Decelerator for roll guides of sliding units

A deceleration device (11) for roll guides of sliding units, such as drawers or the like, wherein said roll guides comprise a first fixed portion (12) of the guide, constrained to a piece of furniture, and a second movable portion (13) of the guide, constrained to a drawer, wherein the first fixed portion (12) of the guide has a first straight section (14) followed by a final shaped section (15) in which a wheel (16) is positioned, constrained to the end of the second movable portion (13) of the guide, when the drawer is completely closed. The device (11) comprises a plate (17), constrained to the piece of furniture by means of a screw and carrying a decelerating damping cylinder (26) whose piston (25) interacts with a buffer (24) integral with a hook cursor (19), in turn cooperating with the wheel (16) and sliding on the plate (17), elastic elements (30) being envisaged, which oppose the action of the decelerating damping cylinder (26), the hook cursor (19) having a limited run inside a slit (20) situated in the first fixed portion (12) of the guide.
Description

The present invention relates to a deceleration device for roll guides of sliding units, such as drawers and the like.

Closing devices equipped with decelerating systems for damping the speed of the parts of a piece of furniture immediately before its closing, are known and used in the furniture industry. This is aimed at avoiding both noise and impact and also preventing the latter from rapidly breaking the closing device.

Examples of these devices are provided in EP 1188397 and EP 391221, applied to box-like sectional slides, whereas for roll guides a similar solution is under study.

Deceleration systems for roll guides have currently been proposed, which consist of a mechanism, divided into two parts, a first part applied to the frame of the piece of furniture and the other part to the movable part.

This type of arrangement slows down the closing run in its last approximately 50 mm, but the device has a main drawback in its assembly. The user, in fact, must fix the mechanism onto the frame of the piece of furniture with two screws, and also a separate plastic element, which acts as actuator, on the drawer with a further two screws.

In other systems under implementation, attempts have been made to install the mechanism directly onto the movable part of the guide and weld an iron blade on the fixed part which acts as actuator.

This method is certainly more practical than the previous one, but still has various limitations:

- the guide which houses this type of mechanism is a special guide, as it has various folds for fixing the piece and it has a welded part on the movable guide. These guides cannot be used without a mechanism.
- most installers would prefer that the mechanism be assembled on the guide not at the exact moment of assembly, but subsequently, i.e. when all the characteristics of the piece of furniture have been defined.

A general objective of the present invention is therefore to solve all of the above drawbacks of the known art, in an extremely simple, economical and particularly functional way.

A further objective of the present invention is to provide a decelerating device for roll guides of sliding parts, such as drawers and the like, which consists of parts which are simple and can be easily assembled.

Another objective of the present invention is to provide a decelerating device for roll guides of sliding parts, such as drawers and the like, which minimizes the necessity of having to store various specific elements for the assembly of guides with or without the device.

Yet another objective is to provide a decelerating device for roll guides of sliding parts, such as drawers and the like, which can be assembled on the guide directly in the final phase, once the characteristics of the piece of furniture have been defined.

In view of the above objectives, according to the present invention, a decelerator for roll guides of sliding units, such as drawers and the like, has been conceived, having the characteristics specified in the enclosed claims.

The structural and functional characteristics of the present invention and its advantages with respect to the known art will appear more evident from the following description, referring to the enclosed drawings which show an embodiment of a decelerating device for roll guides of sliding units, produced according to the same invention.

In the drawings:

- figure 1 is a raised side view of a roll guide to which a decelerator for roll guides is applied, according to the present invention, in the position in which a drawer is half open;
- figure 2 is a raised view similar to that of figure 1, in which the arrangement of the parts is shown when the drawer is closed;
- figures 3 and 4 are enlarged views of details shown in figures 1 and 2, which provide a better understanding of the device of the invention;
- figure 5 is an enlarged perspective view from below of what is shown in figures 1 and 3, in which the second movable part of the guide has been removed.

With reference to the figures, these show a decelerating device for roll guides of sliding units, such as drawers or similar, indicated as 11.

The decelerating device 11 is provided, associated with parts of fixed guides constrained to a frame of a piece of furniture and parts of movable guides constrained to respective sides of a drawer (both not illustrated).

The provision of roll guides comprising a first fixed portion 12 of the guide, constrained to the piece of furniture, and a second moveable portion 13 of the guide, constrained to the drawer, is, in fact, envisaged at each side of the drawer. For each side, the first fixed portion 12 of the guide comprises a straight section 14 followed by a final shaped section 15 in which a wheel 16 is positioned, which is constrained to the end of the second movable portion 13 of the guide, once the drawer is completely closed.

The final shaped section which guarantees the closing of the drawer can alternatively be either a section 15 sloping downwards or a final convexity on the low fin of the fixed portion of the guide, whereas the high fin of the fixed part of the guide remains rectilinear.

The decelerator 11 comprises a supporting plate 17 constrained to the piece of furniture by means...
The plate 17 carries a slidingly guided hook cursor 19 which is inserted in the slit 20 situated in a longitudinal flap 21 of the fixed portion 12 of the guide in which the wheel 16 slides. The wheel 16 cooperates with the hook cursor 19 and acts on it, being housed in the same.

The slits 20 extend to an area comprising the final portion of the straight section 14 and, in succession, the final sloping section 15, forming the first fixed portion 12 of the guide.

The hook cursor 19 is connected by means of a pin 22 to a first end of a slide 23. The slide 23 has, at its opposite end, a buffer 24 for the piston 25 of a decelerating damping cylinder 26 integral with the plate 17 in a suitable seat 27.

