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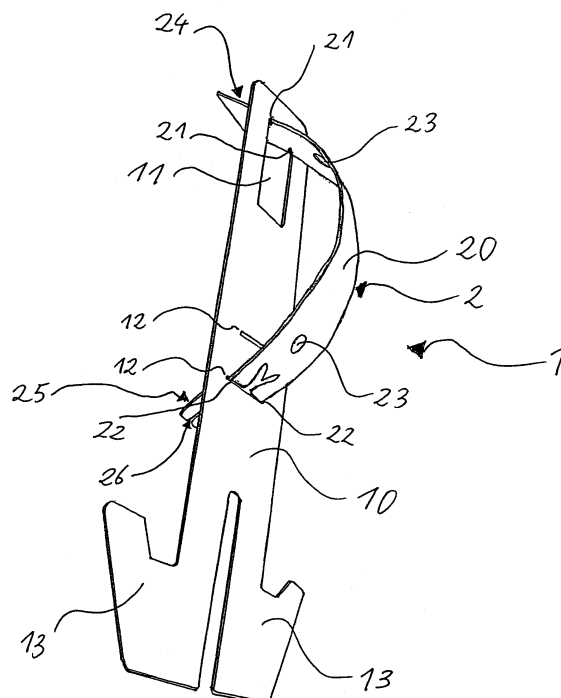
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(54) **Two-piece hanger**

(57) A two-piece hanger (1) is provided for use in the building trade, for attaching apparatus to create a framework for provision of a secondary ceiling or wall. The two-piece hanger (1) is comprised of an elongate fixing portion (20) which is removably attachable to the hanging portion (10). The hanging portion (10), is provided with at least one aperture (11, 12), and the two-piece hanger (1) is constructed such that one end of the elongate fixing portion (20) passes through one of the at least one apertures (11, 12), and the other end of the elongate fixing portion (20) either passes through the same aperture as the first end, or through a different one. Such a two-piece hanger (1), provides a flexed elongate fixing portion (20), which provides a loop (2).

Fig. 1



Description

Field of Invention

[0001] This invention relates to a two-piece hanger, for use in the building trade for provision of secondary ceilings in renovation of properties. Additionally, use of this hanger also extends to the provision of secondary walls.

Background to the Invention

[0002] Within the building trade, and in particular with consideration of renovation of buildings, it is not uncommon for a new ceiling or new wall to be required. In particular, this is often achieved without removal of the old ceiling or wall and by simply providing the fixing means to the original structure to which the new ceiling or wall materials can be attached. In particular, with consideration of the provision of a secondary ceiling, a common technique is to provide a series of tracks which are suspended from the original ceiling, and which provide a fixing means for the plaster board, or other material, making up the new ceiling.

[0003] Thinking of the above system, whereby tracks, troughs or other fixing means are provided suspended from the original ceiling, a simple and adjustable means is required for performing the suspension. Typically, this is achieved by providing a hanging mechanism, or simply hanger, which integrates with fixing rods attached to the original ceiling, and which provide a hanging means to which the troughs, or other means, can be attached. This provides a very simple system, as all that needs to be attached to the original ceiling, is a series of fixing bars. These fixing bars, can readily be attached either by hammering into the original ceiling or beams supporting such, or by use of a screw thread. Once the series of fixing bars has been positioned and attached to the original ceiling, the hangers are then attached in a removable manner to such fixing bars. These hangers are normally possessed of a further hanging means for integrating with the fixing troughs, or the like, such that the apparatus for attaching the new ceiling is suspended from the old ceiling.

[0004] One of the simplest mechanisms for attaching the hanger to the fixing bar, is by means of a sprung piece of metal which forms part of the hanger. This type of hanger is shown in the prior art document of DE 20 2004 013 318 U1 and DE 10 2004 061 953 A1. As is clear from both of these documents, the fixing means is provided by a bent piece of rigid material which has a flexibility and spring-like property. This fixing material has two holes which are approximately aligned in a vertical direction, and upon bending the flexible material, the two holes can be thread over the fixing bar in the ceiling. Once over said fixing bar, the user would then remove the bending force applied to the fixing means, and the spring return force would then cause the fixing means to return toward their rest state and therefore grip the bar. As is clear from

these two documents, the fixing means must be attached to the general hanging means, and as is shown in the two prior art documents this is achieved by two rivets. Clearly, then, the fabrication of such prior art hanging devices, is reasonably intensive. The fixing means must be pre-bent and subsequently attached to the hanging portion of the hanger, which increases manufacturing time and costs.

