

Beschreibung

Haltevorrichtung für den Montagewinkel von Steckkarten
bzw. Standard-Flachbaugruppen

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Die Erfindung betrifft eine Haltevorrichtung gemäß den Merkmalen des Oberbegriffs des Anspruchs 1.

Standard-Flachbaugruppen, insbesondere die in der Computertechnik eingesetzten Steckkarten, werden üblicherweise mit Hilfe von Montagewinkeln an entsprechend gestalteten Einbauplätzen montiert. An diesen Montagewinkeln ist jeweils wenigstens ein Steckverbinder befestigt, der die Verbindung der Steckkarte zu externen Anschlüssen herstellt. Die Gehäusewandung weist deshalb an den Einbauplätzen jeweils schlitzzartige Aussparungen auf, die von dem jeweiligen Montagewinkel abgedeckt werden. Am Montagewinkel ist ferner ein rechtwinklig angesetzter Halteflansch vorgesehen, der sich an einer entsprechend abgewinkelten Stützfläche der Gehäusewandung anschmiegt und dort mittels einer Schraub- oder Klemmverbindung lösbar fixiert wird.

So ist beispielsweise aus DE 44 03 907 A1 eine Haltevorrichtung in Form einer alle einsteckbaren Flachbaugruppen bzw. deren Montagewinkel übergreifenden Klemmleiste bekannt, die im eingesetzten Zustand alle Steckkarten fixiert und die im Freigabezustand alle Steckkarten freigibt, und die elastische Bereiche aufweist, die den einzelnen Steckkarten zugeordnet sind. Nachteilig dabei ist, daß unabhängig von der Zahl der belegten Einbauplätze stets eine alle Einbauplätze erfassende entsprechend breite Klemmleiste erforderlich ist und daß beim Nachrüsten oder Auswechseln die Befestigung für alle übrigen an sich nicht betroffenen Flachbaugruppen zwischenzeitlich gelockert werden muß.

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Der vorliegenden Erfindung liegt nun die Aufgabe zugrunde, für die Befestigung des Montagewinkels von Steckkarten eine

möglichst einfache und auch einfach handhabbare Vorrichtung zu schaffen, die eine individuelle Befestigung jeder einzelnen Flachbaugruppe am Gehäuse ermöglicht.

- 5 Die Lösung dieser Aufgabe ergibt sich erfindungsgemäß durch die Merkmale des Anspruchs 1. Vorteilhafte Weiterbildungen der Erfindung sind in Unteransprüchen angegeben.

10 Im folgenden wird ein Ausführungsbeispiel der Erfindung anhand der Zeichnung näher erläutert. Dabei zeigen

Figur 1 einen Ausschnitt aus einer Gehäusewandung eines Rechnergehäuses mit einer Haltevorrichtung gemäß der Erfindung in perspektivischer Darstellung,

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Figur 2 das Klemmelement als Bestandteil der Vorrichtung gemäß Figur 1,

20 Figuren 3, 4 die Haltevorrichtung gemäß Figur 1 im Zeitpunkt der Montage bzw. nach der Montage.

Die Figur 1 zeigt einen Ausschnitt einer Gehäuserückwand 1 eines PC-Gehäuses, das im Bereich zweier Einbauplätze für Steckkarten eine etwa rechteckförmige Einbuchtung 2 aufweist.

25 An den parallel zueinander angeordneten Einbauplätzen in Form schlitzartiger Aussparungen sind jeweils L-förmige Montagewinkel 3 einer Steckkarte bzw. bei nichtbelegten Einbauplätzen zu diesen Montagewinkeln baugleiche Abdeckwinkel befestigt. Die Befestigung des Montagewinkels 3 bzw. des baugleichen Abdeckwinkels erfolgt an diesem rechtwinklig abgebogenen Halteflansch 4, der sich an einer durch die Einbuchtung 2 gebildeten seitlichen Stützwand 5 der Gehäusewandung 1 anschmiegt. Als Ersatz für die üblicherweise vorgesehene

30 Schraubverbindung ist eine Klemmvorrichtung 6 vorgesehen, die aus einem bügelartigen Federelement besteht, wobei sich dieses Federelement mit den Bügelenden an der Gehäusewandung 1 abstützt und zwischen dem Halteflansch 4 einerseits und einem

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an der Gehäusewandung 1 vorgesehenen Rastelement 7 andererseits einschnappbar ist. Als Rastelement 7 ist beispielsweise eine aus der Gehäusewandung 1 herausgerissene Blechlasche vorgesehen.

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Einzelheiten der in der Haltevorrichtung gemäß Figur 1 verwendeten Klemmvorrichtung 6 ergibt sich aus der Darstellung in Figur 2. Diese beispielsweise aus Kunststoff bestehende Klemmvorrichtung weist an der dem Halteflansch 4 des Montage-
10 winkels 3 (siehe Figur 1) zugewandten Seite einen Zentrierdorn 8 auf, der durch eine U-förmige Kerbe im Montagewinkel in eine lochartige Aussparung in der Stützfläche 5 der Gehäusewandung 1 eintaucht, wodurch der Montagewinkel über die Klemmung hinaus zusätzlich fixiert wird. Die dem Halteflansch
15 4 zugewandte Seite der Klemmvorrichtung weist eine zum Halteflansch planparallele Fläche auf.

