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(54) **Clamp for gripping a cable, picture and/or message-carrying mount associated with said clamp and system comprising said mount**

(57) A clamp (21) for gripping a cable (3,4), comprising a housing (22) provided with a through-cavity (23) delimited longitudinally between an upper base (24) and a lower base (25), a body (26) sliding longitudinally inside said cavity (23) between an upper position and a lower position, a male threaded element (51), a female

threaded element (31) and a stop element (35, 2) provided with an opening (36, 42).

A picture and/or message-carrying mount (2) provided with at least one pair of clamps (21) and a system (1) for connecting at least one mount (2) to a support structure.

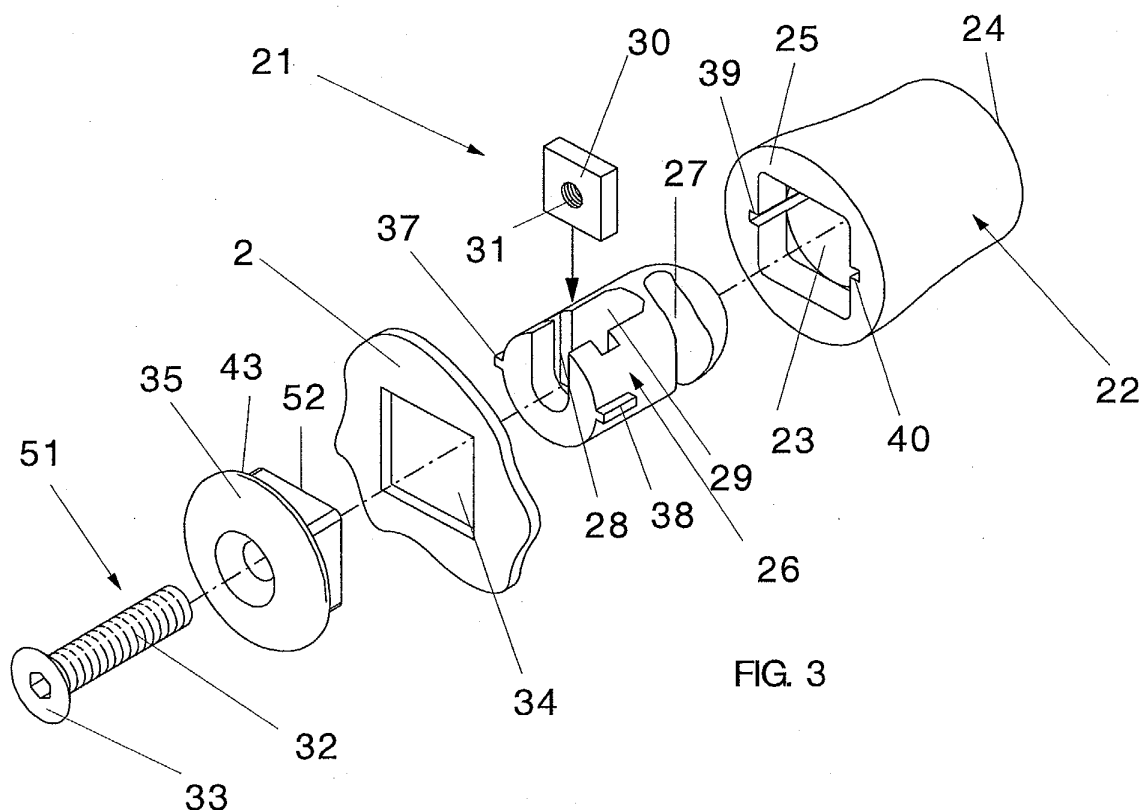


FIG. 3

Description

[0001] The present invention relates to a clamp for gripping a cable, a picture and/or message-carrying mount associated with said clamp, and a system comprising at least one pair of said clamps associated with said mount and a pair of cables.

[0002] Systems, particularly useful in environments open to the public, are known, said systems comprising one or more document display elements having a rectangular or square shape and being supported in vertical or horizontal succession by parallel cables which are arranged alongside them on opposite sides. The documents displayed on said elements contain instructions, pictures, information and messages of varying nature.

[0003] In turn, the ends of the cables are firmly secured to suitable supports such as, for example, a wall, when said system is arranged vertically, or two walls, when said system is arranged horizontally. Alternatively, when said system is arranged vertically, one end of each cable is secured to a ceiling and the other end to a floor.

