

Description

TECHNICAL FIELD

[0001] The present invention concerns a cable identification device, preferably electrical or telecommunication cables.

[0002] More particularly, the invention concerns a cable identification device suitable for being coupled to an electrical cable (or conduit) for identifying such a cable within a circuit or junction box or otherwise.

PRIOR ART

[0003] As is known, in the field of electrical or telecommunication circuits, there are cable identification devices comprising a tubular body made of plastic material which passes from an open configuration to a closed configuration, in which it retains in its inside an axial portion of the cable.

[0004] This device has an outer face on which identification information is applicable, for example by printing or writing such information.

[0005] A need felt in the industry is to make these identification devices robust, so that they are not subject to breakage over time, which would result in the loss of the cable identification. At the same time, there is a need felt in the sector to make these devices suitable to be printed by thermal transfer printers and, furthermore, to make them suitable to encompass the largest number of cable diameters.

[0006] An object of the present invention is to satisfy these needs and others of the prior art, within the framework of a simple, rational and low cost solution.

[0007] Such objects are achieved by the characteristics of the invention given in the independent claim. The dependent claims outline preferred and/or particularly advantageous aspects of the invention.

DISCLOSURE OF THE INVENTION

[0008] The invention, in particular, provides a cable identification device which comprises:

- a tubular body configured to pass between an open configuration and a closed configuration, wherein it is adapted to surround an axial portion of a cable, wherein the tubular body comprises:
 - a first layer;
 - at least a second layer, wherein the second layer has an outer surface which defines an identification space in which an inscription is reproducible; and
 - a hinge which joins the first and second layers together;
 - wherein the hinge is defined by a "V"-shaped folding notch.

[0009] Thanks to this solution, it is possible to achieve the objects and advantages set out above and the device, as well as the hinge thereof, is particularly resistant, even when the material with which the tubular body is made is particularly rigid/brittle, even after multiple uses.

[0010] Advantageously, the notch defining the hinge can comprise two opposing flanks which are joined in a vertex edge of a dihedral angle formed by said flanks, wherein the vertex edge defines a hinge axis between the first layer and the second layer and wherein, preferably, when the tubular body is in the open configuration the dihedral angle is maximum, preferably right, and when the tubular body is in the closed configuration the dihedral angle is minimum, preferably substantially zero.

[0011] Still, the vertex edge may be arranged at a distance from the outer surface of the second layer comprised between half of a thickness of the second layer and a quarter of the thickness of the second layer, preferably comprised between a third of the thickness of the second layer and a quarter of the thickness of the second layer.

[0012] Advantageously, the notch which defines the hinge can have a longitudinal extension equal to a prevailing dimension of the first layer and the second layer.

[0013] In addition, the tubular body may comprise a third layer and a further hinge which joins the first layer and the third layer together on the opposite side with respect to the second layer, wherein the further hinge is defined by a "V"-shaped folding notch. Advantageously, the hinge which joins the first layer to the second layer can be parallel to the further hinge which joins the first layer to the third layer.

[0014] Still, the third layer may be provided with an outer surface defining a further identification space in which an inscription is reproducible.

[0015] Preferably, the outer surface of the second layer or the third layer is smooth, preferably suitable for receiving the print of the identification information by thermal transfer printers. Still, the tubular body can be monolithic, preferably made of a plastic material (preferably made by injection of such plastic material), for example any hard plastic, which advantageously can be polycarbonate or for example glass- or talc-filled polyamide or talc-filled polypropylene.

[0016] Further, the first layer may comprise a pressure and retaining body configured to exert a contact pressure on the cable, when the cable is surrounded by the tubular body in its closed configuration.

[0017] Still, the tubular body may comprise a fastening assembly configured to retain the tubular body in the closed configuration.

[0018] For example, the fastening assembly may comprise (or consist of):

- at least one fastening hook joined to one from between the second and third layer, preferably rising from an inner face thereof at a free longitudinal perimeter edge distal from the first layer; and

- at least one fastening seat joined to the other from between the third layer and the second layer, preferably rising from an inner face thereof at a free longitudinal perimeter edge distal from the first layer;

wherein, the fastening hook is configured to be snap coupled, preferably in a releasable manner, to the fastening seat when the tubular body is in the closed configuration.

[0019] Advantageously, the device can comprise an anti-opening system configured to cooperate with the fastening assemblies and prevent and/or limit the passage of the tubular body from the closed configuration to the open configuration, wherein the anti-opening system preferably comprises one more columns rising from an inner face of the second layer and one more columns rising from an inner face of the third layer, wherein when the tubular body is in the closed configuration the tops of the columns are in contact with each other defining a mutual shape constraint.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] Further features and advantages of the invention will be more apparent after reading the following description provided by way of a non-limiting example, with the aid of the accompanying drawings.

Figure 1 is an axonometric view of a device according to the invention, with the tubular body in open configuration.