Die Montage bzw. die endgültige Fixierung der Klemmvorrichtung ist aus den Figuren 3 und 4 ersichtlich. Als Montage-
20 hilfsmittel dient ein nasenartig vorspringendes Griffelement, das an dem dem Halteflansch abgewandten Bereich des bügelartigen Federelements angeformt ist. Durch leichten Daumendruck in Richtung Halteflansch wird das vorzugsweise aus elastischem Kunststoff bestehende Federelement soweit zusammenge-
25 drückt, daß der dem Halteflansch abgewandte Bügel hinter dem Rastelement 7 in der Gehäusewandung 1 eintaucht und beim Loslassen des Griffelements festklemmt. Die Figur 4 zeigt die Klemmvorrichtung im montierten Zustand, wobei der Federbügel zwischen Halteflansch 4 und Rastelement 7 eingespannt und
30 durch den in die Stützwand 5 eintauchenden Zentrierdorn 8 lagerichtig fixiert ist.

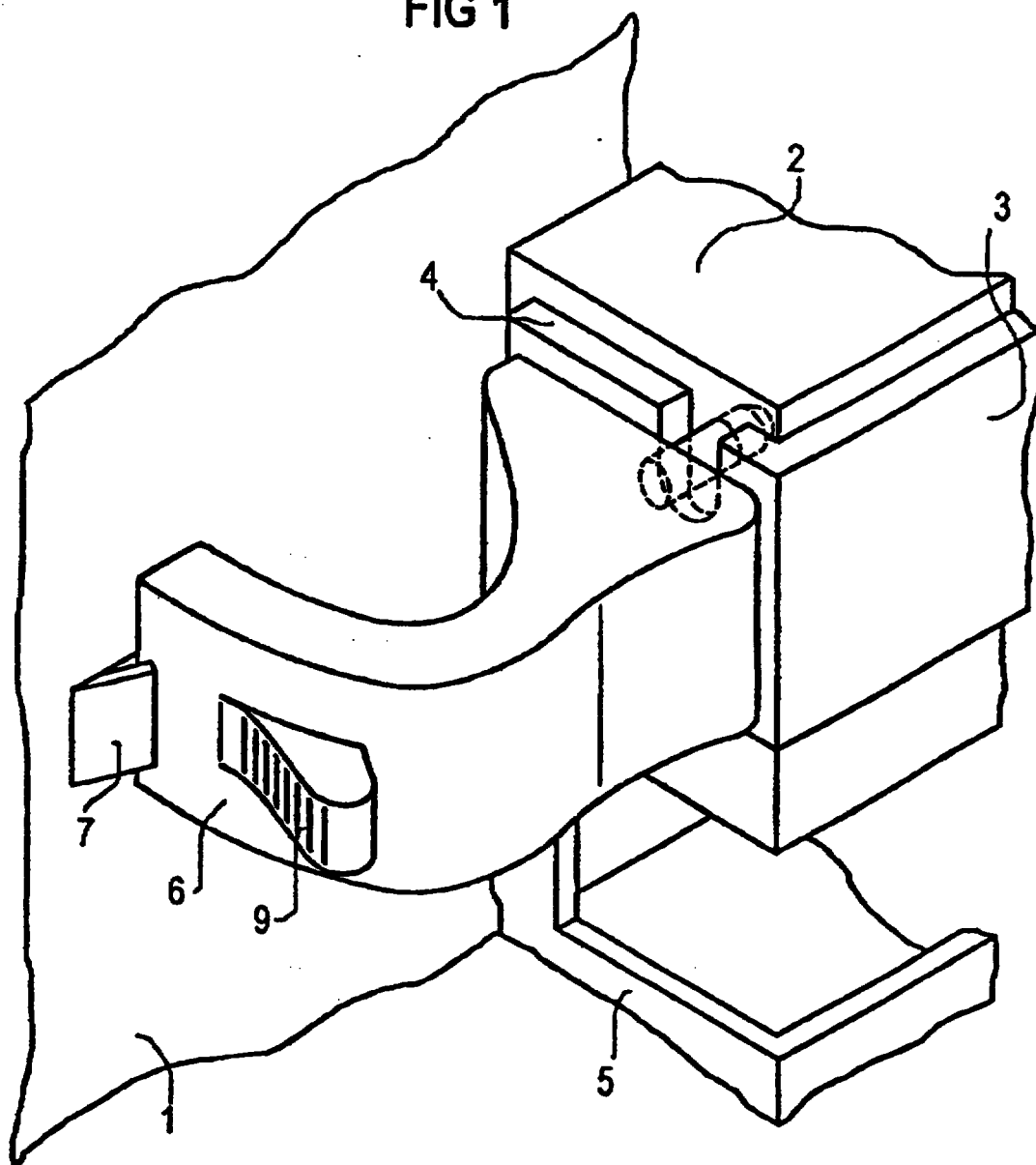
Patentansprüche

1. Haltevorrichtung für den Montagewinkel von Standard-
Flachbaugruppen, die mit dem Montagewinkel an Einbauplätzen
5 in Form schlitzartiger Aussparungen in einer Gehäusewandung
eines Datenverarbeitungsgerätes lösbar befestigt sind, der-
art, daß der an einer abgewinkelten Stützfläche der Gehäuse-
wandung anliegende, entsprechend abgewinkelte Halteflansch
des Montagewinkels mittels einer Klemmvorrichtung fixierbar
10 ist, dadurch gekennzeichnet, daß die Klemmvorrich-
tung (6) aus einem bügelartigen Federelement besteht, das
