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(54) **Oven, having at least two cooking cavities**

(57) The invention relates to an oven (1), having at least two cooking cavities (2, 3) which are closable by doors (4, 5), wherein locking means (6) are arranged for locking the doors (4, 5), especially during a pyrolytic operation in the cavities (2, 3). To facilitate the locking of the doors especially during the pyrolytic process, the in-

vention is **characterized in that** the locking means (6) comprise a bar element (7) which can engage into a reception (8) for locking one of the doors (4), wherein the locking means (6) further comprise coupling means (9) which are actuated by the bar element (7) and which lock the at least one other door (5) when being actuated.

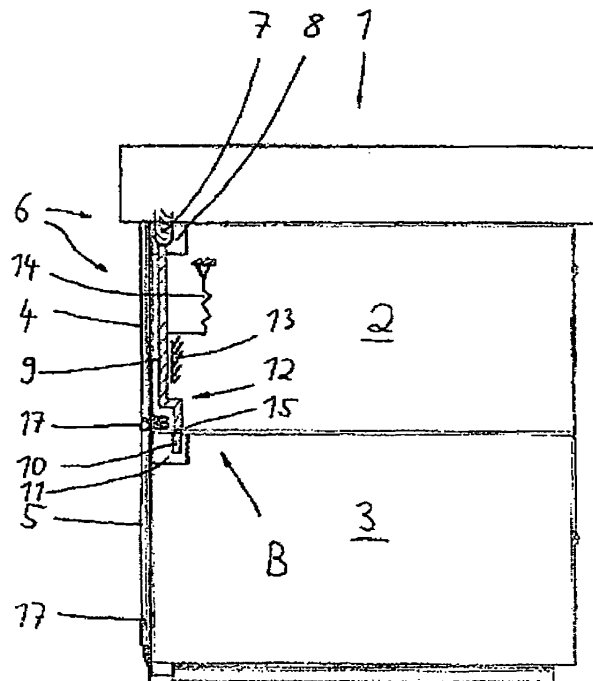


Fig. 2

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Description

[0001] The invention relates to an oven, having at least two cooking cavities which are closable by doors, wherein locking means are arranged for locking the doors, especially during a pyrolytic operation in the cavities.

[0002] Ovens with more than one cavity are well-known in the art. It is also known to employ a pyrolytic process in the cavity in certain time intervals to clean the cavity. As the pyrolytic process takes place at quite high temperatures it is a safety demand to lock the door of the oven to prevent an unintended opening of the door.

[0003] DE 197 05 821 C1 discloses a locking device for an oven with one cavity by which the door of the cavity can be secured against unintended opening during the pyrolytic process. Here, a bar element is inserted into a reception provided in the door. Thus, if the bar element is pushed into the reception the door cannot be opened.

[0004] Other locking devices are disclosed in DE 102 02 027 C1 or in US 2007/0039606 A1. Here, a hook-shaped bar element is engaged into a reception in the door to prevent unintended opening.

[0005] If the oven has more than one cavity a respective number of locking devices is necessary to secure all doors of the oven during the pyrolytic process. Thus, the costs rise correspondingly with the number of cavities and doors which must be secured by locking means.

[0006] Therefore, it is an object of the invention to propose a concept for a locking device of an oven having more than one cavity which allows a secure locking of all doors for carrying out the pyrolytic process and which can easily be implemented with low costs.

[0007] The solution of this object according to the invention is characterized in that the locking means comprise a bar element which can engage into a reception for locking one of the doors, wherein the locking means further comprise coupling means which are actuated by the bar element and which lock the at least one other door when being actuated.

[0008] Preferably, the coupling means comprise a second bar element which can engage into a second reception for locking a second door.

[0009] The coupling means can have a rod-shaped form. A preferred embodiment suggests that the coupling means have a straight extension. An alternative solution is characterized in that the coupling means have hook-shaped section forming the second bar element. The rod-shaped coupling means can be arranged in a linear bearing. This linear bearing is preferably a sliding guide.