[0004] The connection between the document display element and the cables which support it is obtained by means of at least one pair of projecting clamps, one being arranged on one side and the other on the opposite side of the document display element. These clamps are provided with a seat inside which the cable is first inserted and then gripped by means of an element which exerts a pressure on the cable in a direction perpendicular to the cable itself.

[0005] In these known systems, since said connection is outside of the area of the document display elements and since the two cables extend parallel to each other, the sides of the document display elements which extend transversely between one cable and the other necessarily all have the same dimension (width). As a consequence thereof, in said known systems, it is not possible to associate document display elements of different widths with a pair of cables.

[0006] Another drawback of said known systems is that, when it is required to use a pair of cables with one or more document display elements having a different width, it is required to disassemble the entire system and adapt it to the required width with considerable wasting of time and high costs.

[0007] The object of the present invention is to remedy said drawbacks.

[0008] According to its first aspect, the present invention therefore relates to a clamp for gripping a cable, comprising a housing provided with a through-cavity delimited longitudinally between an upper base and a lower base, a body sliding longitudinally inside said cavity between an upper position and a lower position, a male threaded element, a female threaded element and a stop element provided with an opening.

[0009] Preferably, the shape of said body substantially complements that of said cavity.

[0010] This sliding body is provided, in the vicinity of

its upper end, with a groove oriented transversely with respect to the housing and, in the vicinity of the opposite end, with said female threaded element.

[0011] Said groove is open towards the outside so as to receive and house said cable.

[0012] Said male threaded element has a threaded body and a head with a diameter greater than the body, said head being provided with at least one socket able to be engaged by a tool, such as a screwdriver or an Allen key, so as to cause rotation of said threaded element.

[0013] Moreover, the lower base of said housing rests against said stop element and the opening of said stop element has a dimension such as to allow the body, but not the head of said male threaded element to pass through.

[0014] Preferably, said female threaded element is a threaded hole formed in a substantially quadrangular metal plate.

[0015] Advantageously, the sliding body comprises a transverse recess accessible from the outside so as to insert said metal plate inside said recess.

[0016] Typically, the clamp comprises means for longitudinally guiding said body inside said cavity of said housing.

[0017] Preferably, this guide means comprise at least one longitudinal rib on the lateral surface of said body and at least one corresponding longitudinal groove inside said cavity of said housing.

[0018] Advantageously, said stop element is a picture and/or message-carrying mount.

[0019] During operation, said male threaded element passes through said opening of said stop element, penetrates inside said female threaded element of said sliding body and is screwed therein so as to slidable move said body from an upper position, where the cable may be inserted into or removed from said groove, to a lower position, where the cable is gripped against the upper base of the housing.

[0020] According to its second aspect, the invention relates to a picture and/or message-carrying mount provided with at least one pair of clamps according to the invention.

[0021] Preferably, the shape of said mount is rectangular or square.

[0022] Advantageously, said mount is provided with a pair of opposite lateral guides for insertion of a sheet on which pictures or messages are printed.

[0023] Conveniently, said pair of guides is obtained by bending in a U shape two opposite lateral edges of said mount.

[0024] Preferably, the front surface of said mount is concave.

[0025] In a preferred embodiment, said mount consists of a plate.

[0026] According to its third aspect, the invention relates to a system for connecting to a support structure at least one picture and/or message-carrying mount ac-

cording to the invention.

[0027] This system comprises at least two cables which are parallel to each other and with which at least one picture and/or message-carrying mount is associated, means for constraining to the ends of each cable and an element for locking together the constraining means and said support structure (not shown in that of the conventional type).

[0028] Advantageously, the system comprises a plurality of said mounts, each of said mounts being associated with said cables by means of at least one pair of clamps according to the invention.

[0029] In an embodiment of the system according to the present invention, the transverse sides of at least one of the mounts of said plurality have a dimension different from that of the transverse sides of the other mounts of the system.

[0030] The present invention will now be described more fully with the aid of the description which follows and the accompanying figures, provided solely by way of example and not intended to be limiting in any way, where:

Fig. 1 shows a front view of a system according to the invention;

Fig. 2 shows the application of a sheet with printed pictures and writing on a mount according to the invention;

Fig. 3 shows an exploded perspective view of a clamp according to the invention;

Fig. 4 shows a further exploded perspective view of the clamp according to Fig. 3, in which the housing 22 is partially sectioned;

Fig. 5 shows the clamp according to Fig. 3 with the sliding body in an upper position, longitudinally sectioned along the centre plane perpendicular to the groove of the sliding body;

Fig. 6 shows the clamp according to Fig. 3, longitudinally sectioned along the same centre plane of Fig. 5, but with the sliding body in the lower position;

Fig. 7 shows the clamp according to Fig. 3, with the sliding body in the lower position, longitudinally sectioned along the centre plane perpendicular to that of the section according to Fig. 6;

Fig. 8 shows a variant of the clamp according to Fig. 3, with the sliding body in the lower position, longitudinally sectioned along the centre plane parallel to the groove of the sliding body.