sich mit den Bügelenden an der Gehäusewandung (1) abstützt
und das zwischen dem Halteflansch (4) des Montagewinkels (3)
und einem an der Gehäusewandung (1) vorgesehenen Rastelement
15 (7) einschnappbar ist.
2. Haltevorrichtung nach Anspruch 1, dadurch gekenn-
zeichnet, daß die Klemmvorrichtung (6) aus elastischem
Kunststoff besteht.
- 20 3. Haltevorrichtung nach Anspruch 1 oder 2, dadurch ge-
kennzeichnet, daß die Klemmvorrichtung (5) an der dem
Halteflansch (4) zugewandten Seite einen Zentrierdorn (8)
aufweist, der durch eine U-förmige Kerbe im Montagewinkel (3)
25 in eine lochartige Aussparung in der Stützfläche (5) der Ge-
häusewandung (1) eintaucht.
4. Haltevorrichtung nach einem der vorhergehenden Ansprüche,
dadurch gekennzeichnet, daß die dem Halteflansch
30 (4) zugewandte Seite der Klemmvorrichtung (6) als zum Hal-
teflansch (4) planparallele Fläche ausgebildet ist.
5. Haltevorrichtung nach einem der vorhergehenden Ansprüche,
dadurch gekennzeichnet, daß an dem dem Halteflansch
35 (4) abgewandten Bereich des bügelartigen Federelements ein
nasenartig vorspringendes Griffelement (9) vorgesehen ist.



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FIG 1



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FIG 2

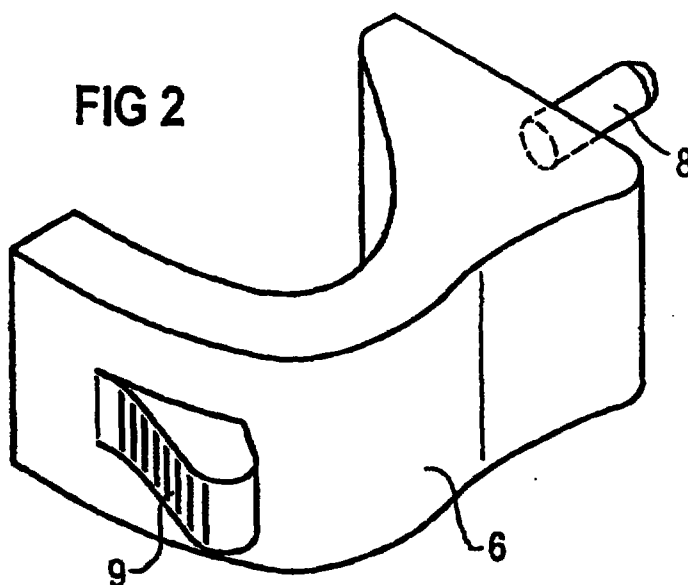


FIG 3

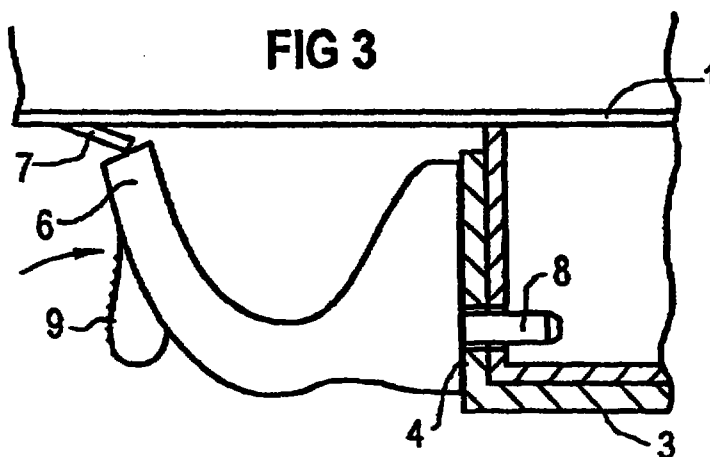
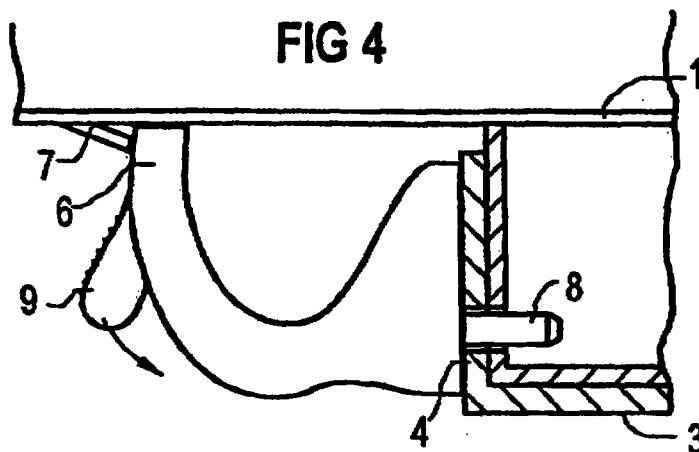


