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(54) **A system for storing objects**

(57) A system for storing various objects suspended from a door, a wall or similar (8) comprising a carrier element (7) adapted to be mounted, vertically orientated, on said door, wall or similar (8), and at least one basket (1) having a fastening device (6) for detachable suspension from said carrier element (7). Said fastening device (6) is integrated with said basket and is adapted to be hooked into slots (11) or through holes in the carrier element. The fastening device (6) comprises a central portion (13) with a cross-section corresponding to the cross-section of the central portion of the carrier element, said central portion being substantially U-shaped and comprising a base portion (14) and a pair of leg portions (15) extending from the base portion and being formed in one piece with the base portion (14). The fastening device (6) is adapted to surroundingly engage the outer periphery of the carrier element (7), and is insertedly arranged in the basket (1). The base portion (14) of the fastening device (6) has at least one hook element (17) for releasable engagement with a slot (11) or a through hole in the carrier element (7).

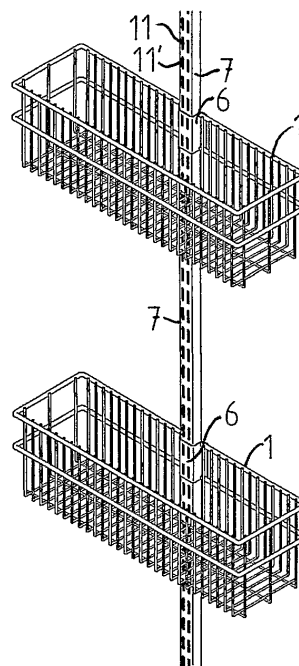


Fig 6

Description

[0001] The present invention relates to a system for storing various objects suspended from a door, a wall or similar comprising a carrier element having a number of slots or through holes, the carrier element is adapted to be mounted, vertically orientated, on said door, wall or similar, and at least a basket, a set of hooks, a shoe rack or the like having a fastening device for detachable suspension from said carrier element.

[0002] In cramped quarters and with restricted storage spaces, such as in cupboards, it is important to be able to provide extra storage spaces that do not interfere with the floor surface or available shelf surfaces. One way of achieving this is to mount wire baskets, shelves, suspension hooks, paper roll holders, shoe racks and the like on inner doors or the inside of cupboard doors. It is then advantageous if the baskets, shelves etc. can easily be attached to the door in an optional position or easily be replaced by another unit. Moreover it is of vital importance that the storage system can easily be mounted on and dismounted from the door, when required. Of course, the fastening device according to the invention for detachable suspension of baskets etc. is not limited to carrier elements or rails that are fixed to a door and the like, but a carrier element screwed to a wall or a hang standard hooked to a carrier rail is equally usable for said suspension.

[0003] A system for storing various objects suspended from a door is known from US Design Serial No. 464,558. The system comprises a support rail in the form of a backbone which is intended to be screwed to a door or wall. The support rail comprises a central U-shaped portion whose bottom is intended to abut against a door or the like. A respective flange-formed portion with a number of tongues grouped in pairs projects laterally from the U-shaped portion and parallel with, but at a distance from, the door, to which tongues baskets, racks, shelves etc. can be attached. The baskets etc. have a strong suspension plate which is provided with slots and recesses and adapted to be pushed over the respective pairs of tongues to allow a basket to be suspended from the rail. The suspension plate is attached to the outside of the basket and has a central, U-shaped portion which projects from the basket and whose design corresponds to the U-shaped portion of the support rail and which, when mounting the basket on the support rail, is inserted into the U-shaped portion of the support rail. Thus the support rail is specially designed for this purpose only.

[0004] An object of the invention is to provide a system for detachable suspension of baskets etc. from a carrier element attached to a wall, door or the like, allowing easy mounting on and dismounting from the carrier element.

[0005] A further object is to provide a system comprising a fastening device for baskets etc. which is discreetly designed and which affords lateral stability to the basket etc.

[0006] Yet another object of the invention is to provide

a system having a fastening device for baskets etc. which can be used together with the usual carrier elements, wall rails or hang standards.

[0007] One more object is to provide a system having a fastening device for baskets etc. which is relatively inexpensive and easy to manufacture and which does not protrude beyond the basket etc.

