



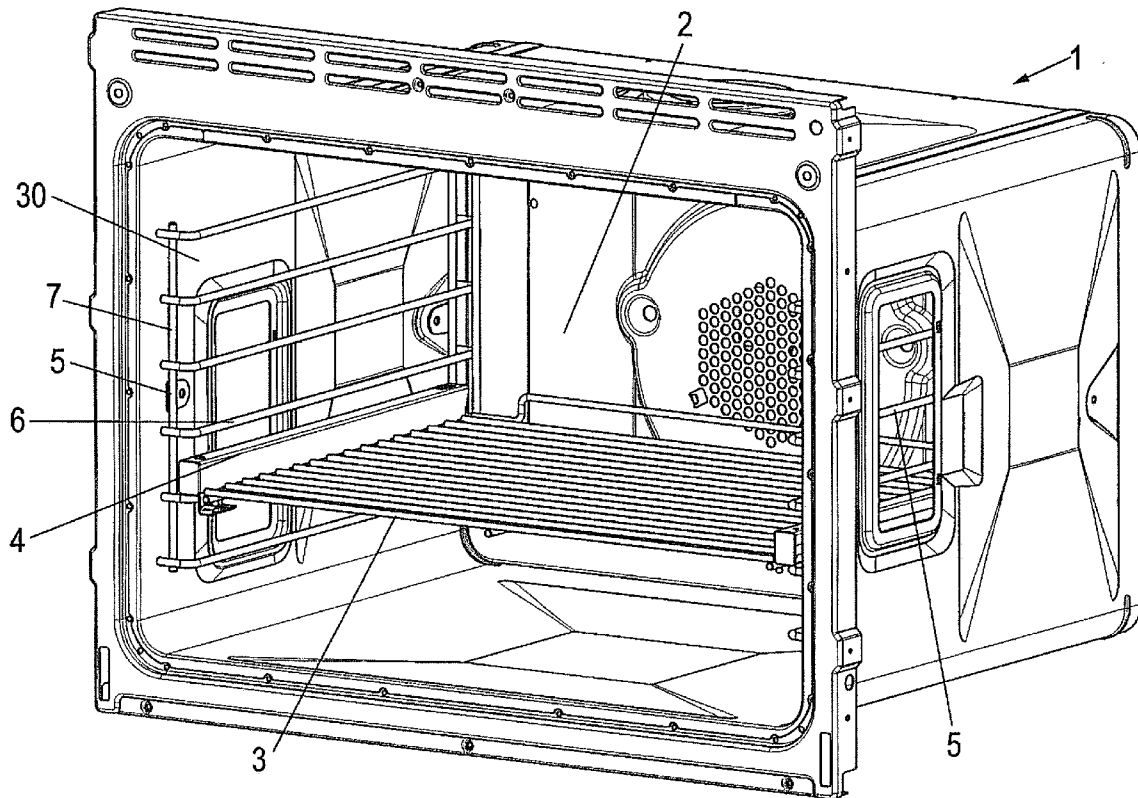
US 20120138041A1

(19) **United States**(12) **Patent Application Publication**
Jährling(10) **Pub. No.: US 2012/0138041 A1**(43) **Pub. Date: Jun. 7, 2012**(54) **PULL-OUT SYSTEM AND HOUSEHOLD
APPLIANCE**(30) **Foreign Application Priority Data**

Apr. 17, 2009 (DE) 20 2009 002 073.8

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KG, Kirchzell (DE)**(51) **Int. Cl.**
F24C 15/16 (2006.01)(52) **U.S. Cl.** **126/19 R; 126/339**(21) Appl. No.: **13/264,534**(57) **ABSTRACT**(22) PCT Filed: **Apr. 12, 2010**(86) PCT No.: **PCT/EP2010/054753**§ 371 (c)(1),
(2), (4) Date:**Feb. 20, 2012**

The invention relates to a pull-out system, particularly for baking ovens, having a supporting bottom (3) that is held on opposing sides on a sliding rail (20) of a pull-out guide (4), wherein a guide rail (22) of the pull-out guide (4) is fastened to a side grid (5) or a side wall, wherein at least one detent means (8) is provided on the supporting bottom (3) in order to be latched in an retracted and/or extended position of the pull-out guide (4).