[0010] The coupling means can be biased in a first, unlocked position by elastic means. The elastic means are preferably a spring, especially a coil spring. Furthermore, the elastic means can be able to keep the coupling means in an unlocked position when not being actuated by the bar element.

[0011] The second bar element can be equipped with a predetermined breaking point.

[0012] The bar element can be actuated by means of

an electrical engine.

[0013] Finally, at least one door can have two parallel glass panes, wherein the coupling means are arranged between the glass panes.

[0014] The doors can be pivoted around a horizontal axis.

[0015] According to the suggested design it becomes possible to securely lock more than one door of a multi-cavity oven by simple means which can be implemented with low costs. By actuating only one bar element by a suitable actuator the locking of at least one other door is carried out by a coupling means which transfers the locking movement to the at least one other door.

[0016] In the drawings embodiments of the invention are depicted.

FIG 1 shows a sectional side view of a two-cavity cooking oven with a locking device in an unlocked position,

FIG 2 shows the same view as FIG 1 but with the locking device being in a locked position,

FIG 3 shows the oven according to FIG 1 with an alternative embodiment of the locking device in the unlocked position and

FIG 4 shows the same view as FIG 3 but with the locking device being in the locked position.

[0017] In figures 1 and 2 an oven 1 is schematically shown which has two cooking cavities 2 and 3, one arranged on top of the other. Each cavity 2, 3 is closable by a door 4 and 5. The doors 4, 5 are pivotably arranged at the housing of the oven 1; the pivot axis are denoted with reference numeral 17, i. e. the axes 17 are arranged horizontally around which the door 4, 5 can be swivelled.

[0018] If a pyrolytic process has to be carried out in the cavities 2, 3 (by not shown means) the doors 4, 5 must be locked so that an unintended opening of a door is prevented. Therefore, locking means 6 are provided.

[0019] The locking means 6 comprise a bar element 7 which can be moved translatorically by an electrical engine 16 which is only shown schematically. In FIG 1 an arrow indicates the translational movement of the bar element 7 when it is moved from the unlocked position A shown in FIG 1 in the locked position B shown in FIG 2. As can be seen for locking the upper door 4 the bar element 7 is pushed into a reception 8 in the door 4 to prevent the opening of the door 4.

[0020] To lock the lower door 5 by the locking means 6 coupling means 9 are provided which have a substantial rod-like shape. I. e. in the embodiment according to figures 1 and 2 the coupling means 9 are a rod having a hook-shaped section 12 at the distal end remote from the bar element 7. This hook-shaped section 12 forms a second bar element 10 which can be pushed into a second reception 11 in the second door 5 to lock this door

simultaneously with the locking of the upper door 4.

[0021] The coupling means 9 are arranged in a linear bearing 13 (shown only very schematically in FIG 2 and FIG 3) which is designed as a slide guide to allow the coupling means 9 to move forth and back translatorically from the locked into the unlocked position and vice versa.

[0022] If the coupling means 9 are free from outer forces exerted by the bar element 7 it remains in the unlocked position A (see FIG 1). This is made sure by an elastic means 14 which is designed as a coil spring in the depicted embodiment. The coil spring 14 is biasing the coupling means 9 in the most upper position, i. e. in the unlocked position A when no external forces are exerted on it. If the bar element 7 pushes down the coupling means 9 the coil spring 14 is stretched (compare FIG 1 and FIG 2).

[0023] The second bar element 10 is equipped with a predetermined breaking point 15 for the case of an unexpected operating condition.

[0024] Referring now to FIG 3 and FIG 4 the same concept is shown here as in FIG 1 and FIG 2, i. e. the locking means 6 comprise a bar element 7 which can engage into the reception 8 for locking the upper door 4, wherein the locking means 6 further comprise coupling means 9 which are actuated by the bar element 7 and which lock the lower door 5 when being actuated.

[0025] The difference to the embodiment discussed above is that the coupling means 9 are a straight rod-like element here without a hook-shaped section at one end. Beside this the explanation given for FIG 1 and FIG 2 applies as well for the embodiment according FIG 3 and FIG 4.

