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(54) **Holding device**

(57) A holding device for holding electronic labels at a goods storage or displaying means such as a shelf or the like, comprising a mounting part (10) arranged to be attached to a goods storage or displaying means and a label receiving part (20) which receiving part is joined to the mounting part and comprises a first wall (21), a second wall (22), which is opposite to the first wall and con-

necting walls (23, 24) connecting the first and second walls, which first, second and connecting walls together define a cavity for receiving at least one electronic label. A flexible blade (28) is arranged in the cavity for applying a pressing force to an electronic label (41, 42, 43) received in the cavity, in a direction towards the second wall (22).

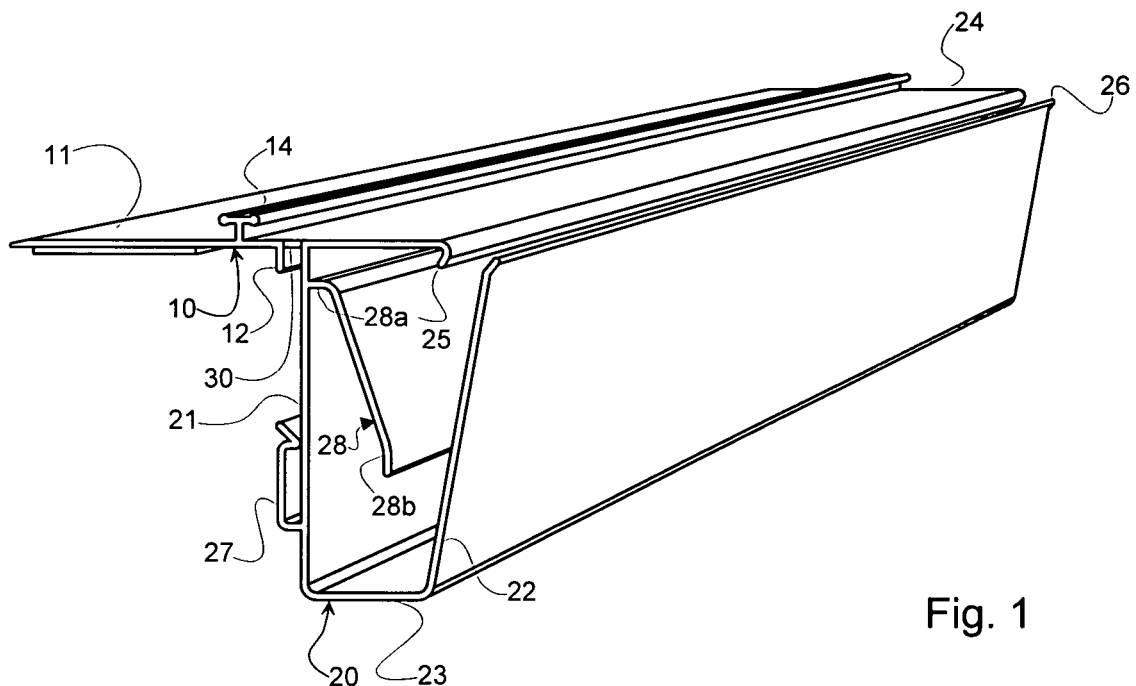


Fig. 1

## Description

### Field of the invention

**[0001]** The invention relates to a holding device for holding electronic labels at a goods storage or displaying means such as a shelf or the like.

### Background

**[0002]** Electronic information displays, also called electronic labels, are used to a greater and greater extent in for instance grocery stores, department stores and the like where products are stored and displayed on shelves, display stands or compartments, wire baskets and the like. The electronic labels usually consist of separate units that are placed in electronic label holders on the shelf's front edge near the product that the information concerns. The information shown is usually statements about price, cost-per-unit price, product number and possibly product name. Compared with conventional paper labels the electronic labels have the advantage that it is easy to change and keep the information about the respective product type updated. For instance this can be made centrally via a store computer, whereby the displays are arranged to communicate with the computer.