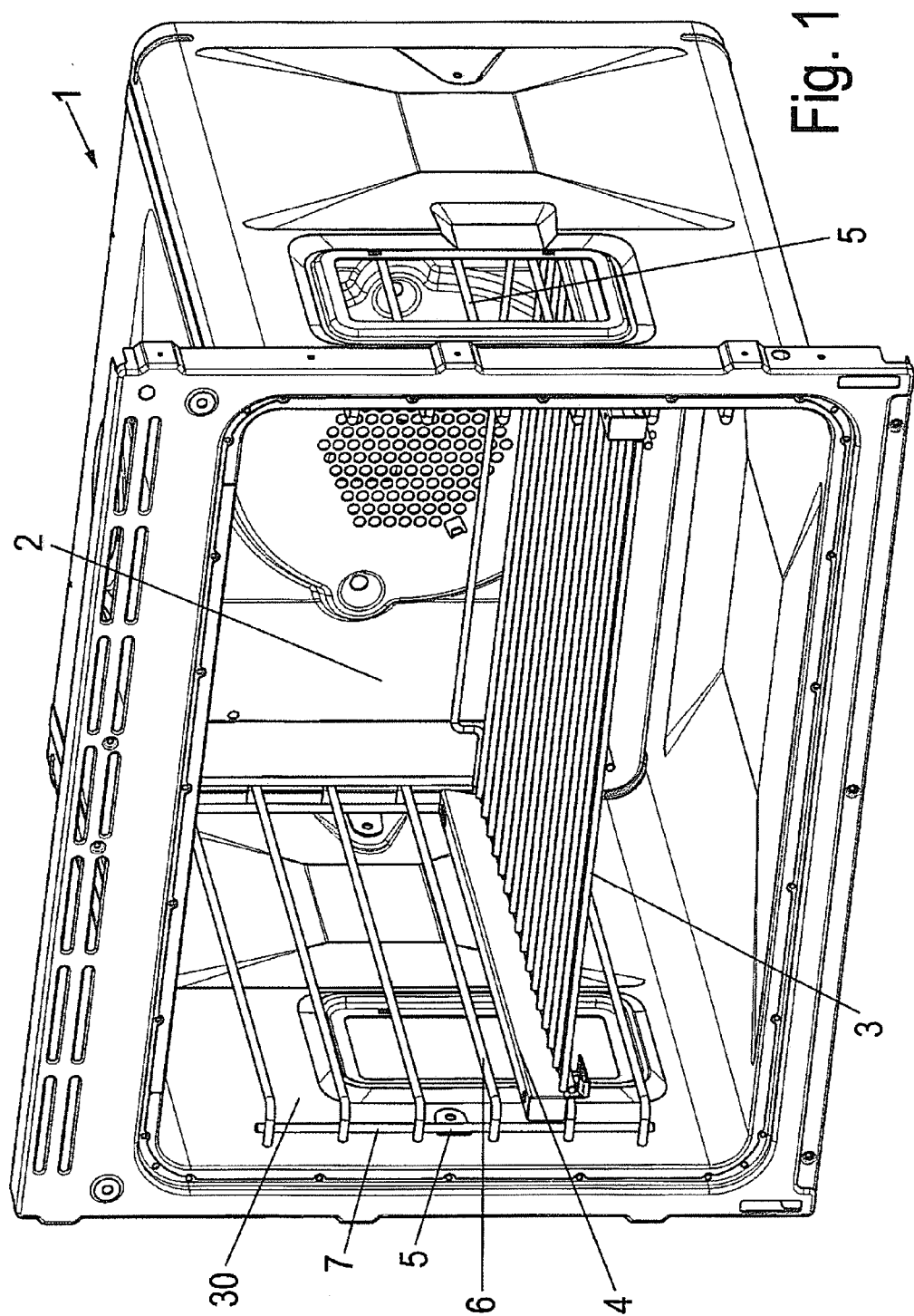
