



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
06.04.2011 Bulletin 2011/14

(51) Int Cl.:
B60R 7/10 (2006.01)

(21) Application number: **10007171.1**

(22) Date of filing: **12.07.2010**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR
Designated Extension States:
BA ME RS

(72) Inventors:
• **Padoin, Michele**
31053 Pieve di Soligo (TV) (IT)
• **Sorgio, Stefano**
31040 Volpago del Montello (TV) (IT)

(30) Priority: **02.10.2009 IT TV20090193**

(74) Representative: **Massa, Patrizia**
D'Agostini Group S.r.l
Contrà Santa Barbara, 33
36100 Vicenza (IT)

(71) Applicant: **M & M SRL**
31010 Fraz.Farra di Soligo, Soligo (TV) (IT)

(54) **Modular clothes-hanger device**

(57) Modular clothes-hanger device (1), comprising a supporting box (2) which is internally provided with a first support (23) at the upside and with a second support (24) at the underside, a hooking/releasing body (3) being hinged to the first support (23) which is pushed by a spring (6) and on which hooking/releasing body (3) a key (8) operates which is opportunely associated with the first support (23) which hooking/releasing body (3) is intended for the controlled holding and releasing of a clothes-holder hook (7) which is hinged to the second support (24), with which supporting box (2) a cover (9) is associated as a closure, which is provided with proper openings in correspondence of the key (8) and of the clothes-holder hook (7), as well as with seats for the positioning of one or more LEDs.

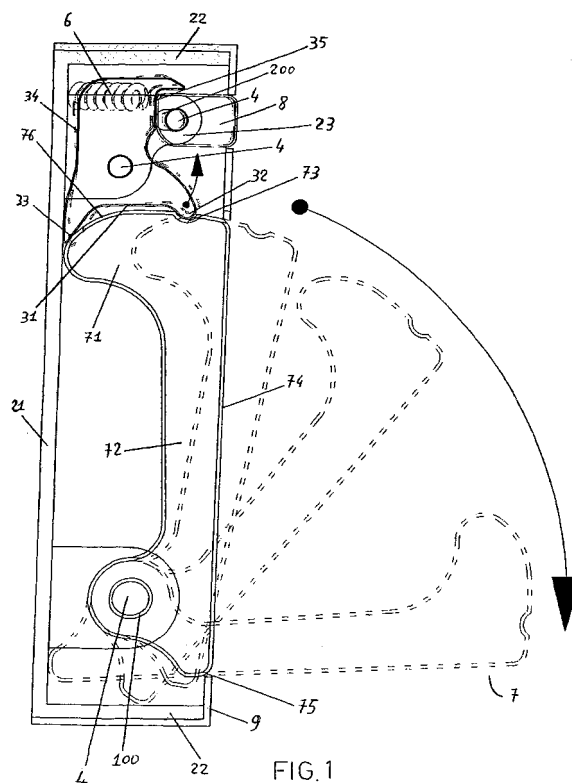


FIG. 1

Description

[0001] This invention relates to a modular clothes-hanger device with at least one disappearing hook.

[0002] The invention finds particular but not exclusive application in the field of production of clothes-hangers and widely in the field of production of elements and accessories for supporting clothes for interior decoration.

Application field

[0003] The positioning of suits and clothes both in the case of an exhibition for sale, and in the case in which they are to be arranged for subsequent use, has determined the need to provide supports which allow the suits and the clothes themselves to be able to be stored for subsequent use and to be easily taken in order to be worn. Besides the need to make the support and the subsequent taking of stored suits and clothes practical, furthermore the need has been taken into account to ensure that the stored suits and/or clothes are kept in an appropriate condition suitable to maintain the shape of the same and to avoid possible wrinkles. In order to meet the highlighted needs, the prior art of the specific field for a long time has proposed various solutions of supports, generally consisting of clothes-hangers. Usually, among the different clothes-hanger solutions which are known at present, a first difference can be found between stationary clothes-hanger solutions as intended to be anchored to a fixed support, such as a wall, in such a way as not to be removed, and removable type solutions as not fixedly anchored to a fixed support.

Prior art

[0004] In the present state of the known art different solutions of clothes-hanger devices can be found. Among the traditionally known solutions a first one consists of a variously shaped hook structure to be anchored, usually by means of fixing screws, to a rigidly fixed support such as generally a wall. Moreover in patent literature different clothes-hanger solutions can be found among which, as a non-exhaustive example only, the following ones are mentioned:

D1: n. US2004163223 (Bivens)

D2: n. EP0985581 (Von Alman)

D3: n. EP1332920 (Gordon).