[0031] In Figs. 1 and 2, 1 denotes a system for connecting a plurality of picture and/or message-carrying mounts to a support structure (not shown).

[0032] A plurality of mounts 2 is associated, as described further below, with two steel cables 3, 4, the ends of which comprise constraining means 5 connected to a top pair and a bottom pair of arms 6, 7.

[0033] More particularly, as can be seen in Fig. 1, these means 5 for constraining each cable 3, 4 comprise

a head 8 inserted inside a special eyelet of the arms 6, 7 which are in turn provided with a hole 50 for performing fixing, by means of screws, nails or the like, to a support structure, for example a wall.

[0034] The mount 2 is formed by a plate delimited by a first pair 9, 10 and by a second pair 11, 12 of opposite sides.

[0035] The edges of the pair 11, 12 of opposite sides are bent in a U shape so as to form seats 13, 14 suitable for receiving, by means of insertion, a document 15 and a protective sheet 16 made of a suitable transparent material such as, for example, cellulose acetate or a polyester such as polyethylene terephthalate (PET).

[0036] The front face of said mount 2 is slightly concave.

[0037] During introduction into the seats 13, 14, the document 15 and the protective sheet 16 tend to flex outwards, but slight finger pressure is sufficient to bring the document and sheet into contact with the slightly concave front surface of the mount 2.

[0038] Preferably, the mount 2 comprises, on the lower transverse side 10, a projecting portion 17 for stopping, where necessary, the document 15 and the protective sheet 16 from sliding downwards.

[0039] This document 15 comprises various pictures and/or messages, such as writing 18, diagrams 19, messages 20, photographs as well as other possible sets of data and advertisements of various kinds to be displayed, for example, during fairs, exhibitions and the like.

[0040] Advantageously, the various mounts 2 of the embodiment illustrated in Fig. 1 have longitudinal and/or transverse dimensions which differ from each other.

[0041] During the course of the present description and the claims which follow, a side of the mount 2 is defined as longitudinal when it extends - as in the case of the sides 11, 12- substantially in the same direction as the cables 3, 4; a side of the mount 2 is defined, on the other hand, as transverse when it extends - as in the case of the sides 9, 10 - in a direction which is substantially transverse with respect to said cables 3, 4.

[0042] Preferably, the dimensions of the mounts 2 correspond to those defined by the standards relating to paper used in offices. In this case, the mounts 2 have a rectangular shape.

[0043] In the embodiment illustrated in Fig. 1, the dimensions of the first and the second mount 2 correspond to those of an A5 sheet, the dimensions of the third mount 2 correspond to those of an A4 sheet, and the dimensions of the fourth and fifth mount 2 correspond to those of a A3 sheet.

[0044] These mounts 2 are associated with the cables 3, 4, each by means of two pairs of clamps 21. Despite the fact that the mounts 2 according to Fig. 1 have different dimensions and that some of them are arranged horizontally and others vertically, they are supported by a single pair of cables 3, 4.

[0045] This important difference with respect to the

known art is obtained precisely owing to the structural and functional characteristics of the clamp 21 according to the invention, as further described hereinbelow in greater detail.

[0046] As shown in Figs. 3-7, the clamp 3 comprises a housing 2 having a through-cavity 23 which is open at the bases 24, 25 and a body 26.

[0047] Advantageously, both the housing 22 and the body 26 are obtained by means of injection-moulding of thermoplastic resins.

[0048] The body 26 is slidable longitudinally inside the cavity of the housing 22 between an upper position and a lower position.

[0049] Moreover, the body 26 has a cavity 29 for receiving a threaded body 32, as described further below.

[0050] The body 26 also has, in the vicinity of its upper end, a transverse groove 27 and, in the vicinity of its lower end, a recess 28 which is also transverse.

[0051] The groove 27 is open towards the outside, assuming overall a C shape able to receive a steel cable 3, 4.

[0052] The cavity 29 of the body 26 is open towards the outside so as to allow the introduction and positioning of a female threaded element 30 in the transverse recess 28.

[0053] Said female threaded element 30 consists of a quadrangular metal plate provided with a threaded hole 31 inside which the active surface of a male threaded element 51 provided with a threaded body 32 and a head 33 is screwed.