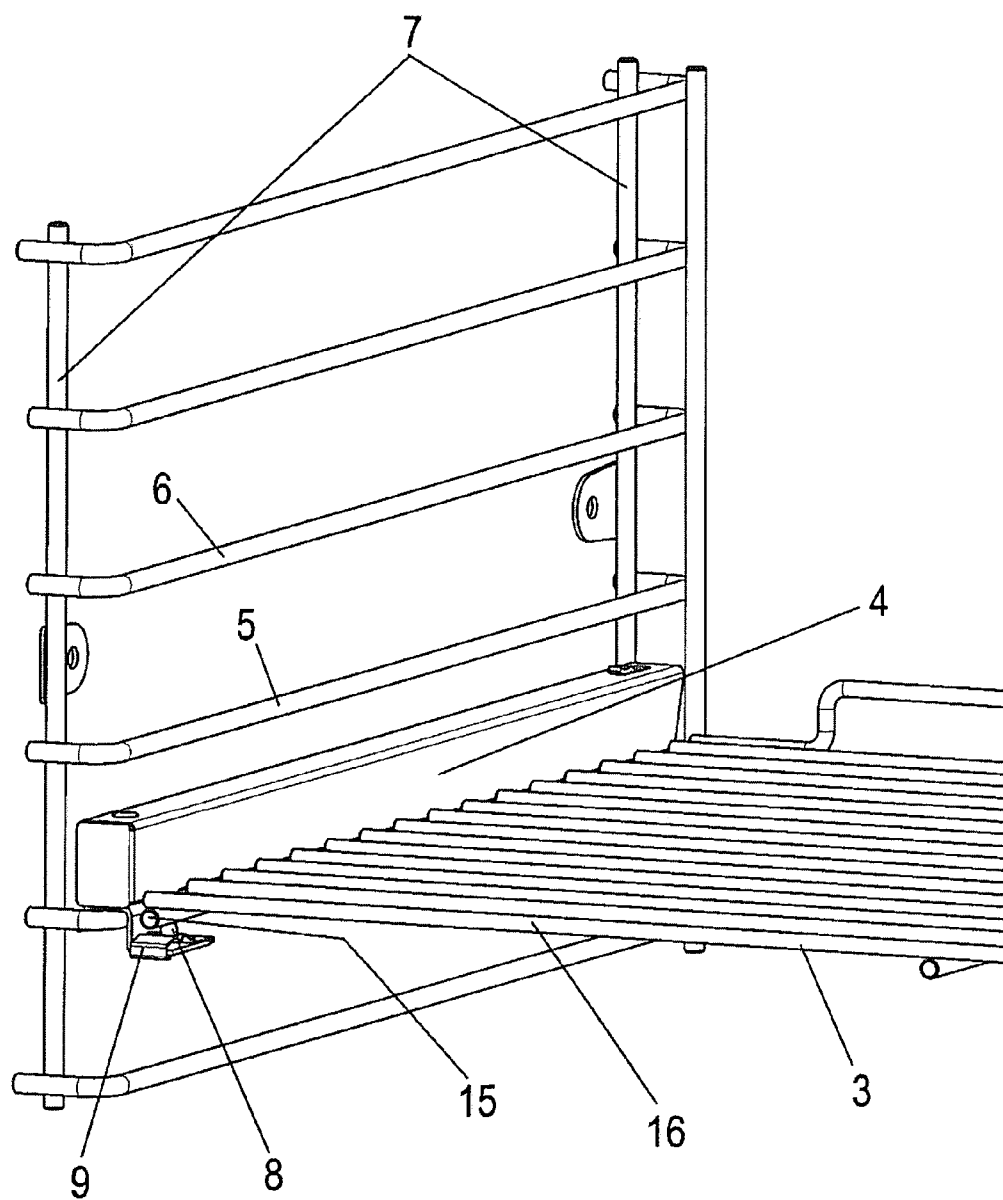