[0005] In D1 a clothes-hanger device is described integrating a damper and a closing latch mechanism. Briefly, the solution provides a retractable clothes-holder hook which can be used without the help of internal movement mechanisms and provided with a damper and a closing latch mechanism, being provided with a return spring, in such a way as to be opened and closed applying a pressure on the hook. The damper integrated into the clothes-holder hook allows the hook to perform a slow movement

both when the hook comes out of its housing and when the hook goes back into its housing.

[0006] In D2 a clothes-holder hook device is described intended to equip motor vehicles, briefly comprising a housing to which the clothes-holder hook is coupled. It is provided that when the clothes-holder hook is moved from an internal position with respect to the housing to an active position of use, the provided closing panel moves into the hook housing so that the opening of the same is filled by it. Said closing panel is rotatably coupled to the clothes-holder hook and it follows the movement of the clothes-holder hook during the movement performed by the same from an inactive position to an active position. Furthermore, a guide is operatively associated with the housing and the closing panel in such a way as to operate as a guide for the rotational movements of the panel.

[0007] In D3 a retractable clothes-holder hook is described comprising a hook connected to a supporting structure. The hook is supported to be able to perform rotational movements around a pin in order to be able to protrude from a proper housing in an operating condition. Said hook is provided with a hook shaped portion which is suitable to support at least one piece of clothes and further including a rabbet wall the latter being integral with the hook shaped portion and being moved together with the same and being shaped in such a way as to block the opening when the hook is in the non-active position inside the housing. Furthermore a latch type closing mechanism is provided which is able to react to the pushing action exerted on it when the hook is in the non-active condition inside the supporting structure in such a way as to cause its release and, pushed by a spring, the positioning of the hook itself in an active condition protruding from the housing.

[0008] The described prior art allows to consider the following as known:

- a clothes-holder hook device provided with a housing for at least one clothes-hanger hook from which housing the clothes-hanger hook can be moved around a pin;
- a clothes-holder hook device provided with a spring acting on the clothes-hanger hook;
- a clothes-holder hook device provided with at least one retaining device.

Drawbacks

[0009] The disclosed known prior art underlines that all the described solutions have drawbacks and/or limitations in some measure.

[0010] In the opinion of the applicant, a first limitation involving all the presently known prior art solutions relative to clothes-holder hanger devices and the illustrated solutions D1, D2, D3, consists of the highlighted fact that the currently known solutions of clothes-holder hangers do not allow to obtain a complete integration of the hanger

with a wall structure or with a door or anyway with a fixed support.

[0011] In the opinion of the applicant, a second limitation which also involves all the presently known and illustrated solutions of clothes-holder hangers, consists of the fact that the same do not allow to achieve a complete modularity and furthermore, due to the fact that they are not equipped with lighting devices, they do not meet in a complete way the needs required for an integrated structure, particularly in the case of their arrangement in poorly lighted rooms.

[0012] In the opinion of the applicant, another drawback involving all the presently known solutions of clothes-holder hangers, consists of the highlighted fact that, particularly in the solutions which are provided with a clothes-hanger hook of the retractable type, the opening and holding mechanism of the retractable clothes-hanger hook is not optimized for the release and holding function of the clothes-hanger hook itself.

[0013] Hence, there is the need for the companies of the sector to identify optimal solutions to achieve the following set aims.

Summary of the object of the invention

[0014] This and other aims are achieved by this invention technically solving the above mentioned problems by means of a modular clothes-hanger device (1), comprising a supporting box (2) which is internally provided with a first support (23) at the upside and with a second support (24) at the underside, a hooking/releasing body (3) being hinged to the first support (23) which is pushed by a spring (6) and on which hooking/releasing body (3) a key (8) operates which is opportunely associated with the first support (23) which hooking/releasing body (3) is intended for the controlled holding and releasing of a clothes-holder hook (7) which is hinged to the second support (24), with which supporting box (2) a cover (9) is associated as a closure, which is provided with proper openings in correspondence of the key (8) and of the clothes-holder hook (7), as well as with seats for the positioning of one or more LEDs.

Aims

[0015] Some aims and advantages are achieved by means of the considerable creative contribution, the effect of which constitutes immediate technical progress.

[0016] A first advantageous aim is to obtain a modular clothes-hanger device through whose innovative structure an optimal integration can be obtained with the supporting element with which it must be associated eliminating the drawbacks of the current prior art solutions in particular in the case in which the fixed support is a wall structure or a door or another rigid and fixed support.