Figure 2 is an axonometric view of the device of Figure 1, with the tubular body in closed configuration.

Figure 3 is a further axonometric view of the device of Figure 1, with the tubular body in closed configuration embracing a cable therein.

Figure 4a and Figure 4b are front views of Figure 3, respectively with a cable of maximum permissible cross-section and with a cable of minimum permissible cross-section for the device.

Figure 5 is a front elevation view of Figure 1.

Figure 6 is a front elevation view of Figure 2.

Figure 7 is a top plan view of Figure 1.

Figure 8 is a bottom plan view of Figure 1.

BEST MODE OF THE INVENTION

[0021] With particular reference to such figures, a cable identification device, for example electrical cables, telecommunication cables or other longitudinal element, has been indicated globally with 10.

[0022] The device 10 comprises a tubular body 20, which is configured to be switched between an open configuration and a closed configuration.

[0023] In the closed configuration, the tubular body 20 is configured to surround an axial portion of a cable, identified in the figures with the letter C, as will be better described below. The tubular body 20, in practice, when it is in its closed configuration delimits a tunnel or channel,

preferably elongated along a longitudinal axis, which is configured to accommodate an axial portion of the cable C.

[0024] The tubular body 20 consists of a monolithic body, preferably made of a plastic material, preferably polycarbonate or other hard plastic, such as for example glass- or talc-filled polyamide or talc-filled polypropylene.

[0025] Advantageously, the tubular body 20 is obtained by injection moulding of such plastic material.

[0026] The tubular body 20 comprises a plurality of layers (for example two or three in number), wherein the layers are joined together in two by two by a hinge, wherein (each) said hinge is defined by a "V"-shaped folding notch, as will be better described below.

[0027] When the tubular body 20 is in the open configuration, the layers are substantially stretched (i.e. parallel to each other) between them, when the tubular body 20 is in the closed configuration, instead, the layers are folded together so as to be facing each other (around the longitudinal axis of the tunnel or channel defined by the tubular body 20) so as to surround/circumscribe in their inside the tunnel or channel.

[0028] In the illustrated example, preferably, the tubular body 20 is preferably formed by three layers.

[0029] In detail, the tubular body 20 comprises a first layer 21, a second layer 22 and a third layer 23, wherein the first layer 21 is interposed between the second layer 22 and the third layer 23.

[0030] For example, the first layer 21 is defined by a plate-shaped body provided with an inner face 211, i.e. adapted to be turned towards the cable C when it is embraced by the tubular body 20 (in its closed configuration) and an opposing outer face 212.

[0031] For example, the outer face 212 is substantially planar and, preferably, parallel to the inner face 211.

[0032] Preferably, the first layer 21 (i.e. the perimeter of the inner face 211 and the outer face) has a substantially quadrangular, e.g. rectangular, shape.

[0033] In detail, the first layer 21 has an elongated shape along a longitudinal axis (parallel to the lying plane of the inner face 211 and/or the outer face 212).

[0034] The first layer 21, therefore, has a pair of longitudinal perimeter edges parallel to each other, of which a first longitudinal perimeter edge proximal to the second layer 22 and a second longitudinal perimeter edge proximal to the third layer 23.

[0035] The first layer 21 also has a pair of transverse perimeter edges (i.e. orthogonal to the longitudinal perimeter edges) which are free.

[0036] The first layer 21 comprises a pressure and retaining body configured to exert a (forced) contact pressure on the cable C, when the cable C is surrounded by the tubular body 20 in its closed configuration.

[0037] In practice, the pressure and retaining body is configured to exert a contact pressure on the cable C such as to prevent or limit the axial extraction of the cable C with respect to the tubular body 20, i.e. such as to exert a constraining reaction adapted to oppose an axial sliding

of the cable C along the tubular body 20.

[0038] The pressure and retaining body is, overall, an elastically resilient element.

[0039] The pressure and retaining body is preferably defined by a (elastic) tab 213 rising with respect to the inner face 211 of the first layer 21.

[0040] In detail, the first layer 21 comprises an (through) opening 214, for example longitudinal with a longitudinal axis parallel to the longitudinal axis of the first layer itself (and a through axis orthogonal to the inner face 211 and/or the outer face 212).

[0041] The opening 214 has an inner edge, for example perimetrically closed, which comprises a peripheral transverse section, that is proximal to one of the transverse perimeter edges of the first layer 21, and a central transverse section, that is proximal to a median plane of the first layer orthogonal to the inner face 211 and/or to the outer face 212 and parallel to the transverse perimeter edges of the first layer itself.

[0042] The tab 213 has an end constrained to the inner edge of the opening 214, preferably to the central transverse section thereof, and projects obliquely rising from the inner face 211 of the first layer 21, so that its free end is at a distance from said median plane of the first layer 21 that is greater than the constrained end thereof.