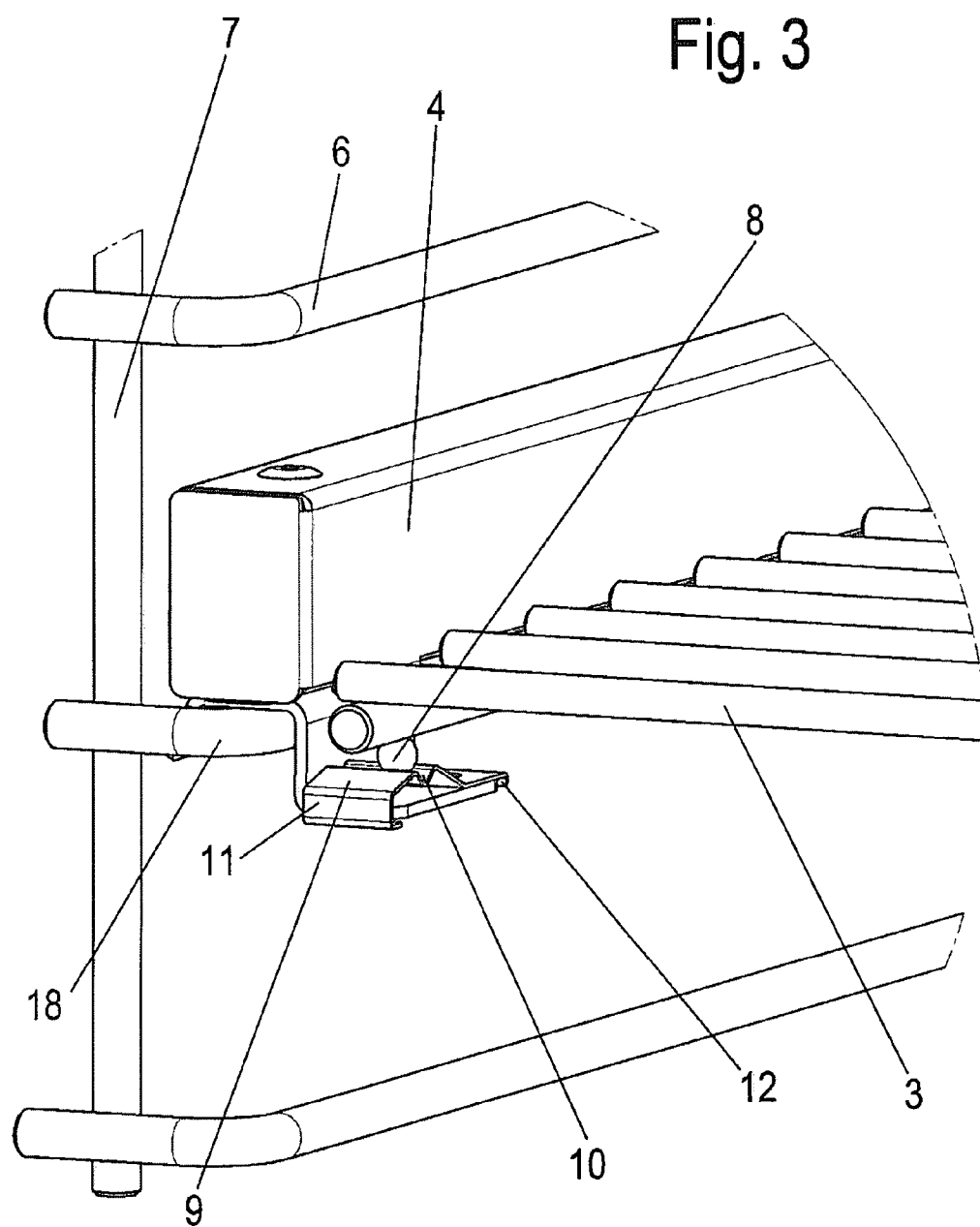


