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(54) **MULTI-PURPOSE DRAWER GUIDE**

(57) Multipurpose drawer guide of the type made up of at least one fixed internal portion and a movable external portion, with the possibility of incorporating an intermediate portion for telescopic guides, in which the movable external portion (3) houses a combination of an upper central roller bearing (5) and lower lateral ball bearings (6) for rolling on a movable head (7) with an upper wall (8) and lower lateral cavities (9), the shape and dimensions of the movable external portion (3) being capable of housing either the simple drawer guide (1) or the telescopic guide (10).

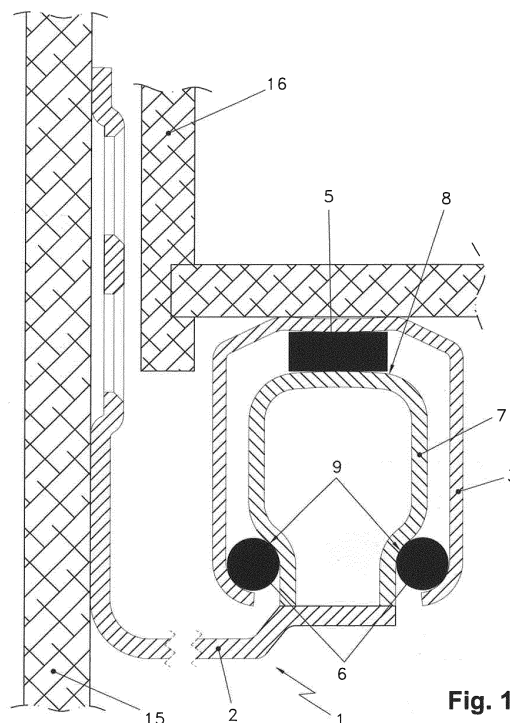


Fig. 1

Description

FIELD OF THE INVENTION

[0001] The present invention relates to a multipurpose drawer guide of the type consisting of at least one fixed internal portion and a movable external portion, with the possibility of incorporating an intermediate portion for telescopic guides, which has rolling elements between the fixed internal and movable external portions and the intermediate portion.

PRIOR ART

[0002] At present, with reference to the prior art the use of drawer guides made up of a fixed portion positioned adjacent to the item of furniture and a movable external portion for guides with partial drawer extension is conventional and known. The use of telescopic drawer guides is also known, made up of a fixed portion positioned adjacent to the item of furniture, a movable intermediate portion and a movable external portion. In both cases the rolling action between the fixed and movable portions is produced by the use of ball bearing cages housed on the outer walls of the fixed portion, although this type of rolling action has reliability problems when used for very heavy drawers.

[0003] For example, patent ES 2029451 discloses a sliding guide system with ball bearings which comprises an inner rail, an outer rail and three sets of ball bearings placed between the rails and positioned in a triangular arrangement, the outer rail being configured to provide three tracks for the three sets of ball bearings and the inner rail having a Y-shaped transverse cross portion with a rod which extends outwards from the centre of the arrangement between two sets of ball bearings and through a groove in the outer rail and two arms which extend outwards from the centre of the arrangement between the other pairs of ball bearing sets.

[0004] Patent ES 2200018 discloses a telescopic drawer guide, with a guide rail that can be attached to the body of the item of furniture, a telescopic rail attached to the drawer, a rail with an inner profile which connects the guide rail and the telescopic rail, with which at least one elongated cage is associated in which a bearing device is housed, and metal end stops which limit the final positions of the telescopic rails and which may strike against the fixed stops. In the end zones each cage has additional resilient stops associated with the end stops, which are separate from the end stops of the removable telescopic rail.

[0005] Patent ES 2096465 discloses an extraction guide for a pullout drawer with a guide rail and an extraction rail, and also an inner profiled rail provided with various ball bearing guides which connects the guide rail to the extraction rail, the ball bearings being arranged in sets between the two outer surfaces of the inner profiled rail and the inner surfaces of the guide rail and of the

extraction rail, in such a way as to allow them to roll. The guide rail and the extraction rail have an angled transverse cross portion, the two free marginal zones, situated so as to move apart from each other to form ball bearing guides, in each case describing an incurving arc, such that in each case a ball bearing set consists of three ball bearings.