[0026] With the proposed design the locking of more than one door can be implemented with one actuated bar element only, wherein the movement of this bar element is transferred to another door to be locked by coupling means. Thus, a simultaneous locking can take place.

Reference Numerals

[0027]

- 1 Oven
- 2 Cooking cavity
- 3 Cooking cavity
- 4 Door
- 5 Door
- 6 Locking means
- 7 Bar element
- 8 Reception
- 9 Coupling means
- 10 Second bar element
- 11 Second reception
- 12 Hook-shaped section
- 13 Linear bearing
- 14 Elastic means
- 15 Predetermined breaking point
- 16 Electrical engine

- 17 Horizontal axis
- A First position (unlocked position)
- B Second position (locked position)

Claims

1. Oven (1), having at least two cooking cavities (2, 3) which are closable by doors (4, 5), wherein locking means (6) are arranged for locking the doors (4, 5), especially during a pyrolytic operation in the cavities (2, 3),

characterized in that

the locking means (6) comprise a bar element (7) which can engage into a reception (8) for locking one of the doors (4), wherein the locking means (6) further comprise coupling means (9) which are actuated by the bar element (7) and which lock the at least one other door (5) when being actuated.

2. Oven according to claim 1, **characterized in that** the coupling means (9) comprise a second bar element (10) which can engage into a second reception (11) for locking a second door (5).

3. Oven according to claim 1 or 2, **characterized in that** the coupling means (9) have a rod-shaped form.

4. Oven according to claim 4, **characterized in that** the coupling means (9) have a straight extension.

5. Oven according to claim 4, **characterized in that** the coupling means (9) have hook-shaped (12) section forming the second bar element (10).

6. Oven according to at least one of claims 3 till 5, **characterized in that** the rod-shaped coupling means (9) are arranged in a linear bearing (13).

7. Oven according to claim 6, **characterized in that** the linear bearing (13) is a sliding guide.

8. Oven according to at least one of claims 1 till 7, **characterized in that** the coupling means (9) are biased in a first position (A) by elastic means (14).

9. Oven according to claim 8, **characterized in that** the elastic means (14) are a spring.

10. Oven according to claim 9, **characterized in that** spring (14) is a coil spring.

11. Oven according to at least one of claims 8 till 10, **characterized in that** the elastic means (14) are able to keep the coupling means (9) in an unlocked position (A) when not being actuated by the bar element (7).

12. Oven according to at least one of claims 2 till 11,
characterized in that the second bar element (10)
has a predetermined breaking point (15).
13. Oven according to at least one of claims 1 till 12, 5
characterized in that the bar element (7) is actuated
by means of an electrical engine (16).
14. Oven according to at least one of claims 1 till 13, 10
characterized in that at least one door (4, 5) has
two parallel glass panes, wherein the coupling
means (9) are arranged between the glass panes.
15. Oven according to at least one of claims 1 till 14, 15
characterized in that the doors (4, 5) can be pivoted
around a horizontal axis (17).