[0017] A second advantageous aim is to obtain a modular clothes-hanger device whose innovative structure allows to perform an easy positioning also in spaces of

reduced size and thanks to whose modularity the positioning of modules adjacent to one another is allowed in order to adapt their composition and their number on the basis of the most different needs.

[0018] Another advantageous aim is to obtain a modular clothes-hanger device whose innovative structure allows to maintain unchanged its reliability even after multiple repeated operations and which at the same time substantially eliminates the need to perform subsequent maintenance operations.

[0019] These and other advantages will be apparent from the following detailed description of some preferred solutions whose execution details are not to be considered as limitative but only as illustrative.

Content of the drawings

[0020]

Figure 1 is a sectional view, illustrating the retractable movement performed by the clothes-hanger hook, of the modular clothes-hanger device which is the object of the present invention;

Figure 2 is an exploded view of the modular clothes-hanger device which is the object of the present invention;

Figure 3 is an axonometric view of the modular clothes-hanger device with the clothes-hanger hooks in an active position;

Figure 4 is an axonometric view of the modular clothes-hanger device with the clothes-hanger hooks in a non-active position.

Practical embodiment of the invention

[0021] Also referring to the figures a modular clothes-hanger device (1) can be observed, consisting of modules which can be joined to each other in a sequence, which modular clothes-hanger device (1) in one case can even be arranged and intended to be associated with an embedded mounting, particularly integrated in the field of the cased frames for disappearing sliding doors or in the field of a wall or a door panel and, in the exemplary embodiment which is described as a preferred solution as disclosed in Figures 1 to 4, it includes a supporting box (2), preferably made of a plastic material, which supporting box (2) in the example has a rectangular shape and it is of the open type being provided with a bottom wall (21) and with perimeter walls (22) surrounding the bottom wall (21). In more detail, as disclosed in Figure 2, inside the supporting box (2), at least one first support (23) and at least one second support (24) are present, which in the example are anchored to the bottom wall (21), in the described exemplary embodiment both the first support (23) and the second support (24) consisting of a couple of parallel and symmetrically opposite walls. The first support (23) is provided to be placed in correspondence of the upside of the bottom wall (21) of the

supporting box (2) while the second support (24) is provided to be placed in correspondence of the underside of the bottom wall (21) of the supporting box (2), the second support (24) being aligned to the first support (23). In more detail, the first support (23), in correspondence of each of the two parallel walls it consists of, is provided with a hinging seat (100) which is located below with respect to at least one upper slot seat (200) and which is unaligned with respect to the hinging seat (100). The first support (23) is arranged so that a hooking/releasing body (3) can be hinged to it, being provided for this purpose with a hinging seat (100) for a pin (4). In more detail with reference to the described exemplary embodiment, the hooking/releasing body (3) is intended to be interposed between the two walls the first support (23) consists of in such a way as to be associated with the hinging seat (100) with which the first support (23) is provided by means of a pin (4) which is provided with a rabbet head (41) and which is fixed, on the opposite side with respect to the rabbet head (41), by means of a known anchoring device (5) which, in the example, is a self-locking seeger ring of the axially mounting type..

[0022] A spring (6) is interposed between the bottom wall (21) of the supporting box (2) and the hooking/releasing body (3) and it is maintained in a compression condition in such a way as to allow the hooking/releasing body (3) to be kept in an active position so as to retain at least one clothes-holder hook (7). The hooking/releasing body (3) is provided to be opportunely shaped in such a way as to allow the holding or the unlocking of the end of the clothes-holder hook (7) which is opposite to the hinging one, at the lower end the hooking/releasing body (3) being provided with an engagement seat (31) which is opportunely shaped in such a way as to allow the holding and the unlocking of the end of the clothes-holder hook (7) which is opposite to the hinging one. In the described exemplary embodiment, the engagement seat (31) is shaped in such a way that orthogonally with respect to the hinging axis it forms a front protruding tooth (32) and an opposite rear protruding tooth (33) between which a concave curve is present. Furthermore, at the upper end which is the opposite end with respect to the back (34), the hooking/releasing body (3) is provided with a front rabbet wall (35) on which a key (8) is intended to abut which is provided with a hinging seat (100) by means of said hinging seat (100) the key (8) being engaged with the first support (23) in a movable way, by means of a pin (4). In more detail with reference to the described exemplary embodiment, the key (8) is interposed between the two walls the first support (23) consists of in such a way as to be associated with the slot seats (200) with which the first support (23) is provided, by means of a pin (4) which is provided with a rabbet head (41) and which is fixed, on the opposite side with respect to the rabbet head (41), by means of a known anchoring device (5) which, in the example, is a self-locking seeger ring of the axially mounting type. In this way, the key (8) is free to perform an advancing and withdrawing movement

