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Display cassette for an interchangeable information carrier with a carrier housing which can be closed by at least one hinged lid

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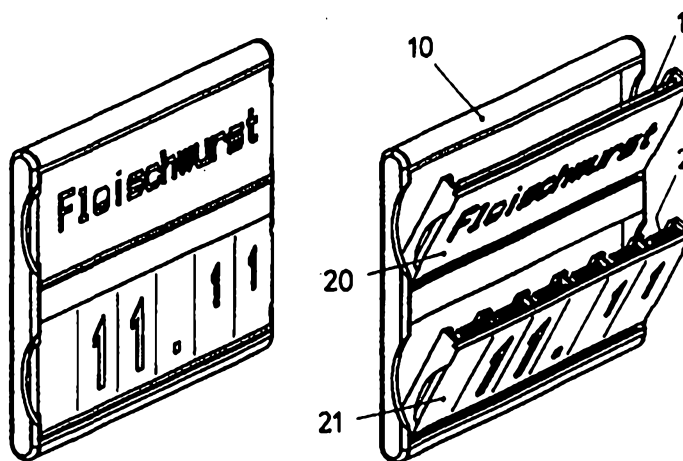
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<p>(21) Internationales Aktenzeichen: PCT/DE97/02483 (22) Internationales Anmeldedatum: 23. Oktober 1997 (23.10.97) (30) Prioritätsdaten: 196 43 414.9 24. Oktober 1996 (24.10.96) DE (71)(72) Anmelder und Erfinder: WESTERMANN, Gerhard [DE/DE]; Am Weißen Stein 1, D-76571 Gaggenau (DE). (74) Anwalt: ZÜRN, Edgar; Hermann-Köhl-Weg 8, D-76571 Gaggenau (DE).</p>	<p>(81) Bestimmungsstaaten: AU, CA, CZ, EE, HU, IL, LV, NO, NZ, PL, SG, SK, TR, US, europäisches Patent (AT, BE, 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: DISPLAY CASSETTE FOR AN INTERCHANGEABLE INFORMATION CARRIER WITH A CARRIER HOUSING WHICH CAN BE CLOSED BY AT LEAST ONE HINGED LID

(54) Bezeichnung: ANZEIGEKASSETTE FÜR AUSWECHSELBARE INFORMATIONSTRÄGER MIT EINEM MITTELS ZUMINDEST EINEM KLAPPDECKEL VERSCHLIESSBAREN TRÄGERGEHÄUSE

(57) Abstract

The invention relates to a display cassette for an interchangeable information carrier with a carrier housing containing at least one partially transparent hinged lid which can swing open and an integrated compartment receiving an information carrier. The individual hinged lid can be lifted and swung shut and removed from the carrier housing. Said lid has an inspection glass to which side walls, with the exception of the upper front edge, are joined at least partially on three edges. When the display cassette is closed, the lid or at least sections thereof is encased in the area where both edges of its inspection glass run parallel to its pivotal axis, so that it is propped up at least partially with its upper front edge or another part of the front area against the carrier housing by means of a spring mechanism located between the lid and the housing. The travel of the spring is greater than the closing travel of the lid in the direction of support. Because of such a design the cassette is easy to handle and robust.



DISPLAY CASSETTE FOR AN INTERCHANGEABLE INFORMATION CARRIER
WITH A CARRIER HOUSING WHICH CAN BE CLOSED BY AT LEAST ONE
HINGED LID

Description

The invention relates to an information cassette for an exchangeable information carrier provided with a carrier housing which has at least one partly transparent hinged lid which can be opened by a swivel movement, and at least one integrated compartment for receiving an information carrier.

Such an information cassette is known from EP 0383 042. This information cassette consists essentially of a basic body, a hinged lid and a locking cassette. The hinged lid, pivotable above the basic body, is link-supported by the basic body. The pivotal axis of the closing lid is in the lower region of the basic body. Several compartments for receiving part-information carriers are arranged in the basic body. Above these compartments is a compartment for a further part-information carrier in the hinged lid. The compartment, including the information carrier received therein is situated above and in front of the part-information carriers of the compartments of the basic body. After inserting or exchanging the part-information carriers the locking cassette is drawn over the combination of the basic body and the hinged lid above the upper region of the closed information cassette.