Summary of Invention

[0005] It is an object of the present invention, to provide a hanger for integration with hanging apparatuses used in the building trade for provision of either a secondary ceiling or wall, which is substantially straightforward in its use and manufacture.

[0006] This and other objects are achieved by the hanger according to claim 1, with further preferred embodiments disclosed in the dependent claims thereof.

[0007] The hanger according to the present invention, is provided by a two-piece hanger which is made up of both a fixing portion and a hanging portion. In particular, the fixing portion can be removably attached to the hanging portion. In order to allow the fixing portion to attach to the hanging portion, the hanging portion is provided with at least one aperture in its body. The fixing portion can then be bent and both ends passed through one or more of the apertures, such that the flexing force of the fixing portion will tend to try and straighten this portion and hold it within the aperture.

[0008] It is further preferred, that the hanging portion has a plurality of apertures, and that at least one of these is formed by a rectangular aperture. Additionally, it is possible for further of these apertures to be provided by at least one slit. It is intended, that one end of the fixing portion pass through one or more of the provided slits, with the other end of the fixing portion being held within the rectangular aperture. In such a manner, it is clear that the fixing portion will be held in a flexed/bent state, and that the return spring force will hold this in position within the hanging portion.

[0009] It is further preferred, that the fixing portion is provided with a plurality of holes therethrough, and that these holes are provided substantially along the long centre axis. In use, therefore, the fixing portion will be held in a bent state within the plurality of apertures in the hanging portion, and the fixing holes provided therethrough will allow integration with the fixing rod attached to the ceiling or wall.

[0010] As a preferred further embodiment, the fixing portion is provided with upper and lower pairs of slots therein, which extend inwards from the elongate sides. These upper and lower pairs of slots are aligned with each other on either side of the fixing portion, and one pair of slots is positioned towards one end of the fixing portion and the other pair to the other end.

[0011] Further preferably, the width of the rectangular aperture, slits or plurality of apertures within the hanging

portion, is less than the width of the fixing portion. In particular, the width of the above mentioned apertures is approximately the same as the distance between the two slits provided at the upper and lower parts of the fixing portion. In use, therefore, the two slots are intended to integrate with the hanging portion of the hanger, and hold the fixing portion within the apertures in a secure manner. Clearly, the spring force from the flexed fixing portion will also aid in holding the fixing portion within the apertures in the hanger.

[0012] It is further preferred, that the fixing holes within the fixing portion, are positioned equidistant from the position on the fixing portion which lies in between the upper and lower slots.

[0013] Further, it is preferred that the hanging portion be provided with hanging means at one end. Such hanging means, are provided for integration and connection with troughs or the like for providing the hanging apparatus for connection of the secondary ceiling thereto.

[0014] It is further preferred, that one end of the fixing portion be provided with a taper to its width. Such a taper, being provided to improve the usability of the fixing portion for integrating with either the slots, rectangular aperture or plurality of apertures in the hanger. Additionally, to the tapered end of the hanger, a flexing slot may be provided. This flexing slot aligns approximately along the long central axis of the fixing portion, to provide two legs either side thereof. Such legs can be generally flexed in an inward manner, to further reduce the width of the fixing portion. This further improves the usability of the fixing portion, as it allows simpler integration with the apertures within the hanger. At either end of the fixing portion, are provided upper and lower portions which extend along the long central axis either side of the upper and lower slots respectively. Such upper and lower portions, are provided such that when the fixing portion is integrated with the hanger, both the upper and lower portions are on one side of the hanging portion, with the loop formed by the flexed fixing portion, on the other side of the hanger. This will allow the user to have his hand on one side of the hanger, such that when integrating with the fixing rod the user's hand does not obscure the sight to the fixing holes.

Description of Figures

[0015]

Figure 1 shows a perspective view of the two-piece hanger, wherein the hanging portion and elongate fixing portion are removably connected together.

Figure 2 shows in more detail the hanging portion of the two-piece hanger of the invention.

Figure 3 shows in further detail the elongate fixing portion of the present invention.

