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(54) **DOOR LOCK SYSTEM, OF AN OVEN IN PARTICULAR**

(57) The present invention concerns a door locking system, of an oven in particular, comprising a locking mechanism fixed on the front of the appliance body, equipped with a slider ended with a holder and spring and an accompanying catching element fixed to the door of the appliance. The door-locking system is characterized in that the helical cylindrical spring **13** and the cylindrical tip **14** of the slider **15** are slid over the guide **12** in the base **10**, made of a flat bar, the ends of which are

twice bent at right angles so that the first bent sections form vertical walls **11**, to which attached are the ends of the guide **12**, and the distal sections are bent outwards and have the mounting holes **13**. The middle part of the slider **15** has the shape of a flat hook. Catching element rigidly fixed to the top of the panel **4** of the door **5** is a pin **3**, which in the appliance door closed position is located in the space limited by the inner edges of the hook.

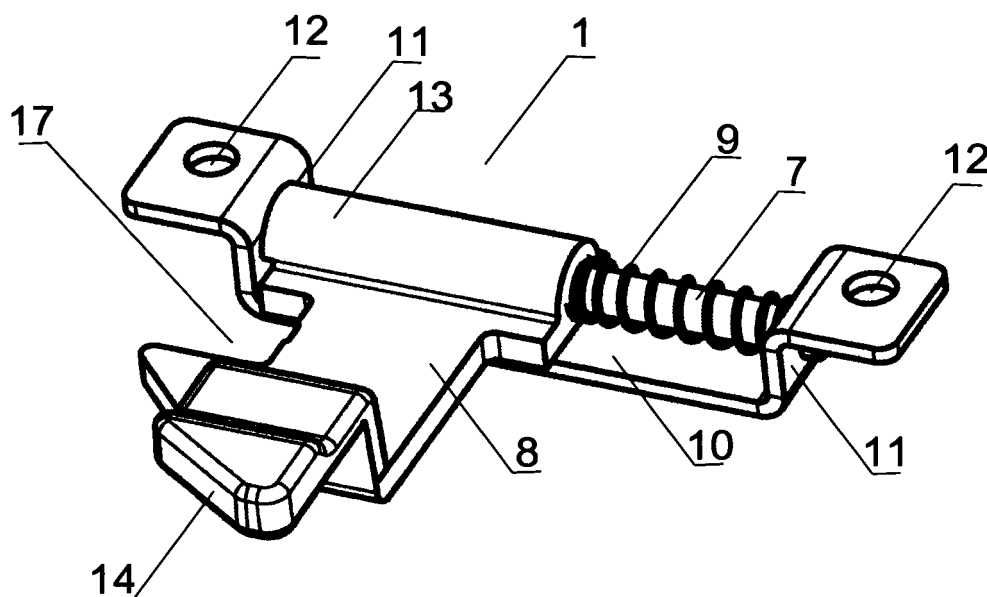


Fig. 2

Description

[0001] The invention concerns a door lock system, designed for mechanical door lock, of an oven cavity in particular. The lock prevents opening the door of the oven or other equipment operating at an elevated temperature, for example by a child. The use of the lock in the door of this type of equipment is to reduce the risk of burns when opening the door unattended during operation.

[0002] There are known and used very different types of mechanisms preventing opening the appliance door during operation, consisting of a locking mechanism, often of a fairly high degree of complexity and the catching element jointly operating during door opening and closing. In known solutions, the locking mechanism is sometimes installed in the appliance door, and the catching element in the front wall, or alternatively, the locking mechanism is installed in the front wall and the catching element in the appliance door. A catch or latch of the locking mechanism normally operates on a spring which tries to move it to the locking position.

[0003] In the solution known from a German patent DE 3935597, a locking mechanism built inside the oven door panel is provided with a latch on a spring and a slider ended with a handle on the outer side of the door panel and operating in a direction perpendicular to the plane of the oven door. The catching element comprises an aperture in the bracket fixed to the front wall of the oven and an outwardly projecting above the door. The latch inserted into the opening of the catching element locks the oven door. The slider of the locking mechanism controls the position of the latch and locks its position when released.

[0004] The aim of the present invention was to develop an uncomplicated mechanical system, effectively hindering opening the door while the appliance is in operation, that is easily installed in the appliance and easily removed, and also characterized by an aesthetic appearance and a low cost of manufacture.