[0043] Furthermore, the free end of the tab 213 protrudes into the tunnel or channel defined by the tubular body 20, when it is in its closed configuration, so as to at least partially restrict its passage cross section.

[0044] In practice, the tab 213 is subtended (totally) by the opening 214 and its projection along a direction orthogonal to the lying plane of the inner face 211 and/or of the outer face 212 of the first layer 21 is all contained within the opening 214.

[0045] For example, the tab 213 has a shape substantially complementary to the shape of the opening 214.

[0046] Advantageously, the free end of the tab 213 is shaped, for example tapered, preferably beak-shaped (as a flute's mouthpiece).

[0047] Preferably the tip of the tab 213 is placed at its outer face (which extends from the outer face 212 of the first face 21).

[0048] Preferably, the first layer 21 comprises a plurality of pressure and retaining bodies, more preferably a pair of pressure bodies (axially opposing, i.e. each intended to counteract the axial extraction of the cable C in a respective direction of mutual sliding between the tubular body 20 and the cable C).

[0049] In practice, the first layer 21 comprises a pair of said tabs 213 (as described above, i.e. with the free ends opposing each other) and, for example, a pair of said openings 214. The second layer 22 is also defined by a plate-shaped body provided with an inner face 221, i.e. adapted to be turned towards the cable C when it is embraced by the tubular body 20 (in its closed configuration) and an opposing outer face 222.

[0050] For example, the outer face 222 is substantially planar and, preferably, parallel to the inner face 221.

[0051] The outer face 222 is provided with an outer surface, for example planar (preferably with full extension of the outer face 222) which defines an identification space in which an inscription is reproducible.

[0052] For example, the inscription contains identification information on the cable that is intended to be surrounded by the tubular body 20, when it is brought into the closed configuration.

[0053] Advantageously, the outer surface of the outer face 222 is smooth, i.e. it has a surface roughness comprised between RA 0.02 and RA 0.04, preferably less than or equal to RA 0.03.

[0054] In this way, a surface suitable for printing the inscription is made available, preferably by thermal transfer printers.

[0055] Preferably, the second layer 22 (i.e. the perimeter of the inner face 221 and of the outer face 222) has a substantially quadrangular shape, for example rectangular (substantially homologous to the quadrangular shape of the first layer 21).

[0056] In detail, the second layer 22 has an elongated shape along a longitudinal axis (parallel to the lying plane of the inner face 221 and/or of the outer face 222).

[0057] Preferably, the longitudinal axis of the second layer 22 is parallel to the longitudinal axis of the first layer 21.

[0058] The second layer 22, therefore, has a pair of longitudinal perimeter edges parallel to each other, of which a first longitudinal perimeter edge proximal to the first layer 21 and a second free longitudinal perimeter edge proximal.

[0059] The second layer 22 also has a pair of transverse perimeter edges (i.e. orthogonal to the longitudinal perimeter edges) which are free.

[0060] Border and/or confinement elements rise from the inner face 221 of the second layer.

[0061] In particular, the border and/or confinement elements comprise a pair of axial walls 223, of which an axial front wall 223, arranged at one of the transverse perimeter edges, and an axial rear wall 223, arranged at the other of the transverse perimeter edges.

[0062] For example, each axial wall 223 rises substantially orthogonally from the inner face 221 and is provided with an end constrained to the respective transverse perimeter edge and an opposing free end (distal from the inner face 221).

[0063] The free end of each axial wall 223 is shaped, for example, has a semi-cylindrical outline (open with concavity turned towards the opposite side of the inner face 221), for example provided with a flat/planar bottom (e.g., coplanar or parallel to the inner face 221).

[0064] In addition, the second layer 22 comprises a radial 224 containment wall 224, for example made at the second longitudinal perimeter edge (free).

[0065] The containment wall 224 rises substantially orthogonally from the inner face 221 and is provided with an end constrained to the second longitudinal perimeter edge and an opposing free end (distal from the inner face

221).

[0066] For example, the containment wall 224 projects longitudinally (and parallel) for the entire longitudinal extension of the second longitudinal perimeter edge (i.e., for the entire length of the second layer 22).

[0067] The second layer 23, finally, is defined by a plate-shaped body provided with an inner face 231, i.e. adapted to be turned towards the cable C when it is embraced by the tubular body 20 (in its closed configuration) and an opposing outer face 232.

[0068] For example, the outer face 232 is substantially planar and, preferably, parallel to the inner face 231.

[0069] The outer face 232 is provided with an outer surface, for example planar (preferably with full extension of the outer face 232) which defines an identification space in which a further inscription is reproducible.

[0070] For example, the further inscription contains identification information on the cable that is intended to be surrounded by the tubular body 20, when it is brought into the closed configuration.

[0071] Advantageously, the outer surface of the outer face 232 is smooth, i.e. it has a surface roughness comprised between RA 0.02 and RA 0.04, preferably less than or equal to RA 0.03.

