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(54) **CLOSING DEVICE FOR CLOSETS AND THE LIKE**

(57) The invention provides an improved closure for wardrobes and the like. Wardrobes are being closed at present with swinging doors taking up a space in the room, and with sliding doors blocking in part the access to the inside of the wardrobe.

The closure device of the invention comprises a series of vertical, successively juxtaposed plates being linked to each other in a hinged connection and being

upperly and lowerly provided with rolling means rolling in respective guideways being upperly and lowerly provided at the wardrobe and extending into the wardrobe's sides through respective arcuate bends being provided at the corresponding corners, the closure device of the invention hence not taking up a space in the corresponding room nor in part blocking the access to the inside of the wardrobe.

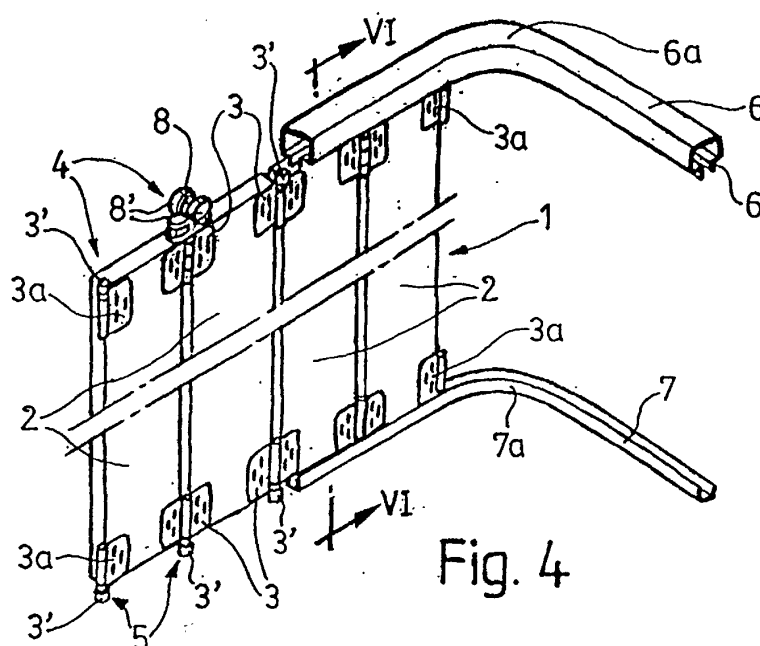


Fig. 4

Description

[0001] The invention refers to a closure for wardrobes and the like.

[0002] For closing wardrobes conventional doors are being used at present which are linked in a hinged connection to the lateral edges of the opening being frontally provided in said wardrobes, said doors logically opening towards the outside and therefore requiring a given outside space not always being available where a wardrobe is needed.

[0003] Wardrobes with sliding doors already exist now, said sliding doors although they eliminate the above problem not providing an unrestricted access to the inside of the wardrobe since they are when opened arranged in a mutually superimposed arrangement thus only clearing a portion of the wardrobe's opening for said access to its inside.

[0004] These problems or drawbacks as well as others possibly deriving from them are solved with the closure device being the object of the present invention, said closure device not only allowing to totally open the wardrobe without taking up outside space, but furthermore allowing said wardrobe to have a configuration being adaptable to corners not being at right angles without this affecting said device.

[0005] Considering the above the present closure device for wardrobes comprises a series of vertical, successively juxtaposed plates being linked to each other by means of hinges, said series being upperly and lowerly provided with properly distributed rolling means rolling in corresponding guideways being upperly and lowerly provided at the wardrobe's opening, said guideways extending into the wardrobe's sides after related arcuate bends being provided at the corresponding corners.

[0006] Wardrobes usually being of a substantial width, two of the present closure device units will be normally needed to close the opening of said wardrobes, said units being when opening slid towards opposite sides and thus being each of them arranged along one side of the wardrobe.

[0007] The upper rolling means or those of them being necessary are advantageously supported on the upper guideway besides rolling on it, each series of plates pending from said means and being only guided in the corresponding guideways by the remaining rolling means.

[0008] These and other characteristics will be best made apparent by the following detailed description whose understanding will be made easier by the accompanying three sheets of drawings showing a practical embodiment cited only by way of an example not limiting the scope of the present invention.