Such a cassette has several disadvantages. Firstly the handling of the information cassette is cumbersome and is expensive.

Thus for exchanging part-information carriers at least two parts must always be moved. The locking cassette has to be taken off and the hinged lid pivoted open. By raising the locking cassette, the hinged lid can fully open so that the information carrier can



immediately fall out. On the other hand not all information carriers are in a single plane behind the inspection panel, which can, amongst other things influence legibility by unfavourable shadow formation or slippage of the front information carrier.

Additionally, due to the large gripping surface of the locking cassette there is always the danger that it can be pushed off by person or article contact and thereby open the information cassette.

Furthermore, from DE 72 22 056 U1 an information board is known in which are arranged signs, movable sideways in separate cassettes. They are prevented from falling out sideways by mounted side rails. The cassettes themselves are removed for exchanging the signs in a lift and pivot movement and again re-inserted. The information board has a complicated construction and requires several operations for exchanging the signs.

The invention therefore has a preferred object to create an information cassette allowing a rapid and reliable exchange of part-information carriers by simple and uncomplicated handling. At the same time the information must be robust. Furthermore, the design must prevent an unintended opening by an external action. Additionally the disadvantages known from the field of prior art must be substantially avoided.

In accordance with the present invention there is provided an information cassette for exchangeable information carriers with a carrier housing, in which there is provided at least one partially transparent hinged lid, which can be opened by a swivel movement, with at least one integrated compartment for receiving an information carrier, wherein:

the hinged lid which is removable from the carrier housing by means of a swivel and linear movement, has an inspection panel about which side walls join, at least in partial regions, on three edges, with the exception of a front edge;



when the information cassette is closed, the hinged lid is wrapped around or bends over, at least in sections, in the area of both its inspection panel edges extending parallel to the swivel axis of the hinged lid, whereby it is supported against the carrier housing by way of a spring mechanism arranged between these and the region of the carrier housing, in the vicinity of which a respective floor of the hinged lid is located, at least in regions with the inspection panel edge not neighbouring on the spring mechanism or by way of another front partial region; and

the spring path of the spring mechanism is greater than the closure stroke of the hinged lid in support direction.

This construction results in a robust information cassette which is simple to handle. The lid sits on a closed information cassette completely in the protected carrier housing. The spring mechanism and the guide part into which the lid is fitted is concealed in the carrier housing. In this way the information cassette can cope with the usual mechanical shocks from any direction. Also an information cassette falling down and impacting on its base does not open.

Since the hinged lid side walls and the lids with several compartments support the partitions on the carrier housing, these information cassettes are also tread proof so that inadvertently stepping on a fallen cassette does not break it.

The most sensitive part of the information cassette is the spring mechanism which pushes or fixes the hinged lid into the corresponding wrap-around of the carrier housing. The spring mechanism can be designed in different forms. For example, it can consist of an elastic compressible rubber tube, a rubber string and elastic plastic tube, plastic leaf springs, several rubber spheres or comparable spring elements.



The spring elements can be either loose in the carrier housing or attached to it or can be formed on to the associated hinged lid.

Further examples of the invention, not cited, are evident from the claims and the schematic depiction of the construction in the drawings, in which:

Figure 1 is an information cassette,

Figure 2 is a perspective view from the front of the described carrier housing,

Figure 3 is a perspective view from the front of the described hinged lid,

Figure 4 is a rear view of the hinged lid,

Figure 5 is a cross-section transversely through the information cassette, and

Figure 6 is a perspective view from below a hinged lid.