[0072] In this way, a surface suitable for printing the inscription is made available, preferably by thermal transfer printers.

[0073] Preferably, the third layer 23 (i.e. the perimeter of the inner face 231 and the outer face 232) has a substantially quadrangular shape, for example rectangular (substantially homologous to the quadrangular shape of the first layer 21 and/or to the second layer 22). In detail, the third layer 23 has an elongated shape along a longitudinal axis (parallel to the lying plane of the inner face 231 and/or the outer face 232).

[0074] Preferably, the longitudinal axis of the third layer 23 is parallel to the longitudinal axis of the first layer 21 (and of the second layer 22).

[0075] The third layer 23, therefore, has a pair of longitudinal perimeter edges parallel to each other, of which a first longitudinal perimeter edge proximal to the first layer 21 and a second free longitudinal perimeter edge.

[0076] The third layer 23 also has a pair of transverse perimeter edges (i.e. orthogonal to the longitudinal perimeter edges) which are free.

[0077] Border and/or confinement elements rise from the inner face 231 of the third layer 23.

[0078] In particular, the border and/or confinement elements comprise a pair of axial walls 233, of which an axial front wall 233, arranged at one of the transverse perimeter edges, and an axial rear wall 233, arranged at the other of the transverse perimeter edges.

[0079] For example, each axial wall 233 rises substantially orthogonally from the inner face 231 and is provided with an end constrained to the respective transverse perimeter edge and an opposing free end (distal from the inner face 231).

[0080] The free end of each axial wall 233 is shaped,

for example, has a semi-cylindrical outline (open with concavity turned towards the opposite side of the inner face 231), for example provided with a flat/planar bottom (e.g., coplanar or parallel to the inner face 231).

[0081] In addition, the third layer 23 comprises a radial containment wall 234, for example made at the second longitudinal perimeter edge (free).

[0082] The containment wall 234 rises substantially orthogonally from the inner face 231 and is provided with an end constrained to the second longitudinal perimeter edge and an opposing free end (distal from the inner face 231).

[0083] For example, the containment wall 234 projects longitudinally (and parallel) for the entire longitudinal extension of the second longitudinal perimeter edge (i.e., for the full length of the third layer 23).

[0084] When the tubular body 20 is in the open configuration the outer face 212 (as well as the inner face 211) of the first layer 21, the outer face 222 (as well as the inner face 221) of the second layer 22 and the outer face 232 (as well as the inner face 231) of the third layer 23 are substantially coplanar with each other.

[0085] When the tubular body 20 is in the closed configuration the outer face 212 (as well as the inner face 211) of the first layer 21 is substantially squared with the outer face 222 (as well as the inner face 221) of the second layer 22 and the outer face 232 (as well as the inner face 231) of the third layer 23.

[0086] The containment wall 224 comprises, for example, an anti-opening system formed by one or more columns 2240 (in the example in number of two), for example facing the inner face (turned towards the cable C, in operation) of the containment wall 224.

[0087] The containment wall 234 also comprises an anti-opening system, formed by one or more columns 2340 (in the example in number of two), for example facing the inner face (turned towards the cable C, in operation) of the containment wall 234.

[0088] When the tubular body 20 is in the closed configuration, the tops of the containment walls 224 and 234 (as well as of the columns 2240 and 2340) are proximal to each other, for example in contact (defining an abutment and/or mutual constraint surface).

[0089] The tops of the columns 2240 and 2340 are shaped (stepwise) and complementary, so as to define a shape constraint when in mutual contact. This shape constraint is such as to prevent (or limit) the (accidental) opening of the tubular body 20 when it is in the closed configuration (cooperating with a fastening assembly described in detail below).

[0090] The tubular body 20 comprises a fastening assembly configured to retain the tubular body 20 in the closed configuration.

[0091] The fastening assembly comprises, in particular, a pair of fastening elements configured to constrain one another, of which:

- at least one fastening hook 225 joined to one from

between the second layer 22 and the third layer 23, in the example from the second layer 22; and

- at least one fastening seat 235 joined to the other from between the third layer 23 and the second layer 22, in the example from the third layer 23,

[0092] For example, the fastening hook 225 is configured to be snap coupled, preferably in a releasable manner, to the fastening seat 235 when the tubular body 20 is in the closed configuration.

[0093] Preferably, the fastening hook 225 rises substantially orthogonally from the inner face 221, for example above the containment wall 224.

[0094] The fastening hook 225 is shaped like a coupling tooth and is provided with a leg (elastically flexible, for example in the radial direction) provided with an end constrained to the second longitudinal perimeter edge and an opposing free end (distal from the inner face 221) from which a coupling head departs, for example with an arrow head, provided with a tip facing outwards (i.e. on the opposite side with respect to the first layer). Preferably, the fastening assembly comprises a single fastening hook 225, for example central (i.e. centred along the longitudinal extension of the tubular body 20).