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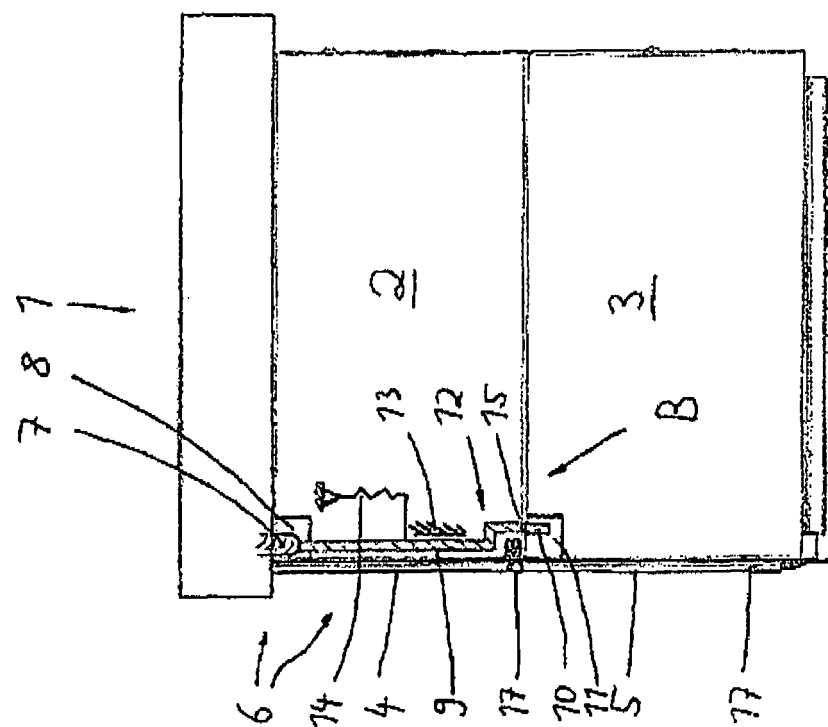
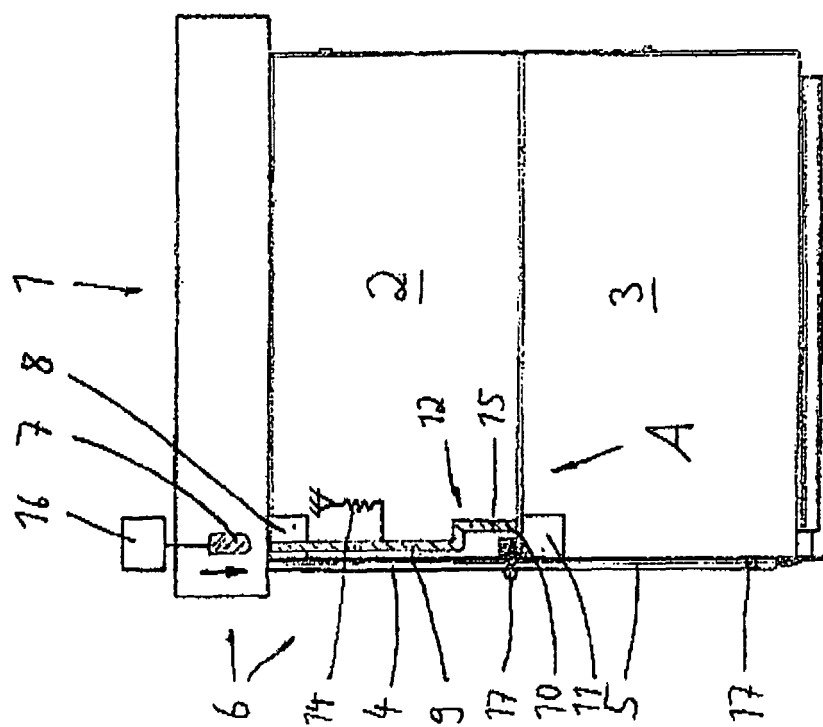
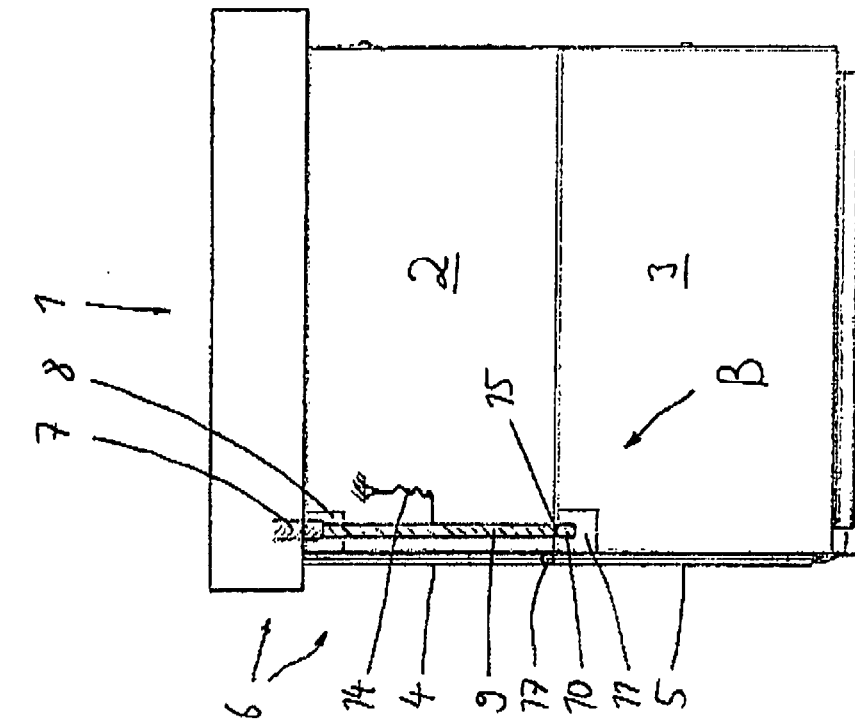