**[0003]** The electronic labels often include an electronic character screen of LCD or LED type. For the electronic label to be an advantage compared with paper labels the information shown must be easily visible and readable for customers and personnel.

**[0004]** A wide range of different electronic labels is available on the market. These different labels vary in size and dimensions. It is desirable that one and the same holder for such electronic labels is capable of holding electronic labels of different brands. Especially, it would be preferable to provide a holder, which is capable of holding different electronic labels having dimensions that vary within wide ranges.

**[0005]** A further important aspect of the usage of electronic labels is that they are liable to be stolen since they contain electronics. In combination with the fact that it naturally is desirable to prevent manipulation of the displays as much as possible this puts stringent requirements on secure attachment of the displays to the shelves. Apart from the fact that the displays should be secured against removal from the shelves it is also desirable that they be firmly attached to prevent displacement in the shelf's longitudinal direction. Such displacement, that can be caused mistakenly or on purpose, can otherwise cause disorder on the shelf and confusion amongst customers and personnel since the displays can then end up in front of incorrect product types. Electronic displays are further relatively sensitive to mechanical impact. This in combination with the fact that they are relatively expensive means that it is important to protect them from such impact.

**[0006]** Furthermore, for such displays and their holder

arrangements it is desirable to avoid uneven surfaces, tight corners, material pockets and the like being exposed to the surroundings as much as possible. Otherwise there is the risk that dirt and dust can penetrate into such parts, which is both not aesthetic and unhygienic. For the same reason it is desirable that such foreign matter is prevented from entering into the interior of the holder device.

### Prior art

**[0007]** WO93/19448, with the same applicant as the present application, describes a device for attachment of information carriers, such as electronic LCD displays, on a shelf. The device consists of a long profile moulding that, when mounted to a shelf, extends along the shelf. A back part of the profile moulding's cross-section forms a mounting part with which the profile moulding is attached to the shelf's front edge. The profile moulding's front part includes a generally C-shaped holder section that is intended to receive several electronic information displays arranged one after the other. The front part is also connected to a hinged lid that can be folded down over the holder section in order to cover the displays mounted therein. The front part is connected to the back part by a hinge that allows the angle of the holder section to be varied.

### Brief description of the invention

**[0008]** It is an object of the present invention to provide an improved holding device for electronic labels. A further object is to provide such a holding device, which is capable of holding different electronic labels with dimensions that varies within a wide range.

**[0009]** These and other objects are achieved by a holding device according to the preamble of claim 1, which holding device exhibits the special technical features set out in the characterizing portion of the claim.

**[0010]** The holding device for holding electronic labels at a goods storage or displaying means such as a shelf or the like, comprises a mounting part arranged to be attached to a goods storage or goods displaying means and a label receiving part which receiving part is joined to the mounting part. The receiving part comprises a first wall, a second wall, which is opposite to the first wall and connecting walls connecting the first and second walls. The first, the second and the connecting walls together define a cavity for receiving at least one electronic label. According to the invention the holding device comprises a flexible blade having a first edge fixed to the receiving part and a resiliently bendable part which projects from the first edge and is arranged in the cavity for applying a pressing force to an electronic label received in the cavity, in a direction towards the second wall.

**[0011]** The resiliently flexible blade provides for that an electronic label received in the receiving part is pressed against the second wall with an appropriate force such as to satisfactory hold the electronic label in the

receiving part. The arrangement of the projecting, resiliently bendable part also provides for that the label contacting part of the flexible blade is resiliently movable a comparatively great distance. By this means electronic labels having a thickness that varies within a comparatively wide range may be accommodated in the receiving part and held in position by an appropriate force. Since the resiliency of the blade is achieved by flexing of the material, a comparatively stiff and strong material may be used for forming the blade. Especially, the blade may be formed of the same material that forms the other portions of the receiving part and the rest of the holding device. This greatly facilitates manufacturing of the holding device since the entire device may be formed by one single material if desired.