Figure 1 shows an information cassette, in which two superimposed hinged lids (20, 21) with integrated drawers or compartments are fitted in a carrier housing (10). On the right hand side of Figure 1 the hinged lids (20, 21) are shown when opened. When at the opening angle as shown, the hinged lids (20, 21) can be removed by pulling out in opening direction from the carrier housing (10). The upper hinged lid (20), for example, can contain a single compartment, in which a card (1) with recorded description of goods is placed as information carrier. The lower hinged lid (21) contains six similarly sized compartments, which received individual zig-zag folds (2), as information carriers. The zig-zag folds (2) each can reflect, for example, on the one hand, an item of a total or an individual price and, on the other hand, brief information relating to a product and/or packaging.

In Figure 2, the carrier housing (10) is shown with a front ledge (19) on the right, which still is to be fitted into the housing (19). The carrier housing (10) has a flat rear wall (11) to which on both sides side walls (12, 13) are joined substantially at right angles. Above and



below the rear wall (11) merges into wrap-around shaped side walls (15, 16). These side walls (15, 16) have a semi-cylindrical outer contour. They extend, for example, seamlessly without transition from the rear wall (11). Together with the side walls (15, 16) the carrier housing (10) is of substantially C-shaped cross-section, as for example can be clearly seen in the section shown in Figure 5.

Two continuous parallel webs (17) are arranged one above the other approximately in the centre of the front side of the rear wall (11). With the T-shaped cross-section the front ledge (19) is insertable into the gap (18) between the webs (17) and, if necessary, glued thereto. The webs (17) in combination with the front ledge (19), divide the carrier housing (10) into an upper and a lower region. Each region itself forms a separate receptacle for a hinged lid (20, 21), whereby respectively at least its low zone is formed channel or gutter-shaped. In the section enlargement of Figure 5 the channel-shaped formation of the upper region can be seen.

Obviously the front ledge (19) can also be formed integrally onto the carrier housing (10).

Each side wall (12, 13) of the carrier housing (10) has a curved segment recess (14) along its free edge, for each hinged lid (20, 21). The recess (14) is located at each hinged lid region, respectively about at half height. The depth of the recess (14) corresponds approximately to half the depth or half the thickness of the information cassette.

In the Figures 3, 4 and 6 various views of the hinged lids are shown. The front side of each individual hinged lid (20, 21) forms the so-called inspection panel (23). Here it is fully transparent. If necessary it can be opaque by colouring it, applying a layer to it, printing on it or the like. The inspection panel (23) is, with the exception of respectively

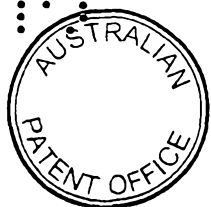
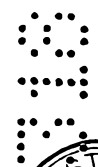
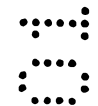
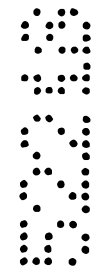


upper front edge, provided with side walls (31, 32). Each vertically arranged side wall (31, 32) carries a gripping part (33). In the case of a mounted and closed information cassette the individual gripping part (33) fits into its associated recess (14) in the carrier housing (10). A gap of about 1 mm is present between the carrier housing (10) and the gripping part (33): compare Figure 1, left representation.

A traverse web (34) is arranged at each side wall (31, 32) parallel to the inspection panel (23), which serves to wrap around or bend over the individual information carriers (1, 2). In the hinged lid (20) the two transverse webs (34) fix the card (1) of Figure 1 normally to the inspection panel (23). On insertion of the hinged lid (20) provided with the card (1), and on closing of the hinged lid (20) the card (1) is prevented by the transverse webs (34) from being clamped between one of the sidewalls (31, 32) and the carrier housing (10), which would hinder or prevent correct closure.

The hinged lid (21) has five parallel separation webs (36) between the side walls (31, 32) so that six compartments information carriers (2) are formed. Each separation web (36) respectively has a transverse web (37), which projects on both sides for about 1 mm beyond the separation web (36) respectively forming a gripping part. The zig-zag folds (2) are supported against the inspection panel (23) at the wrap arounds or bent-over parts.