Fig. 2



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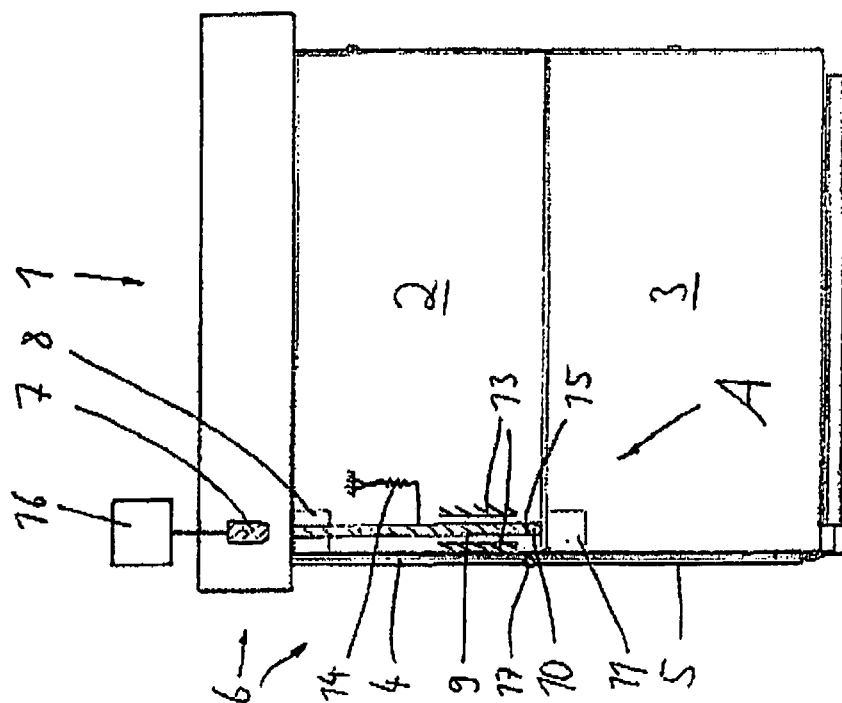


Fig. 3



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 07 01 8685

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 3 469 568 A (TORREY SUMNER H ET AL) 30 September 1969 (1969-09-30)	1-12,14,15	INV. F24C15/02
Y	* column 2, line 67 - column 3, line 23; figures *	13	F24C14/02
X	----- US 4 300 524 A (ELSASSER STEPHANIE) 17 November 1981 (1981-11-17) * column 2, line 4 - line 16; figures *	1-5,15	
D,Y	----- DE 197 05 821 C1 (SOREMAM SNC [FR]) 2 July 1998 (1998-07-02) * column 4, line 28 - line 33; figures *	13	
A	----- US 4 623 781 A (THOMAS CALVIN J [US]) 18 November 1986 (1986-11-18) * column 1, line 60 - column 2, line 40; figures * * column 9, line 62 - column 10, line 29 *	1	
A	----- US 3 625 197 A (PIRKER RUDOLF ET AL) 7 December 1971 (1971-12-07) * abstract; figures *	1	TECHNICAL FIELDS SEARCHED (IPC)
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 19 February 2008	Examiner Verdoodt, Luk
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 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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