**[0012]** The second wall may be formed as a transparent wall which extends from an upper connecting wall to a lower connecting wall. The transparent wall forms a cover for the cavity within the receiving part to prevent foreign matter from entering into the cavity. The transparent wall also protects the electronic label from impacts. The receiving part is then preferably arranged such that the flexible blade presses an electronic label received in the cavity to lay in contact with the second transparent wall. By this means the electronic label is pressed towards the transparent wall such that the information-displaying window of the label lays in flat contact with the inner side of the transparent wall. This reduces the risk of light interference phenomena between the information-displaying window and the transparent wall, which enhance the visibility of the information through the transparent wall. Furthermore, the flexible blade provides for that labels having different thickness may be accommodated in the cavity and held appropriately in position, while still ensuring that the front face is in contact with the inside of the transparent wall.

**[0013]** The second wall may alternatively comprise two wall portions, each of which is protruding from a respective connecting wall, generally in a direction toward the other. The receiving part is then preferably arranged such that the flexible blade presses an electronic label received in the cavity to lay in contact with the two wall portions, which may be arranged as an upper and a lower ridge protruding downwardly and upwardly from an upper and lower connecting wall respectively. By this means the information presented by the electronic label may be readily visible through the gap formed between the two wall portions. If so desired the transparent wall may then be omitted to thereby further enhance the visibility of the information displayed by the electronic label.

**[0014]** Especially if the second wall constitutes a transparent wall forming a cover for the cavity, the second wall may be detachable from at least one of the connecting walls for allowing access to the cavity. The second wall and the at least one connecting wall may then comprise cooperating interlocking means which means are arranged to require application of a force to the second wall in a direction opposite to the pressing force of the flexible

blade for detaching the second wall from said at least one connecting walls. Since opening of the receiving part requires a force to be applied in a specific direction, this provides for that the receiving part of the holder is not unintentionally opened. Further, if the flexible blade is made rigid enough, opening of the receiving part is rendered difficult such that unauthorized opening of the receiving part, e.g. for stealing or manipulating the label, is obstructed.

**[0015]** In order to further prevent unauthorized opening of the receiving part, the interlocking means may comprise cooperating hook means arranged on the second wall and the at least one connecting wall. The cooperating hook means in combination with the resilient force applied via the label onto the transparent wall provides for that the receiving part cannot be opened without the use of a tool. By giving the cooperating hooks a special geometrical configuration the security is further increased since the tool for opening the receiving part then needs to have a certain corresponding geometrical configuration.

**[0016]** The first edge of the blade may be fixed to the first wall of the receiving part which first wall is opposite to the second wall. This provides for that the resiliently bendable part of the blade can be arranged such that it projects from the first edge a comparatively great distance. This further enhances the capability to satisfactorily hold electronic labels having different thickness. This arrangement also enables a simple and reliable construction.

**[0017]** In order to achieve an increased resilient force utilising a certain blade material and blade material thickness, the free edge of the blade may bear against the first wall in an unstressed condition.

**[0018]** The holding device is preferably formed as an elongate profile element for receiving a plurality of electronic labels side by side in the receiving part. By this means a single holding device may be used for holding any desired number of electronic labels at any desired length of shelves or the like. The profile element may be manufactured with a number of standard lengths for such shelves. The profile element may also readily be adapted to any length differing from such standard lengths by simple cutting using for instance a hacksaw.

**[0019]** The profile element may preferably be manufactured by simultaneous extrusion of one or a number of plastic materials. Using two or more materials provides for e.g. that the transparent wall and a hinge between the mounting part and the receiving part may be simultaneously formed of a material other than the material of the rest of the holder.

**[0020]** Further objects and advantages will be apparent from the following detailed description and from the claims.

### Brief description of the drawings

**[0021]** In the following a detailed description of an ex-

emplifying embodiment will be given with reference to the figures, in which:

Fig. 1 is a perspective view of an embodiment of the holding device according to the invention.

Fig. 2 is a side view of the holding device of fig. 1.