Description

[0016] Figure 1 shows in perspective form, the two-piece hanger 1 of the current invention. As can be seen in this figure, the hanger 1 comprises both a hanging portion 10 and an elongate fixing portion 20. Within Figure 1, the two portions, that of the hanging portion 10 and elongate fixing portion 20, are shown connected together. As can also be seen in Figure 1, the elongate fixing portion 20 is integrated within apertures passing through the body of the hanging portion 10, such that a fixing loop 2 is formed. As will be given in further details below, the bending of the elongate fixing portion 20, such that it is positioned and held within one or more of the apertures provided in the hanging portion 10, provides, through the means of fixing holes 23, the mechanism of attaching together the two-piece hanger 1 for use.

[0017] As can be seen in Figure 1 and also Figure 3, the elongate fixing portion 20 is possessed of a plurality of fixing holes 23. Within the figures, only two fixing holes 23 are shown, however this is merely by way of example. When the elongate fixing portion 20 is integrated with the hanging portion 10, the fixing holes 23 align in the vertical direction. In this case, the vertical direction is that shown in Figure 1, and runs parallel with the long axis of the hanging portion 10. In use, the two-piece hanger 1 is designed to integrate with metal rods (not shown in the figures) which are positioned within the original ceiling or wall material which is to be covered. These metal rods extend outwardly from either the ceiling or wall, and are designed such that the fixing holes 23 provided in the elongate fixing portion 20, will pass over the rods and hold the two-piece hanger 1 in place.

[0018] As can be seen from Figure 1, the elongate fixing portion 20 is held within one or more of the apertures of the hanging portion 10 in a flexed or bent state. That is, as can be seen from Figure 3, the elongate fixing portion 20 is provided by a flat rigid, preferably metal, shaped and sized piece, which in use is bent such that both ends passes through one or more of the apertures in the hanging portion 10. Crucially, the material making-up the elongate fixing portion 20, is one which allows the elongate fixing portion 20 to be flexed and bent, whilst still retaining a spring-like property tending to return the elongate fixing portion 20 to the originally unflexed, that is straight, state. According to one preferred embodiment the fixing portion could be made of spring steel. With this in mind, therefore, it is clear that the elongate fixing portion 20 as shown in Figure 1, is in a flexed state and the two ends of which are acting against the inner surfaces of the apertures in the hanging portion 10, in an attempt to return the elongate fixing portion 20 to its unflexed state. In light of this, it is clear that the elongate fixing portion 20 is held in a flexed spring-like state, and the flexing force resulting from having flexed or bent the elongate fixing portion 20 is holding it within the apertures provided in the hanging portion 10.

[0019] Looking now at Figure 2, there is shown the

hanging portion 10 in greater detail. In particular, it is clear from this figure that the hanging portion 10 is provided with multiple apertures. Of these apertures, there is shown within the figure a rectangular aperture 11 and a plurality of slits 12. It is clear that these are only shown by way of example, and it is possible to provide the hanging portion 10 with only one larger rectangular aperture 11, multiple rectangular apertures 11, and no slits 12, or simply with a series of slits 12. Preferably, however, the system as shown in Figure 2, is that of one rectangular aperture 11 provided towards the upper end of the hanging portion 10, and a plurality, in the figure 3 are shown, of slits 12. In use, the hanging portion of Figure 2, would operate such that one end of the fixing portion 20 would be positioned within one of the slots 12, with the other end of the elongate fixing portion 20 being held within the rectangular aperture 11. In particular, as can be seen in Figure 1, the upper inner surface of the rectangular aperture 11 is used to hold the elongate fixing portion 20 in the flexed state, therefore providing the fixing loop 2. As is also obvious from Figures 1 and 2, the hanging portion 10 is provided with hanging means 13 for attachment to hanging troughs, or other pieces, provided for affixing the plaster board, or the like, making-up the secondary ceiling or wall.

