins 38a,38b at the end thereof which appear in the interior of the tubular element are electrically insulated from the surroundings by being encapsulated.

[0099] It is also seen in Fig. 3 that the tubular element 4 in its interior comprises a winding element 36 in the form of an axially arranged rod which is mounted to the part of the tubular element which defines the end surface 12. The winding element 36 can be used for winding excess cord within the interior 22 of the tubular element 4 (not shown in Fig. 3).

[0100] The male plug 200 thereby functions as a traditionally male plug for insertion into a socket or an electric power distribution socket while also enabling con-

cealing excess cord.

[0101] Fig. 4 is a principle diagram showing in a cross-sectional view the design of an electric male plug according to the second aspect of the present invention.

[0102] Fig. 4 shows the electric male plug 200 according to the second aspect of the present invention, wherein the winding element 36 is being connected to the end closure element 10 and also being displaceable in an axial direction. This will make winding of excess cord easier.

[0103] Fig. 4 also shows that the electric male plug comprises a safety stop 56 which secures that upon pulling the cord 2, the pins 38a,38b will not be pulled out of their respective holes 16a,16b.

[0104] Fig. 5 is a principle diagram showing in a cross-sectional view the design of an electric male plug according to a special embodiment of the second aspect of the present invention.

[0105] Fig. 5 shows an electric male plug 200 according to the second aspect of the present invention, wherein the winding element 36 comprises a first axial end 42 and a second axial end 44, wherein the first axial end 42 of the winding element is being arranged nearest to the first axial end 6, of the tubular element 4, and wherein the second axial end 44 of the winding element is being arranged nearest to the second axial end 8 of the tubular element 4.

[0106] The first axial end 42 of the winding element 36 comprises an end part 46, where the electric pins 38a,38b are arranged in this end part.

[0107] Once again it is seen that the winding element 36 is being connected to the end closure element 10.

[0108] The first axial end 6 of the tubular element defines an opening 48; wherein the geometry and the dimensions of this opening 48 on the one hand and the geometry and the dimensions of the end part 46 of the winding element 36 on the other hand are adapted to each other in such a way that this end part 46 can be accommodated in this opening 48, in that the end part 46 of the winding element 36 thereby becomes part of the end surface 12 of the tubular element 4, when the winding element 36 has been displaced all the way up to the first axial end 6 of the tubular element 4.

[0109] Hereby is achieved that the winding element 36 may be pulled a relatively long distance out of the tubular element 4, whereby a tight winding of the cord 2 and thereby winding of a greater length of cord 2 is possible.

[0110] Viewing Fig. 5 it is easily acknowledged that the surface 12a of the end part 46 in combination with the partial surface 12 of the tubular element in combination will form an end closure of the tubular element 4 of the electric male plug, when the end part 46 is being displaced all the way up to the first axial end 6 of the tubular element 4.

[0111] The male plug 200 in Fig. 5 comprises locking means 50 in the form of a screw 52 for locking the position of the end part 46 in relation to the rest of the tubular element 4, when the end part 46 has been displaced all

the way up to the first axial end 6 of the tubular element 4.

[0112] It is to be noted that in the figures it has not been intended to illustrate made-to-scale and mutually correct dimensions of the individual elements of the inventions. In contrast it has merely been the intention to illustrate the principles of the present invention.

List of reference numerals

[0113]

2	Cord	
4	Tubular element	
6	First axial end of tubular element	
8	Second axial end of tubular element	15
10	End closure element	
12	End surface at first axial end of tubular element	
12a	Surface of end surface	
14	Opening in second axial end of tubular element	20
16, 16a, 16b	Hole at end surface at first axial end of tubular element	
18a, 18b	Pin of standard male plug	
20	Standard male plug	25
22	Interior of tubular element	
24	Fastening means for fastening an electric male plug	
26	Fastening means in the form of a screw	
28	Fastening means in the form of a duct	30
29	Hole in tubular element	
30	Recess for accommodating a cord	
32	First set of engagement means	
34	Second set of engagement means	
36	Winding element	35
38a, 38b	Electrically conducting pins of electric male plug of the invention	
40a, 40b	Electric lead of an electric cord	
42	First axial end of winding element	
44	Second axial end of winding element	40
46	End part of winding element	
48	Opening at first axial end of tubular element	
50	Locking means	
52	Locking means in the form of a screw	45
56	Safety stop	
100	Cord cover	
200	Male plug according to the invention	