FIG 4



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Description

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☒	Claim(s)	: paged 4 to paged -
☐	Drawing(s)	: paged to paged
☒	Abstract	: paged 5 to paged -

Securing device for the assembly bracket of plug-in cards and standard flat components.

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The invention relates to a securing device according to the features of the preamble of claim 1.

Standard flat components, in particular the plug-in cards used in computer technology, are usually
10 mounted with the aid of assembly brackets at appropriately designed mounting locations. Secured to these assembly brackets there is in each case at least one plug-in connector, which establishes the connection of the plug-in card to external terminals. The housing
15 wall therefore has at the mounting locations in each case slot-like clearances, which are covered by the respective assembly bracket. Also provided on the assembly bracket is a securing flange, which is attached at right angles, lies snugly against a
20 correspondingly angled support surface of the housing wall and is releasably fixed there by means of a screw or clamp connection.

By way of example, DE 44 03 907 A1 discloses a securing device in the form of a clamping strip which
25 reaches over all the insertable flat components or their assembly brackets and, in the fitted state, fixes all the plug-in cards and, in the releasing state, releases all the plug-in cards, and which has flexible regions which are assigned to the individual plug-in
30 cards. A disadvantage in this case is that, irrespective of the number of mounting locations occupied, a clamping strip wide enough to cover all the mounting locations is always required and that, when retrofitting or exchanging, the securement has to be
35 temporarily loosened for all the other, in fact unconcerned, flat components.

The present invention is thus based on the object of providing for the securement of the assembly bracket of plug-in cards a device which is as simple as

possible and also can be handled as easily as possible, permitting an individual securement on the housing of each individual flat component.

5 This object is achieved according to the invention by the features of claim 1. Advantageous developments of the invention are specified in subclaims.

10 An exemplary embodiment of the invention is explained in more detail below with reference to the drawing, in which:

Figure 1 shows a cutout from a housing wall of a computer housing with a securing device according to the invention in a perspective representation,

15 Figure 2 shows the clamping element as a component part of the device according to Figure 1,

Figures 3, 4 show the securing device according to Figure 1 at the time of assembly or after assembly.

Figure 1 shows a cutout of a housing rear wall 1 of a PC housing, which has an approximately rectangular recess 2 in the region of two mounting locations for plug-in cards. Secured to the mounting locations, arranged parallel to one another in the form of slot-like clearances, there are respectively L-shaped assembly brackets 3 of a plug-in card or, if the mounting locations are not occupied, covering brackets 25 identical in design to these assembly brackets. The securement of the assembly bracket 3, or of the identical covering bracket, takes place at its right-angled securing flange 4, which lies snugly against a lateral supporting wall 5 of the housing wall 1, formed by the recess 2. As a substitute for the screw connection usually provided, there is provided a clamp device 6, which comprises a bow-shaped spring element, this spring element being supported with the bow ends 30 on the housing wall 1 and being capable of snapping in between the securing flange 4 on the one hand and a

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catch element 7, provided on the housing wall 1, on the other hand. Provided for example as the catch element 7 is a sheet-metal lug torn out from the housing wall 1.

5 Details of the clamp device 6 used in the securing device according to Figure 1 are revealed by the representation in Figure 2. This clamp device, consisting for example of plastic, has on the side facing the securing flange 4 of the assembly bracket 3
10 (see Figure 1) a centering pin 8, which enters through a U-shaped notch in the assembly bracket into a hole-like clearance in the support surface 5 of the housing wall 1, whereby the assembly bracket is additionally fixed by means of the clamping. The side of the clamp
15 device facing the securing flange 4 has a surface which is plane-parallel to the securing flange.

The assembly or final fixing of the clamp device can be seen from Figures 3 and 4. Serving as an assembly aid is a gripping element which projects in a
20 nose-like manner and is formed on at the region of the bow-like spring element facing away from the securing flange. Slight pressure applied by the thumb in the direction of the securing flange causes the spring element, preferably consisting of flexible plastic, to
25 be compressed to the extent that the bow facing away from the securing flange enters behind the catch element 7 in the housing wall 1 and locks when the gripping element is released. Figure 4 shows the clamp device in the assembled state, the spring bow being
30 clamped between the securing flange 4 and the catch 7 and fixed in the correct position by the centering pin 8, entering into the supporting wall 5.