[0005] Door lock system, of an oven in particular, according to the invention consists of a locking mechanism fixed to the front part of the appliance body, equipped with a slider ended with a holder and spring, and the accompanying catching element fixed to the appliance door, characterized in that the helical cylindrical spring and the cylindrical end of the slider are slid over the guide in the base of the locking mechanism. The base is made of a flat bar, the ends of which are twice bent at a right angle so that the first bent sections form vertical walls to which are fixed the ends of the guide, and the distal sections are bent outwards and have mounting holes for fixing the locking mechanism to the front part of the appliance body. The middle part of the slider has the shape of a flat hook working with the catching element rigidly fixed to the upper part of the appliance door panel. The catching element is a pin which, in the closed position of the appliance door, is located in the space limited by the inner edges of the hook, preventing the appliance door

opening. To unlock the door, move the slider with the handle in the opposite direction to the return action of the spring, in order to move the hook and release the pin.

[0006] Door-locking system according to the invention consists of a small number of elements of a simple design. Additional advantages of the system according to the invention is the ease of installation and removal of the locking element (mechanism), by screwing or unscrewing two screws. The feasibility of making the locking mechanism from plastic ensures quiet lock operation and aesthetic design.

[0007] The invention is further explained in an embodiment based on a drawing, in which Fig. 1 shows an overall view of the front part and door of the oven with the installed elements of the locking system, Fig. 2 is an axonometric view of the locking mechanism, Fig. 3 is a view of the door lock system in locked position, Fig. 4 is a view of the door lock system in unlocked position, and Fig. 5 is a view of the locking system in cross-section, in a plane perpendicular to the oven door and passing through the centre of the pin.

[0008] Oven door lock system **6** consists of a locking mechanism **1**, fixed to the front wall **2** of the oven, jointly operating with a pin **3** rigidly fixed to the top of the panel **4** of the door **5**, which is a catching element of the door lock system **6**. The locking mechanism **1** consists of a guide **7**, slider **8**, and spring **9**, built in the base **10**. The base of the locking mechanism **10** is made of a flat bar, the ends of which are twice bent at a right angle so that the first bent sections form vertical walls **11** between which there is a guide **7**, and the distal sections are bent outwards and have mounting holes **12** for fixing the base **10** to the front part of the appliance **2**. A helical cylindrical spring **9** and the cylindrical end **13** of the first end of the slider **8** are slid over the guide **7**. The slider **8** can move linearly along the guide **7** in the range limited by a side wall **11** of the base **10** and spring **9**, which holds the slider **8** in the most outward position, pushing the slider **8** to the side wall **11**. The other end of the slider **8** is permanently attached to the handle **14** for slider **8** operation. The middle flat part of the slider **8** has a rectangular shape and its end has the shape of a rectangular trapezoid, adjacent to the central part with its longer base in such a way that the right side of the trapezoid is an extension of the rectangle side, and the shorter base equal to the width of the central part of the slider **8** is connected to the handle **14**. The protruding edge **15** of the base of the trapezoidal end of the slider **8** with the edge **16** of the central part of the slider **8** creates a hook **17** of the locking mechanism **1**. When closing the oven door **5**, the pin **3** presses the edge of the side of the trapezoidal end of the slider **8** moving the slider **8** in the opposite direction to the return force of the spring **9** to the lock position after closing the appliance door, in which the slider **8** is pushed by the spring **9** to the side wall **11** of the base **10** of the locking mechanism **1**. In this position the slider **8**, hook **17** catches the pin **3**, making it impossible to open the door. To unlock the door, move the handle **24** of the slider

8 in the opposite direction to the return force of the spring
9 to move the hook 17 and release the pin 3.

Claims

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1. Door lock system, of an oven in particular, comprising a locking mechanism fixed to the front part of the appliance body, equipped with a slider ended with a holder and spring, and the accompanying catching element fixed to the appliance door, **characterized in that** the helical cylindrical spring (13) and the cylindrical tip (14) of the slider (15) are slid over the guide (12) in the base (10), made of a flat bar, the ends of which are twice bent at right angle so that the first bent sections form vertical walls (11), to which attached are the ends of the guide (12), and the distal sections are bent outwards and have mounting holes (13), wherein the middle part of the slider (15) has the shape of a flat hook, and the catching element is rigidly fixed to the top of the panel (4) of the door (5), which is a pin (3) that in the appliance door closed position is located in the space limited by the inner edges of the hook.
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2. Door lock system, of an oven in particular, according to claim 1, **characterized in that** the slide (15) is made of plastic.