[0008] According to the invention, these objects are achieved by a system as described by way of introduction, which is **characterised in that** said fastening device is integrated with said basket, set of hooks, shoe rack or the like, that the central portion of the fastening device is essentially U-shaped and comprises a base portion and a pair of leg portions extending from the base portion and formed in one piece with the base portion, the fastening device being adapted to surroundingly engage the outer periphery of the carrier element, that the fastening device is insertedly arranged inside the periphery of the basket, the set of hooks etc., and that the base portion of the fastening device has at least one hook element for releasable engagement with a slot or a through hole in the carrier element.

[0009] Further developments of the invention are defined by the features stated in the subclaims.

[0010] Preferred embodiments of the invention will be described below by way of example and with reference to the accompanying drawings, in which

Fig 1 is a front view illustrating a system for storing various objects suspended from a door, a wall or the like, consisting of e.g. a basket, a set of hooks, a shoe rack and a T rack, which by means of a respective fastening device according to the invention are detachably suspended from a carrier element attached to the door, wall or the like;

Fig. 2 is a partial perspective view and shows a part of the system in Fig. 1 on an enlarged scale;

Fig. 3 is a perspective view and shows on a further enlarged scale a set of hooks included in the system with an embodiment of the fastening device according to the invention shown in detail;

Fig. 4 is top plan view of the set of hooks in Fig. 3;

Fig. 5 is a front view of the set of hooks in Fig. 3 but with an alternatively designed hook device;

Fig. 6 is a partial perspective view, corresponding to the one in Fig. 2, illustrating a pair of baskets detachably suspended from a carrier element by means of an alternative, preferred embodiment of the fastening device according to the invention;

Fig. 7 is a front perspective view of a fastening device according to Fig. 6, separated from the basket;

Fig. 8 is a rear perspective view of the fastening device in Fig. 7;

Fig. 9 is a central longitudinal section of the fastening device in Figs 7 and 8; and

Fig. 10 is a section corresponding to the one in Fig. 9, schematically illustrating an alternative embodiment of the fastening device in Figs 7-9.

[0011] Reference is first made to Fig. 1, which is a front view of a storage system with baskets 1, sets of hooks 3, shoe racks 5 etc. which are provided with a fastening device 6, included in the system according to the present invention, for detachable suspension from a carrier element or rail 7. The carrier element is mounted on a wall 8, door 9 or the like. Preferably the carrier element 7 is a hang standard, such as the hang standards illustrated in the Elfa leaflet "Planerings- och produktguide" and in US-A-5,110,080. The carrier element thus is an elongate section with a plurality of through slots or holes 11 in one or two rows for detachable hooking on of the baskets 1, the set of hooks 3 etc. to the carrier element 7. In the drawings, the carrier element is shown to have a U-formed profile, but other profiles are also conceivable such as an I-shaped or a T-shaped profile.

[0012] The fastening device 6 is integrated with the basket 1, the set of hooks 3 etc., i.e. it is essentially formed in one piece with the basket etc. (Figs 1-5) or is fixedly attached to the basket etc. (Figs 6-10). Moreover the fastening device 6 comprises a central, essentially U-shaped portion having hook elements 17 for releasable engagement with the slots or holes 11 of the carrier element 7, as will be described in more detail below.

[0013] With reference to Figs 3-5, which are different views of a set of hooks 3 with a fastening device 6, which is essentially formed in one piece with the set of hooks. The fastening device is a U-shaped bend of the upper wire 12 of the set of hooks having a central portion 13 which comprises a base portion 14 and a pair of leg portions 15 extending from the respective ends of the base portion. The fastening device surrounds the carrier element 7 with its base portion 14 and its leg portions 15 and these portions 14, 15 abut against the outer periphery 16 of the carrier element (see Fig. 2). The leg portions 15 are preferably so long that the upper wire 12, when mounting the set of hooks 3 on the carrier element 7, will abut exactly against the wall 8 or door 9 to which the carrier element is attached.

[0014] The fastening device also comprises at least one hook element 17 with which the set of hooks 3 is hooked to the carrier element 7 by the hook element being inserted into a selected slot 11 in the carrier element. The hook element 17 is fixedly attached to the base portion 14 of the fastening device, for instance by welding, soldering or gluing. Figs 3 and 4 show a substantially U-shaped hook device 18 fixedly attached to the base portion 14, and a hook element 17 is formed at each free end of the hook device 18. Fig. 5 illustrates schematically a single hook element attached to the base portion 14. However, the hook element is not restricted to the design shown in Figs 1-5 but may have an optional design which is then complementary to the shape of the through holes in the carrier element, into which through holes the set of hooks etc. is to be hooked.

