

(12) PATENT
(19) AUSTRALIAN PATENT OFFICE

(11) Application No. **AU 199925227 B2**
(10) Patent No. **734601**

(54) Title
Pivotal connection

(51)⁶ International Patent Classification(s)
E05D 001/06

(21) Application No: **199925227** (22) Application Date: **1999 .02 .08**

(87) WIPO No: **WO99/40280**

(30) Priority Data

(31) Number	(32) Date	(33) Country
19804859	1998 .02 .09	DE

(43) Publication Date : **1999 .08 .23**

(43) Publication Journal Date : **1999 .10 .28**

(44) Accepted Journal Date : **2001 .06 .21**

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(56) Related Art
US 3060492
DE 4303784

25227/99



PCT
WELTORGANISATION FÜR GEISTIGES EIGENTUM
Internationales Büro
INTERNATIONALE ANMELDUNG VERÖFFENTLICHT NACH DEM VERTRAG ÜBER DIE
INTERNATIONALE ZUSAMMENARBEIT AUF DEM GEBIET DES PATENTWESENS (PCT)

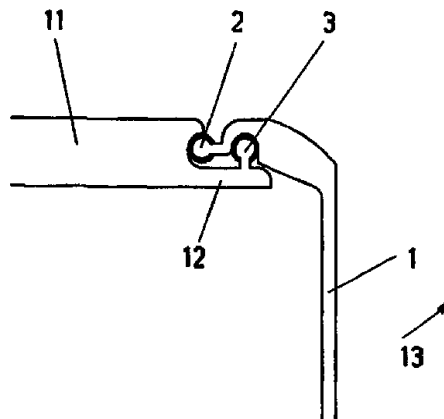
(51) Internationale Patentklassifikation⁶ : E05D 1/06	A1	(11) Internationale Veröffentlichungsnummer: WO 99/40280 (43) Internationales Veröffentlichungsdatum: 12. August 1999 (12.08.99)
(21) Internationales Aktenzeichen: PCT/EP99/00808 (22) Internationales Anmeldedatum: 8. Februar 1999 (08.02.99) (30) Prioritätsdaten: 198 04 859.9 9. Februar 1998 (09.02.98) DE (71) Anmelder (für alle Bestimmungsstaaten ausser US): DORMA GMBH & CO. KG [DE/DE]; Breckerfelder Strasse 42-48, D-58256 Ennepetal (DE). (72) Erfinder; und (75) Erfinder/Anmelder (nur für US): FINKE, Andreas [DE/DE]; Taubenstrasse 32, D-58285 Gevelsberg (DE).	(81) Bestimmungsstaaten: AU, CN, CZ, HU, IN, JP, NO, PL, RU, SG, SK, US, europäisches Patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Veröffentlicht <i>Mit internationalem Recherchenbericht.</i> IP AUSTRALIA 23 AUG 1999 RECEIVED	

(54) Title: PIVOTAL CONNECTION

(54) Bezeichnung: SCHWENKBARE VERBINDUNG

(57) Abstract

The invention relates to a pivotal connection between a detachable housing closure (1) and a stationary housing part (11) made of a light metal. An end configuration of the housing closure (1) comprises a convex element (2) which is formed on a connecting link (4) having a tapered cross-section, and comprises an indentation (5) which is connected to the link (4). A convex element (3) which is located on a stationary housing part (11), is formed on a connecting link (6) also having a tapered cross-section, and which is offset at a 90° angle relative to the first element (2) engages inside said indentation in such a way that the housing closure (1) can pivot with regard to the stationary housing part (11) and can be locked into place. When closed, parts neither project inside nor outside the housing in the area of the housing closure (1) and the stationary housing part (11).



Description

- Pivotable connection between a detachable housing cover and a stationary housing part made of light metal, where the one housing cover's extremity execution presents a convex shaped
- 5 conformation with subsequent web tapering in its cross section and in conjunction to the web is located an indentation into which engages a convex conformation secured to the stationary housing part, conformation which is offset by 90° with regard to the other conformation with likewise annexed web tapering in its cross
- 10 section, such that the housing cover is pivotable with regard to the stationary housing part and may interlock and when in its closed position there are no protuberant parts in the area of the housing cover and the stationary housing part neither inside nor outside of the housing.



1997102 PC

Title : Pivotal connection

Description

The invention relates to a pivotable connection between a detachable housing cover and a stationary housing part. Such housings are especially used with automatic sliding doors
5 respectively with drives for swing door leaf drives.

A snap fastener mechanism to connect two suitcase semimonocoques is published by DE 94 19 652 U1. The snap fastener mechanism is realised as an arrangement of hinges, in
10 fact in form of a rotary toggle catch. This rotary toggle catch may be locked or unlocked by snapping in. The rotary toggle catch hereby presents an almost ball shaped snap-in reinforcement engaging into counter complementary reinforcements.