[0006] Patent ES 2245056 discloses a drawer extraction guide with a guide rail which is attached to the body of the item of furniture and a roller rail which can be adapted to the drawer and guided by bearings, and which has a profiled rail provided with roller tracks for said bearings situated at one or both ends, where the profiled rail zone adjacent to the roller tracks is not aligned to the vertical so that said zone is situated in the direction or close to the direction of the resultant of the lateral forces incident on the drawer extraction guide.

EXPLANATION AND ADVANTAGES OF THE INVENTION

[0007] In this state of affairs, the present invention relates to a multipurpose drawer guide which, compared with what exists, is differentiated by a structure that is easier to install, and which saves on repairs and replacements as it can be used for both simple and telescopic runners.

[0008] Accordingly, the multipurpose drawer guide of the type consisting of at least one fixed internal portion and a movable external portion, with the possibility of incorporating an intermediate portion for telescopic guides; a multipurpose guide in which the movable external portion houses a combination of an upper central roller and lower lateral ball bearings for rolling on a movable head with an upper wall and lower side cavities, the shape and dimensions of the movable external portion being capable of housing either the simple drawer guide or the telescopic guide.

[0009] As a result, the fixed external portion can be fitted with either simple or telescopic runner guides, reducing manufacturing and replacement costs, as only one type of movable external portion and movable head needs to be produced.

[0010] In addition, the rolling action between both parts (movable external portion and movable head) is produced by rolling of the upper central roller bearing and lower lateral ball bearings which allows the guide runner to be installed in very heavy drawers, the forces being distributed mostly on the upper wall, which produces less wear and prevents dents and gaps appearing between the components that make up the multipurpose drawer guide. The upper wall may have different geometric configurations depending on the requirements of the drawer in which it is installed, and can take the form of a flat surface or a slightly curved surface at the ends thereof.

[0011] Another advantage of the invention is that when the guide is operated in telescopic mode, the movable head of the intermediate portion houses inner ball bear-

ings in the four rounded inner corners thereof for rolling on a cruciform head with four faces of the fixed internal portion.

[0012] This configuration allows the movable head to be converted into the intermediate portion of the telescopic runner and there is therefore no need to produce an additional component.

[0013] Finally, another feature of the invention is that in another operating mode the movable head is connected to the internal fixed portion.

[0014] Owing to this configuration the position of the movable head can be fixed when used as a simple multipurpose drawer guide.

DRAWINGS AND REFERENCES

[0015] To better understand the nature of the invention, the accompanying drawings show a preferred embodiment which is a purely illustrative and non-limiting example.

Fig. 1 is a cross-sectional view in elevation of the drawer guide (1) in the simple mode showing how the rolling action between the movable external portion (3) and the movable head (7) is produced by means of an upper central roller bearing (5) and two lower lateral ball bearings (6).

Fig. 2 is a cross-sectional view in elevation of the telescopic drawer guide (10), showing the different rolling elements between the external movable portion (3), the intermediate portion (4) and the fixed internal portion (2). It also shows how the end of the fixed internal portion (2) terminates in a cruciform head (13) with four faces (14).

[0016] In these drawings, the following reference numerals are used:

1. Drawer guide.
2. Fixed internal portion.
3. Movable external portion.
4. Intermediate portion.
5. Upper central roller bearing.
6. Lower lateral ball bearings.
7. Movable head.
8. Upper wall.
9. Lower lateral cavity.
10. Telescopic guide.
11. Rounded inner corners.
12. Inner ball bearings.
13. Head.
14. Cruciform faces.
15. Item of furniture.
16. Drawer.