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Patent claims

1. A securing device for the assembly bracket of standard flat components which are releasably secured by the assembly bracket at mounting locations in the form of slot-like clearances in a housing wall of a data-processing device in such a way that the securing flange of the assembly bracket lying against an angled support surface of the housing wall and correspondingly angled can be fixed by means of a clamp device, characterized in that the clamp device (6) comprises a bow-like spring element which is supported with the bow ends on the housing wall (1) and is capable of snapping in between the securing flange (4) of the assembly bracket (3) and a catch element (7) provided on the housing wall (1).

2. The securing device as claimed in claim 1, characterized in that the clamp device (6) consists of flexible plastic.

3. The securing device as claimed in claim 1 or 2, characterized in that the clamp device (5) has on the side facing the securing flange (4) a centering pin (8), which enters through a U-shaped notch in the assembly bracket (3) into a hole-like clearance in the support surface (5) of the housing wall (1).

4. The securing device as claimed in one of the preceding claims, characterized in that the side of the clamp device (6) facing the securing flange (4) is designed as a surface which is plane-parallel to the securing flange (4).

5. The securing device as claimed in one of the preceding claims, characterized in that a gripping element (9) which projects in a nose-like manner is provided at the region of the bow-like spring element facing away from the securing flange (4).



Abstract of the disclosure

Securing device for the assembly bracket of plug-in cards or standard flat components

Serving to secure the securing flange (4) lying against an angled support surface (5) of the housing wall (1) and correspondingly angled is a clamp device (6), which comprises a bow-like spring element which is supported with the bow ends on the housing wall (1) and is capable of snapping in between the securing flange (4) of the assembly bracket (3) and a catch element (7) provided on the housing wall (1).