[0020] With consideration of the hanging portion 10 according to Figure 2, the reason for providing multiple apertures comprising both a rectangular aperture 11 and a plurality of slits 12, is to provide the maximum flexibility in the use of the two-piece hanger 1. When in use, as described above, the fixing holes 23 provided through the elongate fixing portion 20, are intended to slot over a fixing bar attached to either the ceiling or wall. In order that the fixing loop 2 provides a gripping and securing force on the fixing bar, it is necessary for the flexing force of the elongate fixing portion 20 to be significant enough that when the bar is passed through the fixing holes 23, the tendency for the elongate fixing portion 20 to straighten is great. That is, in bending the elongate fixing portion 20 for use, the fixing holes 23 align along an axis, but the cross-sectional area provided by the holes in the flexed elongate fixing portion 20, is slightly smaller than the size of the fixing rod. As will be obvious to the skilled person, the fixing holes 23 can be passed over the fixing rod when the elongate fixing portion 20 is in a more flexed state, but when the elongate fixing portion 20 is allowed to try and return to the straight flat condition, the straightening elongate fixing portion 20 will cause the fixing holes 23 to interact with the fixing rod and grip the fixing rod securely.

[0021] In order, therefore, that the two-piece hanger 1 can be used in the above described manner, it is necessary for the elongate fixing portion 20 to move when integrated with the hanging portion 10. It is the provision of the rectangular aperture 11 which allows for this movement, and which allows for the elongate fixing portion 20 to be further flexed when it is to be integrated with the fixing rods. Whilst one end of the elongate fixing portion

20 is held within one of the slits 12, the other end which is held within the rectangular aperture 11, can clearly be moved closer to the first end and thereby increase the amount of curvature and flex in the elongate fixing portion 20. The user, therefore, would be provided with the two-piece hanger 1 in either a separated or attached form, clearly if provided with two individual pieces, the user would construct the two-piece hanger 1 prior to use, and would integrate the two-piece hanger 1 with the fixed fixing rod by increasing the bend or flex in the elongate fixing portion 20 such that the fixing holes 23 can be slid over the fixing rod. Once the fixing holes 23 are positioned over the fixing rod, the user would remove the force bending/flexing the elongate fixing portion 20, and allow this to return to its less flexed state. At this point, as has been discussed above, the fixing holes 23 will interact with the fixing rod in such a manner as to securely grip the two-piece hanger 1 with the fixing rod.

[0022] As has been discussed above, the two-piece hanger 1 according to the present invention, allows for a simple and straightforward mechanism by which the hanger 1 is integrated with fixing rods. From the above discussion, it is clear that the natural flexing force and desire of the elongate fixing portion 20 to return to the straight unflexed state, is what provides the fixing force for the hanger 1. The provision of multiple slits 12, or multiple rectangular apertures 11, within the hanging portion 10, allows for the magnitude of the gripping force to be changed simply. That is, it is clear to the skilled person, that changing the amount of flex in the elongate fixing portion 20, will alter the amount of force with which the fixing holes 23 interact with the fixing rod. Put differently, changing the amount of bend in the elongate fixing portion 20, would change the amount of grip which the fixing holes 23 of the elongate fixing portion 20 provide to the fixing rod. This is most readily achieved, by providing multiple apertures within the hanging portion 10, and which leads to the preferred embodiment as shown in Figure 2, wherein one rectangular aperture 11 is combined with a plurality of slits 12. It is clear, from the above discussion, that it is most preferable to provide at least one aperture which is that of the rectangular aperture 11, as this allows the user of the hanger 1 to readily amend the amount of flex in the elongate fixing portion 20, for integration with the fixing rods.

[0023] Looking now at Figure 3, further details of the elongate fixing portion 20 can be seen. In addition to the fixing holes 23, the elongate fixing portion 20 is provided with upper and lower pairs of slots 21, 22 provided generally toward either end of the elongate fixing portion 20 and, extending generally inwards from the elongate sides of the elongate fixing portion 20. It is preferable for the elongate fixing portion 20, to be provided with these plurality of slots 21, 22, as this allows the elongate fixing portion 20, to be more securely held within the hanging portion 10. Preferably, the width of the rectangular aperture 11 and slits 12 of the hanging portion 10, is slightly narrower than the width of the main part of the elongate

fixing portion 20. In this manner, the upper pair of slots 21 and lower pair of slots 22, have a distance therebetween, which is substantially the same, or preferably slightly less than, the width of the rectangular aperture 11 and slits 12 of the hanging portion 10. Furthermore, as can be seen in Figure 3, it is preferably possible for the lower portion 25 of the elongate fixing portion 20, to have a tapered profile. That is, the width of the elongate fixing portion 20 is reduced towards one end.

