DAMPENED OPENING GUIDE FOR SLIDING PARTS OF FURNITURE, SUCH AS DRAWERS OR THE LIKE

A dampened opening guide for sliding parts of pieces of furniture, such as drawers or the like, which comprises a fixed part (12) of the guide, constrained to a piece of furniture (14), and a movable part (13) of the guide, constrained to a drawer (15), said fixed part (12) of the guide and said movable part (13) of the guide being produced as two pairs arranged on opposite sliding parts of the drawer (15), a cage-like sliding element (16) being interposed between each fixed part (12) and each movable part (13), wherein said movable part (13) of the guide provides a rear stop (22) for the maximum opening of the drawer, in which close to said rear stop (22) the guide provides a damper (23) which is yielding, is positioned on said movable part (13) of the guide and, when the drawer is being opened, acts on a rear stop (24) of said cage-like sliding element (16).
Description

[0001] The present invention relates to a dampened opening guide for sliding parts of furniture, such as drawers or the like.

[0002] In recent years, there has been a continuous request for guides in metal furniture which, in addition to functioning well, minimize any problem relating to noise or any further impact generated in the opening and closing phases of the element on which they are installed, such as, for example, a drawer.

[0003] An example of these accessories so far developed consists of a device to be applied to a guide, composed of a fixed part and a movable part, which allows the drawer to be opened with a simple push.

[0004] In this way, by pressing the front of the drawer, the guide provided with this accessory should open the drawer at least partly automatically.

[0005] Furthermore, in the furniture field, guides composed of a fixed part and a movable part, equipped with deceleration devices, are known and used. These devices are provided for dampening the velocity of the parts of furniture in reciprocal movement a moment before the complete closure of the movable part of the same. This is to avoid both noise and impact and also to prevent the latter from rapidly causing breakage of the guides or elements connected thereto.

[0006] A further problem currently present in the guides used is that, when in the opening phase, a drawer reaches the end-stop where a specific mechanical end-stop is provided, generating noise. This noise is generally due to impact between the elements involved in this type of coupling.


[0008] WO 2014/056764 simply discloses a guide for sliding parts that provides three sliding sections equipped with end-stops formed integrally.

[0009] In particular, whereas it has previously been mentioned how elements have been created and introduced that slow down any possible impact when a drawer is being closed, thus making this coupling extremely silent, elements that eliminate this drawback also when a drawer is being opened, are not yet present on the market.

[0010] There is consequently a continuous request from the market for an improved technology that can make furniture manageable, in particular drawers, possibly by introducing new solutions.

[0011] In this respect, many attempts have been made in recent years for finding a correct and appropriate solution to the above problems.

[0012] The general objective of the present invention is therefore to solve the drawbacks of the known art indicated above in an extremely simple, economical and particularly functional manner.

[0013] A further objective of the present invention is to provide an opening guide that is noiseless and free of violent impact, for sliding parts of furniture, such as a drawer or the like, that can propose a device suitable for the purpose without introducing particular and costly modifications.

[0014] Another objective of the present invention is rather to find a particular solution that can be introduced without incurring significant costs and complex modifications on the guides.

[0015] In view of the above objectives, according to the present invention, a dampened opening guide for sliding parts of furniture such as drawers or the like has been conceived, having the features specified in the enclosed claims.

[0016] The structural and functional characteristics of the present invention and its advantages with respect to the known art will appear even more evident from the following description, referring to the enclosed drawings, which, inter alia, show a scheme of an embodiment of a dampened opening guide for sliding parts of furniture, such as drawers or the like, produced according to the same invention. In the drawings:

- figures 1 to 4 show four sectional views of a side of a dampened opening guide according to the present invention in four subsequent phases starting from the drawer in a closed position up to a drawer in a fully open and extracted position;
- figure 4a is a transversal section of the guide according to the invention;
- figure 5 is a particular enlarged sectional view of what is shown in figure 1 with the drawer in a closed position;
- figure 6 is a particular enlarged sectional view of what is shown in figure 4 with the drawer in a completely open and extracted position;
- figures 7 to 9 show perspective views of an end area of the movable part of the guide alone in which a damper is positioned according to subsequent phases illustrated;
- figure 10 is a perspective view of part of the guide according to the present invention showing the interaction between the damper, cage-like sliding element, movable and fixed guide.