[0095] The fastening seat 235 rises substantially orthogonally from the inner face 231, for example is made at the containment wall 234.

[0096] For example, the fastening seat 235 is made by a through slot, preferably perimetrically closed, made in the containment wall 234 (wherein the through slot is longitudinal with a longitudinal axis parallel to the longitudinal axis of the tubular body 20 and, for example, with a through axis orthogonal to the containment wall 234).

[0097] The fastening seat 235 has an abutment edge, for example planar, which is distal from the inner face 231 of the third layer 23 (and parallel thereto).

[0098] The coupling head of the fastening hook 225 is configured to define a shape constraint (for snap coupling) with the abutment edge of the fastening seat 235, when the tubular body 20 is brought into the closed configuration.

[0099] The first layer 21 and the second layer 22 are joined together by a hinge 30.

[0100] As mentioned, the hinge 30 is defined by a "V"-shaped folding notch.

[0101] The notch defining the hinge 30 comprises two opposing flanks, of which a first flank is joined to the first layer 21 and a second flank is joined to the second layer 22.

[0102] The first flank defines (or forms at least a portion of) the first longitudinal perimeter edge of the first layer 21 and the second flank defines (or forms at least a portion of) the first longitudinal perimeter edge of the second layer 22.

[0103] The first flank and the second flank are inclined to each other and converging in a vertex edge 33 (internal in the thickness of the first layer 21 and of the second layer 22), see figure 5.

[0104] In practice, the first flank and the second flank form a dihedral angle (with variable width), wherein the vertex edge 33 defines a hinge axis between the first layer 21 and the second layer 22.

[0105] In the vertex edge 33, i.e. in a bisector plane of the dihedral angle to which the vertex edge 33 belongs, the first layer 21 and the second layer 22 are re-joined through a thin re-joining layer (running from the vertex edge to the outer face 212,222 of the first layer 21 and/or of the second layer 22).

[0106] When the tubular body 20 is in the open configuration the dihedral angle formed by the first flank and by the second flank is maximum, preferably straight, and when the tubular body 20 is in the closed configuration the dihedral angle formed by the first flank and by the second flank is minimum, preferably substantially zero (i.e. the first flank and the second flank are substantially in contact with each other).

[0107] The passage of the dihedral angle of the hinge 30 from the maximum value to the minimum value bends the layer and stretches out (in a contained and not excessive way), in an elastic or elastic-plastic way, the aforementioned re-joining layer.

[0108] Advantageously, the vertex edge 33 (which defines the hinge axis of the hinge 33) is arranged at a (non-zero) distance from the outer face 222 of the second layer 22 (and from the outer face 212 of the first layer 21), wherein said distance is preferably comprised between half of a thickness of the second layer 22 (and of the first layer 21) and a quarter of the thickness of the second layer 22 (and of the first layer 21), preferably comprised between a third of the thickness of the second layer 22 (and of the first layer 21) and a quarter of the thickness of the second layer 22 (and of the first layer 21). Advantageously, the notch which defines the hinge 30 has a longitudinal extension (parallel to the hinge axis) equal to a prevailing dimension of the first layer 21 and the second layer 22.

[0109] In other words, the notch, i.e. the vertex edge 33 of the hinge 30 (is fully extended with the first layer 21 and the second layer 22 which joins, i.e.) extends for the entire first longitudinal edge of the first layer 21 and the second layer 22.

[0110] The first layer 21 and the third layer 23 are also joined together by a further hinge 30 (which is preferably structurally and functionally identical to the hinge 30 interposed between the first layer 21 and the second layer 22).

[0111] As mentioned, (also) the further hinge 30 is defined by a "V"-shaped folding notch.

[0112] The notch which defines the further hinge 30 comprises two opposing flanks, of which a first flank is joined to the first layer 21 and a second flank is joined to the third layer 23. The first flank defines (or forms at least a portion of) the second longitudinal perimeter edge of the first layer 21 and the second flank defines (or forms at least a portion of) the first longitudinal perimeter edge of the third layer 23.

[0113] The first flank and the second flank are inclined to each other and converging in a vertex edge 33 (internal in the thickness of the first layer 21 and of the third layer 23).

[0114] In practice, the first flank and the second flank form a dihedral angle (with variable width), wherein the vertex edge 33 defines a hinge axis between the first layer 21 and the third layer 23.

[0115] In the vertex edge 33, i.e. in a bisector plane of the dihedral angle to which the vertex edge 33 belongs, the first layer 21 and the third layer 23 are re-joined through a thin re-joining layer (running from the vertex edge to the outer face 212, 232 of the first layer 21 and/or of the third layer 23).