Each hinged lid (20, 21) has a floor (41), which respectively joins onto the side walls (31, 32) and the inspection panel (23). In an individual floor (41) two bending-elastic, leaf spring-like elements (42) are integrated: compare Figures 5 and 6. These bending springs (42), which are arranged near the side walls (31, 32), in unloaded condition project at an angle of about 25° from the floor to below and outwardly. Each bending spring (42) has a length corresponding to the form of an angle consisting of two legs (43) and (44) whereby a

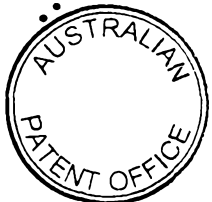


leg (43), which at the same time is shorter than the other, extends substantially parallel to the floor (41). In the unloaded condition both legs (43, 44) enclose an angle of 155° . The bending position between the legs (43, 44) is formed as an arc. The bending spring (42) has a substantially uniform rectangular cross-section over its total length. It is also possible to change the spring rate of the bending springs (42) by having a varying cross-section at least over a part of the springs. For example, the cross-section could narrow towards the free end.

The bending spring (42) has, compared to the surrounding floor (41) a play of several tenths of a millimetre. Thus, during feeding in it also can be turned slightly without touching the floor (41) or without tilting over. Thus a small adjustment can be made to the spring in without touching or tilting on the floor (41).

When the information cassette is closed, the bending springs (42) of the upper hinged lid (20) are supported at the upper web (17) whereas the bending springs (42) of the lower hinged lid are supported at the inner side wall (16), here being the flat inner floor.

Each hinged lid (20, 21) is designed to have steps at the upper and lower edge in the region of the horizontal inspection panel edges (24, 25) of the inspection panel (23). In the region of the steps (26, 27) as formed there, the wall thickness of the hinged lid (20, 21) is less than in the inspection panel region. The steps (26, 27) have a depth, which corresponds to about the material thickness of the regions of the horizontal side walls (15, 16) of the carrier housing (10) surrounding the hinged lid (20, 21) or the wall thickness of the transverse web of the front ledge (19). Due to this design, when the information cassette is closed the inspection panel (23) of the hinged lid (20, 21) and the front region of the carrier housing (10) are substantially in a single plane.



The height of the lower step (27) is greater than the height of the upper step (26) and larger than the closure stroke of the individual hinged lid (20, 21). The overall height of a hinged lid (20, 21) is larger than the inner distance between the lower edge of the upper side (15) and the upper edge of the front ledge (19) or the inner distance between the lower edge of the front ledge (19) and the upper edge of the lower side wall (16).

Because each hinged lid (20, 21), with the exception of the gripping part (33), is enclosed on the side, the hinged lid (20, 21) can be opened and closed by way of a confined swivel-push movement when the information cassette is closed.

An empty and closed information cassette is opened for loading part information carriers (1, 2), thus, for example, the hinged lid (20) is pushed down at its two grip parts (33) to be opened. At the upper hinged lid (20) the displacement movement is completed if the lower step (27) is completely closed by the front ledge (19). In this case the inspection panel (23) abuts substantially tightly against the front ledge (19). Furthermore in this position the two bending springs (42) have their maximum pretension. Simultaneously the front edge (24) of the hinged lid (20) is located below the wrapping around or bent over bottom edge of the upper side wall (15). From this position the hinged lid (20) is swivelled to the front until it is below the upper side wall (15). Then it can be removed at an angle to the front and upwardly.

If, when opening the hinged lid (20), it is displaced only on one side - for example at only one grip part (33) - then the zone of the front edge (24) which is not displaced, remains behind the wrap around or bent over part of the upper side wall (15). This hinged lid (20) therefore cannot be opened. That offers a protection against unintended opening of the information cassette.



After filling a compartment the hinged lid (20) is inserted, together with the bending spring (42), into the carrier housing (10). For this purpose the hinged lid (20) is held at an opening angle relative to the carrier housing (10), as can be seen from the representation of the open information cassette in Figure 1. As soon as both bending springs (42) rest on the upper web (17) (compare Figure 5) the hinged lid (20) is pressed down until its front edge (24) passes through the bottom edge of the upper side wall (15). The hinged lid (20), which is pivoted into the carrier housing (10), is pressed by the bending springs (42) to above until the front ledge (26) disappears completely behind the bottom edge of the upper side wall (15) wrapping around or bending over the hinged lid (20).