In a catalogue of the company Schüco International different door
15 profiles are illustrated of the series Royal S 55. There are some profiles presenting a projection with a continuous borehole, which however in one place shows an opening to the side wall. These profile types especially designated as retention profiles may be equipped with gaskets, particularly brush gaskets made of Perlon
20 fibres, respectively with door sealing profiles in form of rubber edges.

Problems often occur when opening the equipment sheathings, especially with the before mentioned automatic door types, as they are ordinarily several meters long and are usually located above
25 the sliding leaves or swing leaves. Commonly it is very difficult for the mechanic installer to properly handle the hinged housing part, not only when removing but also when reinstalling it.

The object of the invention is to remedy to the deficiencies of the state of the art, that is to say realising a user-friendly and



simultaneously non-visible durable, pivotable connection between a detachable housing cover and a stationary housing part. It is not only meant to pivot the detachable housing part, but it should be possible to remove it completely from the stationary housing part without needing any tools. Furthermore there should be no protuberant parts visible neither in the housing's interior nor on its exterior side.

The invention solves the problem with the characteristic of patent claim 1. The sub-claims represent a further development of the inventional idea.

In this case, a special extremity execution has been chosen to solve the problem as well for the detachable and movable housing cover as for the stationary housing part. The housing cover has got a convex shaped conformation that may for example present a ball shaped head, whereas a material indentation follows after the head, that means there is a leg respectively a web that is thinner than the convex conformation. In the extension of the before mentioned web, an indentation is attached inside the profile, in order to receive a conformation likewise secured to the stationary housing part but offset by 90° with regard to the conformation of the detachable housing part. This conformation is also formed as a ball and presents in its extension a web respectively a contraction likewise the detachable housing cover. The contraction leads into a 90° offset web or leg of the stationary housing part, whereby this part also displays an indentation formed in a way that the ball shaped conformation of the detachable housing part may engage in it. In order to realise a noise production respectively a proper engagement of both parts, the stationary housing part and the detachable housing cover, the convex shaped conformations are at least in partial areas provided with plastic shells. By this means, in the moment when the



detachable housing cover is inserted into the indentation of the stationary housing part and pulled down, simultaneously an interlocking of both housing parts to each other is guaranteed producing a positive locking and for little forces also a non-positive locking. The housing parts are preferably made of light metal or of light metal alloy.

The invention is illustrated on the basis of one possible embodiment example diagrammatically represented by the figures; in this case the embodiment examples only represent a partial section between a stationary housing part and a detachable housing part.

It shows

Figure 1: an interlocked connection between a stationary housing part and a detachable housing cover

Figure 2: a detachable housing cover

Figures 3 to 6 represent particular phases during the interlocking between the stationary housing part and the detachable housing cover.

Figure 3: just prior of the housing cover's insertion into the stationary housing part

Figure 4: the housing cover is inserted into the housing part

Figure 5: like figure 4, just prior to the interlocking

Figure 6: the beginning of the interlocking process.

A stationary housing part 11 is represented in figure 1, which has been positively and non-positively connected to a detachable housing cover 1 without needing any tools and which is removable in the same way. In its extremity (longitudinal edges) the housing cover 1 is designed with a convex conformation 2 for example



shaped as a partial ball. A web 4 is subsequent to the convex conformation 2 which web progresses into the housing cover's 1 cross section. The indentation 5 is positioned right after the web's 4 attachment and formed in a way that it may interact with the
5 stationary housing part 11, that means the dimensions of the parts to be connected are matching.

The stationary housing part's 11 cutout is clearly visible in figure 3, whereby it is to point out again that all drawings always represent cross sectional indications as well with regard to the stationary
10 housing part 11 as to the housing cover 1. The stationary housing part's 11 cross section is reduced in its extremity and embodied by a leg 12. In this case, an indentation 7 within the stationary housing part 11 is shown in the area of the reduced cross section. The protruding leg 12 presents close to its extremity a web 6 offset
15 by 90° to which free end is linked a convex conformation 3 likewise realised with the housing cover 1. The matching dimensions between the indentation 7 and the convex conformation 3 of the stationary housing part 11 are corresponding with the housing cover 1 in a way that the convex conformation 2 may be placed
20 into the indentation 7 and the convex conformation 3 may be placed into the indentation 5. Bringing the housing cover 1 into an inclined position with regard to the stationary housing 11 performs the connection. By doing this, the convex conformation 2 fits the indentation 7, thus offering a close link of the housing cover 1 to
25 the stationary housing part 11. In case the housing cover 1 is pivoted to the not precisely represented housing, the convex conformation 3 moves, as shown in figure 5, in the area of the indentation 5, whereby the convex conformation 2 simultaneously continues supporting itself within the indentation 7. When the
30 convex conformation 3 and the indentation 5 meet, a little effort is required to realise the interlocking between the housing cover 1



and the stationary housing part 11. Due to the fact that as well the convex conformation 2 as the convex conformation 3 are at least in partial areas equipped with shells 9, 10 in form of plastic inserts, the complete connection between the housing cover 1 and the
5 stationary housing part 11 are at least partially elastic so as to guarantee besides acoustic insulation also a proper reliable interlocking between the housing cover 1 and the stationary housing part 11.