[0116] When the tubular body 20 is in the open configuration the dihedral angle formed by the first flank and by the second flank is maximum, preferably straight, and when the tubular body 20 is in the closed configuration the dihedral angle formed by the first flank and by the second flank is minimum, preferably substantially zero (i.e. the first flank and the second flank are substantially in contact with each other).

[0117] The passage of the dihedral angle of the hinge 30 from the maximum value to the minimum value bends the layer and stretches out (in a contained and not excessive way), in an elastic or elastic-plastic way, the aforementioned re-joining layer.

[0118] Advantageously, the vertex edge 33 (which defines the hinge axis of the hinge 33) is arranged at a (non-zero) distance from the outer face 232 of the third layer 22 (and from the outer face 212 of the first layer 21), wherein said distance is preferably comprised between half of a thickness of the third layer 23 (and of the first layer 21) and a quarter of the thickness of the third layer 23 (and of the first layer 21), preferably comprised between a third of the thickness of the third layer 23 (and of the first layer 21) and a quarter of the thickness of the third layer 23 (and of the first layer 21).

[0119] Advantageously, the notch which defines the further hinge 30 has a longitudinal extension (parallel to the hinge axis) equal to a prevailing dimension of the first layer 21 and the third layer 23.

[0120] In other words, the notch, i.e. the vertex edge 33 of the hinge 30 (is with full extension with the first layer 21 and the third layer 23 which joins, i.e.) extends for the entire second longitudinal edge of the first layer 21 and for the entire first longitudinal edge of the third layer 23.

[0121] The hinge 30 which joins the first layer 21 to the second layer 22 is parallel to the further hinge 30 which joins the first layer 21 to the second layer, i.e. the hinge axis of the hinge 30 (which is parallel to the longitudinal axis of the tubular body 20) which joins the first layer 21 to the second layer 22 is parallel to the hinge axis (also parallel to the longitudinal axis of the tubular body 20) of the further hinge 30 which joins the first layer 21 to the third layer 23.

[0122] In light of the above, the operation of the device 10 is as follows.

[0123] The tubular body 20 is normally in its open configuration.

[0124] When it is necessary to identify a cable C by means of a device 10, it is sufficient to embrace an axial portion of the cable C with the tubular body 20 in its open configuration and to switch the tubular body in the closed configuration, so that the axial portion of the cable C is placed inside the tunnel or channel enclosed by the tubular body 20 itself.

[0125] In such a closed configuration, the fastening hook 225 engages (snap-in) the fastening seat 235 retaining the tubular body 20 in the closed configuration itself.

[0126] The tabs 213 exert a pressure of the cable C towards the containment walls 224 and 234 and/or on (the free end of) the axial walls 223 and 233 (as shown in Figures 4a and 4b) in a forced manner, so as to clamp the cable C (between the tabs 213 and said containment walls 224 and 234 (re-joined)).

[0127] In addition, the (free ends of the) tabs 213 engage the periphery of the (sheath) of the cable C, which is then axially retained (limiting or avoiding any mutual axial sliding between cable C and device 10).

[0128] The invention thus conceived is susceptible to many modifications and variants, all falling within the same inventive concept.

[0129] Moreover, all the details can be replaced by other technically equivalent elements.

[0130] In practice, the materials used, as well as the contingent shapes and sizes, can be whatever according to the requirements without for this reason departing from the scope of protection of the following claims.

Claims

1. A cable identification device which comprises:
a tubular body configured to pass between an open configuration and a closed configuration, wherein it is adapted to surround an axial portion of a cable, wherein the tubular body comprises:

a first layer;
at least a second layer, wherein the second layer has an outer surface which defines an identification space in which an inscription is reproducible; and
a hinge which joins the first and second layers together;
wherein the hinge is defined by a "V"-shaped folding notch.

2. The device according to claim 1, wherein the notch defining the hinge comprises two opposing flanks which are joined in a vertex edge of a dihedral angle formed by said flanks, wherein the vertex edge defines a hinge axis between the first layer and the second layer and wherein, preferably, when the tu-

bular body is in the open configuration the dihedral angle is maximum, preferably right, and when the tubular body is in the closed configuration the dihedral angle is minimum, preferably substantially zero.

