



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
29.02.2012 Bulletin 2012/09

(51) Int Cl.:
F24B 1/192 (2006.01)

(21) Application number: **11178754.5**

(22) Date of filing: **25.08.2011**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
 Designated Extension States:
BA ME

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(30) Priority: **27.08.2010 SK 500652010 U**

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(54) **Device for movement of sliding door in fireplace inserts and fireplace stoves**

(57) Device for movement of sliding door in fireplace inserts and fireplace stoves containing a door (1), a counterweight (2), sheaves (3), a joining element between the door and the counterweight, which is a wire strand (4), guideway (6) of the door (1). The sheaves (3) are conju-

gated, each of them is divided by a divide (X) into right part and left part and on the divide (X) the conjugated sheave (3) is firmly connected with the wire strand (4), wherein the conjugated sheaves (3) are connected with the joining element (5).

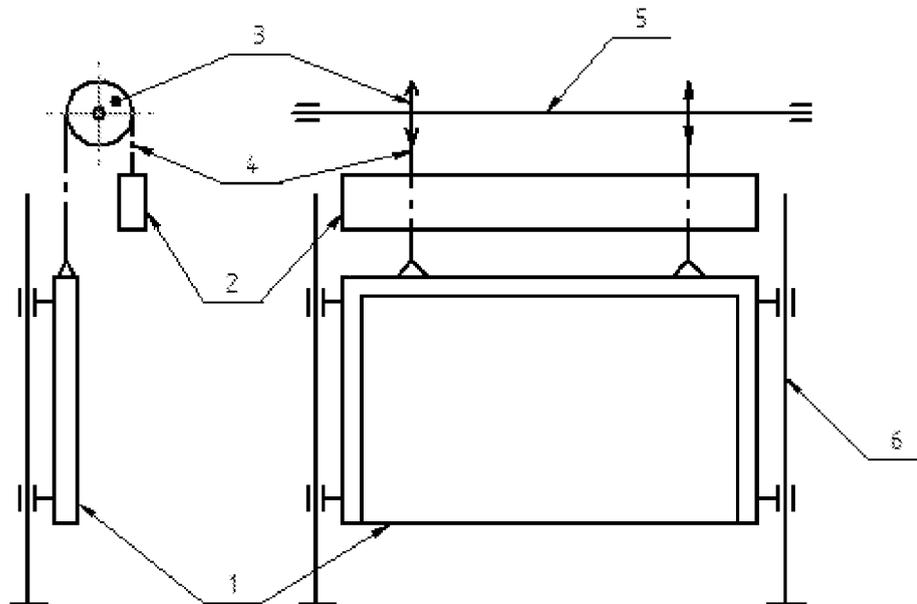


Fig. 1

Description

Technical Field

[0001] Technical solution concerns a device for movement of a sliding door in fireplace inserts and fireplace stoves for ensuring expressly defined position of sliding door in fireplace inserts and fireplace stoves during sliding of the door.

Background Art

[0002] Various variants of balancing systems based on joined or divided weight, joined or divided shaft with chain wheels or rope sheaves are currently used for uniform and smooth movement of sliding door in fireplace inserts and fireplace stoves.

[0003] As a joining element between the door and the counterweight roller chain or metal wire strand is used.

[0004] Noise and need to regularly grease the chain, which loses its flexibility by withering and burnout of oil, are disadvantages of the variant using the roller chain and the chain wheels. Moreover, jam of the door occurs during random shifting of the chain against chain wheel in coupled chain wheels.

[0005] Inaccurate guiding and balancing of the door due to mutual slipping of wire strand and sheave, which increases the requirements for accuracy of guiding of the door itself, are disadvantages of the variant using the wire strand and sheaves.

[0006] The objective of the technical solution is to eliminate said deficiencies and improve utility parameters mentioned above with the emphasis on user comfort.