[0054] The body 26 is also provided with guide means suitable for allowing only the longitudinal displacement of the body 26 with respect to the housing 22, thereby preventing screwing or unscrewing of the threaded body 32 in the hole 31 from causing rotation of said body 26 about its longitudinal axis.

[0055] These guide means consist of a pair of longitudinal ribs 37, 38 which are formed on the body 26 in a diametrically opposite position with respect to each other and a pair of corresponding longitudinal grooves 39, 40 formed in the through-cavity 23 of the housing 22.

[0056] In order to screw the threaded body 32 inside the hole 31, the head 33 of said male threaded element 51 is provided with at least one socket able to engage with a suitable tool such as an Allen key or a screwdriver both of the normal type and Philips type.

[0057] In order to limit the movement of said head 33 a stop element 35 is provided.

[0058] Said stop element 35 comprises a flange 43 able to abut against the lower base 25 of the housing 22 owing to its dimension substantially greater than that of the through-cavity 23 of said hollow body 22.

[0059] Above said flange 43, there is provided a portion in the form of a parallelepiped 52 with a substantially square cross-section, able to penetrate inside a hole 34 of the mounting element 2 and into an initial portion of said through-cavity 23 of said hollow body 22, which also have a square cross-section.

[0060] Said portion 52 of the stop element 35 could also have any other shape, for example a cylindrical or conical shape. In this case, the hole 34 and the initial portion of the through-cavity 23 should be correspondingly formed.

[0061] Moreover, said stop element 35 is provided with an opening 36 which comprises a seat able to retain the head 33 of the male threaded element 51 and a substantially cylindrical guide channel which extends into said portion 52 so as to guide the movement of the threaded body 32 towards the threaded hole 31 of the plate 30.

[0062] During use, the mount 2 is provided with a substantially square opening 34 and is arranged between the lower base 25 of the housing 22 and the stop element 35.

[0063] Initially, the body 26 is in an upper position and a cable 3 is housed inside the groove 27 (Fig. 5). Then, the clockwise rotation of the head 33 causes screwing of the threaded body 32 into the threaded hole 31 of the plate 30 and the consequent longitudinal sliding of the body 26 towards the inside of the housing 22, bringing the cable 3 into close contact with upper base 24 of said housing 22 until the cable is firmly gripped between said groove 27 and said upper base 24 (Figs. 6 and 7).

[0064] The variation of embodiment according to Fig. 8 is entirely identical to that shown in Figs. 3-7, except that the stop element consists of the mount 2.

[0065] In this embodiment, the mount 2 also acts as a stop element and therefore has a hole 42 which is different from that denoted by 34 in Fig. 3. In fact, the shape of said hole 42 is such as to allow the through-movement of the threaded body 32, but stop the head 33. Preferably it also has a flared portion 44 for receiving and retaining said head 33.

[0066] The hole 42 with which the mount 2 is provided in this embodiment performs the functions which, in the embodiment according to Figs. 3-7, is performed both by the hole 34 and by the opening 36.

Claims

1. A clamp (21) for gripping a cable (3,4), comprising a housing (22) provided with a through-cavity (23) delimited longitudinally between an upper base (24) and a lower base (25), a body (26) sliding longitudinally inside said cavity (23) between an upper position and a lower position, a male threaded element (51), a female threaded element (31) and a stop element (35, 2) provided with an opening (36, 42).
2. A clamp (21) according to Claim 1, in which the shape of said body (26) substantially complements that of said cavity (23).
3. A clamp (21) according to Claim 1 or 2, in which said body (26) is provided, in the vicinity of its upper

end, with a groove (27) oriented transversely with respect to said housing (22) and, in the vicinity of the opposite end, with said female threaded element (31).