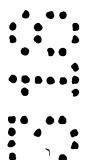
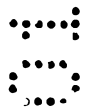
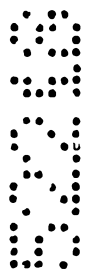
Insofar as the side walls (31, 32) and the separation webs (36) are bevelled to the rear - that is away from the inspection panel or front edge (25) - the hinged lid (20, 21), after insertion of its floor into the carrier housing (10), can be closed by simply pressing it to be closed. The inclined upper edges of the side walls (31, 32) or the separation walls (36), cause the necessary stroke movement during the closing swivel movement.

The information cassettes have, for example, at the rear side (11) of the carrier housing (10), an attachment arrangement for fitting onto supports intended for this purpose. These supports, which can amongst other things, be price information rails or the front edges of shelf compartments, carry elevated dovetails, which can be engaged by two rails oppositely arranged on an information cassette.



Reference numeral list:

	1	Card, part information carrier
	2	Zig-zag fold, part information carrier 10'
	10	Carrier housing
5	11	Rear wall
	12, 13	Side walls, vertical
	14	Recesses
	15, 16	Side walls, horizontal
	17	Webs
10	18	Gap
	19	Front ledge
	20	Hinged lid, above
	21	Hinged lid, below
	23	Inspection panel
15	24	Front edge, inspection panel edge
	25	Inspection panel edge, below
	26	Step in the region of (24)
	27	Step in the region of (25)
	31, 32	Side walls, horizontal
20	33	Gripping part
	34	Transverse web
	36	Separation web
	37	Transverse web at (36)
	41	Floor for (20, 21)
25	42	Bending spring, spring mechanism
	43, 44	Leg of (42)



The claims defining the invention are as follows:

1. An information cassette for exchangeable information carriers with a carrier housing, in which there is provided at least one partially transparent hinged lid, which can be opened by a swivel movement, with at least one integrated compartment for receiving an information carrier, wherein:

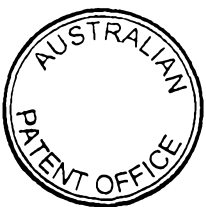
the hinged lid which is removable from the carrier housing by means of a swivel and linear movement, has an inspection panel about which side walls join, at least in partial regions, on three edges, with the exception of a front edge;

when the information cassette is closed, the hinged lid is wrapped around or bends over, at least in sections, in the area of both its inspection panel edges extending parallel to the swivel axis of the hinged lid, whereby it is supported against the carrier housing by way of a spring mechanism arranged between these and the region of the carrier housing, in the vicinity of which a respective floor of the hinged lid is located, at least in regions with the inspection panel edge not neighbouring on the spring mechanism or by way of another front partial region; and

the spring path of the spring mechanism is greater than the closure stroke of the hinged lid in support direction.

2. Information cassette according to claim 1, wherein the spring mechanism has at least two bending springs, and the bending springs are arranged in the side wall parallel to the swivel axis of the hinged lid.

3. Information cassette according to claim 2, wherein the bending springs project from the side wall forming the floor of the hinged lid at an angle of about 15-30° relative to the swivel axis of the hinged lid whereby the free ends respectively are directed outwardly.



4. Information cassette according to claim 3, wherein the individual inspection panel springs are formed onto the hinged lid and consist of an angle formed by two legs and the shorter leg is arranged at the side wall and is aligned in its plane.
5. Information cassette according to claim 1, wherein the sides of the hinged lid are arranged perpendicularly to its inspection panel.
6. Information cassette according to claim 1, wherein the side walls of the hinged lid are provided at least in section with transverse webs and form the side swivel or part swivel of at least one compartment.
7. An information cassette substantially as herein before described with particular reference to the accompanying drawings.