Claims

1. A cord cover (100) for concealing excess cord (2) of an electric male plug (20), wherein the cord cover comprises:
 - a tubular element (4) having a first axial end (6) and a second axial end (8);

- an end closure element (10) wherein the tubular element (4) at its first axial end (6) comprises an end surface (12); wherein the second axial end (8) of the tubular element (4) comprises an opening (14) wherein the geometry and the dimensions of the opening (14) in the second axial end (8) of the tubular element (4) is adapted to the geometry and the dimensions of the end closure element (10) in such a way that the end closure element (10) is configured to be held in place in the opening (14) in the second axial end (8) of the tubular element (4); wherein the end surface (12) of the first axial end (6) of the tubular element (4) comprises one or two or more holes (16, 16a, 16b) for accommodating two or more pins (18a, 18b) of an electrical male plug (20); wherein the interior (22) of the tubular element (4) hereby may accommodate excess cord (2) when the pins (18a, 18b) of an electric male plug (20) with associated cord (2) has been directed through the hole(s) (16, 16a, 16b) at the end surface (12) of the tubular element (4); wherein the tubular element (4) at its first axial end (6) is having a maximum outer extension in a direction perpendicular to the axial direction of 40 mm.

2. A cord cover (100) according to claim 1, wherein the geometry and the dimensions of the tubular element (4) is being adapted in such a way that the tubular element may receive and accommodate a standard male plug (20) selected amongst the types: Type C (7/16) or Type A (NEMA-1) or Type B (NEMA-5-15), wherein the pins (18a, 18b) of the male plug thereby may be led through the hole(s) (16, 16a, 16b) at the end surface (12) of the tubular element (4)
3. A cord cover (100) according to claim 1 or 2, wherein the outer extension of the tubular element (4), at the first axial end (6) thereof, is selected in such a way that it will fit into a female socket of the types E (CEE 7/5) or F (CEE 7/3).
4. A cord cover (100) according to any of the preceding claims, wherein the maximum outer extension of the whole of the tubular element (4), in a direction perpendicular to the axial extension, is selected from the ranges 38 - 70 mm, such as 40 - 65 mm, for example 45 - 60 mm, such as 50 - 55 mm.
5. A cord cover (100) according to any of the preceding claims, wherein the tubular element (4) at its first axial end (6) comprises fastening means (24) for fastening an electric male plug (20), when this is accommodated in the interior (22) of the tubular element, and when the pins (18a, 18b) of the male plug

is led through the hole(s) (16,16a,16b) at the end surface (12) of the tubular element.

6. A cord cover (100) according to claim 5, wherein the fastening means (24) comprises one or more screws (26); and/or wherein the fastening means (24) comprises a duct (28) in the interior (22) of the tubular element (4), which via friction is able to retain an electric male plug (20), when this is accommodated in the interior (22) of the tubular element, and when the pins (18a,18b) of the male plug is led through the hole(s) (16,16a,16b) at the end surface (12) of the tubular element (4). 5
7. A cord cover (100) according to any of the preceding claims, wherein the tubular element (4) at the second axial end (8) thereof comprises a recess (30) for accommodating a cord (2); and/or wherein the end closure element (10) at a rim thereof comprises a recess (30) for accommodating a cord (2). 10
8. A cord cover (100) according to any of the preceding claims, wherein the individual hole (16a,16b) for each of the two or more pins (18a,18b) is in the form of a common hole (16) allowing accommodation of two or more of the two or more pins (18a,18b). 15
9. Electric male plug (200) comprising: 20
 - a cord cover (100) according to any of the preceding claims; 30
 - two or more electrically conducting pins (38a,38b);
 - an electric cord (2) comprising two or more electric leads (40a,40b); 35
 - wherein in respect of one or two or more of the holes (16,16a,16b) at the end surface (12), each hole is provided with one of these electrically conducting pins (38a,38b);
 - wherein two or more of the electrically conducting pins (38a,38b) each is being electrically connected to its own individual electric lead (40a,40b) in one end of the electric cord (2). 40
10. Electric male plug (200) according to claim 9, wherein the two or more electrically conducting pins (38a,38b) each is being fixed in its own respective hole (16a,16b) at the end surface (12). 45
11. Electric male plug (200) according to any of the claims 9 or 10, wherein the tubular element (4) in its interior comprises a winding element (36) for winding a cord (2) and which is being configured for being wound by excess cord, when being arranged in the interior (22) of the tubular element (4) of the electric male plug. 50
12. Electric male plug (200) according to claim 11, 55

wherein the winding element (36) is being configured to be, at least partly, displaceable in a longitudinal direction out of or into the tubular element (4) at the second axial end (8) thereof.