Figure 1

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FIG 1

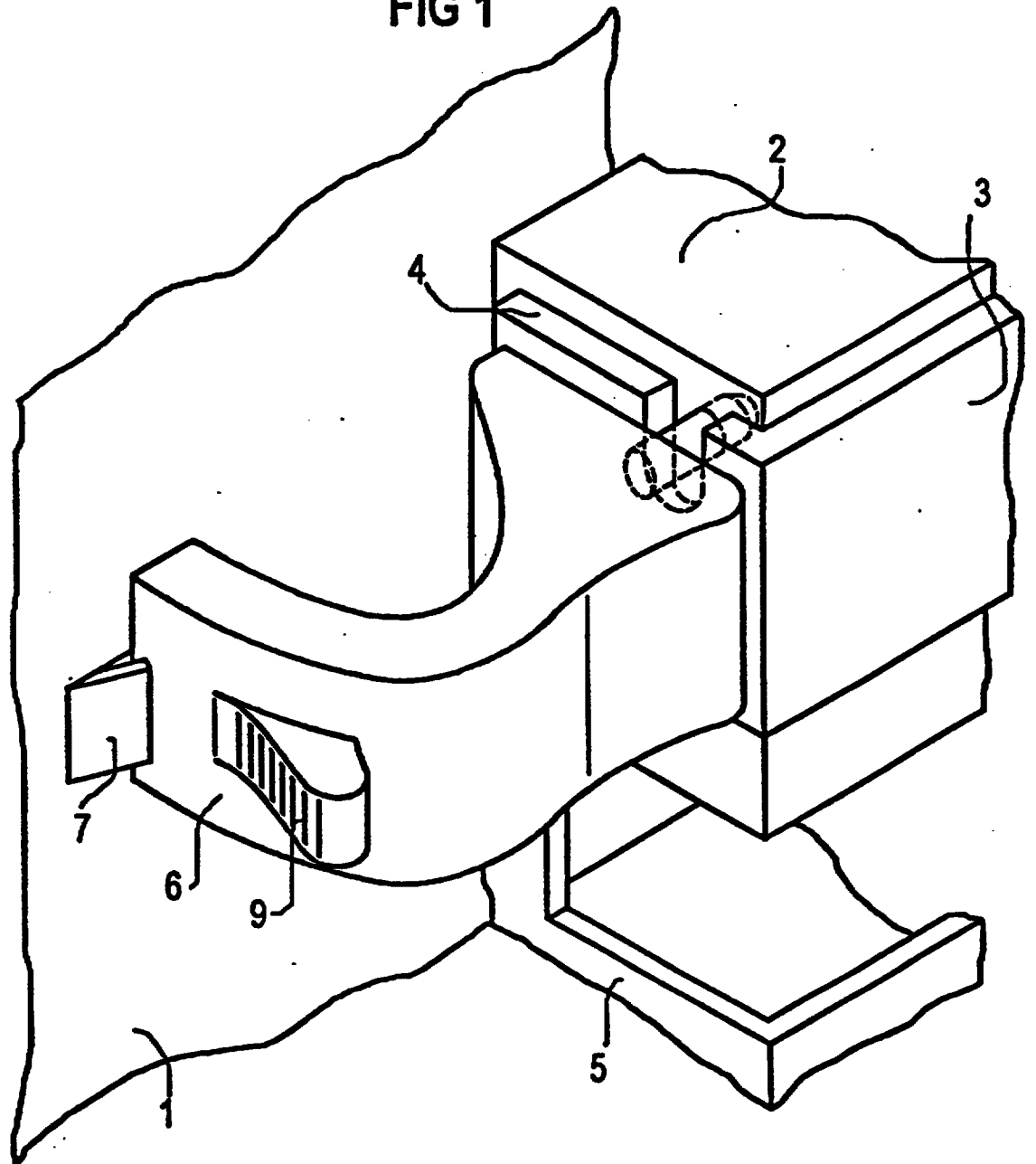


FIG 2

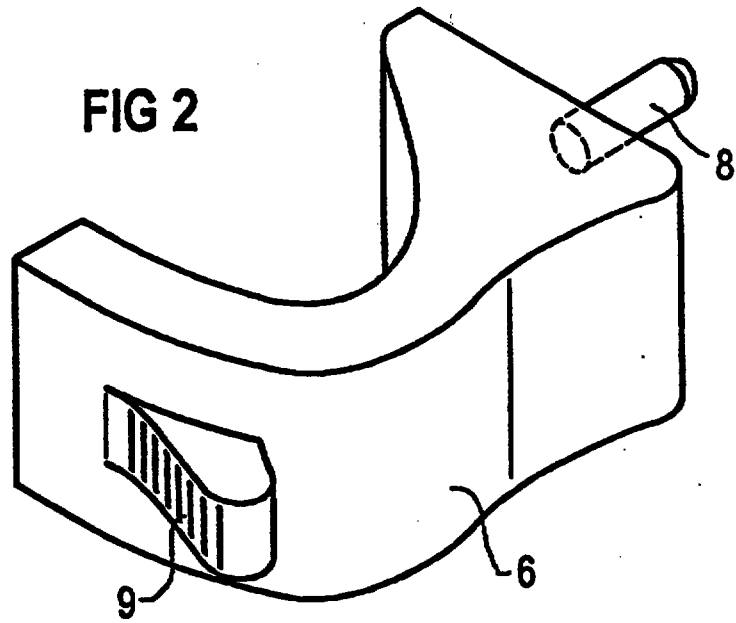


FIG 3

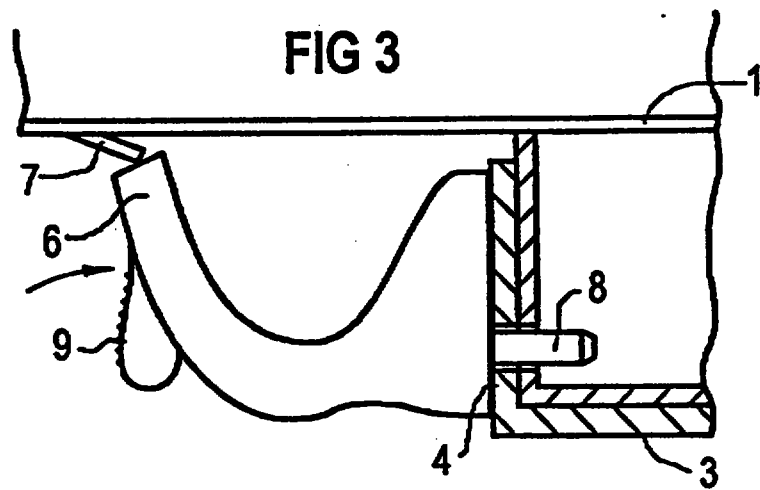
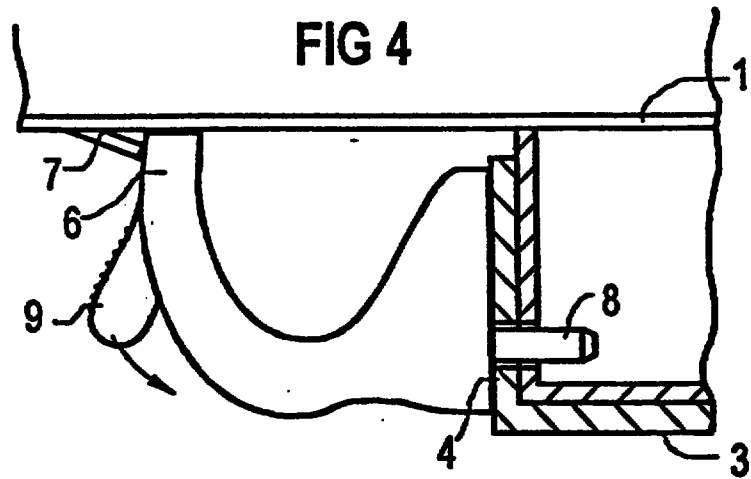


FIG 4



Description

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10 mounted with the aid of assembly brackets at appropriately designed mounting locations. Secured to these assembly brackets there is in each case at least one plug-in connector, which establishes the connection of the plug-in card to external terminals. The housing
15 wall therefore has at the mounting locations in each case slot-like clearances, which are covered by the respective assembly bracket. Also provided on the assembly bracket is a securing flange, which is attached at right angles, lies snugly against a
20 correspondingly angled support surface of the housing wall and is releasably fixed there by means of a screw or clamp connection.