[0015] In order to further stabilise the suspension of the set of hooks 3 from the carrier element, its lower wire 19 (or the lowermost wire of the basket 1 adjacent to the

carrier element) is bent at the centre of the set of hooks in the same way as the upper wire 12 to form a portion or recess 21 extending into the set of hooks etc. This portion will then also surround and abut against the carrier element 7.

[0016] Figs 3-5 illustrate the hook element 17 positioned essentially on the same level as the central portion 13 or the upper wire 12. The hook element, however, can be arranged at a level different from the central portion, i.e. above the central portion 14.

[0017] Reference is now made to Figs 6-10, which illustrate a different embodiment of the fastening device 6 according to the invention. In this embodiment, the fastening device is not formed in one piece with the basket 1, the set of hooks 3 etc., but is a separate unit which is fixedly attached to the basket etc., for instance by welding, soldering, gluing, in a recess therein (see Fig. 6). The base portion 14 and leg portions 15 of the fastening device 6 are made of a metal sheet bent in U shape and with hook elements 17 formed in the base portion. A pair of flanges 23, to which the basket etc. is attached, project perpendicularly from the free ends of the leg portions 15, i.e. their ends not connecting to the base portion 14. The flanges are formed in one piece with the rest of the fastening device. Alternatively, the fastening device can be made of a material other than metal, such as reinforced plastic.

[0018] Each hook element 14 is formed as a tongue punched from the base portion 14 and having a first portion, or connecting portion 24, a second or intermediate portion 25 and a third portion or end portion 26. The intermediate portion 25 extends essentially parallel with the base portion 14 and is positioned by means of the connecting portion 24 at a distance from the inner surface 27 of the base portion that corresponds to the material thickness of the carrier element 7. In order to facilitate the insertion of the tongue into the slot 11 of the carrier element, the end portion 26 is angled away from the base portion 14 and forms an acute angle to this. Preferably, the intermediate portion 25 adjacent to the end portion 26 is positioned at a shorter distance from the inner surface 27 of the base portion than is the intermediate portion 25 adjacent to the connecting portion 24, in which case the hook element will clamp the fastening device 6 to the carrier element 7.

[0019] Fig. 10 schematically presents an alternative embodiment of the hook element 17. In this embodiment, the angled end portion 26 has been replaced by a hook-shaped end 28 with a sliding surface 29 and an abutment surface 31. The distance between the abutment surface 31 and the connecting portion 24 of the hook element is somewhat greater than the distance between the lower edge of a slot 11 in the carrier rail and the upper edge of a subjacent slots 11', see Fig. 6. When inserting the hook element or tongue 17 into the slot 11, the sliding surface 29 will press the intermediate portion 25 outwards and the hook-shaped end 28 will finally, owing to the elasticity of the hook element, snap into the subjacent slot 11',

thereby locking the fastening device to the carrier element by means of the abutment surface 31.

[0020] To achieve optimal stability in the hooking-on of a basket 1 etc. to a carrier element 7, the fastening device comprises at least two separate (pairs) hook elements which are aligned with each other in the longitudinal direction of the fastening device, as shown, for instance, in Figs 8 and 9. The lower edge or bottom of the basket etc. is in any case formed with an inwardly extending portion or recess 21, as indicated in connection with Fig. 3.

[0021] By the fastening device according to the invention being insertedly arranged inside the periphery of the basket etc., the basket will also be easier to packet.

[0022] In the illustrated embodiments of the storage system, all baskets, paper roll holders, sets of hooks etc. are shown to be made of wires. As will be easily understood, they may, however, be made of an optional material, without deviating from the inventive idea. For instance, the basket can be made of sheet metal and then according to Figs 6-10 the fastening device is conveniently formed in one piece with the side of the basket facing the wall or the like.

EMBODIMENTS

[0023]

1. A system for storing various objects suspended from a door, a wall or similar (8) comprising a carrier element (7) having a number of slots or through holes (11), the carrier element is adapted to be mounted, vertically orientated, on said door, wall or similar (8), and at least a basket (1), a set of hooks (3), a shoe rack (5) or the like having a fastening device (6) for detachable suspension from said carrier element (7), wherein said fastening device (6) is integrated with said basket (1), set of hooks (3), shoe rack (5) or the like, that the central portion (13) of the fastening device (6) is essentially U-shaped and comprises a base portion (14) and a pair of leg portions (15) extending from the base portion and formed in one piece with the base portion (14), the fastening device (6) being adapted to surroundingly engage the outer periphery of the carrier element (7), that the fastening device (6) is insertedly arranged inside the periphery of the basket (1), the set of hooks (3), etc., and that the base portion (14) of the fastening device (6) has at least one hook element (17) for releasable engagement with a slot (11) or a through hole in the carrier element (7).