[0009] In the drawings:

Fig. 1 shows in a partial front view a wardrobe being provided with two units of the closure device in question;

Figs. 2 and 3 are each a sectional plan-view showing a portion of the respectively open and closed wardrobe of Fig. 1;

Fig. 4 in a perspective view illustrates the closure device with a portion of its guideways being seen as indicated by arrow IV in Fig. 2;

Fig. 5 in the same perspective view illustrates the closure device of Fig. 4, said closure device being nevertheless in this case shown in an exploded view;

Fig. 6 is a sectional side elevation showing a plate of the closure device as per section line VI-VI of Fig. 4;

Fig. 7 in a sectional plan-view illustrates a wardrobe having a configuration allowing it to be arranged at a no-right-angle corner and being provided with two closure device units; and

Fig. 8 is a front elevation showing an open wardrobe being provided with two of the present closure device units.

[0010] According to such figures each of the illustrated wardrobe closure device units comprises a series 1 of vertical plates 2 being successively juxtaposed and linked to each other with hinges 3 and provided with upper rolling means 4 and lower rolling means 5 by means of which they are slidable along respective upper guideways 6 and lower guideways 7 being upperly and lowerly provided at the opening b of the corresponding wardrobe A.

[0011] Hinges 7 are secured to the lateral edges of the back surface of plates 2, and guideways 6 and 7 extend into both sides li and ld of the wardrobe A, said guideways for such a purpose forming arcuate bends 6a and 7a at the corners formed by said sides with the front of said wardrobe A, said bends allowing the rolling means 4 and 5 to rollingly pass from one straight length of the guideways 6 and 7 into the other thereby carrying with them the plates 2, these latter being in a position to carry out the pertinent turning motion thanks to their being successively linked to each other in a hinged connection.

[0012] The lower rolling means 5 (see Figs. 4 and 5) are each formed by a runner 3', said runners being fitted with their pins to the lowerly projecting ends of the pins of the hinges 3 lowerly linking each pair of plates 2, and being also thus fitted to the ends of the pins of the by way of half hinges 3a being secured to the corresponding lower free corners of the two end plates 2.

[0013] Besides comprising said half hinges 3a with their runners 3' at the corresponding upper free corners of the end plates 2 the upper rolling means 4 (see also Figs. 4 and 5) comprise as well skates 8 and runners 3' like those of the lower rolling means 5, said skates and runners being alternately fitted to the projecting ends of the pins of the hinges 3 upperly linking the plates 2.

[0014] The upper guideway 6 (Fig. 6) has an inverted channel cross-section with a narrowed portion 6' allow-

ing the plates 2 to pend from said guideways through the skates 8, each of these latter for such a purpose comprising a pair of vertically opposite runners 8' rolling inside said guideway on the two horizontal flats formed by the narrowed portion 6'.

[0015] Skates 8 are as well provided with a second pair of runners 8" being successively and horizontally arranged in a respectively leading and trailing position below the above-mentioned runners 8' and rolling between the vertical lengths of the narrowed portion 6' thus preventing said upper runners 8' from rubbing against the lateral walls of the guideway 6.

[0016] The remaining upper rolling means 4 and lower rolling means 5 comprising the runners 3' as has been said before only guide the plates 2 along the upper guideway 6 and the lower guideway 7 thereby rolling between the vertical lengths of the narrowed portion 6' of the former and between the also vertical lengths of the channel section of the latter.

[0017] Each side of the wardrobe A is innerly provided with a partition 9 thus forming a double wall being apt to conceal the corresponding series 1 of plates 2 when said wardrobe (Fig. 3) is opened thus preventing said plates from running into garments or other objects being stored in the wardrobe, and allowing to easily install inside the wardrobe modules 10 with compartments, drawers or other elements (Fig. 8).

[0018] If the installation site for the wardrobe A comprises a corner formed by two walls p1 and p2 not being at right angles but being at obtuse angles as shown in Fig. 7 or at acute angles as also shown but with dash-and-dot lines in the same Fig. 7, said wardrobe is then given the appropriate configuration and thus adapts to said corner, guideways 6 and 7 also adapting to said configuration and thereby allowing the series 1 of plates 2 to be slid along them with no problems.