This connection is so durable that no tools are required neither to
10 establish the connection nor to release it. On releasing the connection it is simply necessary to pivot the housing cover 1 in the moving direction 13, which performs a release of the before described interlocking between the convex conformations 2, 3 and the indentations 5, 7.



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References:

- 1 Housing cover
 - 2 Convex conformation
 - 3 Convex conformation
 - 5 4 Web
 - 5 Indentation
 - 6 Web
 - 7 Indentation
 - 9 Shell
 - 10 10 Shell
 - 11 Stationary housing part
 - 12 Leg
 - 13 Moving direction
-

Claims

- 15 1) Pivotal connection between a detachable housing
cover and a stationary housing part characterised in that
one housing cover's (1) extremity execution presents a
convex conformation (2) with subsequent in its cross
section tapering web (4) and an indentation (5) following
20 the web (4) into which indentation engages a convex
conformation (3) secured to the stationary housing part
(11) offset by 90° with regard to the conformation (2)
also presenting a subsequent web (6) tapering in its
cross section, such that the housing cover (1) is
25 pivotable with regard to the stationary housing part (11)
and may be interlocked again.



- 2) Pivotal connection according to claim 1, characterised in that an indentation (7) exists at the stationary housing part (11) into which engages the conformation (2).
- 3) Pivotal connection according to claim 1, characterised in that the conformations (2, 3) are shaped as partial balls.
- 4) Pivotal connection according to claim 1, characterised in that the indentation (5) is located within the housing cover (1).
- 5) Pivotal connection according to claims 1 and 3, characterised in that the conformations (2, 3) are provided with shells (9, 10).
- 6) Pivotal connection according to claim 5, characterised in that the shells (9, 10) consist of acoustic insulating material, e.g. plastic.
- 7) Pivotal connection according to claim 1, characterised in that the stationary housing part (11) and the housing cover (1) are made of light metal respectively light metal alloy.



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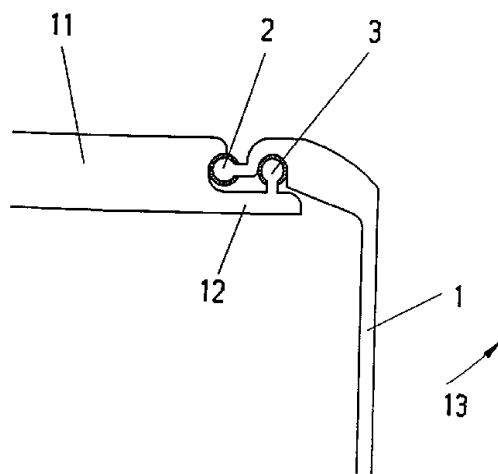


Fig 1

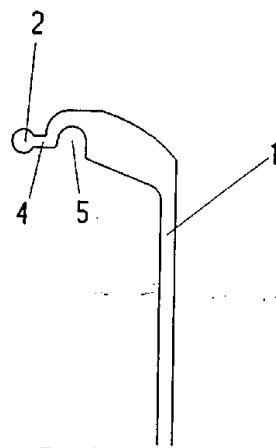


Fig 2

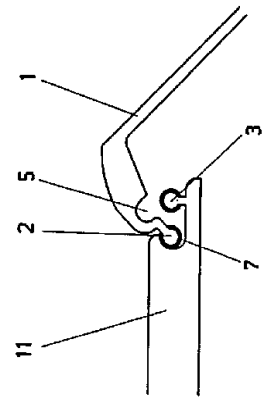


Fig 4

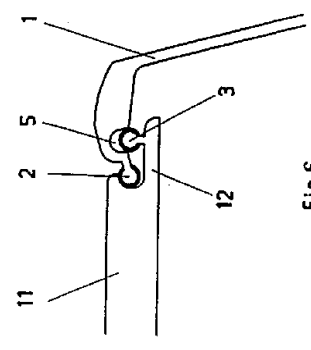


Fig 6

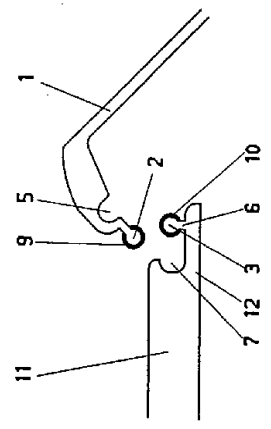


Fig 3

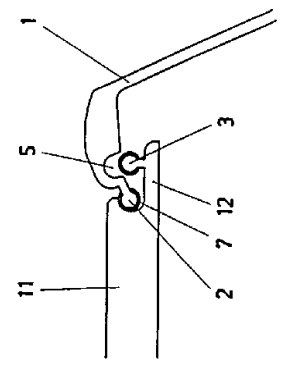


Fig 5