Fig. 3 is a side view as in fig. 2 but in a smaller scale, illustrating the insertion of an electronic label in the holding device.

Fig. 4 is a side view according to fig. 3 illustrating opening of the receiving part of the holding device.

Fig. 5a, 5b, 5c are side views as in fig. 3 but in smaller scale, illustrating how electronic labels having different dimensions may be received and held in the receiving part of the holding device.

### Detailed description of an embodiment

**[0022]** With reference to figs. 1 and 2 the holding device according to one embodiment of the invention is constituted by an elongated profile element, which is formed by co-extrusion of three different plastic materials. The holding device comprises a mounting part 10 and a receiving part 20. The mounting part 10 comprises flat portion 11, which is arranged to be attached to the upper surface of a shelf (not shown). A flange 12 projects downwardly from the front edge of the flat portion 11. The flange 12 is used for aligning the mounting part 11 along the front edge of the shelf. A strip 13 of double-sided adhesive tape is arranged at the lower surface of the flat portion 11 for fixing the mounting part to the shelf. An upwardly projecting T-shaped flange 14 is arranged in the proximity to the front edge of the flat portion 11. The T-shaped flange may be used for attaching shelf accessories (not shown) such as shelf dividers, pushing devices, flag holders and the like to the holding device.

**[0023]** The receiving part 20 is connected to the mounting part 10 through a bridge 30 of a soft material forming a hinge. By this means the receiving part 20 may be folded upwards such as to enhance access to a shelf arranged immediately beneath the shelf carrying the holding device. The hinge also enables that the receiving part 20 may be positioned and held in any desired angle of inclination in order to enhance the visibility of the information displayed by the electronic labels held by the holding device.

**[0024]** The receiving part 20 comprises a first generally vertical wall 21 and a second generally vertical wall 22, which is opposite to the first wall 21. The second wall 22 is made of a transparent material such that information shown by an electronic label received in the receiving part 20 may be readily seen through the second wall 22. The second wall 22 is connected to the first wall 21 through a lower horizontal connecting wall 23. An upper

horizontal connecting wall 24 is connected to the upper end of the first vertical wall 21. The upper connecting wall is at its front edge provided with a downward hook portion 25. The second transparent wall 22 is at its upper edge provided with a corresponding forwardly bent hook portion 26 arranged for interlocking engagement with the hook portion 25 of the upper connecting wall 24. In figs. 1-3 the receiving part 20 is shown in an open mode, whereby the second wall is released from its engagement with the upper connecting wall 23. It is however apparent that the two hook portions 25, 26 may be brought into interlocking engagement by pushing the upper end of the transparent wall 22 to the left from the position shown in fig. 2. The hook portion 26 will then contact the hook portion 25 and force the hook portion 25 upwards until the edges of the two hook portions 25, 26 go free from each other and the hook portion 25 snaps down into interlocking engagement with the hook portion 26. The receiving part 20 has then assumed its closed position, which position is best seen in figs. 5a-c. The second transparent wall 22 is thus, in the closed position, connected to the first wall 21 by the upper connecting wall 24.

**[0025]** The backside of the first wall 21 is provided with an attachment flange 27, by which so called shelf talkers and other accessories may be attached, such that they hang down underneath the holding device. The attachment flange 27 may also be used for attaching an angle adjustment distance member (not shown), which has a free edge that is supported by the front edge of the shelf for holding the receiving part 20 at any desired angle of inclination.

**[0026]** The first wall 21, the second wall 22 and the upper 24 and lower 23 connecting walls together define a cavity in which an electronic label 41, 42, 43 (figs. 4 and 5a-c) may be accommodated and held in position.

**[0027]** An elongate flexible blade 28 extends along the entire length of the receiving part. The blade 28 has a first edge 28a fixed to the first wall 21 and a movable part 28b which comprises a second free edge and which is resiliently movable within the cavity. At the embodiment shown the blade 28 is formed of the same plastic material as the mounting part and the first wall 21 as well as the upper 24 and lower 23 connecting walls of the receiving part. The blade may however also, if desired, be formed of another plastic material having a desired elasticity and stiffness.