13. Electric male plug (200) according to claim 12, wherein the winding element (36) comprises a first axial end (42) and a second axial end (44); wherein the first axial end (42) of the winding element is being configured to be arranged near the first axial end (6) of the tubular element (4); and wherein the second axial end (44) of the winding element is being configured to be arranged near the second axial end (8) of the tubular element (4); wherein the first axial end (42) of the winding element (36) comprises an end part (46), wherein the electrically conducting pins (38a,38b) are being arranged in this end part; wherein the first axial end (6) of the tubular element defines an opening (48); wherein the geometry and the dimensions of this opening (48) on the one hand, and the geometry and the dimensions of the end part (46) of the winding element (36) on the other hand, are adapted to each other in such a way that the end part (46) at least partly can be accommodated in this opening (48), the end part (46) of the winding element (36) thereby becoming part of the end surface (12) of the tubular element (4), when the winding element (36) is being displaced all the way up to the first axial end (6) of the tubular element (4).
14. Electric male plug (200) according to claim 12 or 13, wherein the male plug comprises locking means (50) for locking the position of the winding element (36) in relation to the rest of the tubular element (4), when the winding element (36) is being displaced all the way up to the first axial end (6) of the tubular element (4).
15. Electric apparatus comprising an electric male plug (200) according to any of the claims 9 - 14, wherein the electric apparatus is electrically connected to the second end of the cord (2).