guided by the slot seats (200) of the first support (23) the key (8) itself transmitting a consequent pushing and releasing movement of the hooking/releasing body (3) in this way opposing or supporting the counter-pushing action exerted by the spring (6). The clothes-holder hook (7) is hinged to the second support (24) by means of a pin (4) which is engaged with the hinging seat (100) with which the lower end of the clothes-holder hook (7) itself is provided. In detail, in the example, the clothes-holder hook (7) is interposed between the two walls constituting the second support (24) in such a way as to be associated with the hinging seats (100) of the second support (24) by means of a pin (4) provided with a rabbet head (41) and which is fixed, on the opposite side with respect to the rabbet head (41), by means of a known anchoring device (5) which, in the example, is a self-locking seeger ring of the axially mounting type.

[0023] The clothes-holder hook (7), as disclosed in Figure 2, is provided to be substantially "L" shaped the horizontal portion (71), which is orthogonal to the vertical portion (72), being provided with a curved outer wall (76) and the same horizontal portion (71) being provided with a holding seat (73), in the example consisting of a rectilinear groove close to the outer wall (74) of the vertical portion (72) of the clothes-holder hook (7). Given the above described structure, the clothes-holder hook (7) is provided to be able to perform a movement around the pin (4) by means of which it is held, so as to be able to be placed in an active operating condition, or in an inactive non-operating condition. In the active condition, the clothes-holder hook (7) will be placed in such a way that the vertical portion (72) will lie on the horizontal-plane, orthogonal to the bottom wall (21) of the supporting box (2), the clothes-holder hook (7) being kept in this position by the cooperation of the lower end (75) of the clothes-holder hook (7) itself which abuts in a rabbet condition on the bottom wall (21) of the supporting box (2). If, instead, the clothes-holder hook (7) is placed in the inactive condition, being held by the hooking/releasing body (3), the vertical portion (72) of the clothes-holder hook (7) will lie on the vertical plane being parallel to the bottom wall (21) of the supporting box (2) with the horizontal portion (71) held by the hooking/releasing body (3). In more detail, it is provided that, in order to allow the clothes-holder hook (7) to be held, the curved outer wall (76) of the clothes-holder hook (7) itself is opportunely shaped in such a way as to allow that, by performing the movement which carries the clothes-holder hook (7) in the non-operating condition, the curved outer wall (76) cooperates with the hooking/releasing body (3) in such a way as to carry out the proper movement of the same which allows the curved outer wall (76) to enter and be held by the engagement seat (31) of the hooking/releasing body (3) which itself is driven by the spring (6) to be kept in a holding position in such a way that the front protruding-tooth (32) abuts the holding seat (73) with which the horizontal portion (71) of the clothes-holder hook (7) is provided. In order to allow the release of the clothes-holder

hook (7) so as to allow its positioning in an operating condition, the activation of the key (8) is provided to move in an unlock condition the hooking/releasing body (3) so that on the one hand the front protruding tooth (32) frees the holding seat (73) of the clothes-holder hook (7) and on the other side, simultaneously, the rear protruding tooth (33) exerts an outward pushing action with reference to the clothes-holder hook (7).

[0024] To close the supporting box (2) a cover (9) is provided to be applied, which is provided with a first opening (91), which is located in correspondence of the positioning point of the key (8) and which is shaped in such a way as to allow its movement and partial protrusion, and provided with a second opening (92) which is located in correspondence of the positioning point of the clothes-holder hook (7) and which is shaped in such a way as to allow its movement and its protrusion in an operating condition, being provided that both the first opening (91), and the second opening (92) are in a number and position corresponding to each key (8) and to each clothes-holder hook (7). Furthermore, the cover is provided to be equipped with lighting devices (10) of the LED type, which in the example are placed in correspondence of at least one perimeter border and/or, indifferently, at the front part of the cover (9). In order to close possible spaces which could be present between the modular clothes-hanger device (1) and the fixed support with which it is intended to be associated, a closing frame (11) is provided to be possibly associated with the same.