Dated this 28th day of August 2001

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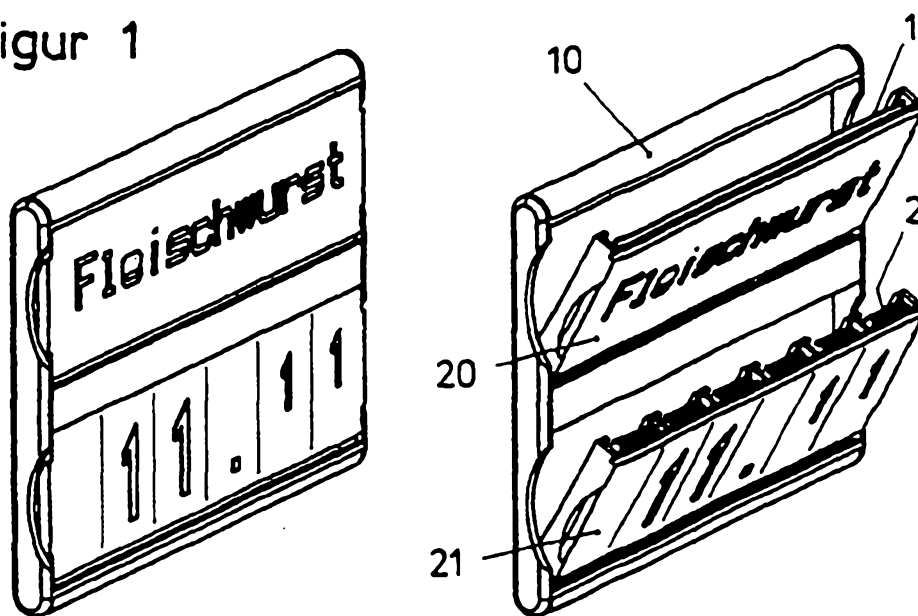
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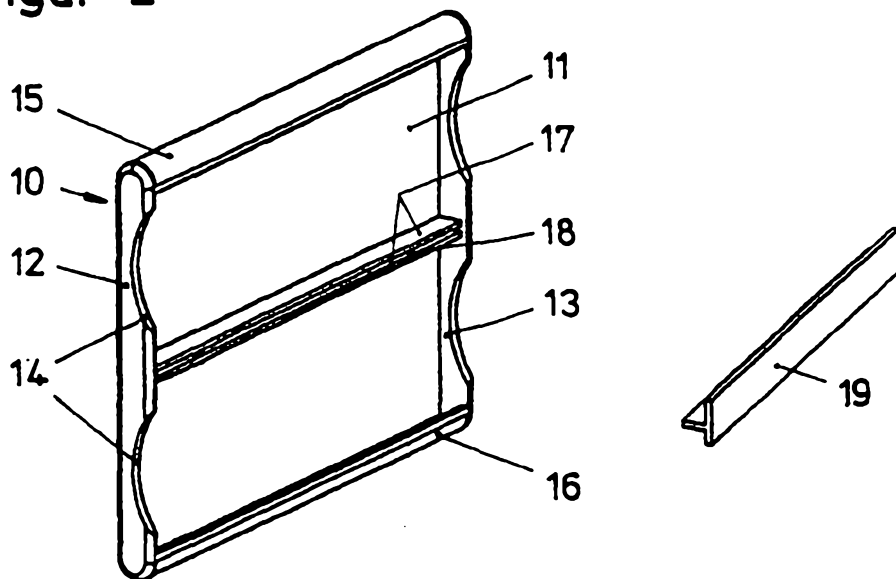
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Figur 1