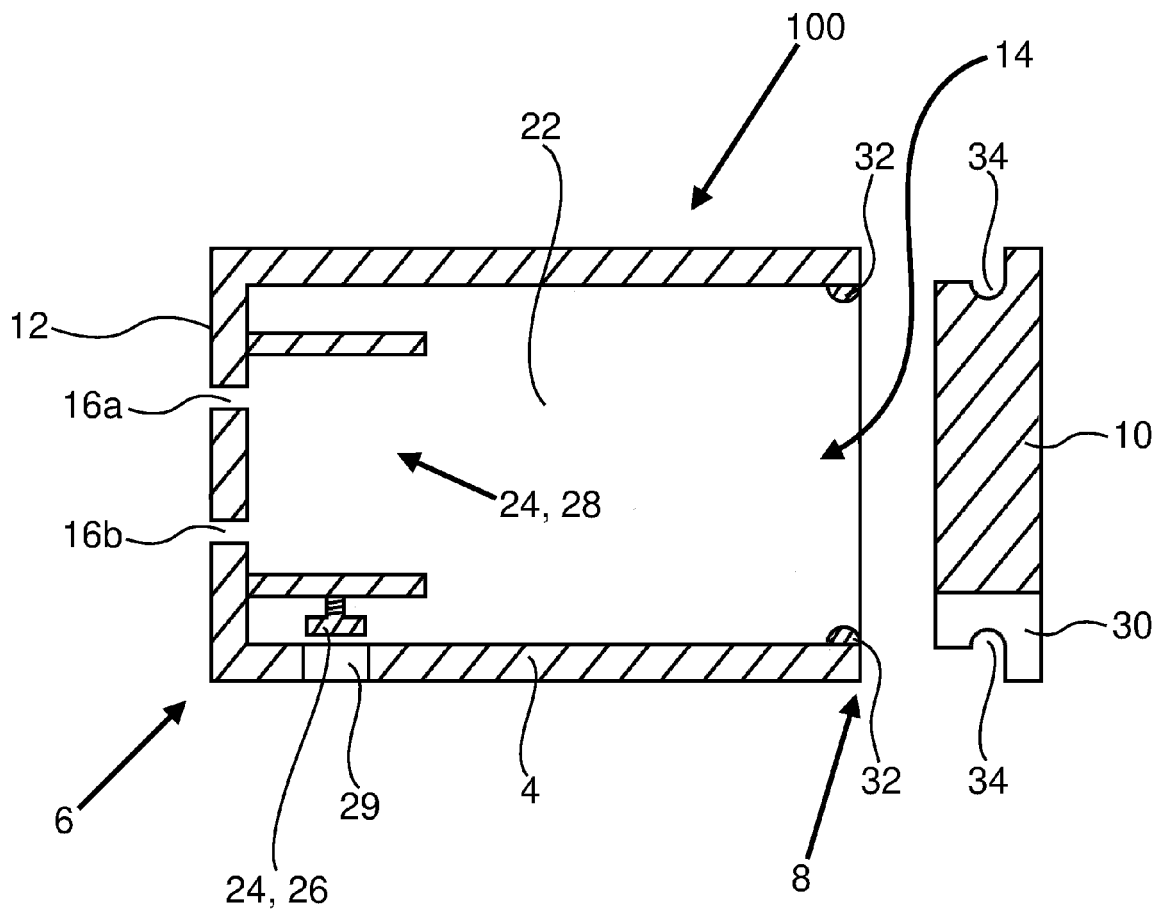


Fig. 1a

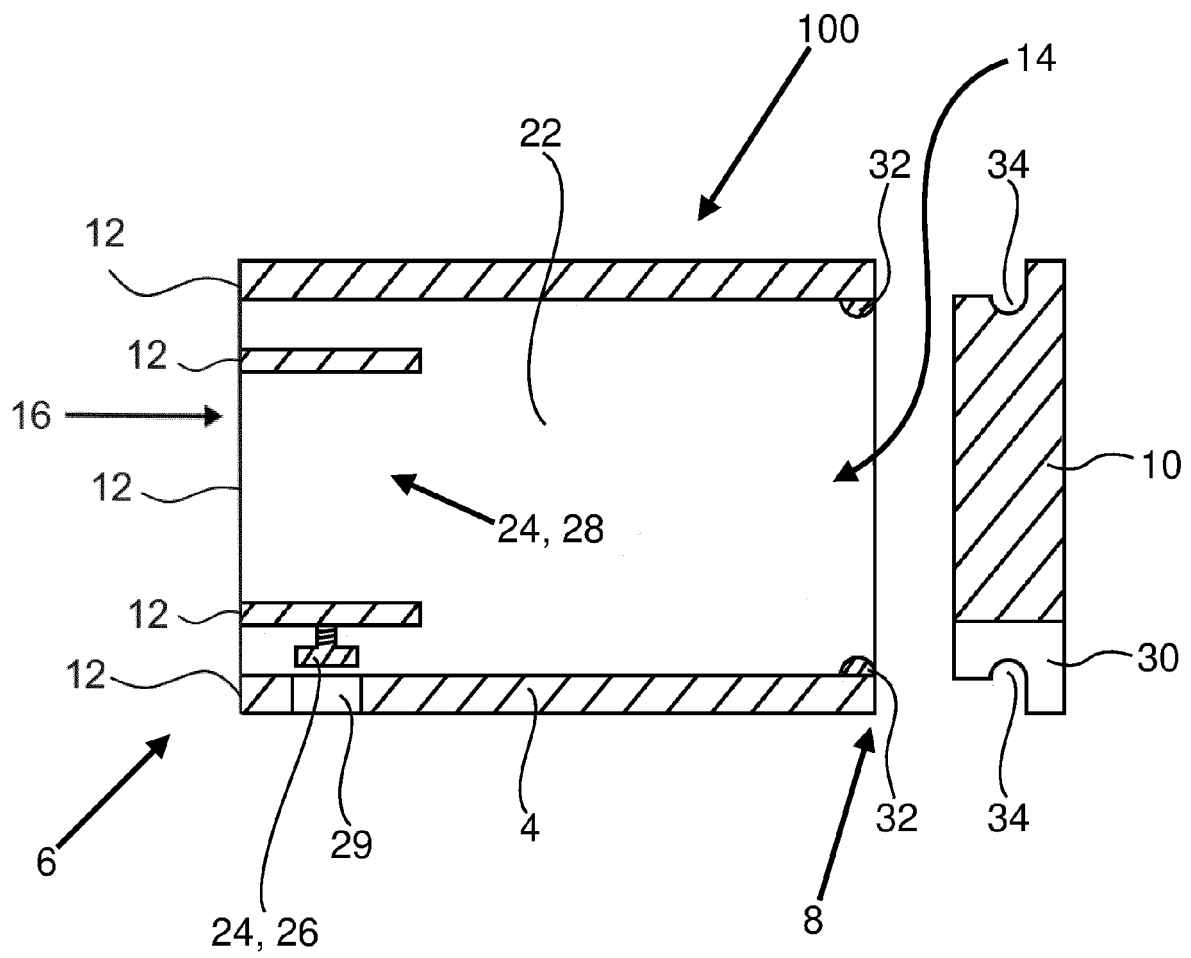


Fig. 1b