[0024] In use, the elongate fixing portion 20 which has been described above in relation to Figure 3, interacts with the apertures formed in the hanging portion 10, as seen in Figure 2. The user is provided with the separate hanging portion 10 and elongate fixing portion 20, and attaches the two together by passing an upper portion 24, provided above the upper slot 21 as shown in Figure 3, through the rectangular aperture 11 of the hanging portion 10. This is done by slightly rotating the elongated fixing portion 20, and passing the upper portion 24 through the rectangular aperture 11. At the point where the upper slots 21 align with the rectangular aperture 11, the elongated fixing portion 20 can be rotated such that the body of the hanging portion 10 is held within the two upper slots 21. At this point, the elongated fixing portion 20 is not in a flexed state. In order to produce the two-piece hanger 1 according to Figure 1, the user would then bend the lower end of the elongate fixing portion 20 towards one of the slits 12 of the hanging portion 10. Clearly, if the hanging portion 10 were provided with only one large rectangular aperture 11, the user would bend the lower end of the elongate fixing portion 20 towards the lower side of the rectangular aperture 11. Assuming, however, that the two-piece hanger 1 is comprised of the hanging portion 10 according to Figure 2, that is provided with a plurality of slits 12, the advantage of providing the tapered end to the elongate fixing portion becomes apparent. With the upper portion 24 being held on the back side of the hanging portion 10, with the elongate fixing portion being secured to the hanging portion 10 by means of the upper slot 21, the user is readily able to bend or flex the elongate fixing portion 20 such that the lower portion 25 is positioned in line with one of the slits 12. At this point, the user is then able to thread the lower portion 25 of the elongate fixing portion 20 through one of the slits 12 in the hanging portion 10, and therefore provide the two-piece hanger 1 as shown in Figure 1. Preferably also, the lower slots 22 provided on the elongate fixing portion 20, then interact with the slits 12 of the hanging portion 10, such that the elongate fixing portion 20 is securely held within the hanging portion 10.

[0025] To facilitate the connecting together of the two pieces to form the two-piece hanger 1, the elongate fixing portion 20, may be further provided with a flexing slot 26 in a lower portion 25. That is, a sufficiently long slot 26 is provided along approximately the long central axis of the elongate fixing portion 20, in such a manner that it provides two legs in the lower portion 25. These two legs can then be pushed towards each other, such that the

width of the lower portion 25 of the elongate fixing portion 20 can be reduced. After provision of the inwardly directed force, however, the spring return force of the elongate fixing portion 20 will tend to push the two legs apart and return the elongate fixing portion 20 to its rest state. The provision of this flexing slot 26, further improves the usability and fixing characteristics of an elongate fixing portion 20 to the hanging portion 10.

[0026] The elongate fixing portion 20 provided with the flexing slot 26, is used in the same manner as described above, however when the lower portion 25 is passed through one of the slits 12 of the hanging portion 10, there is a generally inwards acting force which pushes the two legs toward each other. As the lower portion 25 is passed further through one of the plurality slits 12, the two legs either side of the flexing slot 26, are pushed closer together until the lower portion 25 is passed all the way through one of the plurality of slits 12, and the lower slot 22 aligns with the body of the hanging portion 10. At this point, it is clear that the flexing force of the two legs generally acting outward, will cause the lower slot 22 to engage with the hanging portion 10, and hold the elongated fixing portion 20 in position. In this manner, the two-piece hanger 1 according to Figure 1 is made, and the use of the upper and lower slots 21, 22 will tend to hold the elongated fixing portion 20 securely within the apertures of the hanging portion 10.

[0027] Clearly, the provision of a two-piece hanging portion 1, has significant advantageous properties. In particular, should one of the two-pieces become damaged in any way, it is possible to replace the damaged section of the hanger 1, thereby reducing waste. Additionally, as the elongate fixing portion 20 is held through the flexing force only with the hanging portion 10, the manufacture and fabrication of the two piece hanger 1 is substantially eased. That is, there is no necessity for providing any specific fixing means, to hold the elongated fixing portion 20 within the hanging portion 10. The two pieces of the two-piece hanger 1 are held together securely by the simple flexing force provided from the flexed elongate fixing portion 20 integrating with the apertures provided on the hanging portion 10. Furthermore, as has been discussed above, the user will tend to have his or her hand positioned substantially on the other side of the two-piece hanger 1 from the loop 2 when attempting to integrate the fixing holes 23 with the fixing rod. In so doing, it is clear that the user's hand and arm will not in any way obscure the user's vision when attempting to integrate the two-piece hanger 1, and therefore the ease of use is substantially increased.