Fig. 2





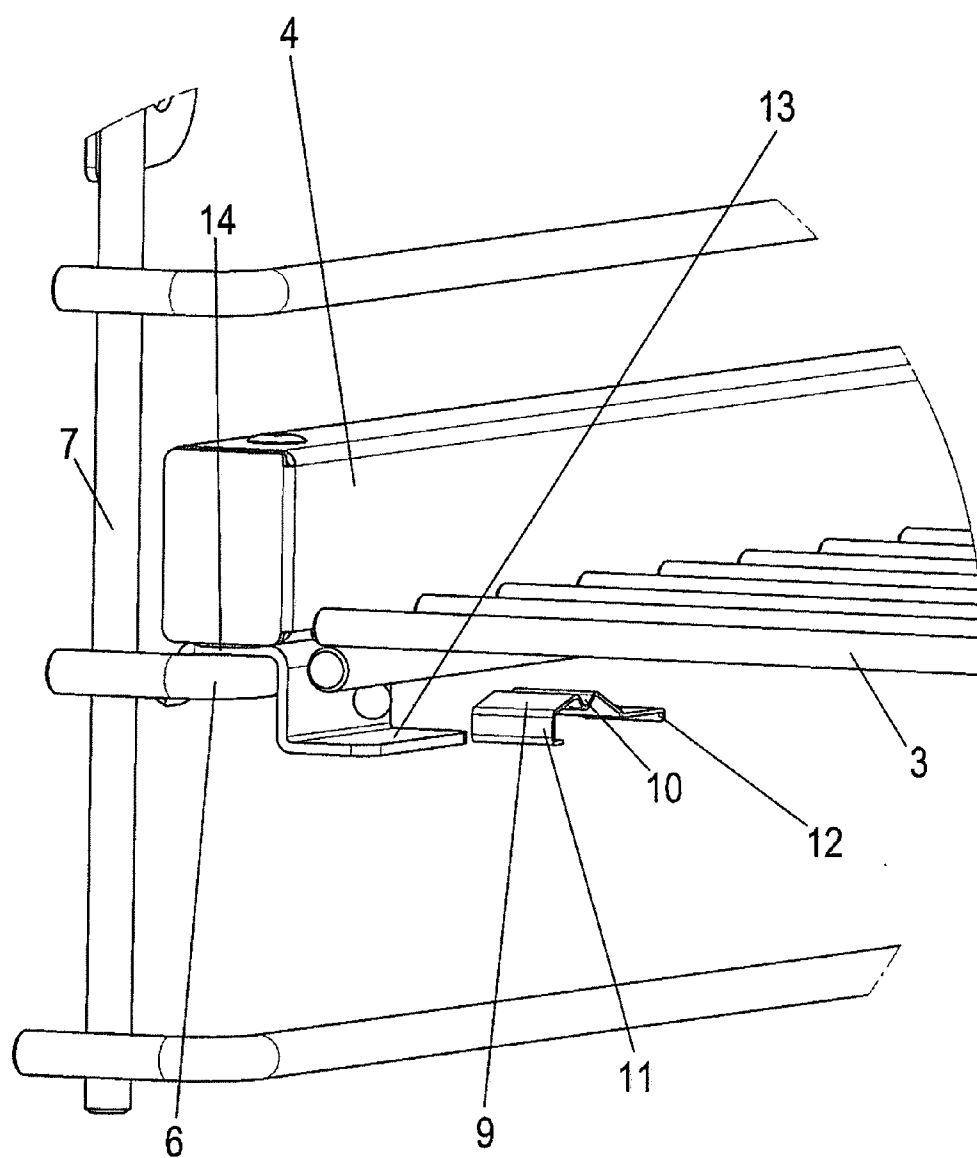


Fig. 4