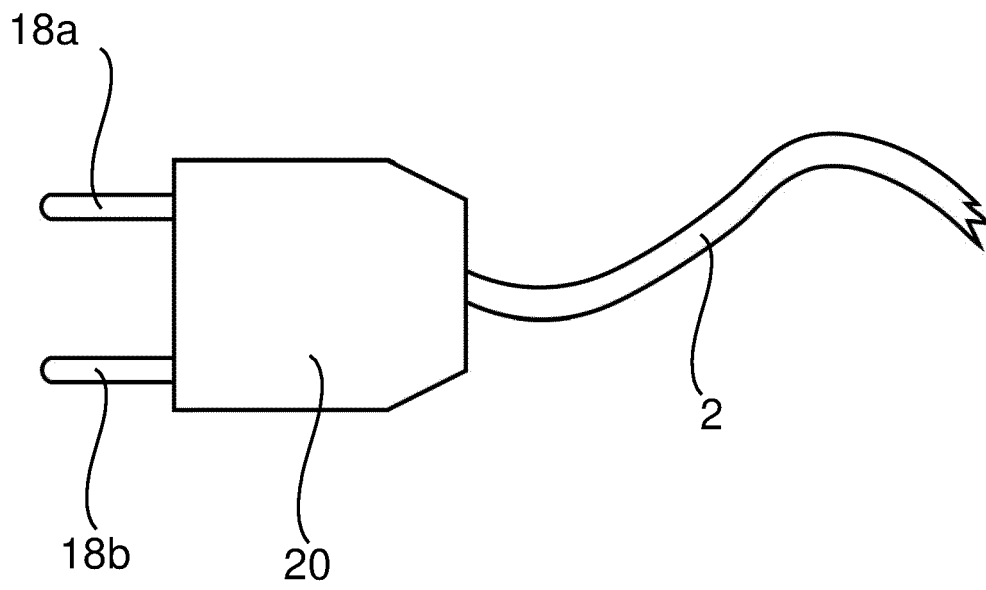


Fig. 1c

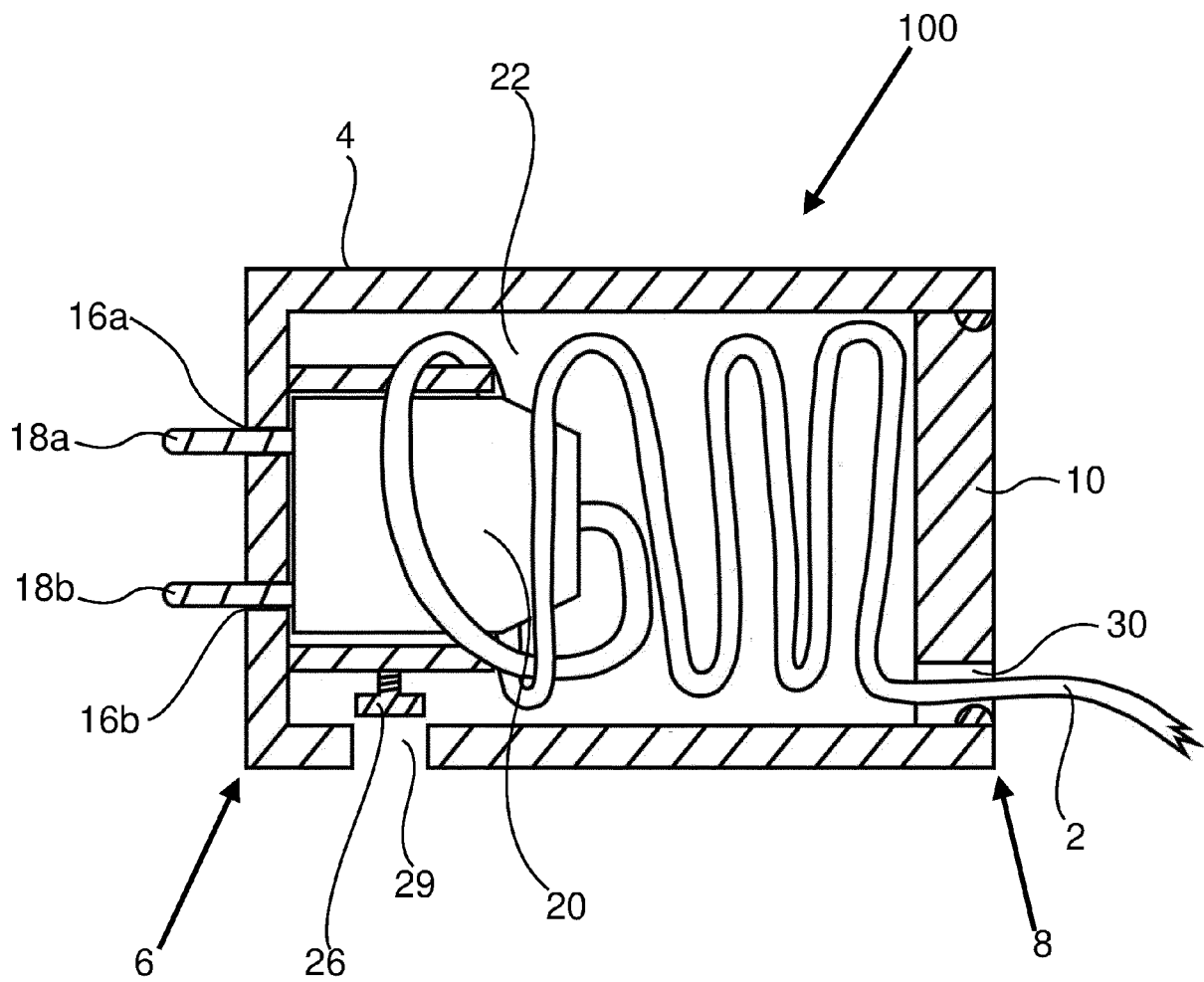


Fig. 2

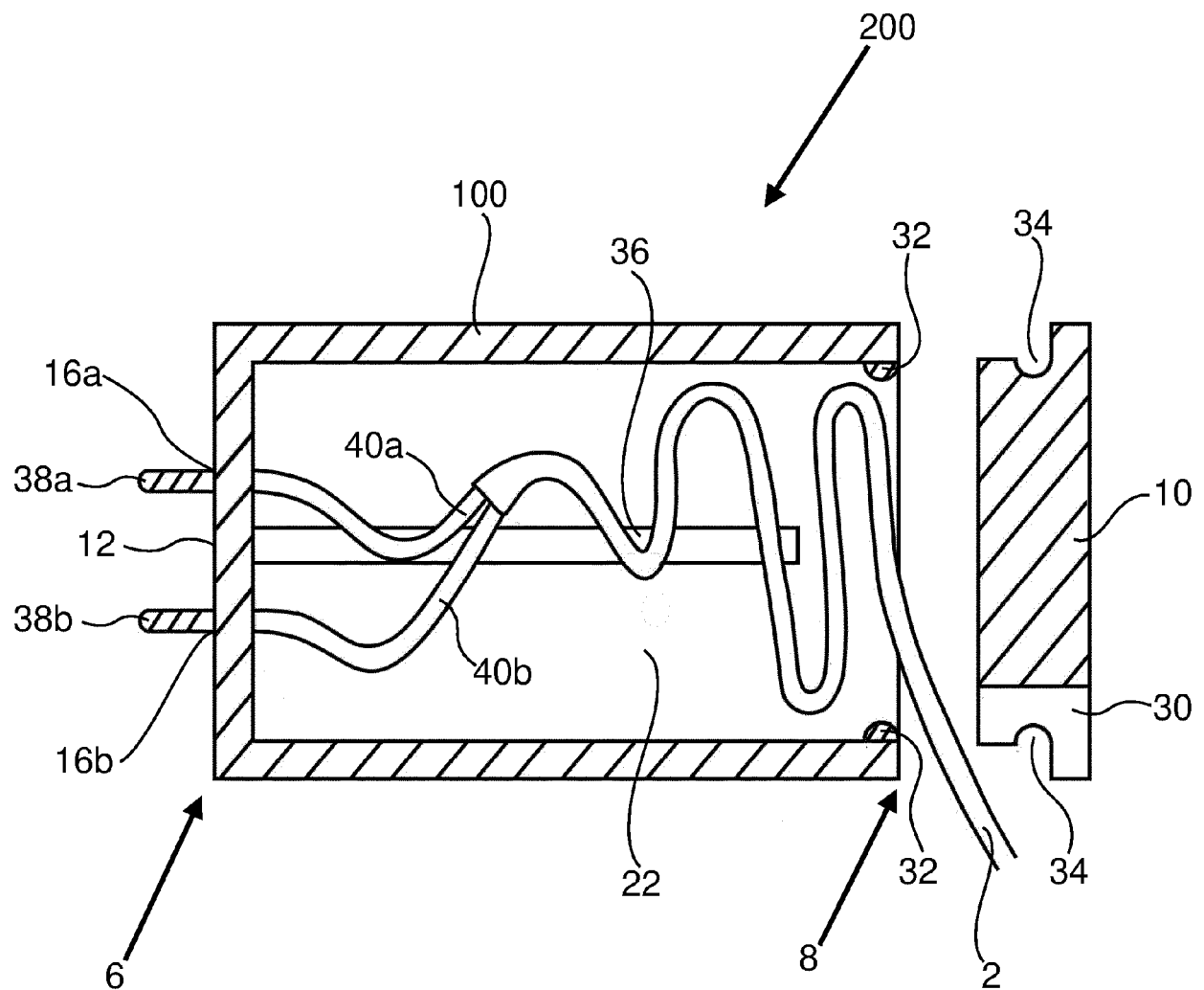