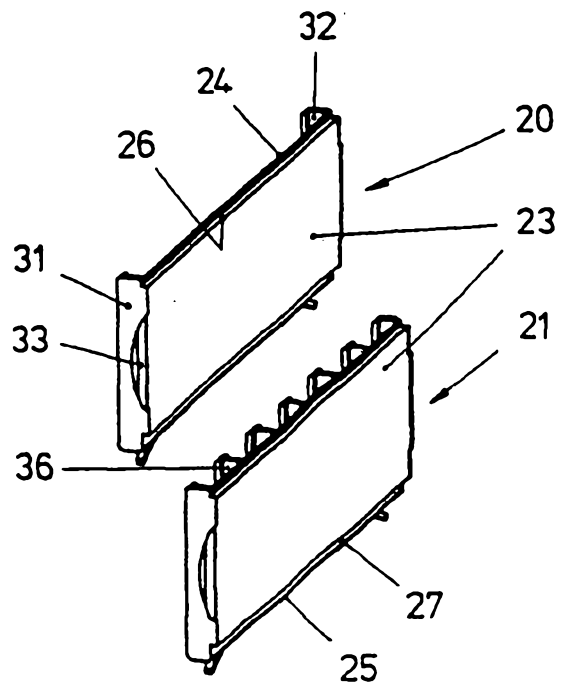


Figur 2

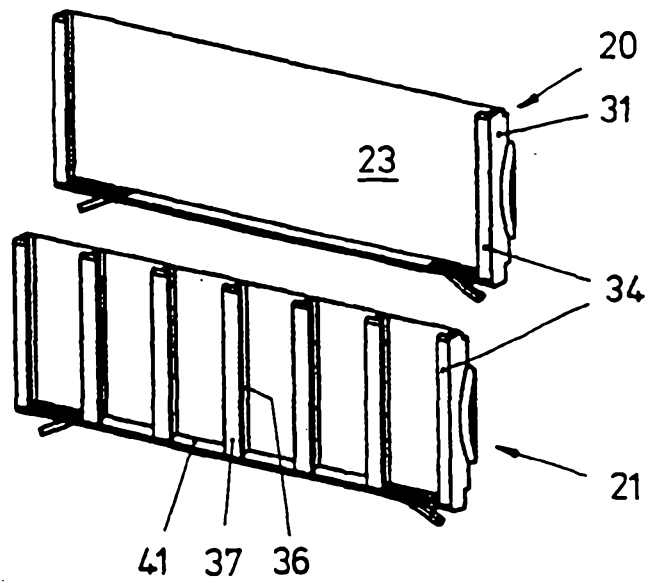


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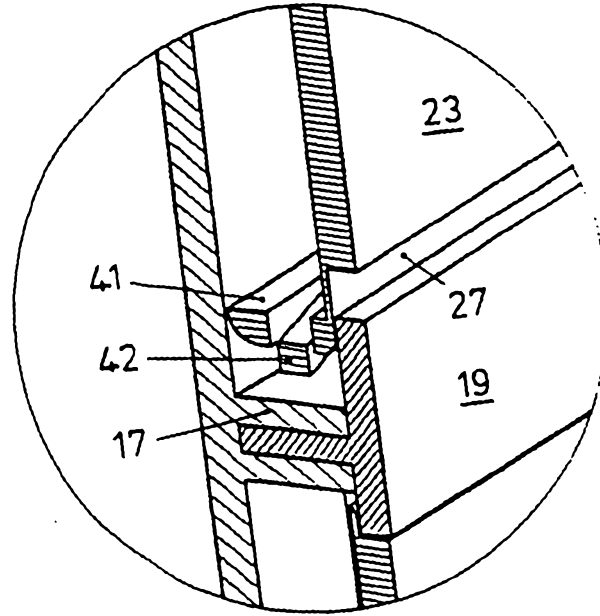
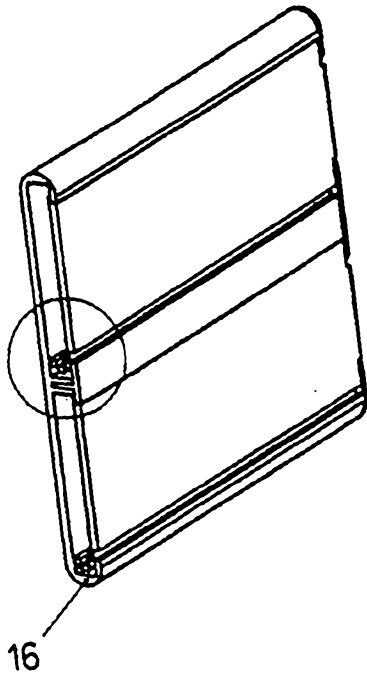
Figur 3



Figur 4



Figur 5



Figur 6