**[0028]** As is seen in the figures, the blade 28 is formed such that the movable part 28b will exert a spring force in a direction towards the transparent wall 22 when it is pushed towards the first wall 21. By choosing the material forming the blade and the thickness of the blade, it is possible to give the blade any desired stiffness such that it will exert an appropriate spring force when pushed towards the first wall 21.

**[0029]** Figure 3 illustrates how an electronic label 41 is introduced into the receiving part 20, when the transparent wall 22 is disengaged from the upper connecting wall 24. When the electronic label has been inserted in

the receiving part 20 the upper portion of transparent wall 22 is pushed backwards, in the direction towards the first wall 21. The hook portions 25, 26 thereby engage each other as described above. During this closing of the transparent wall 22 the inside of the transparent wall will contact the front surface of the electronic label 41 and push the label 41 backwards against the blade 28, such that the blade is flexed backwards.

**[0030]** When in the closed position shown in fig 5a, the blade 28 exerts a forwardly directed force onto the electronic label 41 whereby the front surface of the label 41, which surface comprises an information displaying window, is pressed against the inside of the transparent wall 22. By this means the visibility through the transparent wall 22 of the information displayed in the window is greatly enhanced. At other holding devices where an intermediate space between the information displaying window and the transparent wall is allowed, the visibility through the transparent wall may be greatly decreased due to light interference in the intermediate space. However, if so desired, the receiving part may be arranged such that the flexible blade presses the electronic label to rest against stop means other than the transparent wall. For instance such stop means may be formed as elongate ridges that protrude upwardly and downwardly from the lower and upper connecting walls, in proximity to and inside of the transparent wall. Also if so desired, the transparent wall may be completely omitted, whereby the upper and lower elongate ridges separated by an intermediate gap forms an open second wall.

**[0031]** As illustrated in figs 5a, 5b and 5c, the resilient blade 28 provides for that electronic labels having varying thickness may be satisfactorily held in position in the receiving part and in contact with the inside of the transparent wall 22. In the figures it is also notable that the distance between the lower 23 and upper 24 connecting walls is great enough to accommodate electronic labels having different heights.

**[0032]** Due to the forwardly directed spring force exerted by the blade 28 to the electronic label and transferred by the label 41 to the transparent wall 22, the hook portion 26 of the transparent wall 22 is pressed into engagement with the corresponding hook portion 25 of the upper connecting wall. In order to be able to open the receiving part 20, this engagement force has to be overcome. As illustrated in fig. 4 this cannot be accomplished without the aid of a tool. Instead, a tool 50 which is capable of exerting a sufficiently strong force onto the transparent wall 22 and at the same time flexing the upper connecting wall 24 is required for disengaging the interlocking engagement between the hook portions 25 and 26.

**[0033]** Above an exemplifying embodiment of the invention has been described. The invention is however not limited to this description but may be varied freely within the scope of the claims. For instance, the mounting part of the holding device may have any suitable configuration for being able to be mounted to any type of goods

storage or goods displaying means, such as display stands, wire baskets, refrigerated counters etc.

**[0034]** In order to further increase the spring force of the flexible blade it may comprise one edge fixed to a wall of the receiving part and a free edge which also in an unstressed condition bears against that wall.

**[0035]** According to a not shown embodiment the transparent wall forms part of a separate member, which is removably attachable to the rest of the receiving part.

The separate member may e.g. comprise a transparent front wall and a lower connecting wall, which walls comprise snap engagement members by which the separate member may be snap fitted onto corresponding snap members on a back wall and an upper connecting wall of the receiving part. The flexible blade may be fixed to the separate member such that the electronic label or labels may be positioned between the blade and the transparent wall before the separate member is attached to the rest of the receiving part.