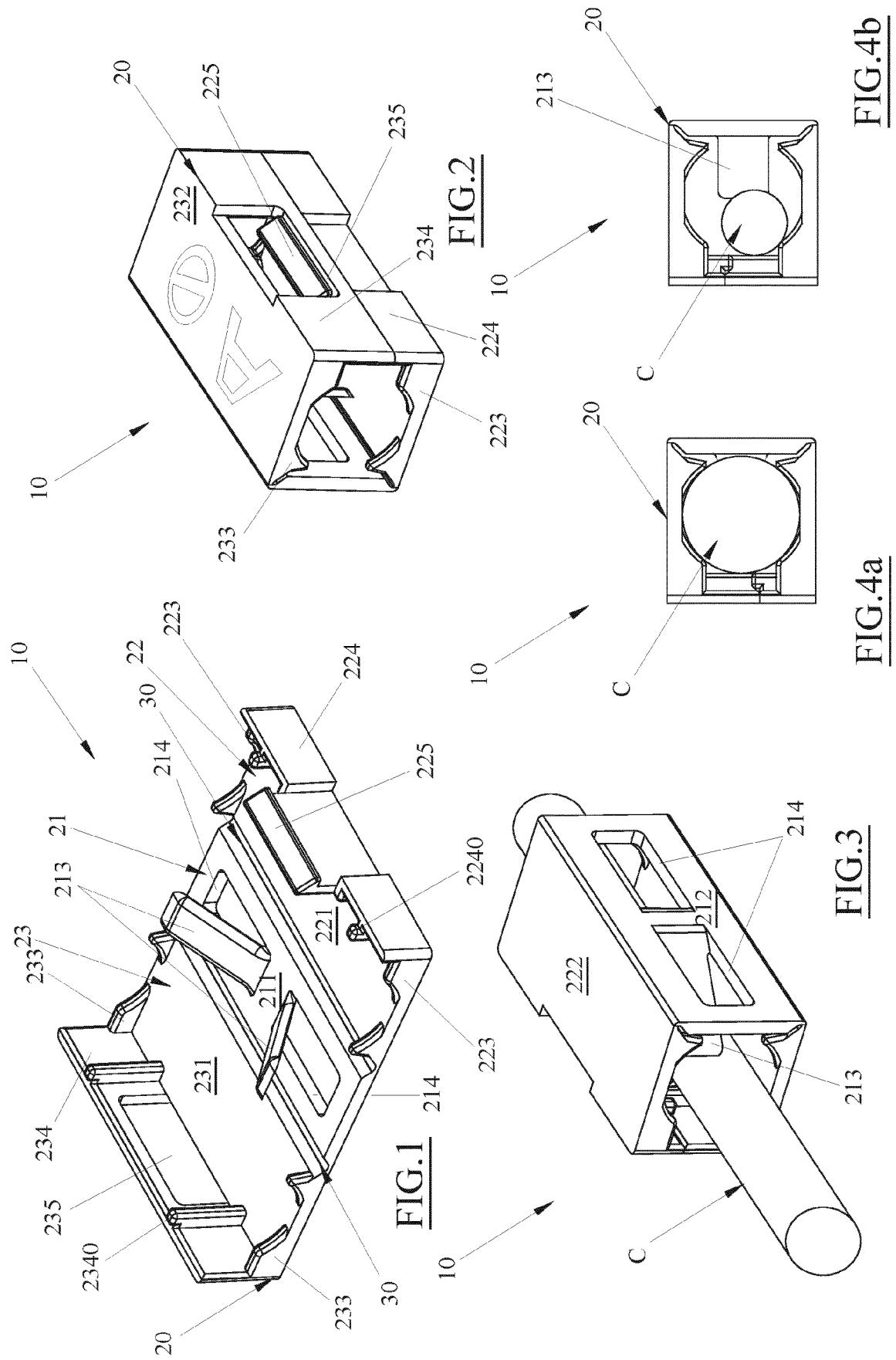
3. The device according to the preceding claim, wherein the vertex edge is arranged at a distance from the outer surface of the second layer comprised between half of a thickness of the second layer and a quarter of the thickness of the second layer, preferably comprised between a third of the thickness of the second layer and a quarter of the thickness of the second layer. 5
4. The device according to claim 1, wherein the notch which defines the hinge has a longitudinal extension equal to a prevailing dimension of the first layer and the second layer. 10
5. The device according to claim 1, wherein the tubular body comprises a third layer and a further hinge which joins the first layer and the third layer together on the opposite side with respect to the second layer, wherein the further hinge is defined by a "V"-shaped folding notch. 15
6. The device according to the preceding claim, wherein the hinge which joins the first layer to the second layer is parallel to the further hinge which joins the first layer to the third layer. 20
7. The device according to claim 6, wherein the third layer is provided with an outer surface defining a further identification space in which an inscription is reproducible. 25
8. The device according to claim 1 or 7, wherein the outer surface of the second layer or the third layer is smooth, preferably suitable for receiving the print of the identification information by thermal transfer printers. 30
9. The device according to claim 1, wherein the tubular body is monolithic, preferably made of at least one plastic chosen from the group consisting of polycarbonate, glass- or talc-filled polyamide and talc-filled polypropylene. 35
10. The device according to claim 1, wherein the first layer comprises a pressure and retaining body configured to exert a contact pressure on the cable, when the cable is surrounded by the tubular body in its closed configuration. 40
11. The device according to claim 1, wherein the tubular body comprises a fastening assembly configured to retain the tubular body in the closed configuration. 45

