



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
08.10.2008 Bulletin 2008/41

(51) Int Cl.:
E06B 9/60 (2006.01) **E05F 3/18 (2006.01)**

(21) Application number: **07425195.0**

(22) Date of filing: **03.04.2007**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK RS

(71) Applicant: **Gnaccarini, Mario**
10098 Rivoli (TO) (IT)

(72) Inventors:
• **Gnaccarini, Mario**
10098 Rivoli (TO) (IT)
• **Roccati, Mentino**
44015 Portomaggiore (FE) (IT)

(74) Representative: **Garavelli, Paolo**
A.BRE.MAR. S.R.L.,
Via Servais 27
10146 Torino (IT)

(54) **Spring-holder device for rolling gates or rolling doors and process for manufacturing such device**

(57) A spring-holder device for rolling gates or rolling doors is described, comprising two flanges (1), each one equipped with a guard (3) containing therein a ring-shaped element (7) adapted to allow sliding therein a supporting shaft of the rolling gates or rolling doors, and

with a plurality of spacer elements (5): in such spring-holder device, each one of the flanges (1) is made in a single piece with its own respective guard (3) and its own respective spacer elements (5). A process is further described for manufacturing such spring-holder device.

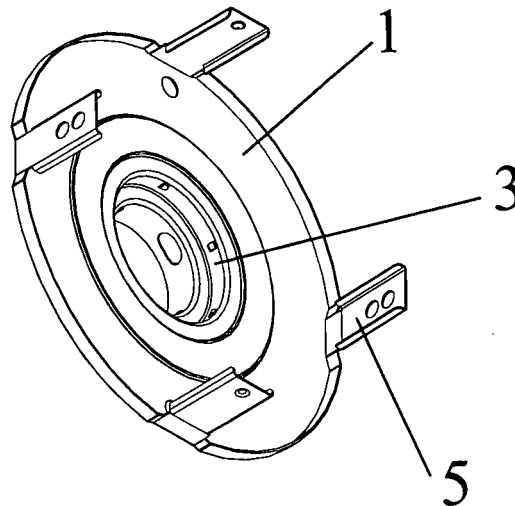


Fig. 1

Description

[0001] The present invention refers to a spring-holder device for rolling gates or rolling doors and to a process for manufacturing such device.

[0002] This type of device is known in the art and is composed of different types of parts, namely two closing and supporting flanges, two guards that operate as seat for a ring that allows rotating on a rod and a plurality of elements for spacing and joining the two plates.

[0003] The presence of such a high number of components makes the manufacturing steps of this device long and costly: in fact, in addition to building the various parts separately, they must then be joined together through various procedures, more or less automated, that increase production times and costs.

[0004] Object of the present invention is solving the above prior art problems, by providing a spring-holder device that can be made of four components only, that, among the other things, are perfectly identical, in pairs, one with the other, highly decreasing the manufacturing costs of the device itself.

[0005] A further object of the present invention is providing a process for manufacturing the above mentioned device that is completely automated and that allows obtaining the two main components in a single pass, through a consecutive series of progressive forming operations that transform a starting band of plate into the final, complete three-dimensional product.

[0006] The above and other objects and advantages of the invention, as will clearly appear from the following description, are obtained with a spring-holder device and a process for manufacturing such device as described in the respective independent claims. Preferred embodiments and non-trivial variations of the present invention are the subject matter of the dependent claims.

[0007] The present invention will be better described by some preferred embodiments thereof, provided as a non-limiting example, with reference to the enclosed drawings, in which:

- Figure 1 is a top perspective view of a flange of the device of the present invention;
- Figure 2 is a bottom perspective view corresponding to Figure 1;
- Figure 3 is a top perspective view of a ring of the device of the present invention;
- Figure 4 is a bottom perspective view corresponding to Figure 3;
- Figure 5 is a top perspective view of a flange-ring assembly of the device of the present invention;
- Figure 6 is a bottom perspective view corresponding to Figure 5;
- Figure 7 is a top perspective view of a final embodiment of the device of the present invention as assembled; and
- Figure 8 is a bottom perspective view corresponding to Figure 7.