Reference

[0025]

(1) Modular clothes-hanger device
 (2) supporting box, (21) bottom wall, (22) perimeter walls, (23) first support, (24) second support
 (3) hooking/releasing body, (31) engagement seat, (32) front protruding tooth, (33) rear protruding tooth, (34) back, (35) rabbet wall
 (4) pin, (41) rabbet head
 (5) anchoring device
 (6) spring
 (7) clothes-holder hook, (71) horizontal portion, (72) vertical portion, (73) holding seat, (74) outer wall, (75) lower end, (76) curved outer wall
 (8) key
 (9) cover, (91) first opening, (92) second opening
 (10) lighting device
 (11) closing frame
 (100) hinging seat
 (200) slot seat

Claims

1. Modular clothes-hanger device (1) of the type comprising a retractable clothes-holder hook (7) hinged

to a support (24) with which a supporting box (2) is provided, **characterised in that** the supporting box (2) comprises at least one first support (23) which is placed on the upper part with respect to a second support (24) where by means of a pin (4) in the first support (23) at least one hooking/releasing body (3) is engaged which is provided with a hinging seat (100) and which is kept in a holding position by at least one spring (6) which is interposed between the hooking/releasing body (3) and the bottom wall (21) of the supporting box (2), at the lower end the hooking/releasing body (3) being provided with an engagement seat (31) for holding and releasing at least one clothes-holder hook (7), on which engagement seat (31) the horizontal portion (71) of the clothes-holder hook (7) is held, with the possibility to be released, the hooking/releasing body (3) being manually movable against the action of the spring (6) to unlock the clothes-holder hook (7).

2. Modular clothes-hanger device (1) according to claim 1, **characterised in that** the hooking/releasing body (3) is operated by at least one movable key (8) which is engaged to the first support (23).

3. Modular clothes-hanger device (1) according to claims 1 and 2, **characterised in that** at the horizontal portion (71) the clothes-holder hook (7) is provided with a curved outer wall (76) and with at least one holding seat (73) on which holding seat the front protruding tooth (32) of the engagement seat (31) of the hooking/releasing body (3) abuts in a locking position.

4. Modular clothes-hanger device (1) according to the previous claims, **characterised in that** the engagement seat (31) of the hooking/releasing body (3) is shaped in such a way that orthogonally with respect to the hinging axis it forms at least one front protruding tooth (32) and at least one rear protruding tooth (33) between which a concave curve is present, at the upper end which is the opposite end with respect to the back (34) the hooking/releasing body (3) being provided with a front rabbet wall (35) on which the key (8) is intended to abut.

5. Modular clothes-hanger device (1) according to the previous claims, **characterised in that** the first support (23) and second support (24) each include at least one couple of parallel and symmetrically opposite walls, the first support (23) being provided with at least one hinging seat (100) which is located below with respect to at least one upper slot seat (200) and which is unaligned with respect to the hinging seat (100), and the second support (24) being provided with at least one hinging seat (100).

6. Modular clothes-hanger device (1) according to the

previous claims, **characterised in that** both the hooking/releasing body (3), and the key (8) as well as the clothes-holder hook (7) are hinged by means of at least one pin (4) provided with a rabbit head (41) and held by at least one self-locking seeger ring. 5

7. Modular clothes-hanger device (1) according to the previous claims, **characterised in that** a cover (9) is provided which is associated with the supporting box (2), said cover (9) being provided with at least one first opening (91), which is located in correspondence of the key (8) and which is shaped in such a way as to allow the movement and the partial protrusion of the key (8) itself, and said cover (9) being provided with at least one second opening (92) 10 15 which is located in correspondence of the clothes-holder hook (7) and which is shaped in such a way as to allow its movement and its protrusion in an operating condition. 20

8. Modular clothes-hanger device (1) according to the previous claims, **characterised in that** it includes LED type lighting devices. 25