[0028] The above discussion is presented as one example only, with the scope of the invention being defined by the attached claims. Whilst numerous embodiments have been discussed, it is clear that any of the options can be combined to provide a two-piece hanger 1 of the invention.

List of Reference Signs**[0029]**

1	two-piece hanger
2	fixing loop
10	hanging portion
11	rectangular aperture
12	slits
13	hanging means
20	elongate fixing portion
21, 22	slots
23	fixing holes
24	upper portion
25	lower portion
26	flexing slot

Claims

1. A two-piece hanger (1) comprising an elongate fixing portion (20) which is removeably attachable to a hanging portion (10), wherein, the hanging portion (10) is provided with at least one aperture (11, 12) therethrough, and the elongate fixing portion (20) is held in a flexed state with each end of the elongate fixing portion (20) passing through the at least one aperture (11, 12), or with one end passing through one of on the at least one apertures (11, 12) and the other end passing through another of the at least one apertures (11, 12), so that the elongate fixing portion (20) forms a fixing loop (2).
2. The hanger (1) according to claim 1, wherein the at least one aperture (11, 12) comprises at least one rectangular aperture (11) and at least one slit (12).
3. The hanger (1) according to claim 2, wherein one end of the elongate fixing portion (20) passes through one of the at least one rectangular apertures (11) and the other end passes through one of the at least one slits (12), and is held in place by the flexing force resulting from flexing the elongate fixing portion (20).
4. The hanger (1) according to any of the preceding claims, wherein the elongate fixing portion (20) is provided with at least two fixing holes (23) aligned approximately along the long centre axis of the elongate fixing portion (20).
5. The hanger (1) according to any of the preceding claims, wherein the elongate fixing portion (20) comprises upper and lower pairs of slots (21, 22) which extend inwardly toward each other from both of the elongate sides, which are aligned with each other on either side of the elongate fixing portion (20), and which are further positioned toward either end of the

elongate fixing portion (20).

6. The hanger (1) according to claim 5, wherein one end of the elongate fixing portion (20) passes through one of the at least one rectangular apertures (11) and the other end passes through one of the at least one slits (12), and is held in place by the flexing force resulting from flexing, and wherein further:
 - the at least one rectangular aperture (11) and the at least one slit (12) has a width that is the same as the width defined by the narrow section between the upper and lower pairs of slots (21, 22) on the elongate fixing portion (20), and the elongate fixing portion (20) is positioned in the loop (2) with the upper and lower pairs of slots (21, 22) held within either one of the at least one rectangular apertures (11) or one of the at least one slits (12).
7. The hanger according (1) to either of claims 5 or 6, wherein the elongate fixing portion (20) comprises two fixing holes (23) which are positioned at equidistant points from the central point between the upper and lower slots (21, 22).
8. The hanger (1) according to any of the preceding claims, wherein the hanging portion (10) further comprises hanging means (13) connectable to ceiling hanging troughs or plates.
9. The hanger (1) according to any of the preceding claims, wherein the elongate fixing portion (20) has one end which is tapered, and which end further comprises a flexing slot (26) lying approximately along the long centre axis, to allow the two sides of the tapered end to be brought closer together with the application of force.
10. The hanger (1) according to any of the preceding claims, wherein the elongate fixing portion (20) comprises upper and lower portions (24, 25) at either end thereof, which extend through the at least one aperture (11, 12) when the elongate fixing portion (20) is in the form of the loop (2).
11. The hanger (1) according to claim 10, wherein the upper and lower portions (24, 25) extend beyond the upper and lower slots (21, 22) as defined further in claims 5 and 6.