Ends of a spiral spring 30, which cooperates in bringing the slide 23 to a closed-drawer position, shown in figures 2 and 4, are constrained, on one side, to an eyelet 28 integral with the slide 23 near the buffer 24 and, at the other side, to an eyelet 29 integral with the plate 17, in an almost opposite position. The spring 30 therefore defines elastic elements which oppose the action of the decelerating damping cylinder 26.

Figures 1 and 3 show how the open or half-open drawer, i.e. the second movable part of the guide 13, is higher (by about 2 mm in the example) with respect to the position of the closed drawer, as shown in figures 2 and 4. In the latter figures, in fact, it can be clearly observed that the wheels 16, by sliding in the final sloping section 15 of the first fixed portion 12 of the guide, cause a lowering of the second movable portion 13 of the guide and consequently of the drawer constrained to the same.

This decelerating device for roll guides is extended in said first fixed portion (12) of the guide. The device of the invention is hooked to the fixed portion 12 of the guide and then fixed by means of this screw to the frame of the piece of furniture. The actuator of the system is the wheel, for example generally having a diameter of 19 mm, integral with the movable portion 13 of the guide.

These modifications do not lead to any variation in the resistance and functioning of the guide and they can therefore be applied to the whole normal production.

Furthermore, they have no cost as there are only shearings to be effected on line, modifying the existing moulds for the production of the roll guides.

The elimination of the blade to be welded to the movable portion of the slide, for example, which, as already mentioned, is currently used in some applications of roll guides, should decrease the costs by eliminating the cost of said spot welding.

The objective mentioned in the preamble of the description has therefore been achieved.

The forms of the structure for producing a deceleration device for roll guides of sliding parts of the invention, as also the materials and the assembly modes, can obviously differ from those shown for purely illustrative and non-limiting purposes in the drawings.

The protection scope of the invention is therefore delimited by the enclosed claims.

Claims

1. A deceleration device (11) for roll guides of sliding units, such as drawers or the like, wherein said roll guides comprise a first fixed portion (12) of the guide, constrained to a piece of furniture, and a second movable portion (13) of the guide, constrained to a drawer, wherein the first fixed portion (12) of the guide has a first straight section (14) followed by a final shaped section (15) in which a wheel (16) is positioned, constrained to the end of the second movable portion (13) of the guide, when the drawer is completely closed, characterized in that said device (11) comprises a plate (17), constrained to the piece of furniture by means of a screw and carrying a decelerating damping cylinder (26) whose the piston (25) interacts with a buffer (24) integral with a hook cursor (19), in turn cooperating with said wheel (16) and sliding on said plate (17), elastic elements (30) being envisaged, which oppose the action of said decelerating damping cylinder (26), said hook cursor (19) having a limited run inside a slit (20) situated in said first fixed portion (12) of the guide.
2. The deceleration device (11) for roll guides according to claim 1, characterized in that said slit (20) is situated in a longitudinal flap (21) of the fixed portion (12) of the guide where the wheel (16) slides.

3. The deceleration device (11) for roll guides according to claim 1 or 2, characterized in that said slit (20) extends into an area comprising the final portion of said straight section (14) and in succession, said final shaped section (15) forming the first fixed portion (12) of the guide.

4. The deceleration device (11) for roll guides according to one or more of the previous claims, characterized in that said hook cursor (19) is connected by means of a pin (22) to a first end of a slide (23) which, at its opposite end, has said buffer (24) for said piston (25) of the decelerating damping cylinder (26).

5. The deceleration device (11) for roll guides according to one or more of the previous claims, characterized in that said elastic elements consist of a spiral spring (30) which is constrained, at one side, to an eyelet (28) integral with a slide (23) near said buffer (24) and on the other side, to an eyelet (29), integral with the plate (17) in an almost opposite position.

6. The deceleration device (11) for roll guides according to one or more of the previous claims, characterized in that said final shaped section of the first fixed portion (12) of the guide in which a wheel (16) is positioned, is a final section sloping downwards (15).
# EUROPEAN SEARCH REPORT

**Application Number**
EP 11 19 3160

## DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document with indication, where appropriate, of relevant passages</th>
<th>Relevant to claim</th>
<th>CLASSIFICATION OF THE APPLICATION (IPC)</th>
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<td>X</td>
<td>AT 507 186 A4 (FULTERER GMBH [AT]) 15 March 2010 (2010-03-15)</td>
<td>1-3,6</td>
<td>INV. E05F1/08</td>
</tr>
<tr>
<td>Y</td>
<td>* abstract; figures 14-24 *</td>
<td>4,5</td>
<td>E05F5/00 A47B88/04</td>
</tr>
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</table>

**TECHNICAL FIELDS SEARCHED (IPC)**
E05F A47B

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The present search report has been drawn up for all claims.

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<tr>
<th>Place of search</th>
<th>Date of completion of the search</th>
<th>Examiner</th>
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</thead>
<tbody>
<tr>
<td>The Hague</td>
<td>6 February 2012</td>
<td>Witasse-Moreau, C</td>
</tr>
</tbody>
</table>

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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 06-02-2012. The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

<table>
<thead>
<tr>
<th>Patent document cited in search report</th>
<th>Publication date</th>
<th>Patent family member(s)</th>
<th>Publication date</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT 507186 A4</td>
<td>15-03-2010</td>
<td>AT 507186 A4</td>
<td>15-03-2010</td>
</tr>
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<td></td>
<td>AU 2010201997 A1</td>
<td>23-12-2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EP 2174570 A1</td>
<td>14-04-2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NZ 585792 A</td>
<td>30-09-2011</td>
</tr>
<tr>
<td></td>
<td></td>
<td>US 2010066244 A1</td>
<td>08-04-2010</td>
</tr>
<tr>
<td>DE 20315124 U1</td>
<td>26-02-2004</td>
<td>NONE</td>
<td></td>
</tr>
</tbody>
</table>

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

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Patent documents cited in the description