DESCRIPTION OF A PREFERRED EMBODIMENT

[0017] In relation to the drawings and reference nu-

merals listed above, a preferred embodiment of the subject matter of the invention is shown in the accompanying figures relating to a multipurpose drawer guide (1) of the type made up of at least one fixed internal portion (2) and a movable external portion (3), with the possibility of incorporating an intermediate portion (4) for telescopic guides (10). Fig. 1 shows the subject matter of the invention, in which the movable external portion (3) houses a combination of an upper central roller bearing (5) and lower lateral ball bearings (6) for rolling on a movable head (7) with an upper wall (8) and lower side cavities (9), the configuration and dimensions of the movable external portion (3) being capable of housing either the simple drawer guide (1) or the telescopic guide (10).

[0018] As can be seen in Fig. 1 and 2, this configuration allows the fixed external portion (3) to be fitted indiscriminately to simple (1) or telescopic (10) guide runners, reducing manufacturing and replacement costs as only one type of movable external portion (3) and movable head (7) needs to be produced.

[0019] Fig. 1 shows how the movable head is rigidly connected to the fixed internal portion (2), thus forming a simple drawer guide (1). The movable external portion (3) is connected to the drawer (16). When opening and closing the drawer (16) the movable external portion (3) moves relative to the fixed internal portion (2) owing to the rolling action produced between them by the use of an upper central roller bearing (5) and two movable lateral ball bearings (6).

[0020] Another feature of the invention, as can be seen in Fig. 2, is that provision is made when in telescopic guide (10) operating mode for the movable head (7) of the intermediate portion (4) to house inner ball bearings (12) in the four rounded inner corners (11) thereof for rolling on a cruciform head (13) with four faces (14) of the internal fixed portion (2).

[0021] Fig. 2 shows how in the telescopic drawer guide (10) operating mode, the movable head (7) of the intermediate portion (4) houses four inner ball bearings (12) in its interior to allow rolling on the fixed internal portion (2). To do this, a cruciform head (13) with four faces (14) is produced at the end of the fixed internal portion (2) on which the inner ball bearings (12) roll. This allows the movable external portion (3) and the movable head (7) to be the same in both operating modes.

[0022] Finally, another feature of the invention, as can be seen in Fig. 1, is that provision is made in another operating mode for the movable head (7) to be connected to the fixed internal portion (2).

[0023] Variations in the materials, form, size and arrangement of the constituent elements, which are described in a non-limiting manner, do not fundamentally alter this patent.

Claims

1. Multipurpose drawer guide of the type made up of

at least one fixed internal portion and a movable external portion, with the possibility of incorporating an intermediate portion for telescopic guides, **characterised in that** the movable external portion (3) houses a combination of an upper central roller bearing (5) and lower lateral ball bearings (6) for rolling on a movable head (7) with an upper wall (8) and lower lateral cavities (9), the shape and dimensions of the movable external portion (3) being capable of housing either the simple drawer guide (1) or the telescopic guide (10).

2. Multipurpose drawer guide according to claim 1, **characterised in that** in the telescopic guide operating mode (10) the movable head (7) of the intermediate portion (4) houses inner ball bearings (12) in the four rounded inner corners thereof (11) for rolling on a cruciform head (13) with four faces (14) of the fixed internal portion (2).
3. Multipurpose drawer guide according to claim 1, **characterised in that** in another operating mode the movable head (7) is connected to the fixed internal portion (2).