Fig. 3

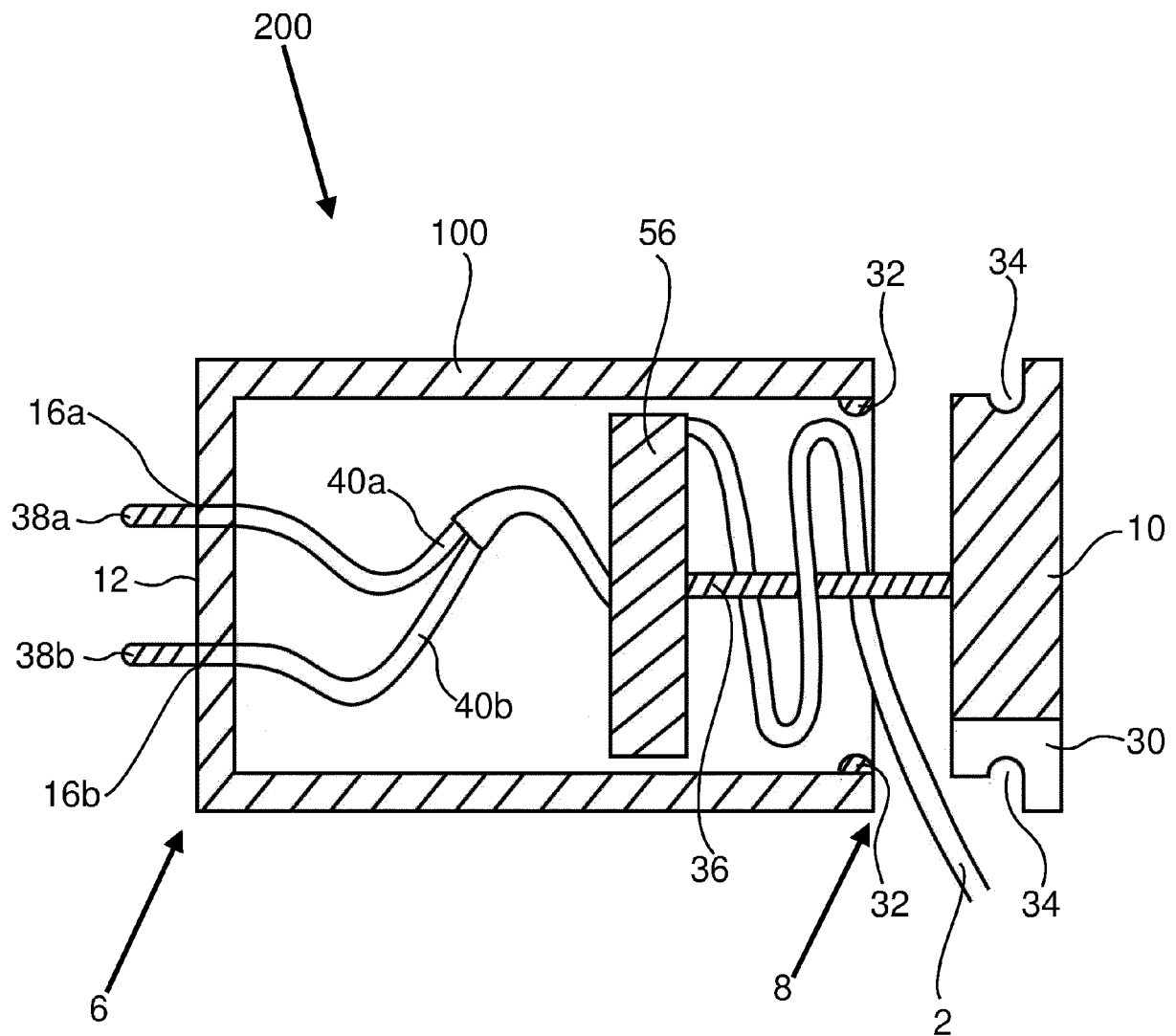


Fig. 4

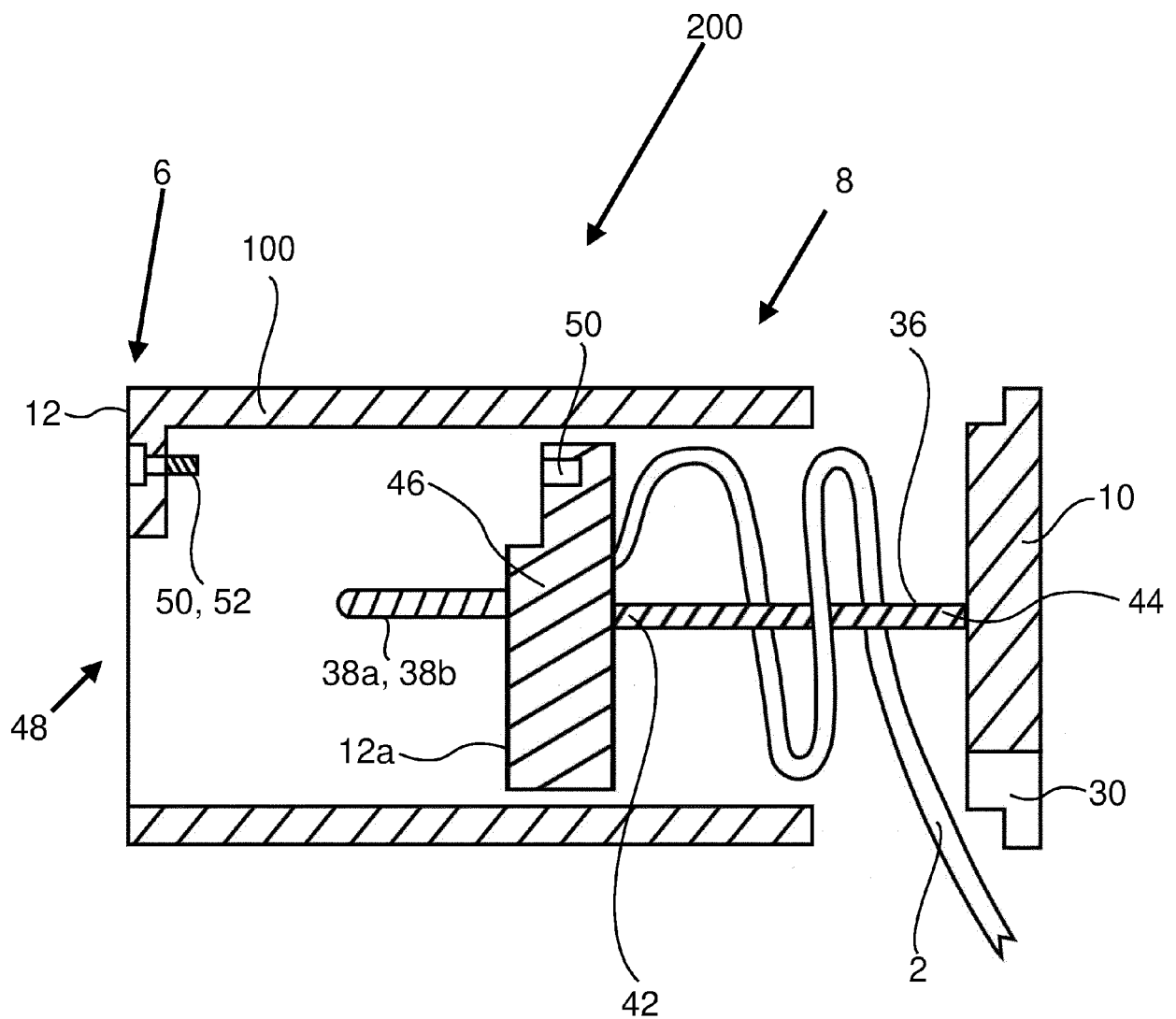


Fig. 5



EUROPEAN SEARCH REPORT

Application Number

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Place of search The Hague		Date of completion of the search 25 March 2022	Examiner Gomes Sirenkov E M.
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