2. A system as in embodiment 1, wherein said at least one hook element (17) is arranged adjacent to the upper portion of the basket (1), the set of hooks (3) etc., and that a U-shaped recess (21) is insertedly arranged inside the periphery of said basket (1), the set of hooks (3) etc., at the lower portion of the basket (1), the set of hooks (3) etc., said recess (21) surrounding the carrier element (7).

3. A system as in embodiment 1 or 2, wherein the leg portions (15) and the base portion (14) of the fastening device (6) are formed integrally with the basket (1), the set of hooks (3) etc., and that at least one hook element (17) is fixedly attached to the base portion (14).

4. A system as in embodiment 3, wherein a substantially U-shaped hook device (18) is fixedly attached to the base portion (14) of the fastening device (6), a hook element (17) being formed at each free end of the hook device.

5. A system as in embodiment 1, wherein the leg portions (15) and the base portion (14) of the fastening device (6) are made of a metal sheet bent in U shape and fixedly attached to the basket (1), the set of hooks (3) etc., in a recess thereof, and from which metal sheet at least one tongue (17) projecting from the base portion (14) is formed, said tongue constituting said hook element (17).

6. A system as in embodiment 5, wherein the metal sheet bent in U shape also comprises a pair of flanges (23), which project perpendicularly from the free end of the respective leg portions (15) and which are integrally formed with said metal sheet, and that the basket (1), the set of hooks (3) etc. is fixedly attached to said flanges (23).

7. A system as in embodiment 5 or 6, wherein said tongue (17) is integrally formed with the base portion (14) of the fastening device (6), extends essentially parallel with the base portion (14) and is terminated with an end (26) directed away from the base portion (14) and forming an acute angle thereto.

8. A system as in embodiment 7, wherein the tongue (17) adjacent to said angled portion (26) is arranged at a shorter distance from the base portion (14) than is the rest of the portion (25) of the tongue (17), which is essentially parallel with the base portion (14).

9. A system as in embodiment 5, wherein said tongue (17) is formed with a hook-shaped end (28) which is directed towards the base portion (14) and adapted to be hooked into a slot (11') or a hole above or below the slot (11) or hole into which the hook element (17) is inserted when suspending the basket (1), the set of hooks (3) etc.

10. A system as in any one of the preceding embodiments, wherein the fastening device (6) comprises at least two separate hook elements (17) which are aligned with each other in the longitudinal direction of the fastening device (6).

[0024] The invention is not limited to that described above or shown in the drawings, and can be modified within the scope of the appended claims.

Claims

1. A system for storing various objects suspended from a door, a wall or similar (8) comprising a carrier element (7) having a number of slots or through holes (11), the carrier element being adapted to be mounted, vertically orientated, on said door, wall or similar (8), and at least one basket (1) having a fastening device (6) for detachable suspension from said carrier element (7), **characterized in**
 - **that** said fastening device (6) is integrated with the basket (1),
 - **that** a central portion (13) of the fastening device (6) is essentially U-shaped and comprises a base portion (14) and a pair of leg portions (15) extending from the base portion and formed in one piece with the base portion (14), the fastening device (6) being adapted to surroundingly engage the outer periphery of the carrier element (7),
 - **that** the fastening device (6) is insertedly arranged inside the periphery of the basket (1) and
 - **that** the base portion (14) of the fastening device (6) has at least one hook element (17) for releasable engagement with a slot (11) or a through hole in the carrier element (7).
2. A system as in claim 1, wherein the fastening device (6) is integrated with the basket (1) by being fixedly attached to the basket.
3. A system as in claim 1 or 2, wherein the leg portions (15) and the base portion (14) of the fastening device (6) are made of a metal sheet bent in U shape and fixedly attached to the basket (1), in a recess thereof, and from which metal sheet at least one tongue (17) projecting from the base portion (14) is formed, said tongue constituting said hook element (17).
4. A system as in claim 3, wherein the metal sheet bent in U shape also comprises a pair of flanges (23), which project perpendicularly from the free end of the respective leg portions (15) and which are integrally formed with said metal sheet, and wherein the basket (1) is fixedly attached to said flanges (23).
5. A system as in claim 3 or 4, wherein said tongue (17) is punched from the base portion (14) of the fastening device (6), extends essentially parallel with the base portion (14) and is terminated with an end (26) directed away from the base portion (14) and forming an acute angle thereto.
6. A system as in claim 5, wherein the tongue (17) adjacent to said angled portion (26) is arranged at a shorter distance from the base portion (14) than is the rest of the portion (25) of the tongue (17), which is essentially parallel with the base portion (14).
7. A system as in claim 3, wherein said tongue (17) is formed with a hook-shaped end (28) which is directed towards the base portion (14) and adapted to be hooked into a slot (11') or a hole above or below the slot (11) or hole into which the hook element (17) is inserted when suspending the basket (1), the set of hooks (3) etc.
8. A system as in any one of the preceding claims, wherein the fastening device (6) comprises at least two separate hook elements (17) which are aligned with each other in the longitudinal direction of the fastening device (6).
9. A system as in any one of the preceding claims, wherein the basket (1) is made of wires.
10. A system as in any one of claims 1-8, wherein the basket (1) is made of sheet metal.