[0019] If because of the width of the wardrobe A the two sets 1 of plates being apt to be concealed in the sides of said wardrobe do not fully close the opening b of this latter said opening can comprise a door 11 (shown in dash-and-dot lines in Fig. 1) being arranged between both series 1 of plates 2 and being as well rollingly slidable along the guideways 6 and 7 also guiding said series 1 in their rollingly sliding motion, rolling means of the same kind as those used to slide said series of plates or of a similar kind being used to rollingly slide said door.

[0020] Each series 1 can also comprise (Figs. 2 and 3) a handle 12 allowing to slide it, as well as stops 13 limiting its travel when closing the wardrobe A thereat abutting against corresponding inner toes 14 being provided at the lateral sides of the opening b of said wardrobe A.

acterized in that it comprises at least one series of vertical, successively juxtaposed plates being linked to each other in a hinged connection, said series being upperly and lowerly provided with rolling means allowing to slide it along guideways being upperly and lowerly provided at the opening of the wardrobe in question, each of said guideways extending into the wardrobe's sides after forming an arcuate bend at the corresponding corners.

2. A closure device for wardrobes and the like as per claim 1, **characterized in that** the plates are linked to each other by means of hinges at the lateral edges of their back surface.
3. A closure device for wardrobes and the like as per claims 1 and 2, **characterized in that** the rolling means are fitted to the pins of the hinges upperly and lowerly linking the plates to each other, rolling means being also fitted to each of the corresponding free corners of the end plates.
4. A closure device for wardrobes and the like as per claims 1 and 3, **characterized in that** the upper rolling means are alternately supported on their guideway, the series of plates pending from said upper rolling means and being only guided in the corresponding guideways by the remaining rolling means.
5. A closure device for wardrobes and the like as per the preceding claims, **characterized in that** it incorporates a door being provided with upper and lower rolling means and guideways and being apt to close the wardrobe's opening thus complementing the width of the series of plates.