[0017] With reference to the figures, these illustrate, at least partially, a dampened opening guide for sliding portions of furniture, such as drawers or the like, according to the present invention.

[0018] Said guide can be produced, for example, by coupling two metal section parts, between which rolling elements are interposed, such as spheres or rolls or hinged wheels, positioned in two spaced cage-like elements that facilitate the sliding of the two parts.

[0019] A guide of this type comprises a first fixed part 12 of the guide, constrained to a piece of furniture, schematized in 14, and a second movable part 13 of the guide, constrained to a drawer, schematized in 15.
Furthermore, a cage-like sliding element 16 is provided, interposed between the two parts, fixed 12 and movable 13, of the metal guide, produced in two pairs and positioned in opposite parts of the drawer 15 at its long sides. Said cage-like sliding element 16 is double, made for example of plastic material, and is conceived for facilitating the sliding and reciprocal translation of the movable part 13 on the other fixed part 12 of each side guide.

In the example shown, the fixed part 12 of the guide consists of a U-shaped section, of which a vertical side is constrained to the furniture 14 by means of a series of holes 17 in which screws or similar fixing elements (not shown) are positioned. The other vertical side of the U-shaped section is shorter and is folded outwardly in a longitudinal edge 18.

Rolling elements 19 forming part of the cage-like sliding element 16 made of plastic material, slide on said folded longitudinal edge 18.

The movable part 13 of the guide is composed of a square-shaped section, of which one of the lower horizontal sides 30 is interrupted by a longitudinal slot 20 in which the shorter side of the U-shaped section of the fixed guide 12 is inserted, together with the longitudinal edge folded outwardly. This movable part 13 of the guide has, at one of its ends, positioned inside an enlarged seat 21, a shaped rear stop 22, for example metallic, which forms an end-stop with maximum opening of the drawer 15 with respect to the furniture 14.

Furthermore, a damper 23 is inserted inside the cage-like sliding element 16 made of plastic material, slide on said folded longitudinal edge 18.

The damper 23 comprises a central body 25 from which a hook-end 26 protrudes, which is abutted on a flap 27 protruding upwardly from said enlarged seat 21 close to the rear stop 22. A leg 28 with an enlarged end 29 also extends radially from the central body 25 of the damper 23. The enlarged end 29 of the leg 28 is abutted below an upper horizontal side 31 of the square-shaped section of the movable part of the guide 13.

In the example shown, the damper 23 comprises a central body 25 from which a hook-end 26 protrudes, which is abutted on a flap 27 protruding upwardly from said enlarged seat 21 close to the rear stop 22 of the movable part 13 of the guide.

The damper 23 is in fact snap-inserted in the enlarged seat 21 so that its hook-end 26 is abutted on the flap 27 protruding upwardly from the enlarged seat 21 of the movable part 13 of the guide. The enlarged end 29 of the leg 28, which extends radially from the central body 25 of said damper 23, is contemporaneously abutted below the upper horizontal side 31 of the square-shaped section of the movable part of the guide 13.
Claims

1. A dampened opening guide for sliding parts of pieces of furniture, such as drawers or the like, which comprises a fixed part (12) of the guide, constrained to a piece of furniture (14), and a movable part (13) of the guide, constrained to a drawer (15), said fixed part (12) of the guide and said movable part (13) of the guide being produced as two pairs arranged on opposite sliding parts of the drawer (15), a cage-like sliding element (16) being interposed between each fixed part (12) and each movable part (13), wherein said movable part (13) of the guide provides a rear stop (22) for the maximum opening of the drawer characterized in that close to said rear stop (22) the guide provides a damper (23) which is yielding, is positioned on said movable part (13) of the guide and, when the drawer is being opened, acts on a rear stop (24) of said cage-like sliding element (16).