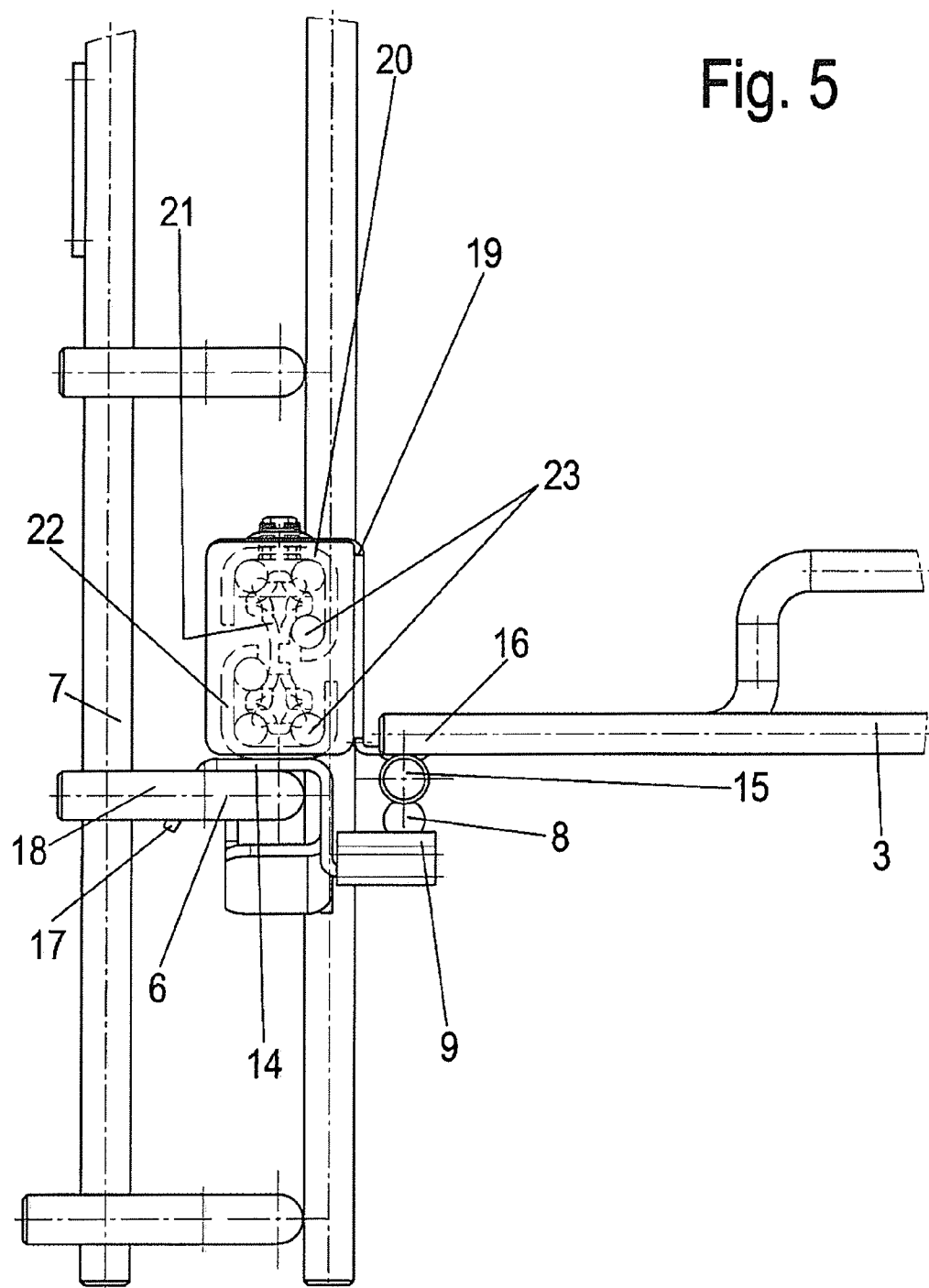


Fig. 6