[0008] With reference to the Figures, a preferred embodiment of the device of the invention will be described; it will be immediately obvious for a skilled person in the art how the present invention can be made in shapes, sizes, characters and details even very different from the shown ones, but anyway such as to fall within the scope of the enclosed claims.

[0009] The spring-holder device for rolling gates of the present invention is commonly composed of two protecting and supporting flanges 1 for the rolling gates or rolling doors (not shown) or other products of this type. In each one of such flanges 1, a suitable guard 3 is obtained, that operates as support and guard for a ring-shaped element 7, usually made in a single piece of plastic material (or operating as rolling bearing), inside which the supporting shaft of rolling gates or rolling doors is placed, that is adapted to rotate inside such ring-shaped element 7.

[0010] Finally, a plurality (usually four) spacers 5 are provided, that keep separated and at the same time join the two flanges 1 in order to obtain between them a space to wind therein the spring of the device that actuates the rolling gates or rolling doors.

[0011] The peculiar characteristic of the spring-holder device of the present invention is that flange 1, guard 3 and spacers 5 are made in a single piece, adapted to be coupled with another piece, made in the same way, in order to form the complete device. To each one of the two above-mentioned pieces, it is enough to add the ring-shaped element 7, by inserting it into its suitable guard 3, and, after having joined the two parts (for example through riveting or fastening the respective, mutually coupled spacers 5), it is possible to obtain the final spring-holder device with a quick and inexpensive assembling operation.

[0012] As regards manufacturing the single-piece part composed of flange 1, guard 3 and spacers 5, a drawing forming is employed, by commonly using a progressive, multi-figures or transfer die. The steps of such process are:

- providing a band of starting material;
- making the flange 1, by forming the band;
- making the guard 3, by forming the flange 1;
- providing the ring 7;
- inserting the ring 7 into the guard 3;
- drawing the guard 3 in order to prevent the ring 7 from going out of the guard 3;
- making the spacer elements 5, by forming the flange 1;
- overturning the spacer elements 5 so that they remain perpendicular to the plane of the flange 1; and
- mutually coupling two of such flanges 1 next to their respective spacer elements 5.

[0013] In particular, the step of inserting the ring 7 into the guard 3 can be performed through mechanical means (for example a mechanical arm laterally placed with respect to the line on which the band of material being

worked is sliding) for gripping the ring 7 and placing it into the guard 3.

[0014] Moreover, the step of mutually coupling the flanges 1 is performed by riveting or fastening every respective spacing element 5 with which they are equipped.

Claims

1. Spring-holder device for rolling gates or rolling doors comprising two flanges (1), each one of said two flanges (1) being equipped with a guard (3) containing therein a ring-shaped element (7) adapted to allow sliding therein a supporting shaft of said rolling gates or rolling doors, and with a plurality of spacer elements (5), said two flanges (1) being adapted to be mutually coupled by mutually joining their respective spacer elements (5), said spring-holder device being **characterised in that** each one of said flanges (1) is made in a single piece with its own respective guard (3) and its own respective spacer elements (5). 10
2. Spring-holder device according to claim 1, **characterised in that** each one of said flanges (1) has a circular shape and said spacer elements (5) are four and are placed in positions at a same distance around the circumference of each one of said flanges (1). 15 25
3. Spring-holder device according to claim 1, **characterised in that** said spacer elements (5) are adapted to be mutually joined through riveting or fastening. 30
4. Process for manufacturing a spring-holder device according to claim 1, said process comprising the steps of: 35
 - providing a band of starting material;
 - making said flange (1), by forming said band;
 - making said guard (3), by forming said flange (1) ; 40
 - providing said ring (7);
 - inserting said ring (7) into said guard (3);
 - drawing said guard (3) in order to prevent said ring (7) from going out of said guard (3); 45
 - making said spacer element (5), by forming said flange (1);
 - overturning said spacer elements (5) so that they remain perpendicular to the plane of said flange (1); and 50
 - mutually coupling two of said flanges (1) next to their respective spacer elements (5).
5. Process according to claim 4, **characterised in that** said step of inserting said ring (7) into said guard (3) is performed through mechanical means for gripping said ring (7) and placing said ring (7) into said guard (3). 55
6. Process according to claim 4 or 5, **characterised in that** said step of mutually coupling said flanges (1) is performed by riveting every spacer element (5) with which they are equipped.
7. Process according to claim 4 or 5, **characterised in that** said step of mutually coupling said flanges (1) is performed by fastening every respective spacing element (5) with which they are equipped.
8. Process according to any one of claims 4 to 7, **characterised in that** said forming steps are performed by using a progressive, multi-figures or transfer die.