30

35

40

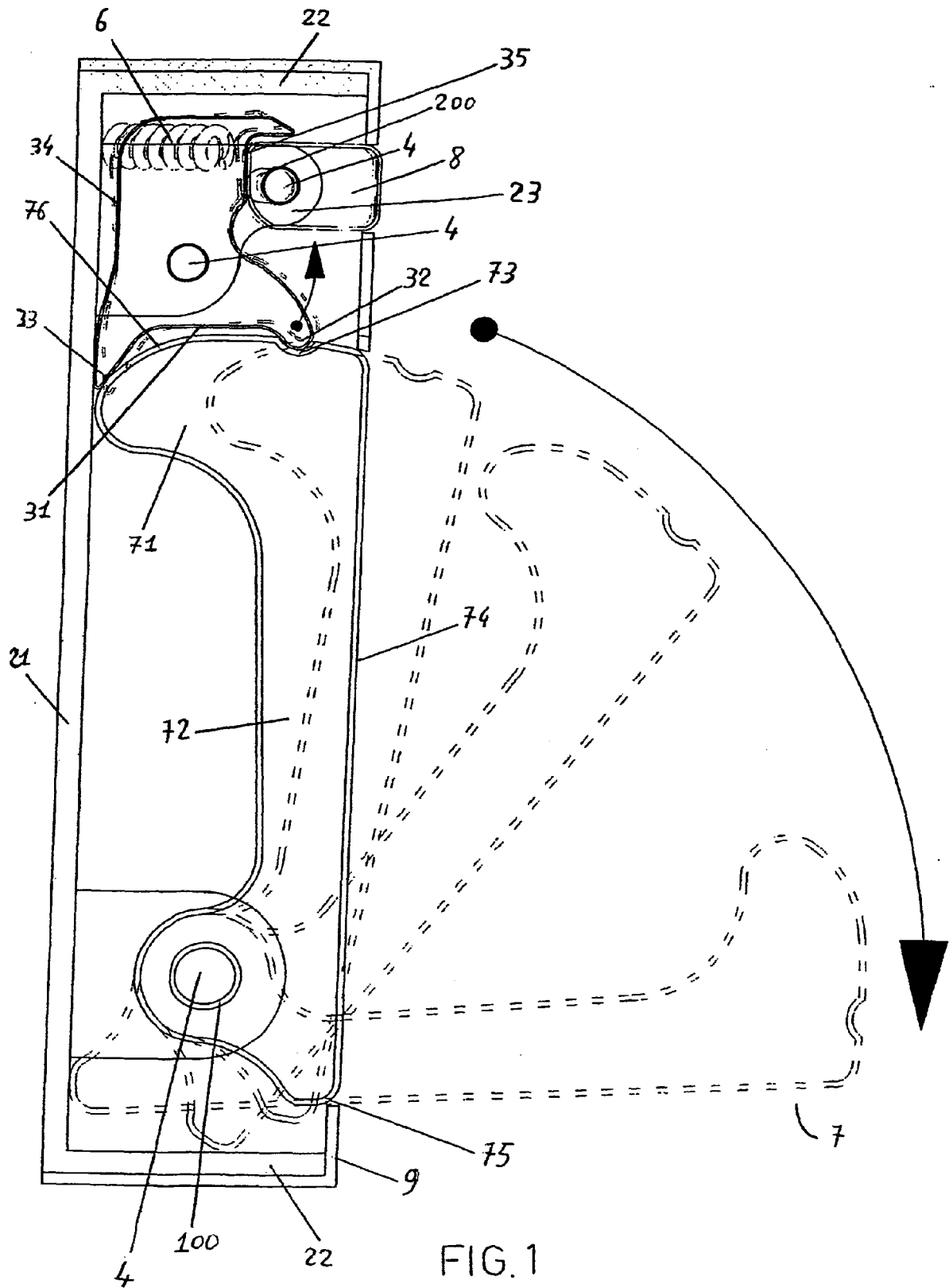
45

50

55

60

65



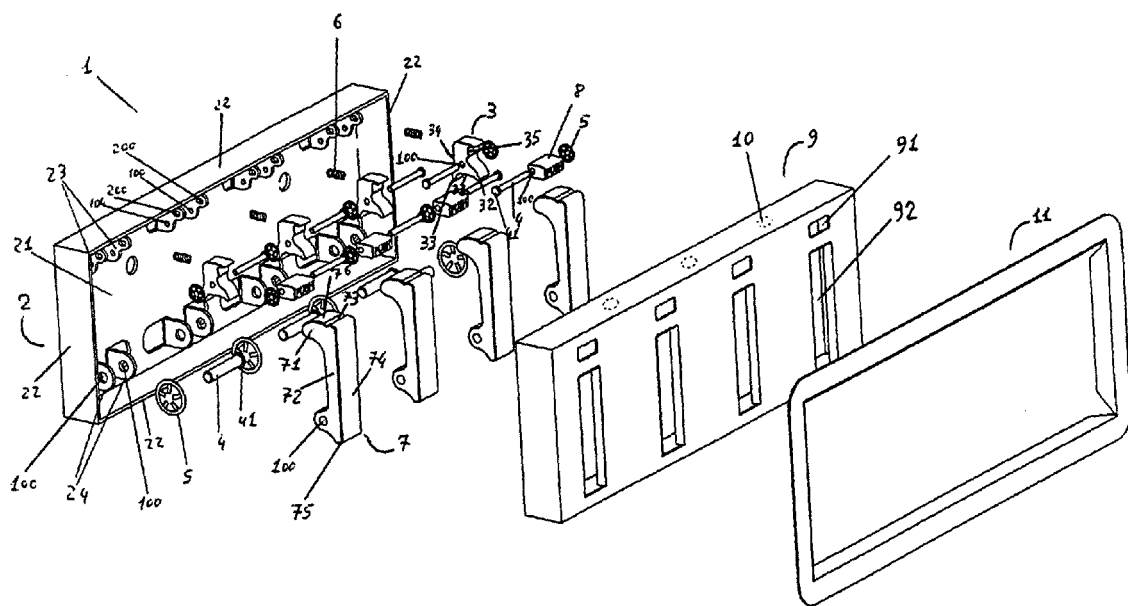


FIG. 2

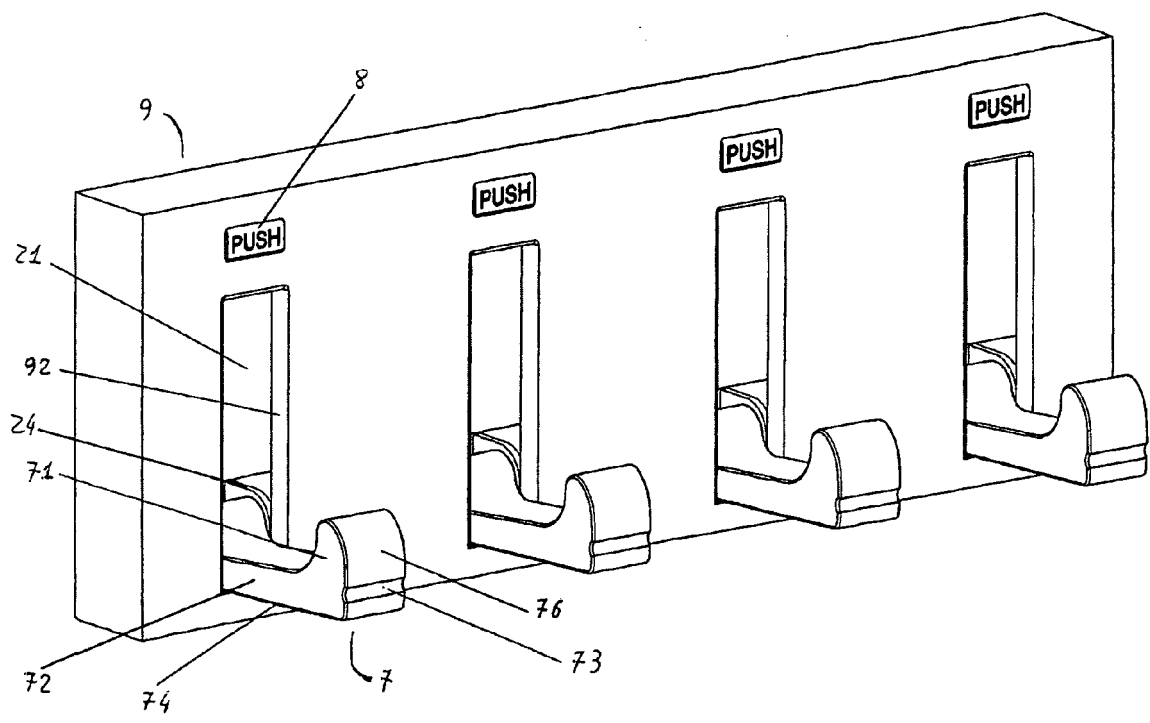


FIG.3

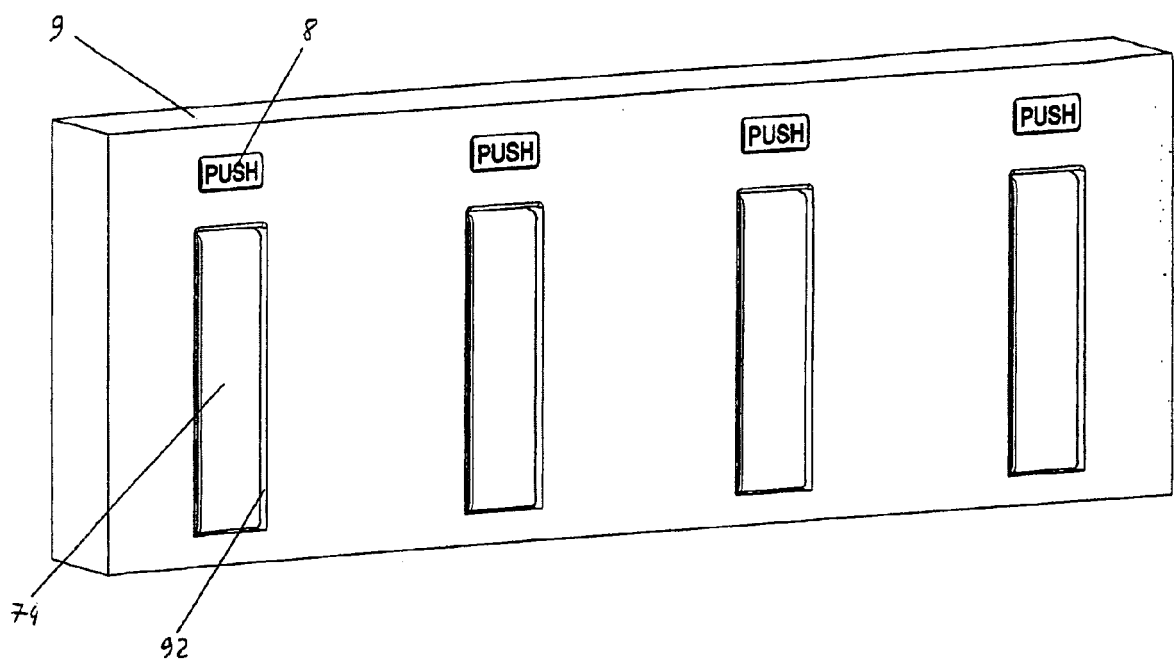


FIG. 4



EUROPEAN SEARCH REPORT

Application Number
EP 10 00 7171

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 6 606 889 B1 (TWEEDY TIMOTHY [US]) 19 August 2003 (2003-08-19) * column 3, line 51 - column 5, line 53; figures *	1,2,4,7	INV. B60R7/10
X	GB 12886 A A.D. 1911 (GIUSTI TITO [IT]; PINOLI CHARLES [GB]) 24 August 1911 (1911-08-24) * page 1, line 1 - page 3, line 25; figures *	1,2,4,7	
Y	DE 10 2005 050404 A1 (KINETIX AG [CH]) 3 May 2007 (2007-05-03) * the whole document *	1-8	