4. A clamp (21) according to any one of Claims 1 to 3, in which said groove (27) is open towards the outside so as to receive and house said cable (3, 4). 5
5. A clamp (21) according to any one of Claims 1 to 4, in which said male threaded element (51) has a threaded body (32) and a head (33) with a diameter greater than the body (32), said head (33) being provided with at least one socket for engagement with a tool able to cause rotation of said male threaded element (51). 10 15
6. A clamp (21) according to any one of Claims 1 to 5, in which the lower base (25) of said housing (22) rests against said stop element (35, 2) and said opening (36, 42) of said stop element (35, 2) has a dimension such as to allow the body (32), but not the head (33) of said male threaded element, to pass through. 20 25
7. A clamp (21) according to any one of Claims 1 to 6, in which said female threaded element is a threaded hole (31) formed in a substantially quadrangular metal plate (30). 30
8. A clamp (21) according to the preceding claim 7, in which said sliding body (26) comprises a transverse recess (29) accessible from the outside so as to insert said metal plate (30) inside said recess (28). 35
9. A clamp (21) according to any one of Claims 1 to 8, in which means for longitudinally guiding said body (26) inside said cavity (23) of said housing (22) are provided. 40
10. A clamp (21) according to any one of Claims 1 to 9, in which said guide means comprise at least one longitudinal rib (37, 38) on the lateral surface of said body (26) and at least one corresponding longitudinal groove (39, 40) inside said cavity (23) of said housing (22). 45
11. A clamp (21) according to any one of Claims 1 to 10, in which said stop element is a picture and/or message-carrying mount (2). 50
12. A picture and/or message-carrying mount (2) provided with at least one pair of clamps (21) according to any one of the preceding Claims 1 to 11. 55
13. A mount (2) according to Claim 12 having opposite lateral guides (13, 14) for insertion of a sheet (15) on which pictures (19) or messages (18, 20) are

printed and a transparent protective sheet (16).

14. A mount (2) according to Claim 13, in which said lateral guides (13, 14) are obtained by bending in a U shape two opposite lateral edges (11, 12) of said mount. 5
15. A mount (2) according to any one of Claims 12 to 14, in which the front surface of said mount (2) is concave. 10
16. A system (1) for connecting to a support structure at least one picture and/or message-carrying mount (2) according to any one of Claims 12 to 15. 15
17. A system (1) according to Claim 16, comprising two cables (3, 4) which are parallel to each other and with which at least one mount (2), means (5) for constraining to the ends of each cable (3, 4) and an element for locking together (6, 7) the constraining means (5) and a support structure are provided. 20 25
18. A system (1) according to Claim 16 or 17, in which there is a plurality of mounts (2), each of said mounts being associated with said cables (3, 4) by means of at least one pair of clamps (21) according to any one of Claims 1 to 11. 30
19. A system (1) according to Claim 18, in which the transverse sides of at least one of the mounts (2) of said plurality have a dimension different from that of the transverse sides of the other mounts (2). 35 40 45 50 55