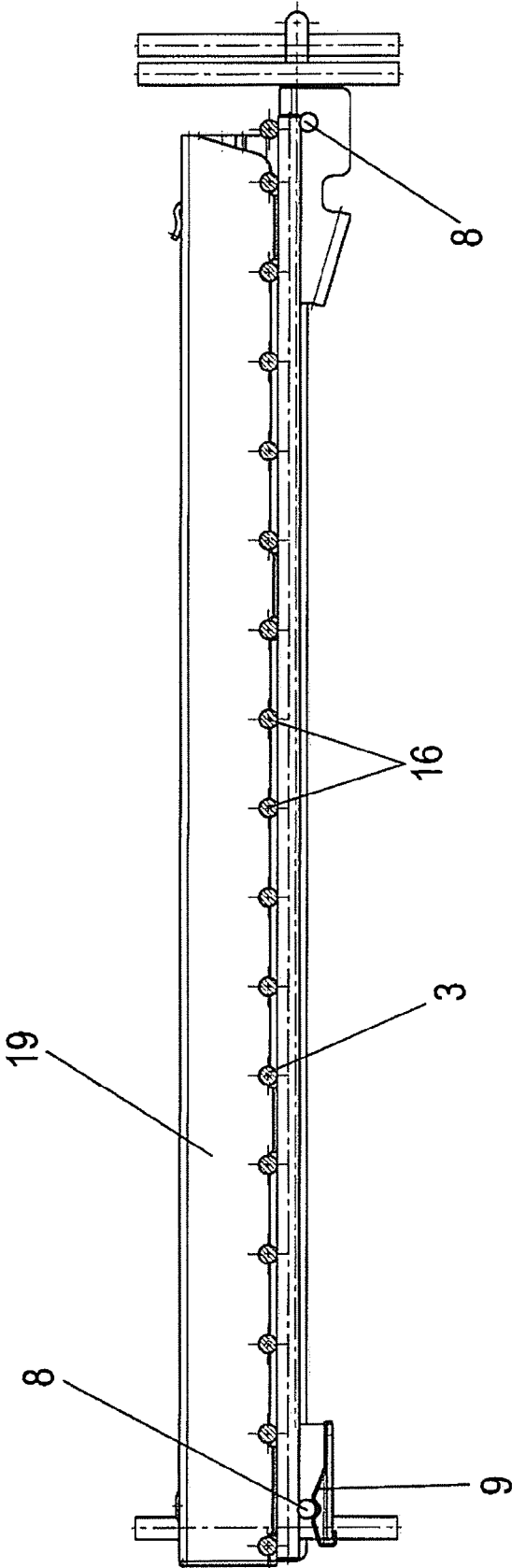
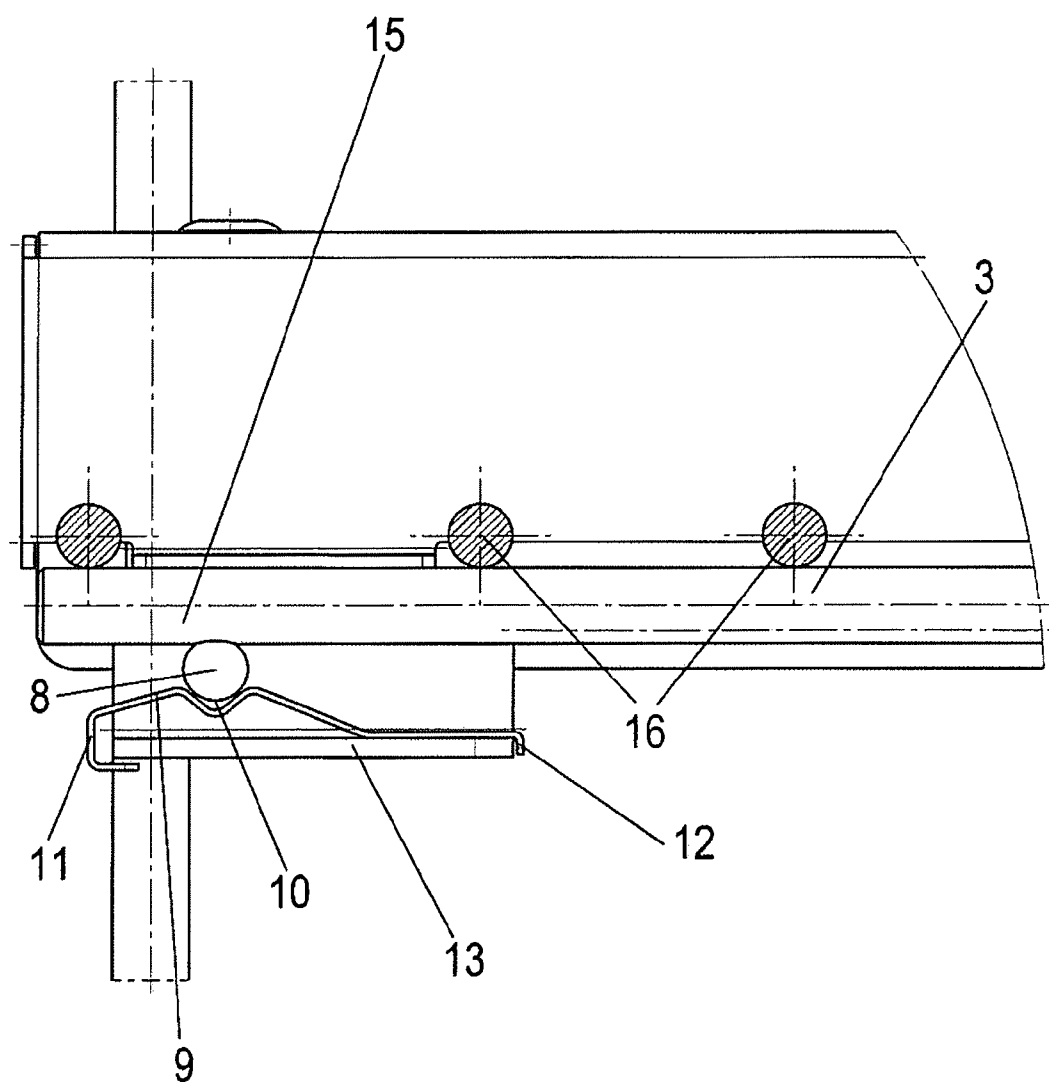