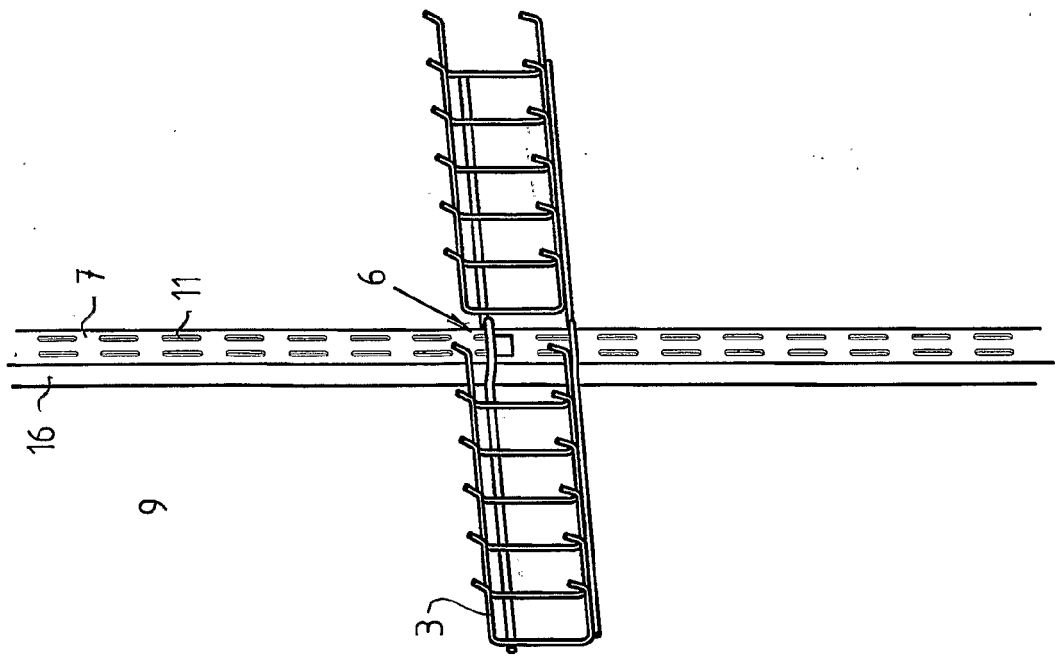


Fig 2

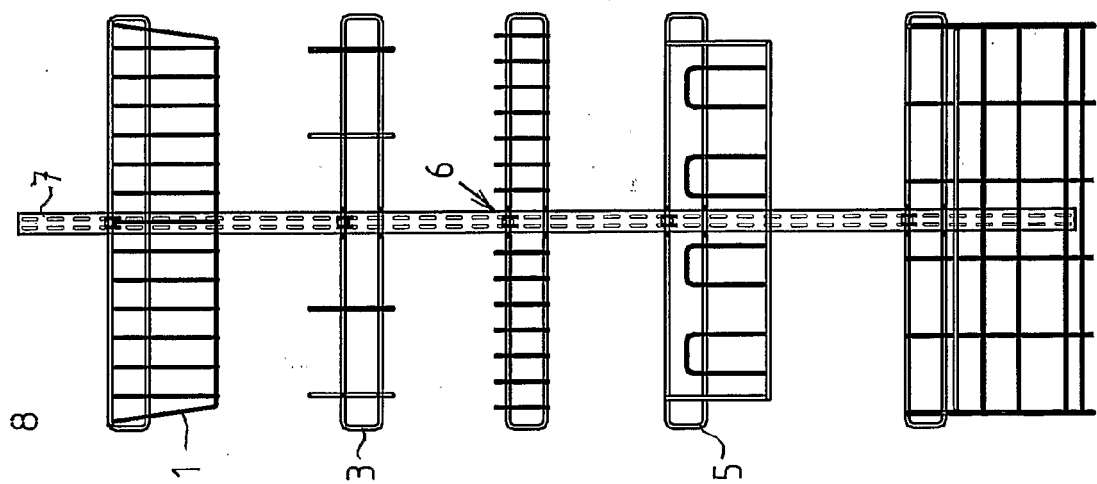


Fig 1

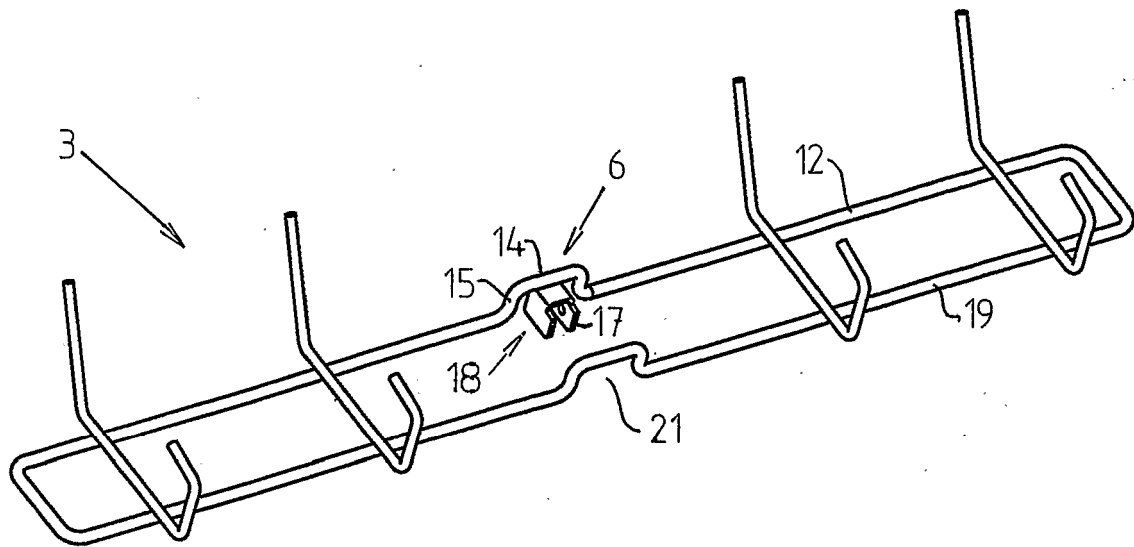


Fig.3

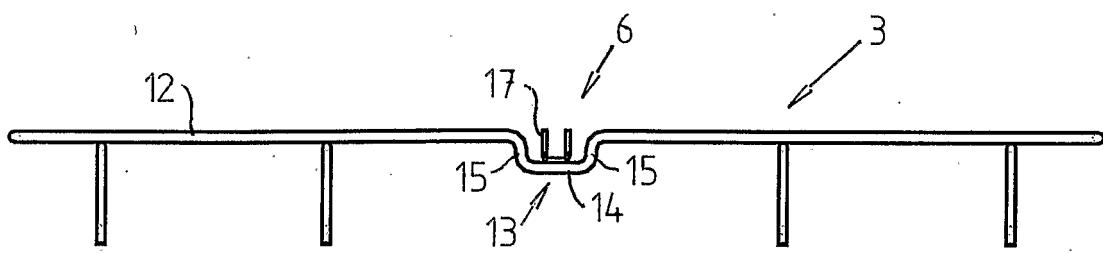


Fig. 4

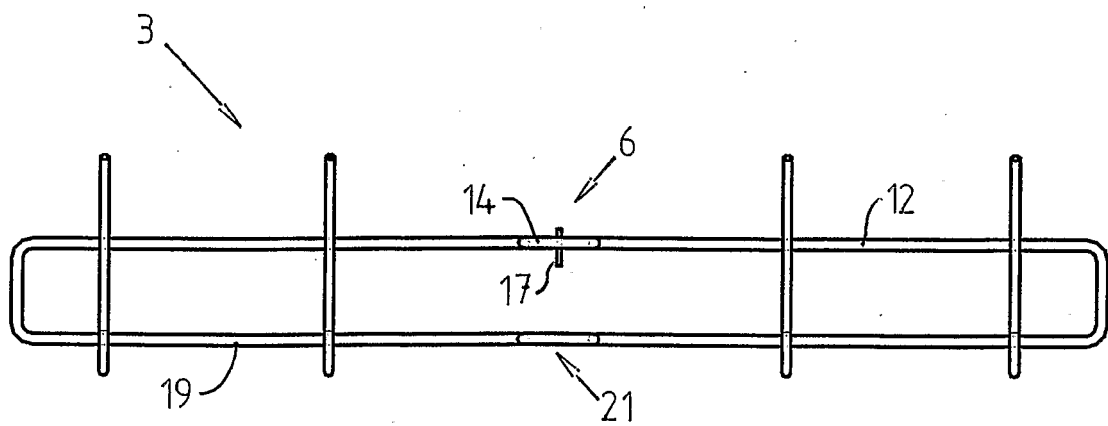


Fig.5

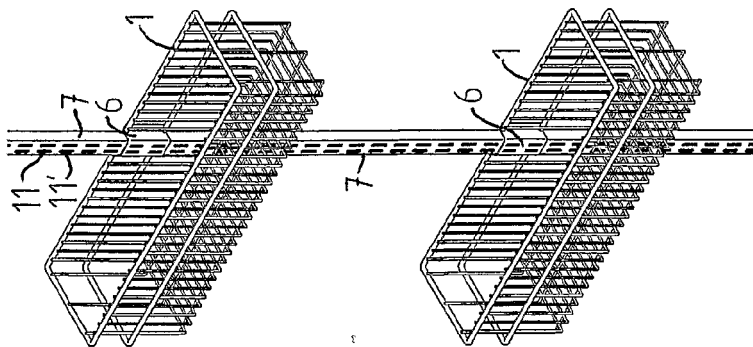


Fig 6