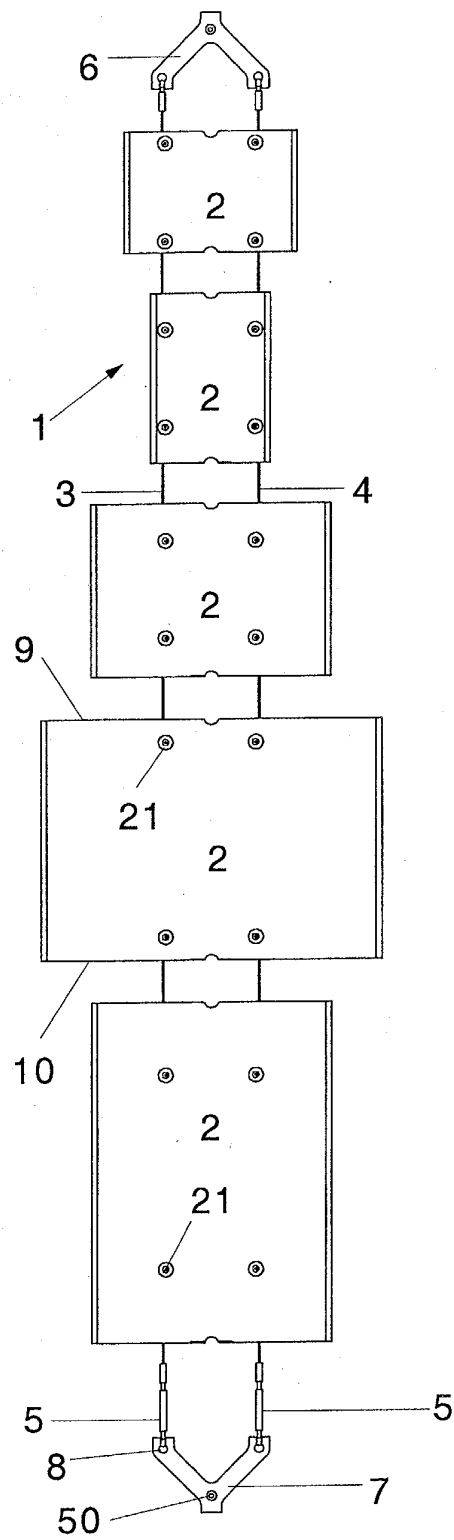


FIG. 1

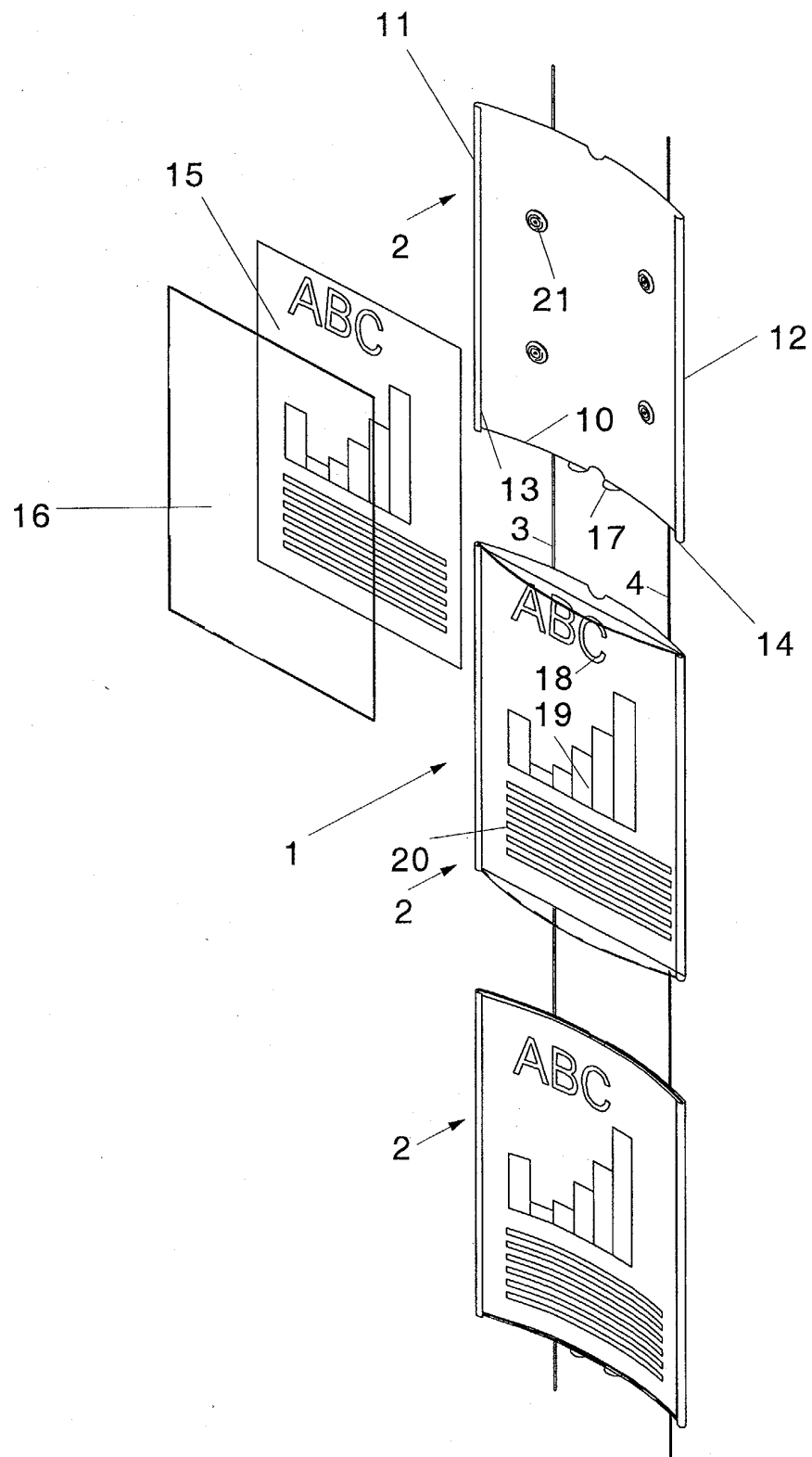
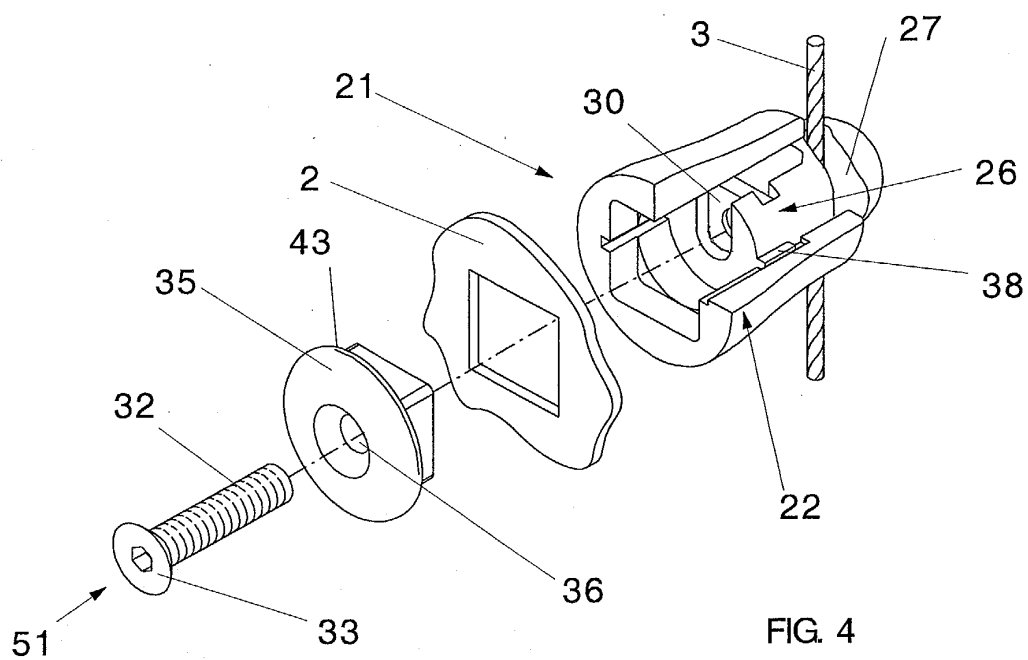
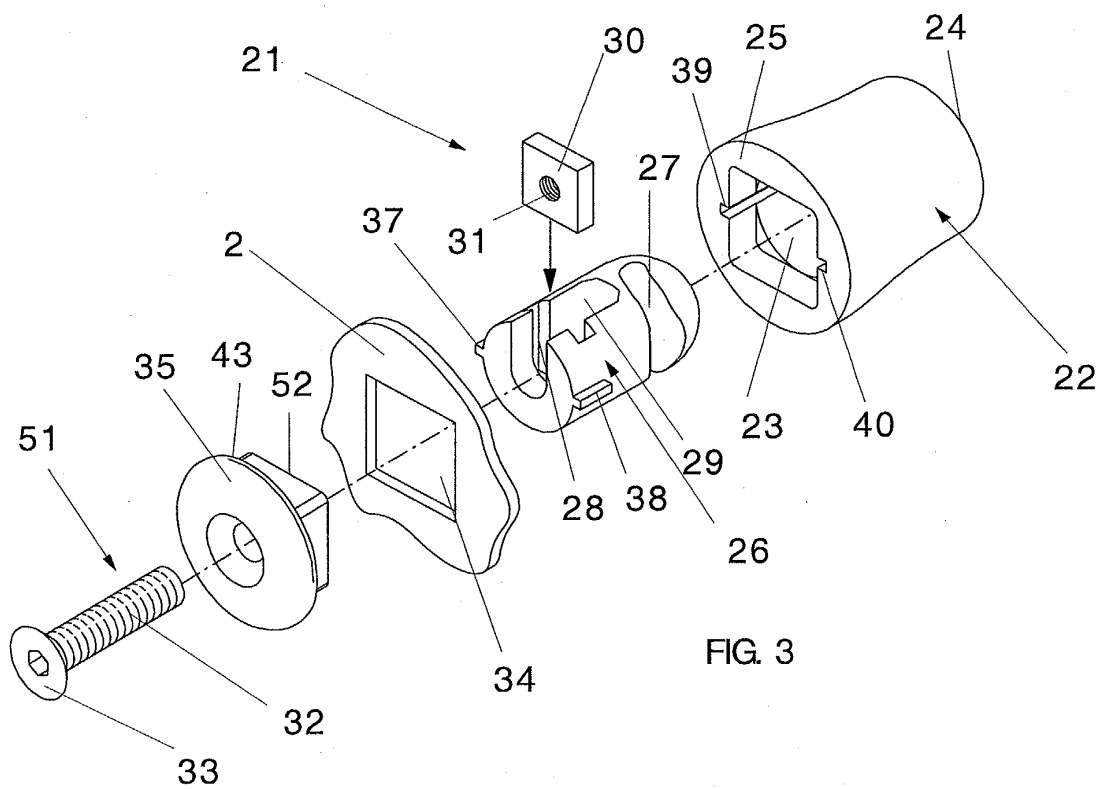
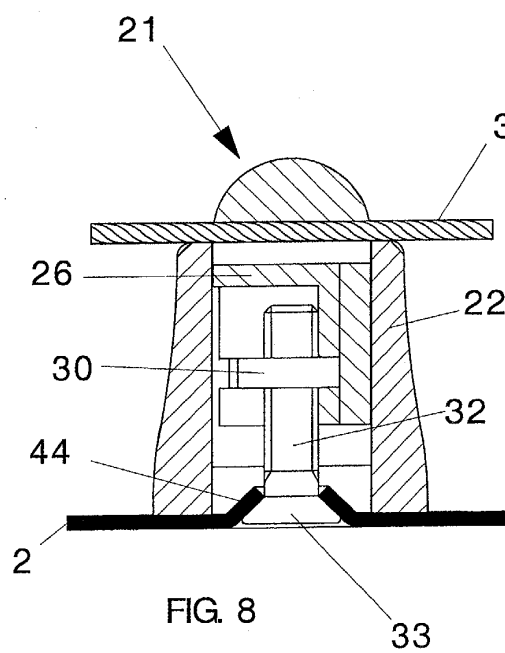
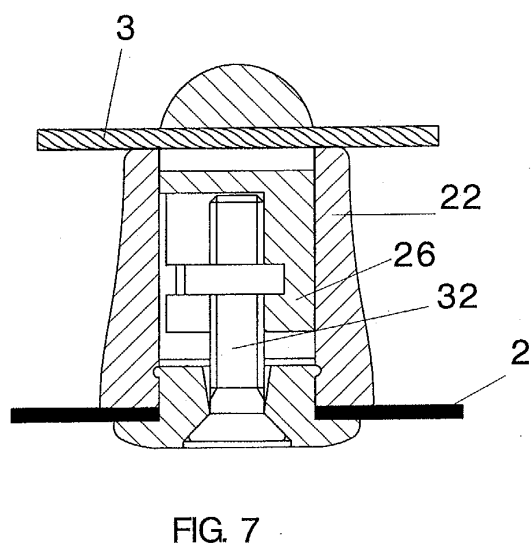
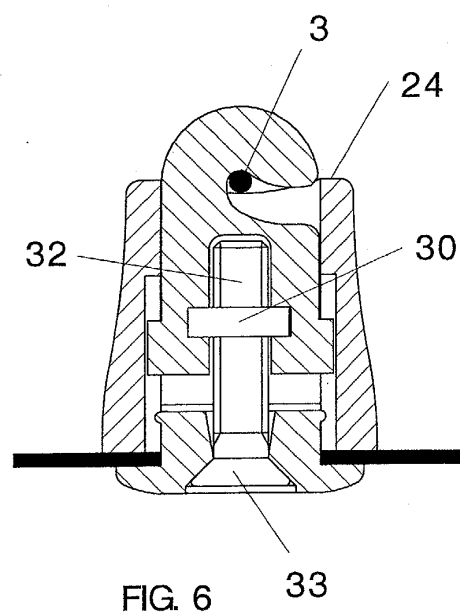
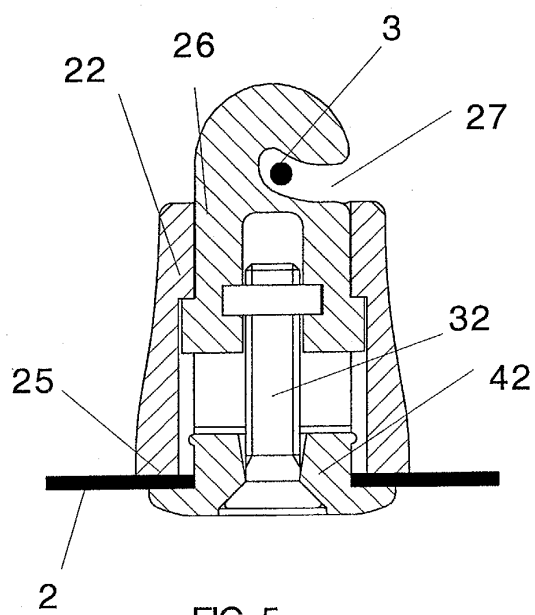


FIG. 2







European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 03 07 5700

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	US 2 478 579 A (F.J.HANDLEY) 9 August 1949 (1949-08-09) * column 09-2, line 9 - column 4; figures 1-6 *	1	G09F7/18
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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 25 June 2003	Examiner Boeykens, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03/82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 03 07 5700

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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