Disclosure of the Invention

[0007] Mentioned deficiencies are considerably eliminated by construction of the device for movement of sliding door in fireplace inserts and fireplace stoves for ensuring expressly defined position of sliding door in fireplace inserts and fireplace stoves during sliding of the door, containing sheaves, a counterweight and a joining element between the door and the counterweight which is a wire strand, the nature of which is that it contains at least two conjugated sheaves. Each of the sheaves is divided by a divide into right part and left part. On the divide dividing each conjugated sheave into right part and left part the conjugated sheave is firmly connected with the joining element, which is the wire strand, and the conjugated sheaves are connected with the joining element. The divide is any element on the conjugated sheave, by which the joining element is fastened on the conjugated sheave, for example the wire strand. Such element may be, for example, protrusion, aperture, screw etc.

[0008] It is preferable, if at least one coil of the wire strand is wound on the both sides of conjugated sheaves, wherein the number of coils of the wire strand corre-

sponds to the required trajectory of door lift and the movement of the counterweight.

[0009] The firm connection of the wire strand with the conjugated sheaves on their divide prevents slipping of the wire strand towards the sheave and thereby firm kinematical link between the wire strand and the sheave is achieved.

[0010] By this technical solution is achieved accurate guiding and balancing of the door, which reduces requirements for accuracy of guiding of the door itself, reduces failure rate of the door movement and increases user comfort of the fireplace inserts and the fireplace stoves.

Overview of Figures in Drawings

[0011] The present state of art is explained in detail by Figures 1 and 2 in which:

- Fig. 1 shows in a simplified manner the chain or wire strand mechanism of the balancing of the door with the connecting shaft between the chain wheels or the sheaves. The counterweight is one unit.
- Fig. 2 shows in a simplified manner the chain or the wire strand mechanism of the balancing of the door without the connecting shaft between the chain wheels or the sheaves and the counterweight is divided into more parts.

[0012] In Fig. 1 and Fig. 2 the sliding door (1), the counterweight (2), the chain wheels or the sheaves (3), the chain or the wire strand (4), the joining element between the chain wheels or the sheaves (3), the linear guideway of the door (6) are marked.

[0013] The technical solution is explained in more detail in Fig. 3 with the detail A.

Example of Embodiment of Technical Solution

[0014] Overall assembly of the sliding door in the fireplace inserts and the fireplace stoves with the device for the movement of the sliding door in the fireplace inserts and the fireplace stoves for ensuring expressly defined position of the sliding door in the fireplace inserts and the fireplace stoves during their sliding is shown in a simplified manner in Fig. 3.

[0015] The assembly consists of the door 1, the counterweight 2, the conjugated sheave 3, the metal wire strand 4, the joining element 5 between the conjugated sheaves 3 representing their firm kinematical link and linear guideway 6 of the door 1. On the conjugated sheave 3, on right and left part, the required number of wire strand 4 coils is wound, which corresponds to the required trajectory of the door 1 lift and the movement of the counterweight 2. The wire strand 4 is on the divide X between the right and the left part of the conjugated sheave 3 firmly connected with the sheave. This firm connection prevents slipping of the wire strand 4 towards the conjugated sheave 3 and thereby the kinematical link

between the sliding door 1 and the weight 2 is formed by means of the conjugated sheave 3 and the wire strand 4, which incorporates the advantages of using the roller chain + the chain wheel and the simple sheave + the wire strand, whereby eliminating their disadvantages. The divide X is in this case constructed as a screw connection of the wire strand with the sheave on the flange. 5