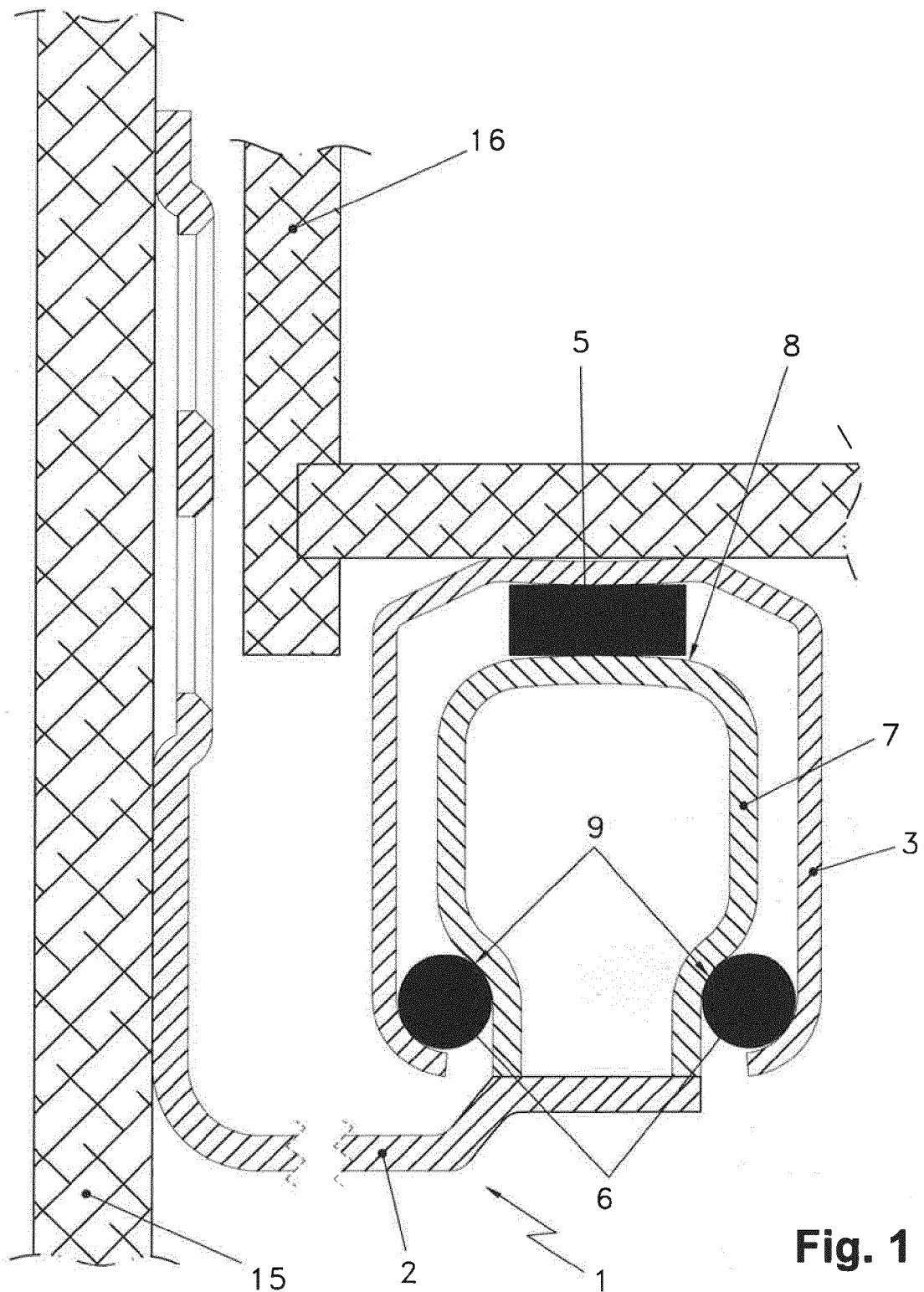


Fig. 1

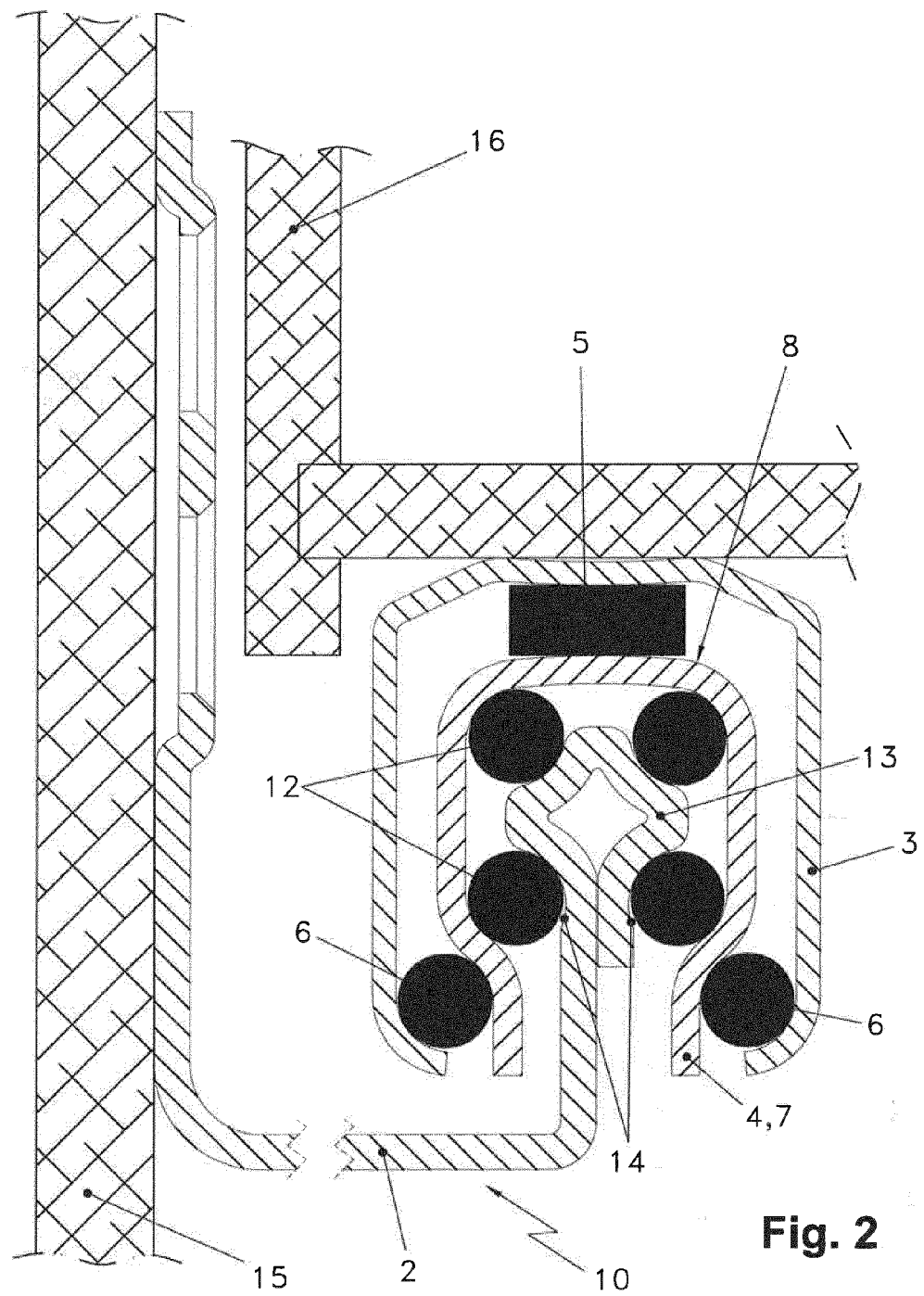


Fig. 2



EUROPEAN SEARCH REPORT

Application Number
EP 15 16 7993

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 7 866 772 B1 (CHEN YUNG-LIANG [TW]) 11 January 2011 (2011-01-11) * column 2, line 44 - column 3, line 9 * * column 3, line 29 - line 38 * * figures 5-10 *	1,2	INV. A47B88/10 A47B88/14
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A	* column 8, line 47 - column 9, line 49 *	2	
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			TECHNICAL FIELDS SEARCHED (IPC)
			A47B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 24 September 2015	Examiner van Hoogstraten, S
CATEGORY OF CITED DOCUMENTS 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		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	

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

EP 15 16 7993

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
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24-09-2015

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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.

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- ES 2200018 [0004]
- ES 2096465 [0005]
- ES 2245056 [0006]