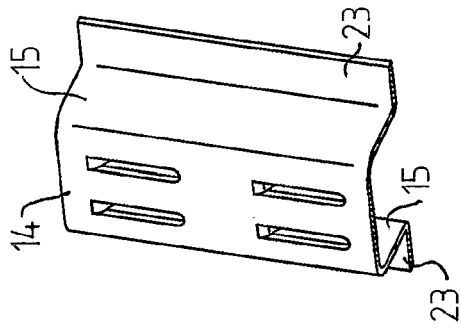


Fig 7

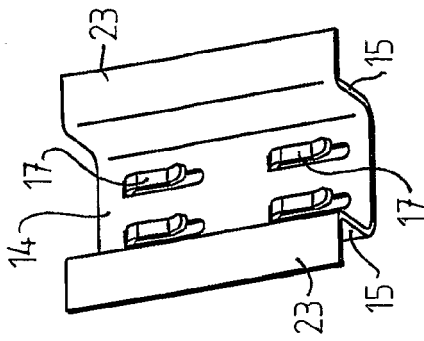


Fig 8

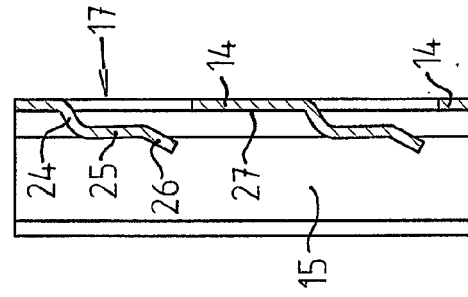


Fig 9

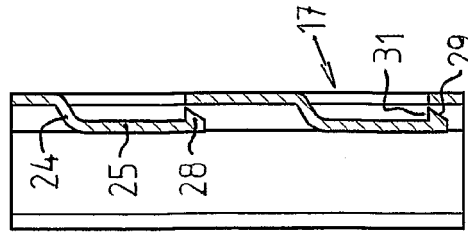


Fig 10



EUROPEAN SEARCH REPORT

Application Number
EP 10 16 5802

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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 27 July 2010	Examiner Klintebäck, Daniel
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.**

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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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