## Claims

1. A holding device for holding electronic labels at a goods storage or displaying means such as a shelf or the like, comprising a mounting part (10) arranged to be attached to a goods storage or displaying means and a label receiving part (20) which receiving part is joined to the mounting part and comprises a first wall (21), at least one second wall (22), which is opposite to the first wall and connecting walls (23, 24) connecting the first and second walls, which first, second and connecting walls together define a cavity for receiving at least one electronic label, **characterized by** a flexible blade (28) having a first edge (28a) fixed to the receiving part and a resiliently bendable part (28b) which projects from the first edge and is arranged in the cavity for applying a pressing force to an electronic label (41, 42, 43) received in the cavity, in a direction towards the second wall (22).
2. A holding device according to claim 1, wherein the receiving part (20) is arranged such that the flexible blade (28) presses an electronic label (41, 42, 43) received in the cavity to lay in contact with the second wall (22).
3. A holding device according to claim 1 or 2, wherein the second wall (22) is transparent and connects the connecting walls.
4. A holding device according to claim 1 or 2, wherein the second wall comprises two wall portions, each of which is protruding from a respective connecting wall, generally in a direction toward the other.
5. A holding device according to any of claims 1-4,

wherein the second wall (22) is detachable from at least one (24) of the connecting walls for allowing access to the cavity and wherein the second wall and said at least one connecting wall comprise cooperating interlocking means (25, 26) which means are arranged to require application of a force to the second wall in a direction opposite to the pressing force of the flexible blade (28) for detaching the second wall from said at least one connection wall.

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6. A holding device according to claim 5, wherein the interlocking means (25, 26) comprise cooperating hook means arranged on the second wall (22) and said at least one connecting wall (24).
7. A holding device according to any of claims 1-6, wherein the first edge (28a) of the blade (28) is fixed to the first wall (21) of the receiving part (20).
8. A holding device according to any of claims 1-7, wherein a free edge of the blade (28) bears against the first wall (21) in an unstressed condition.
9. A holding device according to any of claims 1-8, which holding device is formed as an elongate profile element for receiving a plurality of electronic labels side by side in the receiving part.
10. A holding device according to claim 9, wherein the profile element is formed by simultaneous extrusion of one or a number of plastic materials.

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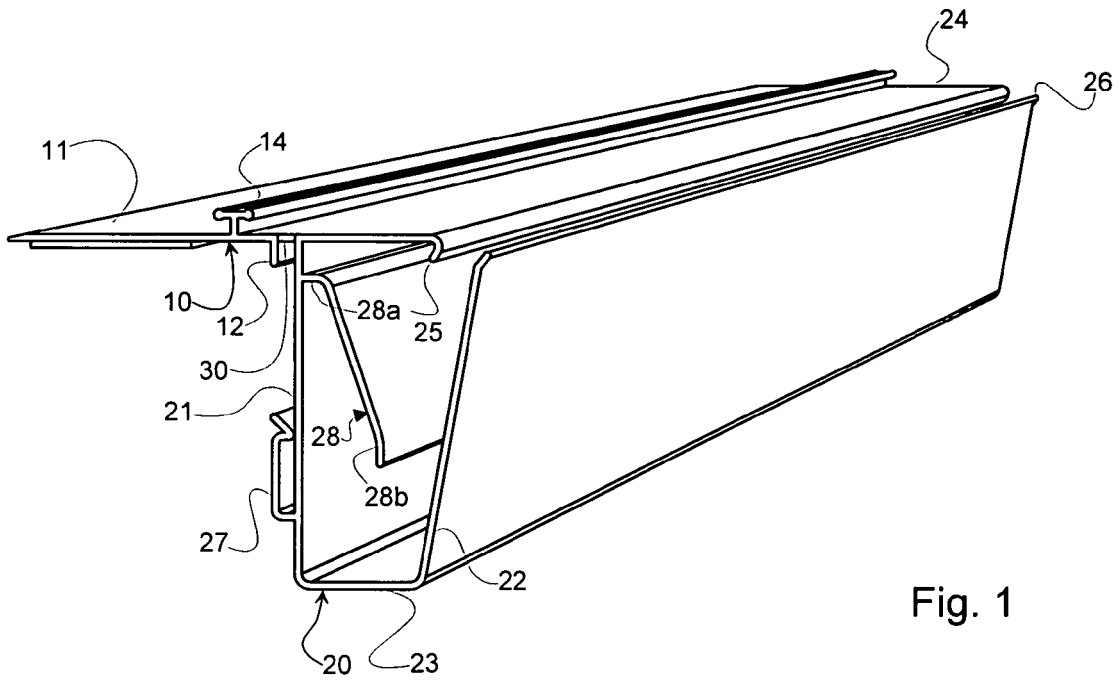