Claims 10

1. Device for movement of sliding door in fireplace inserts and fireplace stoves containing a door (1), a counterweight (2), sheaves (3), a joining element between the door and the counterweight, which is a wire strand (4), guideway (6) of the door (1), **characterized in that** the sheaves (3) are conjugated sheaves (3), each of which is divided by a divide (X) into right part and left part and on the divide (X), the conjugated sheave (3) is firmly connected with the wire strand (4), wherein the conjugated sheaves (3) are connected with the joining element (5). 15
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2. Device for movement of sliding door according to claim 1, **characterized in that** at least one coil of the wire strand (4) is wound on each side of the conjugated sheaves (3) and the number of coils of the wire strand (4) corresponds to the required trajectory of the door (1) lift and to the movement of the counterweight (2). 25
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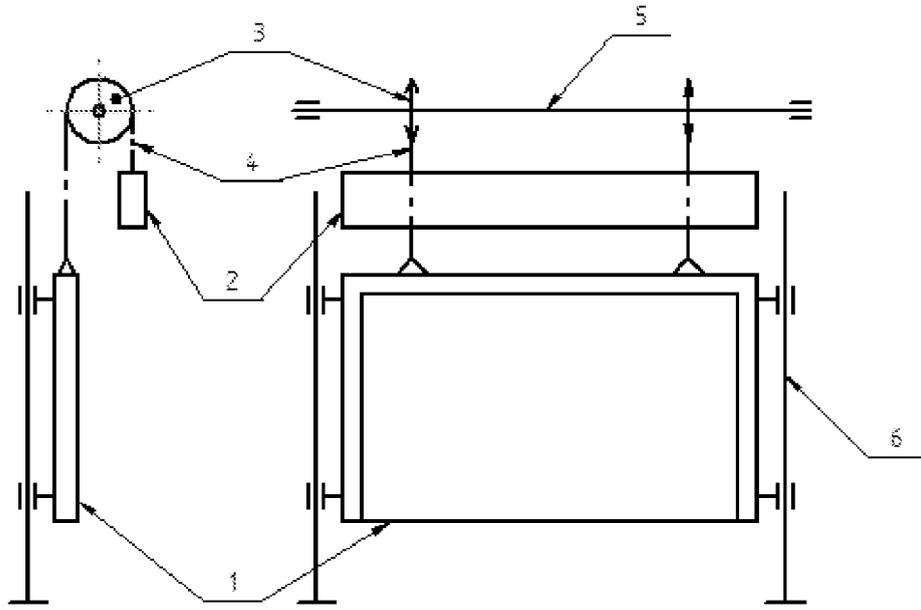