Y	US 4 720 028 A (TAKEMURA HIROSHI [JP] ET AL) 19 January 1988 (1988-01-19) * paragraph [0128] - paragraph [0129]; figures *	1-8	
A	US 6 109 579 A (HUANG HAN-CHING [TW]) 29 August 2000 (2000-08-29) * the whole document *	1-8	
A	US 2005/061940 A1 (BRNJAC STEVE [CA]) 24 March 2005 (2005-03-24) * paragraph [0001] - paragraph [0031]; figures *	1-8	
A	EP 1 046 542 A1 (LEAR CORP [US]) 25 October 2000 (2000-10-25) * the whole document *	1	
A	US 2 077 629 A (LAHR HERBERT H) 20 April 1937 (1937-04-20) * the whole document *	1	TECHNICAL FIELDS SEARCHED (IPC)
			B60R A47G E05F B60N F16B B60P E05B
The present search report has been drawn up for all claims			
Place of search Berlin		Date of completion of the search 24 September 2010	Examiner Axelsson, Tiberiu
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

1
EPO FORM 1503 03/82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 10 00 7171

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

24-09-2010

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6606889	B1	19-08-2003	NONE	
GB 191112886	A	24-08-1911	NONE	
DE 102005050404	A1	03-05-2007	NONE	
US 4720028	A	19-01-1988	JP 61190730 U	27-11-1986
US 6109579	A	29-08-2000	NONE	
US 2005061940	A1	24-03-2005	CA 2442826 A1	23-03-2005
EP 1046542	A1	25-10-2000	DE 60017214 D1	10-02-2005
			DE 60017214 T2	23-06-2005
US 2077629	A	20-04-1937	NONE	

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- US 2004163223 A, Bivens [0004]
- EP 0985581 A, Von Alman [0004]
- EP 1332920 A, Gordon [0004]