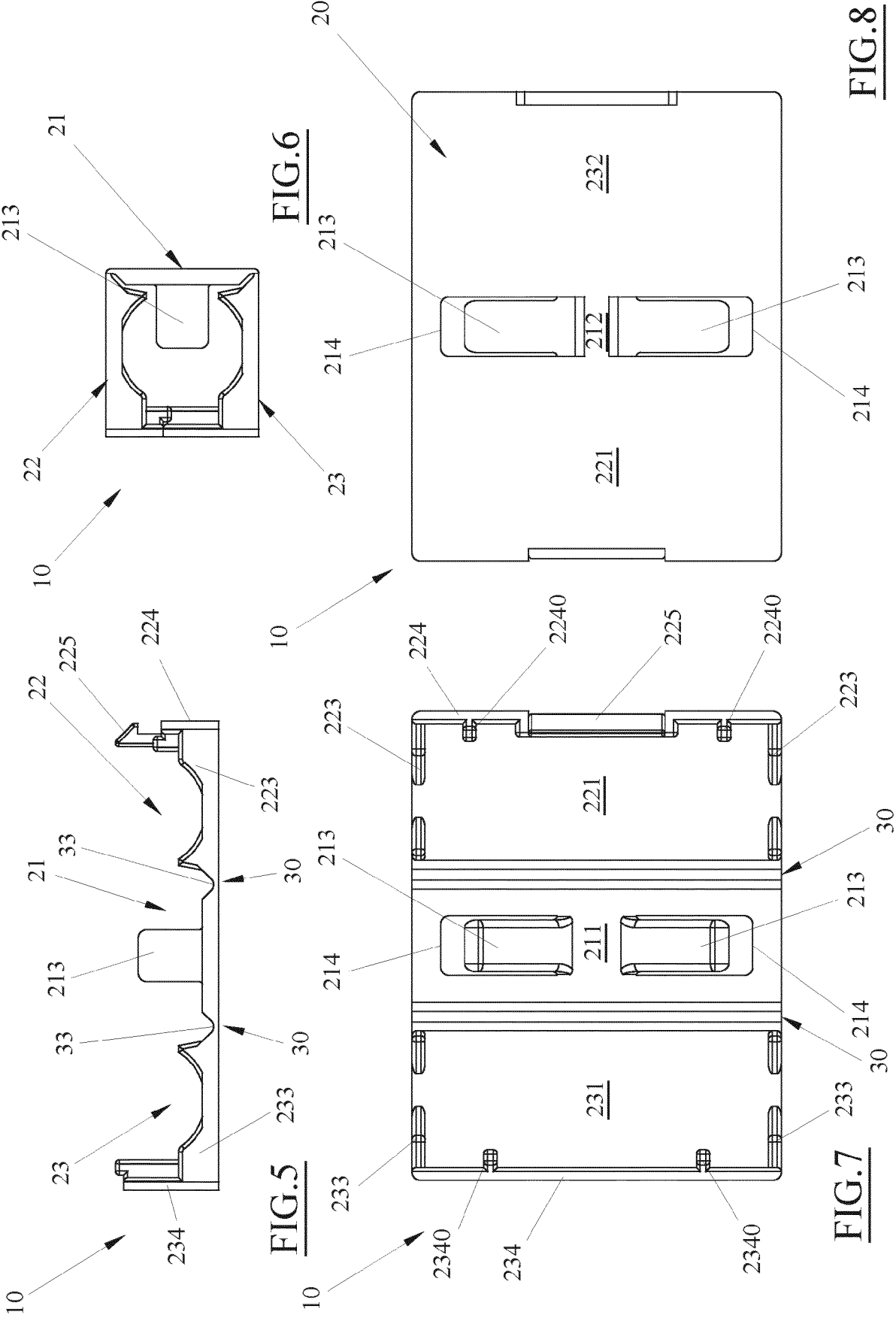
12. The device according to claims 1 and 7, wherein the fastening assembly comprises:

- at least one fastening hook joined to one from between the second and third layer, preferably rising from an inner face thereof at a free longitudinal perimeter edge distal from the first layer; and
- at least one fastening seat joined to the other from between the third layer and the second layer, preferably rising from an inner face thereof at a free longitudinal perimeter edge distal from the first layer;

wherein, the fastening hook is configured to be snap coupled, preferably in a releasable manner, to the fastening seat when the tubular body is in the closed configuration.

13. The device according to claim 12, which comprises an anti-opening system configured to cooperate with the fastening assembly and prevent and/or limit the passage of the tubular body from the closed configuration to the open configuration, wherein the anti-opening system preferably comprises one more columns rising from an inner face of the second layer and one more columns rising from an inner face of the third layer, wherein when the tubular body is in the closed configuration the tops of the columns are in contact with each other defining a mutual shape constraint. 50







EUROPEAN SEARCH REPORT

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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 21 December 2022	Examiner Zanna, Argini
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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