By way of example, DE 44 03 907 A1 discloses a securing device in the form of a clamping strip which
25 reaches over all the insertable flat components or their assembly brackets and, in the fitted state, fixes all the plug-in cards and, in the releasing state, releases all the plug-in cards, and which has flexible regions which are assigned to the individual plug-in
30 cards. A disadvantage in this case is that, irrespective of the number of mounting locations occupied, a clamping strip wide enough to cover all the mounting locations is always required and that, when retrofitting or exchanging, the securement has to be
35 temporarily loosened for all the other, in fact unconcerned, flat components.

The present invention is thus based on the object of specifying for the securement of the assembly bracket of plug-in cards a device which is as simple as possible and also can be handled as easily as possible, 5 permitting an individual reliable securement on the housing of each individual standard flat component.

This object is achieved according to the invention by the features of claim 1. Advantageous developments of the invention are specified in 10 subclaims.

An exemplary embodiment of the invention is explained in more detail below with reference to the drawing, in which:

Figure 1 shows a cutout from a housing wall of 15 a computer housing with a securing device according to the invention in a perspective representation,

Figure 2 shows the clamping element as a component part of the device according to Figure 1,

Figures 3, 4 show the securing device according 20 to Figure 1 at the time of assembly or after assembly.

Figure 1 shows a cutout of a housing rear wall 1 of a PC housing, which has an approximately rectangular recess 2 in the region of two mounting locations for plug-in cards. Secured to the mounting 25 locations, arranged parallel to one another in the form of slot-like clearances, there are respectively L-shaped assembly brackets 3 of a plug-in card or, if the mounting locations are not occupied, covering brackets identical in design to these assembly brackets. The 30 securement of the assembly bracket 3, or of the identical covering bracket, takes place at its right-angled securing flange 4, which lies snugly against a lateral supporting wall 5 of the housing wall 1, formed by the recess 2. As a substitute for the

screw connection usually provided, there is provided a clamp device 6, which comprises a bow-shaped spring element, this spring element being supported with the bow ends on the housing wall 1 and being capable of snapping in between the securing flange 4 on the one hand and a catch element 7, provided on the housing wall 1, on the other hand. Provided for example as the catch element 7 is a sheet-metal lug torn out from the housing wall 1.

10 Details of the clamp device 6 used in the securing device according to Figure 1 are revealed by the representation in Figure 2. This clamp device, consisting for example of plastic, has on the side facing the securing flange 4 of the assembly bracket 3 (see Figure 1) a centering pin 8, which enters through a U-shaped notch in the assembly bracket into a hole-like clearance in the support surface 5 of the housing wall 1, whereby the assembly bracket is additionally fixed by means of the clamping. The side of the clamp device facing the securing flange 4 has a surface which is plane-parallel to the securing flange.

20 The assembly or final fixing of the clamp device can be seen from Figures 3 and 4. Serving as an assembly aid is a gripping element which projects in a nose-like manner and is formed on at the region of the bow-like spring element facing away from the securing flange. Slight pressure applied by the thumb in the direction of the securing flange causes the spring element, preferably consisting of flexible plastic, to be compressed to the extent that the bow facing away from the securing flange enters behind the catch element 7 in the housing wall 1 and locks when the gripping element is released. Figure 4 shows the clamp device in the assembled state, the spring bow being clamped between the securing flange 4 and the catch 7 and fixed in the correct position by the centering pin 8, entering into the supporting wall 5.



Patent claims

1. A securing device for the assembly bracket of standard flat components which are releasably secured
5 by the assembly bracket at mounting locations in the form of slot-like clearances in a housing wall of a data-processing device in such a way that the securing flange of the assembly bracket lying against an angled support surface of the housing wall and correspondingly
10 angled can be fixed by means of a clamp device, characterized in that each securing flange (4) is assigned an individual clamp device (6), in that the spring element of the respective clamp device is supported with the bow ends on the housing wall (1) and
15 in that the spring element is capable of snapping in between the securing flange (4) of the assembly bracket (3) and in each case a catch element (7) provided on the housing wall (1).

2. The securing device as claimed in claim 1,
20 characterized in that the clamp device (6) consists of flexible plastic.

3. The securing device as claimed in claim 1 or 2, characterized in that the clamp device (5) has on the side facing the securing flange (4) a centering pin
25 (8), which enters through a U-shaped notch in the assembly bracket (3) into a hole-like clearance in the support surface (5) of the housing wall (1).

4. The securing device as claimed in one of the preceding claims, characterized in that the side of the
30 clamp device (6) facing the securing flange (4) is designed as a surface which is plane-parallel to the securing flange (4).