Fig. 1

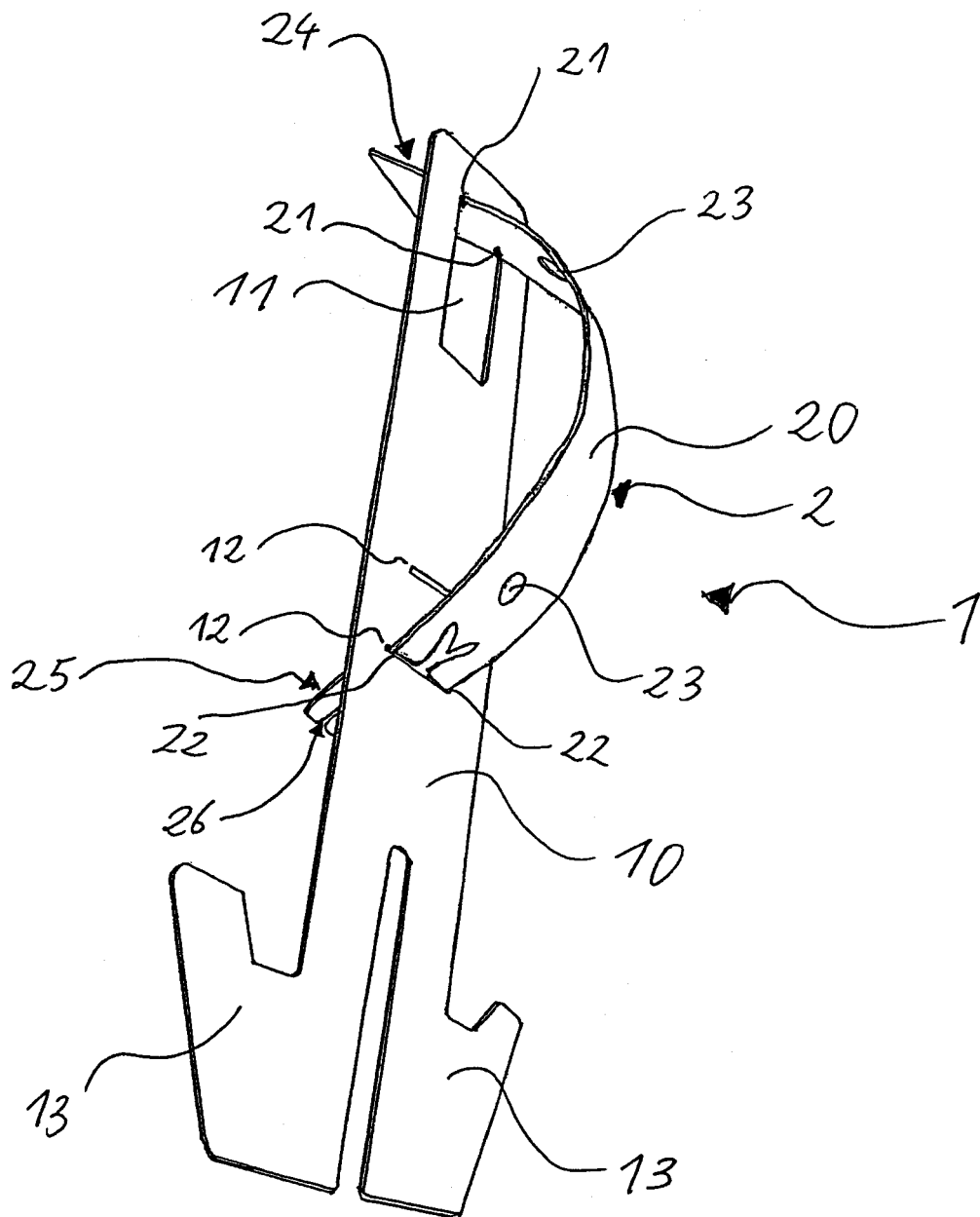


Fig. 2

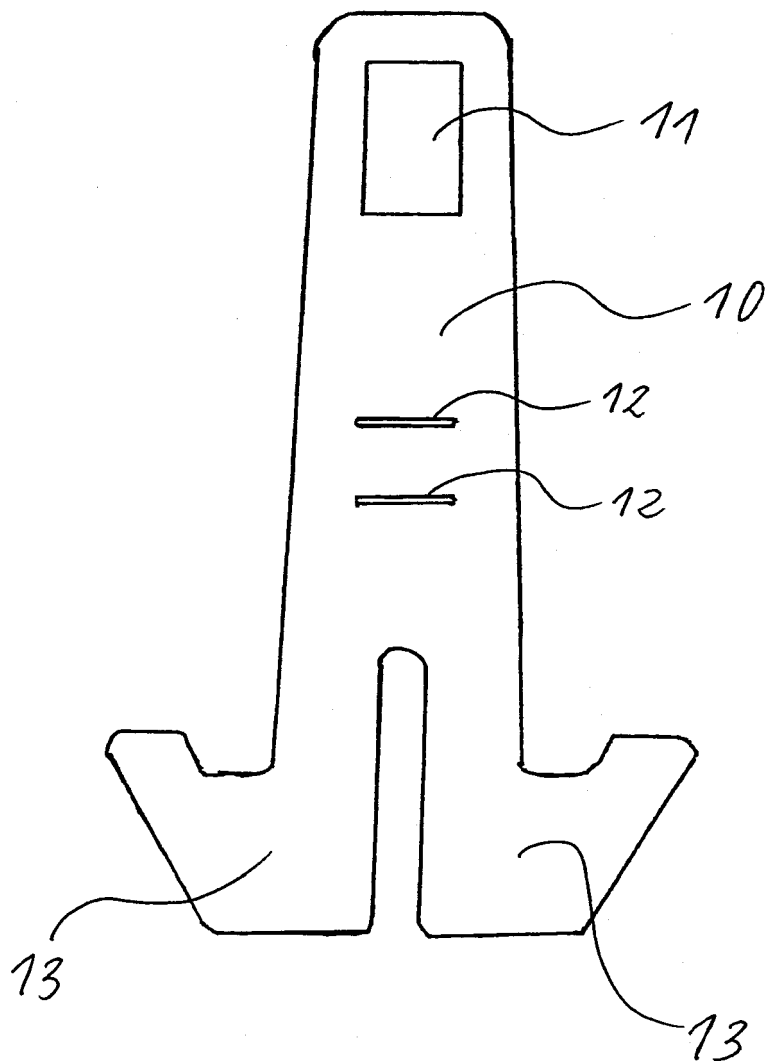
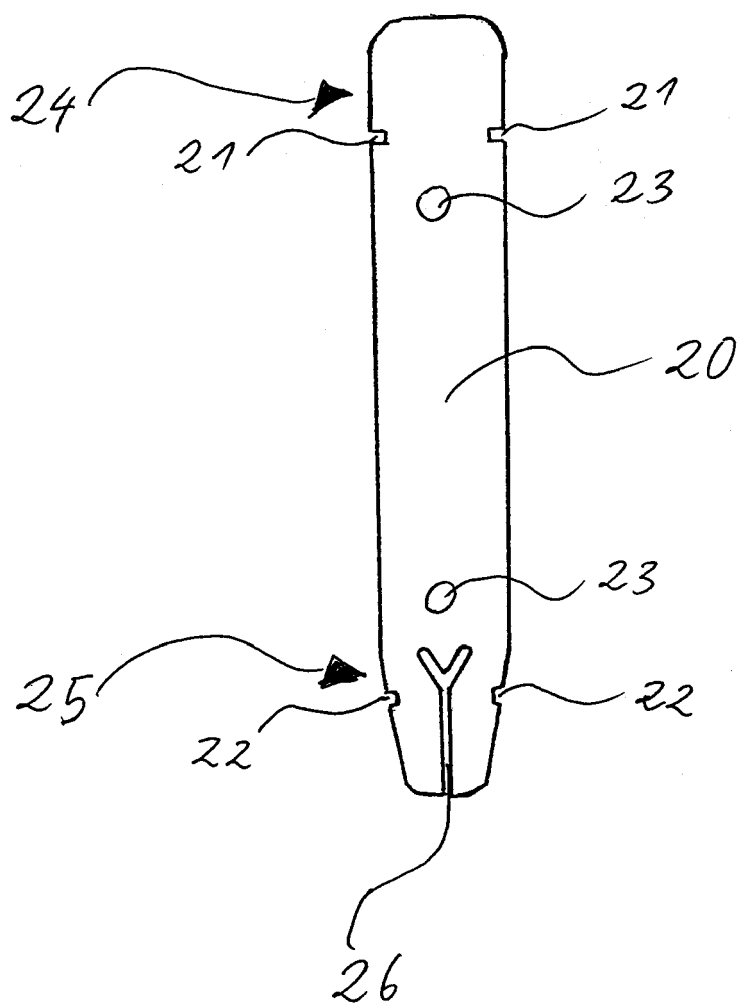


Fig. 3





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 06 12 3042

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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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 20 April 2007	Examiner Righetti, Roberto
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			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 06 12 3042

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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20-04-2007

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