Fig. 1

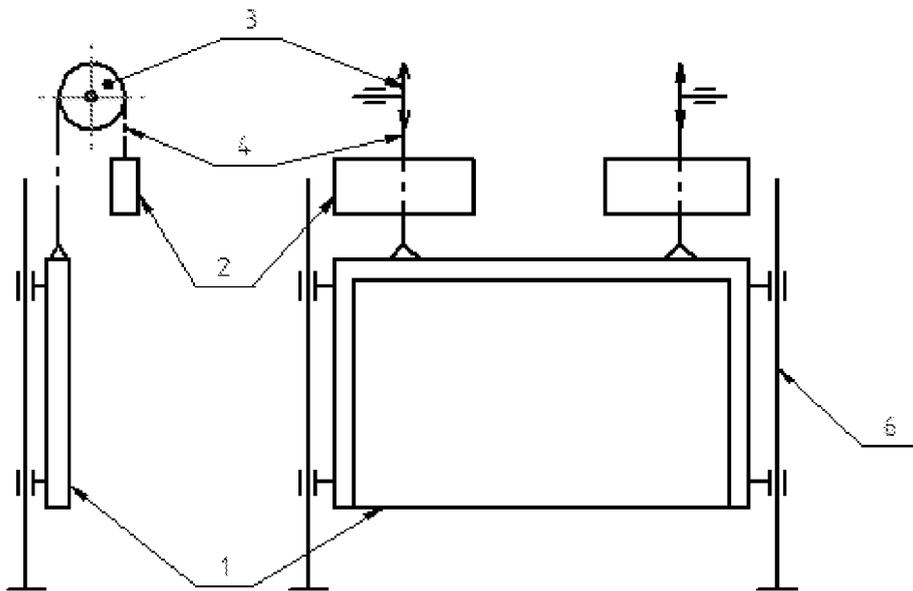


Fig. 2

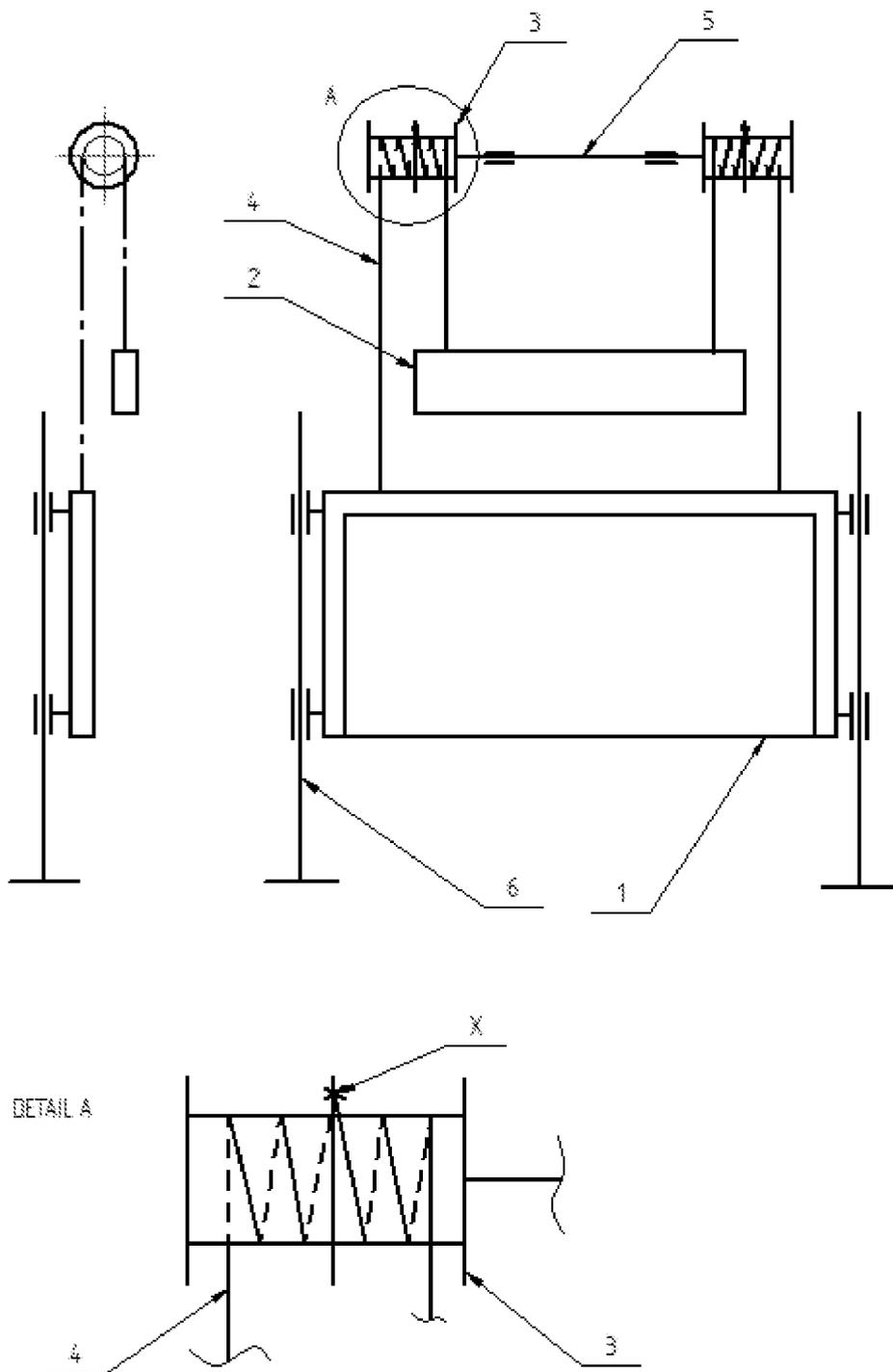


Fig. 3



EUROPEAN SEARCH REPORT

Application Number
EP 11 17 8754

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 6 125 773 A (COBLE GARY L [US]) 3 October 2000 (2000-10-03) * figures 1-4 * -----	1,2	INV. F24B1/192
			TECHNICAL FIELDS SEARCHED (IPC)
			F23M F24B F27D E05D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 4 January 2012	Examiner Adant, Vincent
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	

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EPO FORM 1503 03.82 (F04C01)

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

EP 11 17 8754

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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04-01-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6125773	A	NONE	

EPO FORM P0469

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