5. The securing device as claimed in one of the preceding claims, characterized in that a gripping
35 element (9) which projects in a nose-like manner is provided at the region of the bow-like spring element facing away from the securing flange (4).



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Abstract of the disclosure

Securing device for the assembly bracket of plug-in cards or standard flat components

Serving to secure the securing flange (4) lying against an angled support surface (5) of the housing wall (1) and correspondingly angled is a clamp device (6), which comprises a bow-like spring element which is supported with the bow ends on the housing wall (1) and is capable of snapping in between the securing flange (4) of the assembly bracket (3) and a catch element (7) provided on the housing wall (1).

Figure 1

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- 4 -

Substitute sheet - 24 August 1999

Patent claims

1. A securing device for the assembly bracket of standard flat components which are releasably secured by the assembly bracket at mounting locations in the form of slot-like clearances in a housing wall of a data-processing device in such a way that the securing flange of the assembly bracket lying against an angled support surface of the housing wall and correspondingly angled can be fixed by means of a clamp device, characterized in that each securing flange (4) is assigned an individual clamp device (6) ^{consisting of a bow-like spring element,} in that the spring element of the respective clamp device is supported with the bow ends on the housing wall (1) and in that the spring element is capable of snapping in between the securing flange (4) of the assembly bracket (3) and in each case a catch element (7) provided on the housing wall (1).
2. The securing device as claimed in claim 1, characterized in that the clamp device (6) consists of flexible plastic.
3. The securing device as claimed in claim 1 or 2, characterized in that the clamp device (6) has on the side facing the securing flange (4) a centering pin (8), which enters through a U-shaped notch in the assembly bracket (3) into a hole-like clearance in the support surface (5) of the housing wall (1).
4. The securing device as claimed in one of the preceding claims, characterized in that the side of the clamp device (6) facing the securing flange (4) is designed as a surface which is plane-parallel to the securing flange (4).
5. The securing device as claimed in one of the preceding claims, characterized in that a gripping element (9) which projects in a nose-like manner is provided at the region of the bow-like spring element facing away from the securing flange (4).



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INTERNATIONALE ZUSAMMENARBEIT AUF DEM GEBIET DES PATENTWESENS (PCT)

<p>(51) Internationale Patentklassifikation ⁶ : G06F 1/18, H05K 7/14</p>	<p>A1</p>	<p>(11) Internationale Veröffentlichungsnummer: WO 97/34216 (43) Internationales Veröffentlichungsdatum: 18. September 1997 (18.09.97)</p>
<p>(21) Internationales Aktenzeichen: PCT/DE97/00492 (22) Internationales Anmeldedatum: 12. März 1997 (12.03.97) (30) Prioritätsdaten: 296 04 610.8 12. März 1996 (12.03.96) DE (71) Anmelder (für alle Bestimmungsstaaten ausser US): SIEMENS NIXDORF INFORMATIONSSYSTEME AG [DE/DE]; Heinz-Nixdorf Ring 1, D-33106 Paderborn (DE). (72) Erfinder; und (75) Erfinder/Anmelder (nur für US): KÖHLER, Friedrich [DE/DE]; Klemensstrasse 22, D-86405 Mettingen (DE). MYSZ, Dietmar [DE/DE]; Am Bahnhoffeld 12, D-86199 Augsburg (DE). (74) Anwalt: FUCHS, Franz-Josef; Postfach 22 13 17, D-80503 München (DE).</p>		<p>(81) Bestimmungsstaaten: CN, SG, US, europäisches Patent (AT, BB, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Veröffentlicht <i>Mit internationalem Recherchenbericht. Vor Ablauf der für Änderungen der Ansprüche zugelassenen Frist. Veröffentlichung wird wiederholt falls Änderungen eintreffen.</i></p>

(54) Title: **SECURING DEVICE FOR ASSEMBLY BRACKET OF PLUG-IN CARDS AND STANDARD FLAT COMPONENTS**

(54) Bezeichnung: **HALTEVORRICHTUNG FÜR DEN MONTAGEWINKEL VON STECKKARTEN BZW. STANDARD-FLACHBAUGRUPPEN**

(57) Abstract

The securing flange (4) lying against an angled support surface (5) of the housing wall (1) and angled to match is secured by a clamp device (6) consisting of a bow-shaped spring element supported at the bow ends on the housing wall (1) and capable of snapping in between the securing flange (4) of the assembly bracket (3) and a catch element (7) on the housing wall (1).

(57) Zusammenfassung

Zur Befestigung des an einer abgewinkelten Stützfläche (5) der Gehäusewandung (1) anliegenden entsprechend abgewinkelten Halteflansches (4) dient eine Klemmvorrichtung (6), die aus einem bügelartigen Federelement besteht, das sich mit den Bügelenden an der Gehäusewandung (1) abstützt und das zwischen dem Halteflansch (4) des Montagewinkels (3) und einem an der Gehäusewandung (1) vorgesehenen Rastelement (7) einschnappbar ist.