Claims

1. A closure device for wardrobes and the like, **char-**

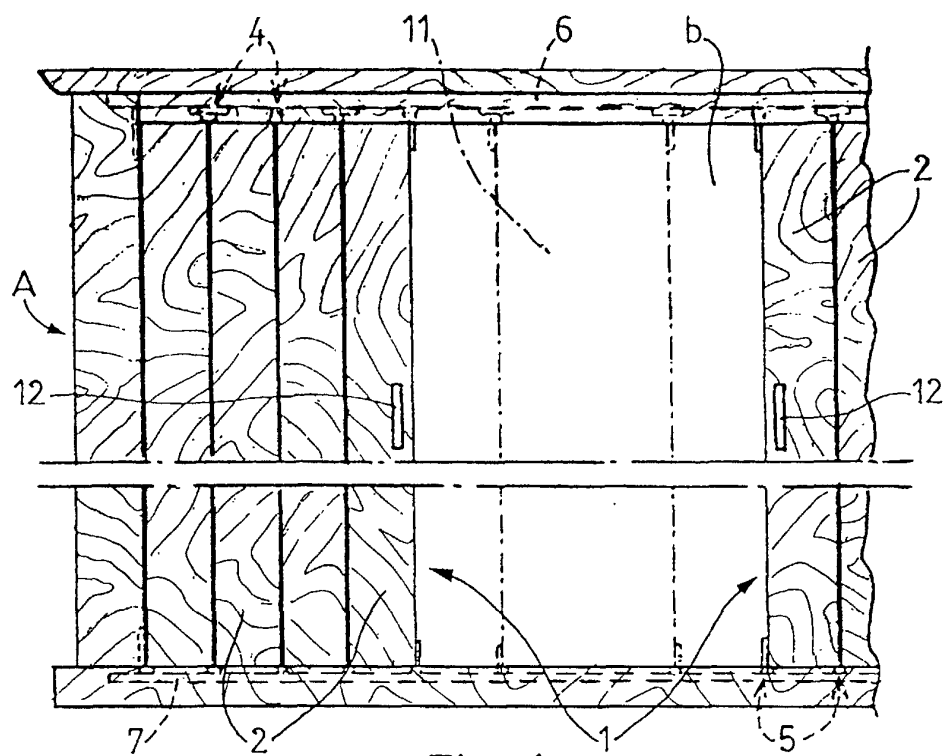


Fig. 1

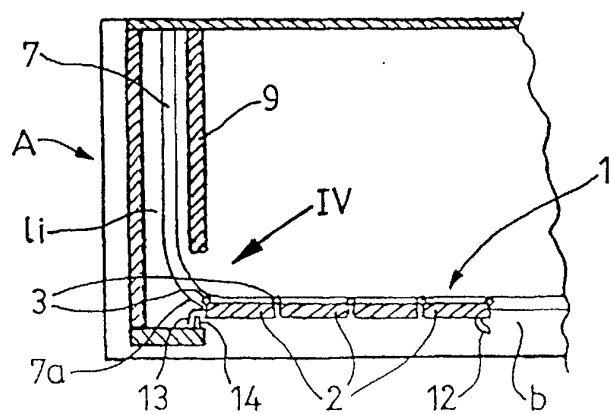


Fig. 2

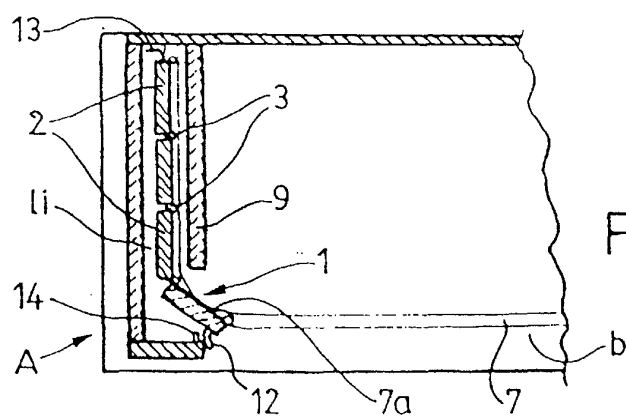
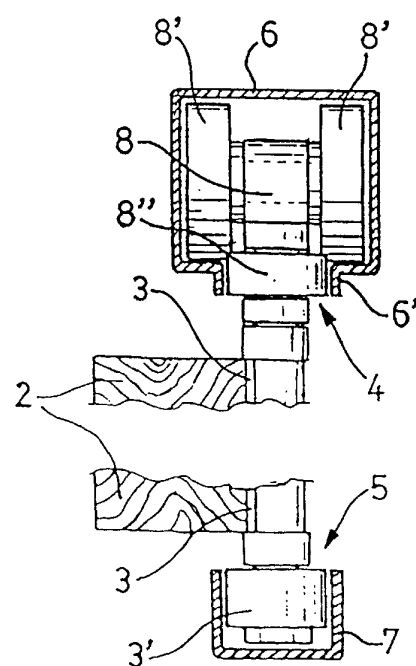
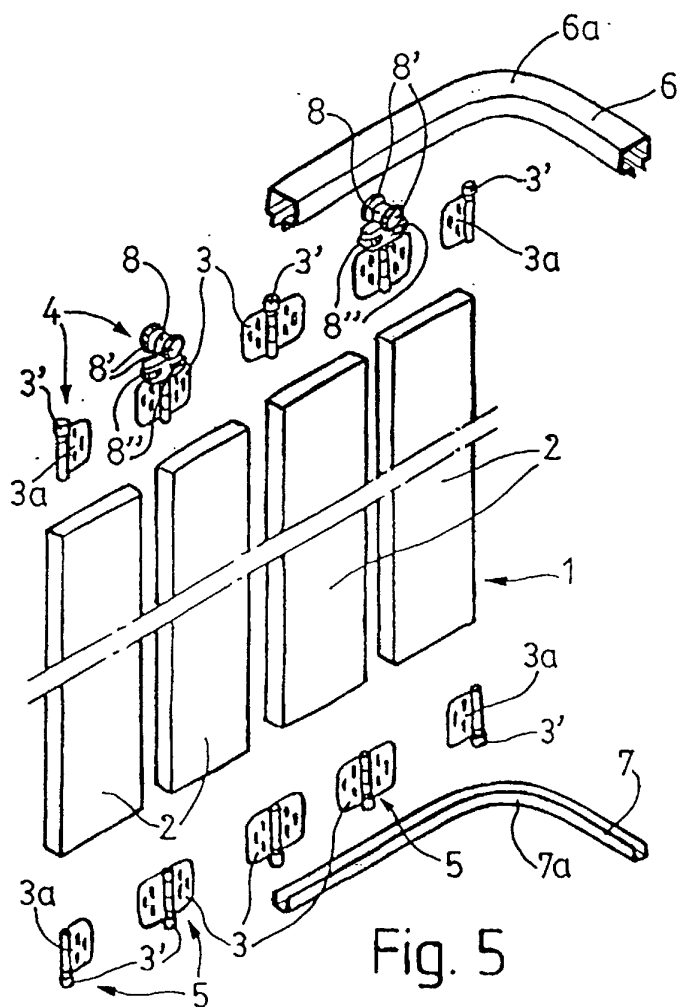
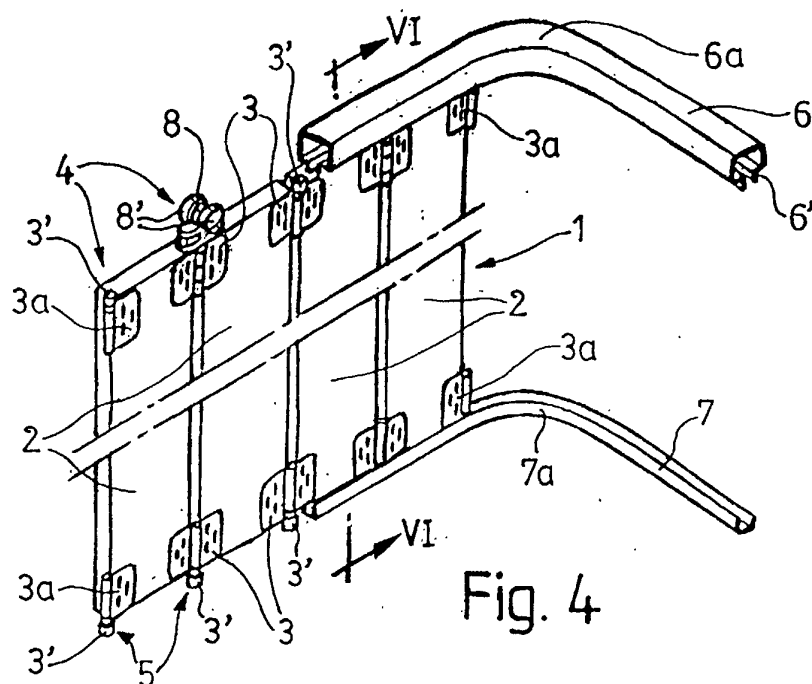
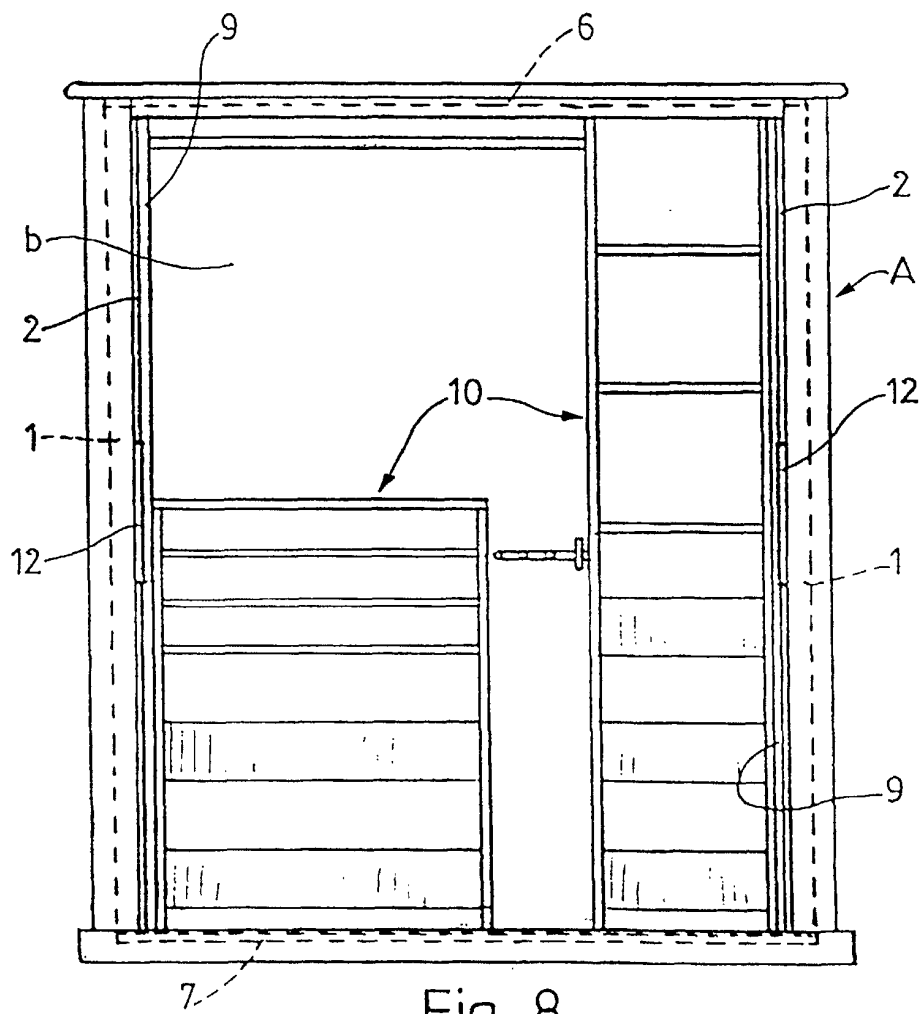
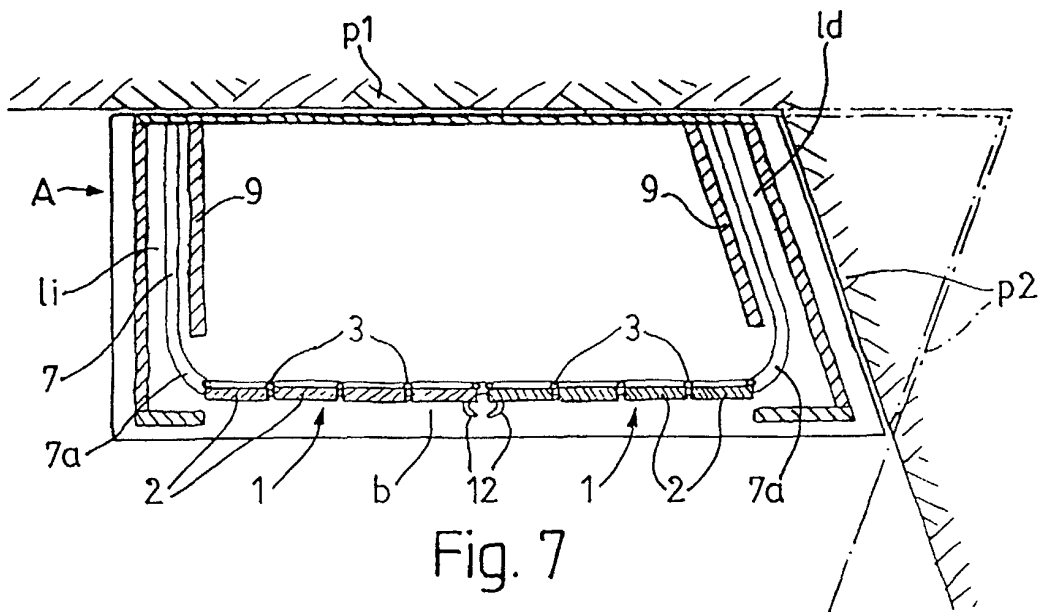


Fig. 3





INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES 01/ 00148

A. CLASSIFICATION OF SUBJECT MATTER		
IPC7: E05D 15/12, E06B 3/48		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols)		
IPC7: E05D 15/12 E06B 3/48		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
EPODOC		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FR 2593221 A (Milleret); 24.07.1987. Todo el documento. SEE THE WHOLE DOCUMENT	1-5
A	US 2689003 A (Helbert et al.) 27.02.1951 Figura 5, referencia 13. FIGURE 5, REFERENCE 13.	1-5
X	DE 2462091 A (A. Artweger GmbH) 04.03.1976. Resumen, figuras 1 ABSTRACT, FIGURES 1 AND 2.	1
A	US 3003551 A (Ferris); 10.10.1961. Figuras. FIGURES.	1
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
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20 JUNE 2001 (20.06.01)		2 JULY 2001 (02.07.01)
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/ES 01/ 00148

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 2593221	24.07.1987	NONE	
US 2689003	14.09.1954	NONE	
DE 2462091	04.03.1976	NONE	
US 3003551	10.10.1961	NONE	