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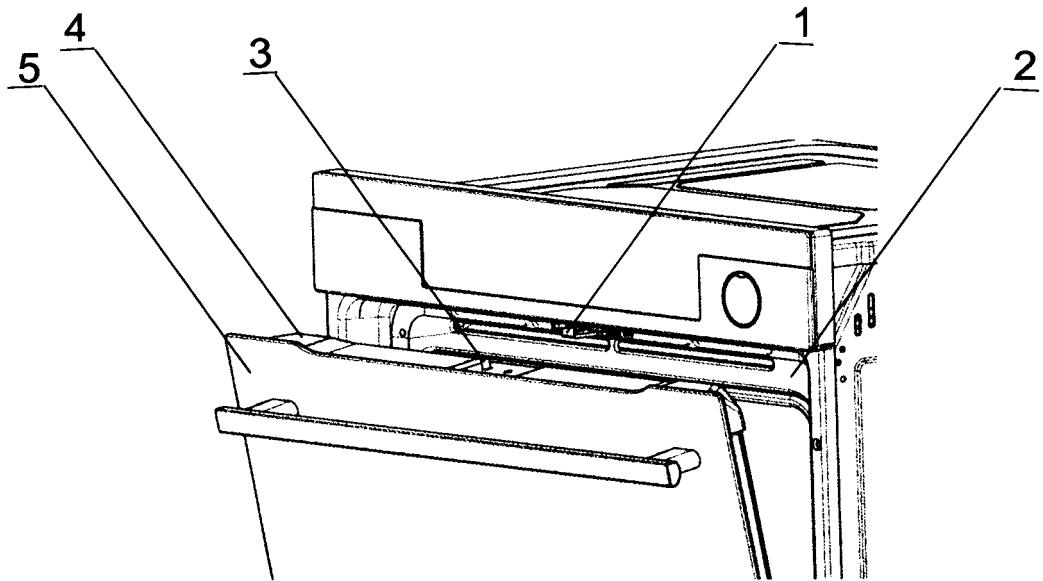