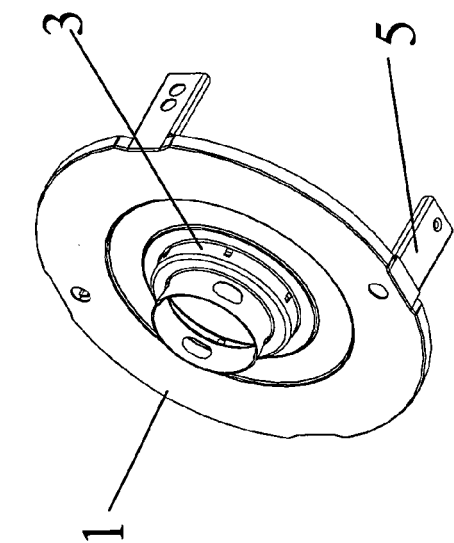


Fig. 1

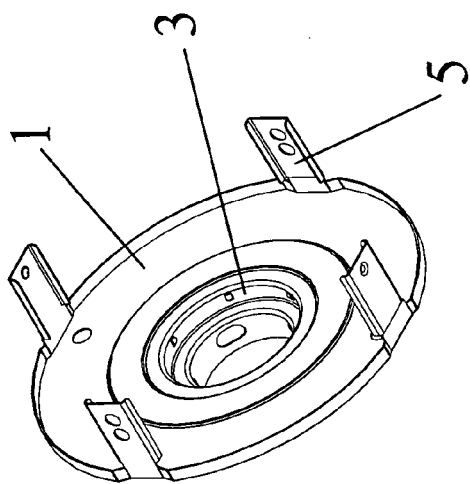


Fig. 2

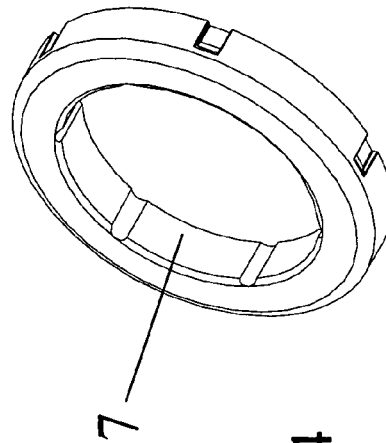


Fig. 3

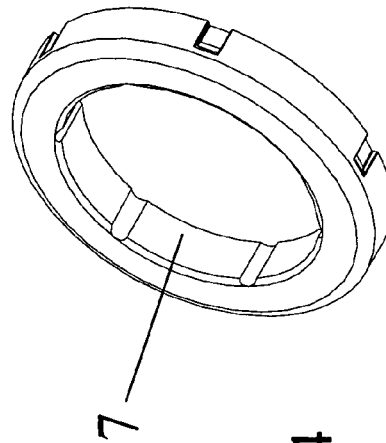


Fig. 4

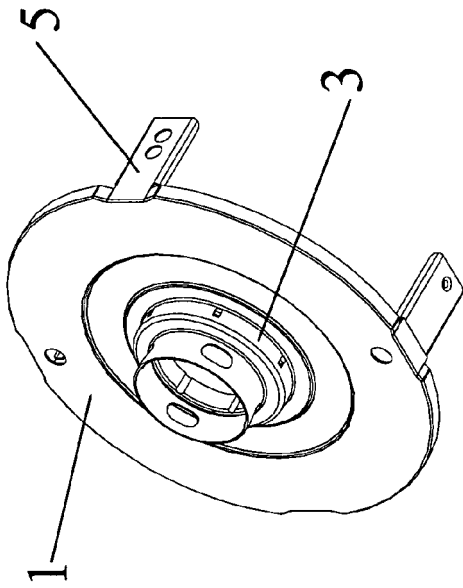


Fig. 6

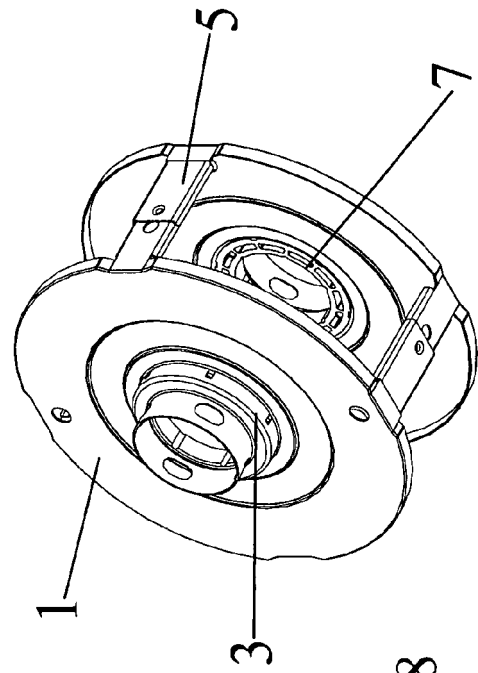


Fig. 8

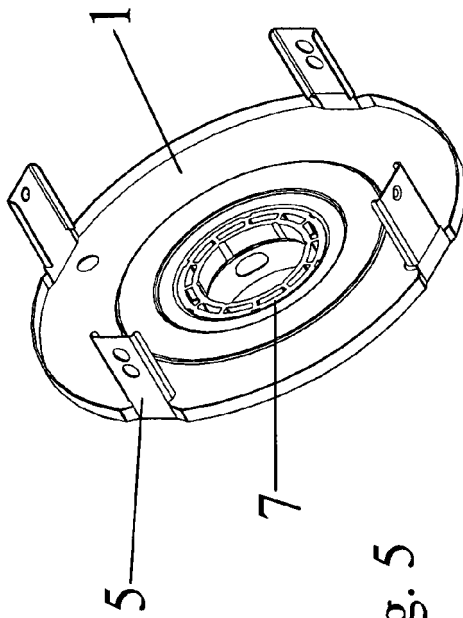


Fig. 5

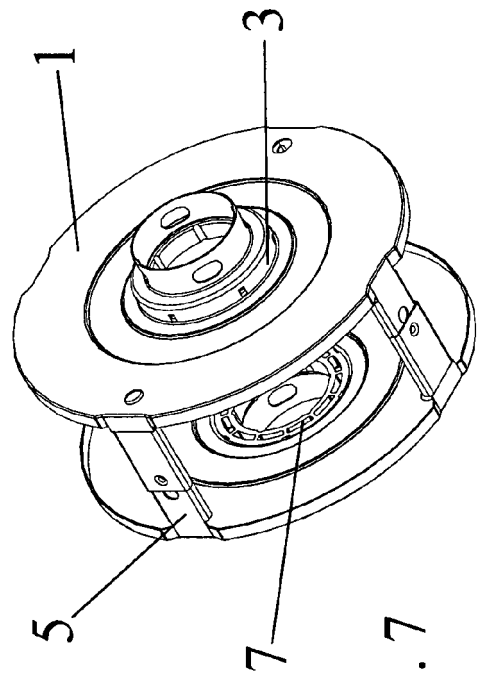


Fig. 7



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 42 5195

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	FR 2 691 745 A1 (WALLET PIERRE [FR] WALLET PIERRE) 3 December 1993 (1993-12-03) * page 4, line 19 - line 37; figure 1 *	1,4	INV. E06B9/60
A	EP 1 270 866 A (BMJ S A R L [FR]) 2 January 2003 (2003-01-02) * paragraph [0049]; figure 6 *	1,4	ADD. E05F3/18
			TECHNICAL FIELDS SEARCHED (IPC)
			E06B E05D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 4 September 2007	Examiner Peschel, Gerhard
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			

3
EPO FORM 1503 03.82 (P04C01)

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

EP 07 42 5195

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.

04-09-2007

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
FR 2691745	A1	03-12-1993	NONE	
EP 1270866	A	02-01-2003	FR 2826688 A1	03-01-2003