2. The guide according to claim 1, characterized in that said damper (23) is made of plastic material.

3. The guide according to claim 1 or 2, characterized in that said damper (23) is a spring.

4. The guide according to any of the claims from 1 to 3, characterized in that said damper (23) is inserted in a seat (21) produced close to said rear stop (22).

5. The guide according to claim 4, characterized in that said damper (23) is snap-inserted in said seat (21).

6. The guide according to one or more of the previous claims, characterized in that said damper (23) has a tapered part (32) facing said rear stop (24) of said cage-like sliding element (16) so as to be yielding.

7. The guide according to one or more of the previous claims from 1 to 6, characterized in that said damper (23) comprises a central body (25) from which a hook-end (26) extends, which is abutted on a flap (27) protruding upwards from a seat (21) formed close to said maximum opening stop of the drawer (22).

8. The guide according to claim 7, characterized in that said central body (25) of the damper (23) extends into a tapered leg (32) which protrudes freely in front of the damper (23) towards the interior of the movable part (13) of the guide.

9. The guide according to claim 7 or 8, characterized in that an enlarged end (29) of a further leg (28) is abutted beneath an upper horizontal side (31) of said movable part (13) of the guide.

10. The guide according to one or more of the previous claims, characterized in that said movable part (13) of the guide is a square-shaped section, whereas said fixed part (12) of the guide is a U-shaped section, of which a vertical side is constrained to the piece of furniture (14) whereas another vertical side of the U-shaped section is shorter and is folded into a longitudinal edge (18), rolling elements (19) of said cage-like sliding element (16) sliding on said folded longitudinal edge (18).
**DOCUMENTS CONSIDERED TO BE RELEVANT**

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<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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</table>

**TECHNICAL FIELDS SEARCHED (IPC)**

- A47B
- F24C

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

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<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>9 December 2016</td>
<td>Vehrer, Zsolt</td>
</tr>
</tbody>
</table>
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."

09-12-2016

<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>DE 202007014389 U1</td>
<td>13-03-2008</td>
<td>AT 536765 T</td>
<td>15-12-2011</td>
</tr>
<tr>
<td>DE 202007014389 U1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EP 2050358 A2</td>
<td></td>
<td></td>
<td>22-04-2009</td>
</tr>
<tr>
<td>ES 2379123 T3</td>
<td></td>
<td></td>
<td>23-04-2012</td>
</tr>
<tr>
<td>DE 102013102948 A1</td>
<td></td>
<td></td>
<td>26-06-2014</td>
</tr>
<tr>
<td>KR 20150068952 A</td>
<td></td>
<td></td>
<td>22-06-2015</td>
</tr>
<tr>
<td>US 2015252843 A1</td>
<td></td>
<td></td>
<td>10-09-2015</td>
</tr>
<tr>
<td>WO 2014056764 A1</td>
<td></td>
<td></td>
<td>17-04-2014</td>
</tr>
<tr>
<td>EP 2405786 B1</td>
<td>11-09-2013</td>
<td>DE 202009001963 U1</td>
<td>29-07-2010</td>
</tr>
<tr>
<td>EP 2405786 A2</td>
<td></td>
<td></td>
<td>18-01-2012</td>
</tr>
<tr>
<td>ES 2438716 T3</td>
<td></td>
<td></td>
<td>20-01-2014</td>
</tr>
<tr>
<td>US 2012014627 A1</td>
<td></td>
<td></td>
<td>19-01-2012</td>
</tr>
<tr>
<td>WO 2010102948 A2</td>
<td></td>
<td></td>
<td>16-09-2010</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

- DE 202007014389 U1 [0007]  
- WO 2014056764 A [0008]