Fig. 1

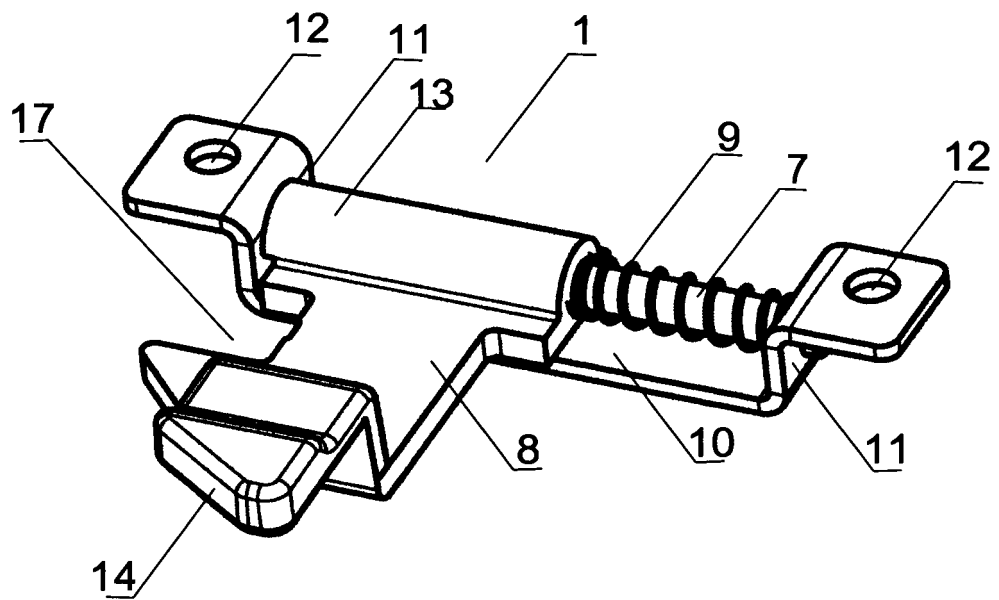


Fig. 2

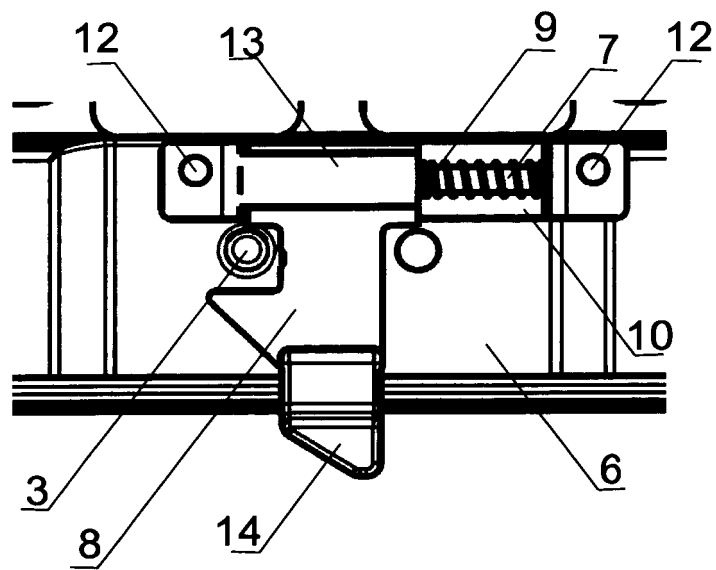


Fig. 3

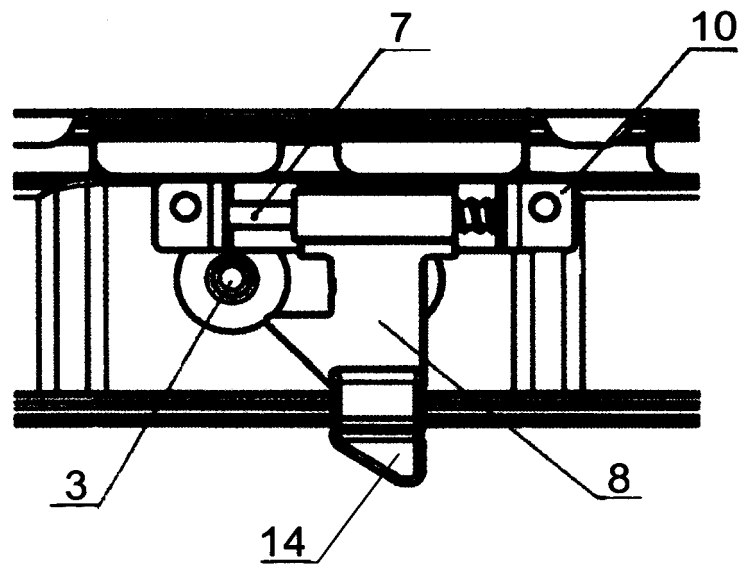


Fig. 4

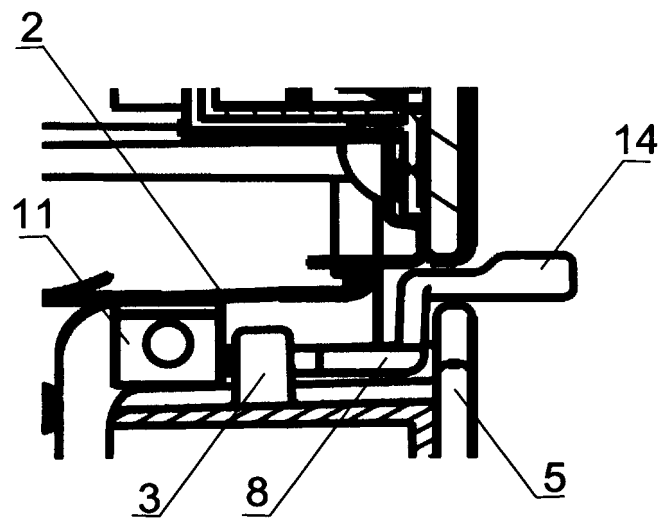


Fig. 5



EUROPEAN SEARCH REPORT

Application Number
EP 19 46 0012

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Place of search The Hague		Date of completion of the search 4 July 2019	Examiner Moreno Rey, Marcos
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			

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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