Fig. 1

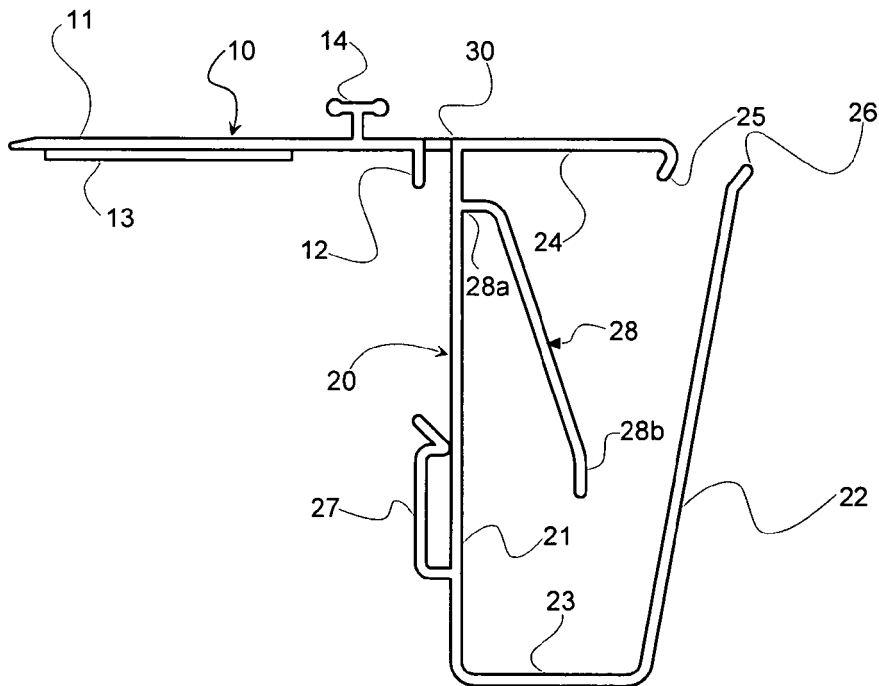


Fig. 2

Fig. 3

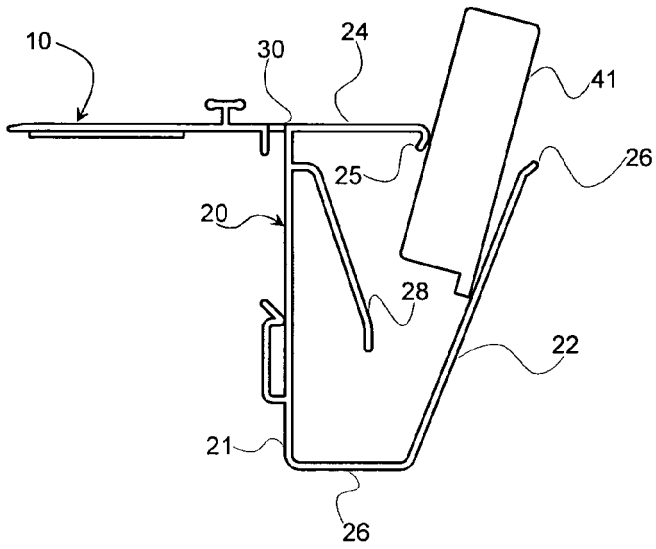


Fig. 4

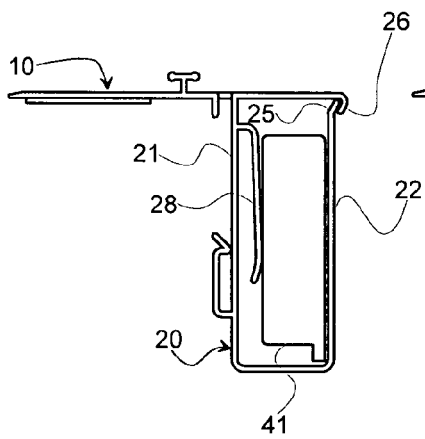
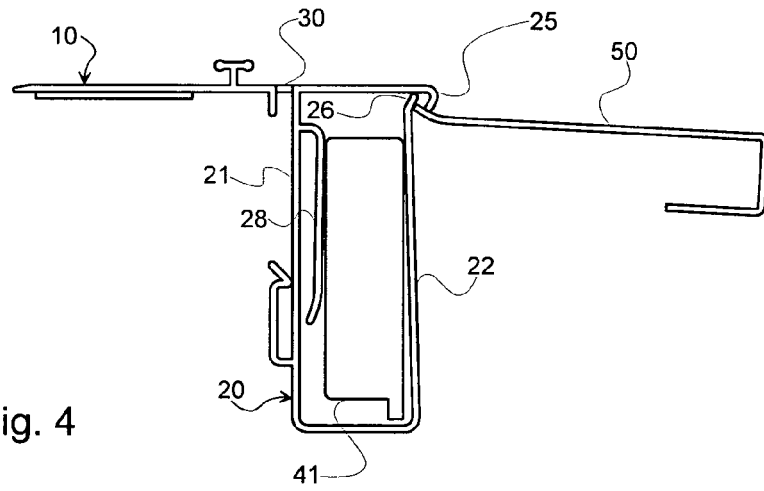


Fig. 5a

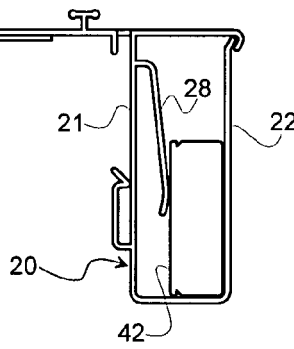


Fig. 5b

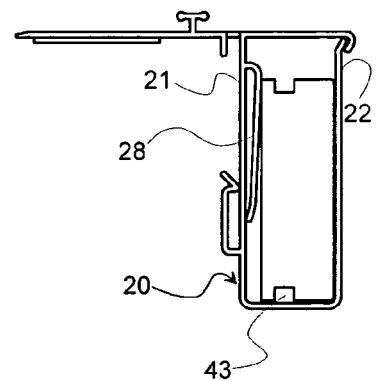


Fig. 5c





DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
D,A	WO 93/19448 A (HL DISPLAY AB [SE]) 30 September 1993 (1993-09-30) * page 5, line 10 - page 7, line 25; figures 1-7,7-12 *	1-10	INV. G09F3/20
A	----- DE 195 01 974 A1 (ESSELTE METO INT GMBH [DE]) 25 July 1996 (1996-07-25) * abstract; claim 1; figures 1,6 *	1-10	
A	----- US 6 126 125 A (DALTON GARY C [US]) 3 October 2000 (2000-10-03) * column 3, line 6 - line 15; figures 2-4 *	1-10	
A	----- US 5 095 641 A (DAHL GARY A [US]) 17 March 1992 (1992-03-17) * abstract; claim 1; figures 1,5 *	1-10	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			G09F
Place of search		Date of completion of the search	Examiner
Munich		19 September 2007	Pavlov, Valeri
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**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 07 44 5021

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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19-09-2007

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WO 9319448	A	30-09-1993	NONE	
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

**REFERENCES CITED IN THE DESCRIPTION**

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