Fig. 7



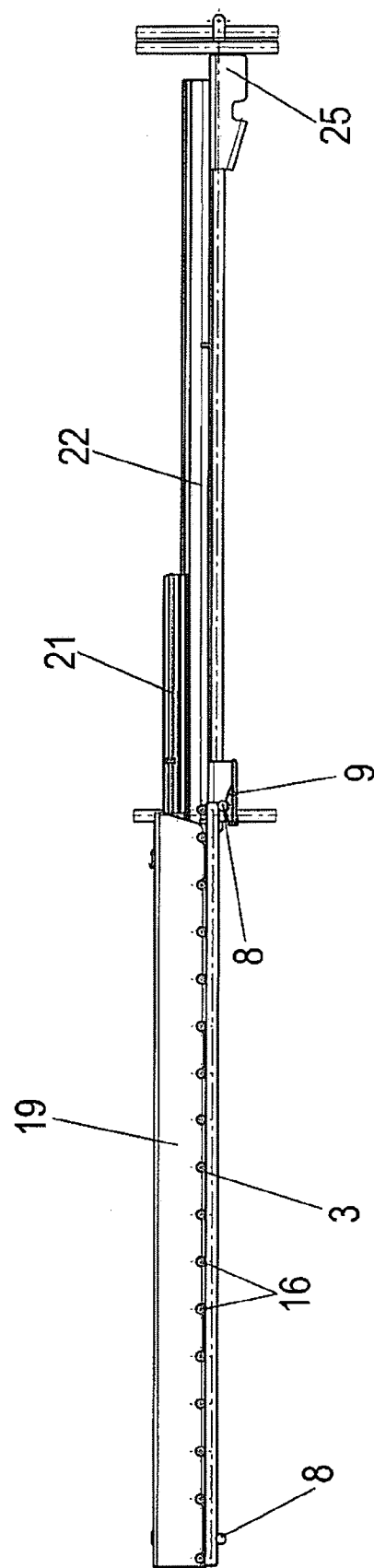


Fig. 8

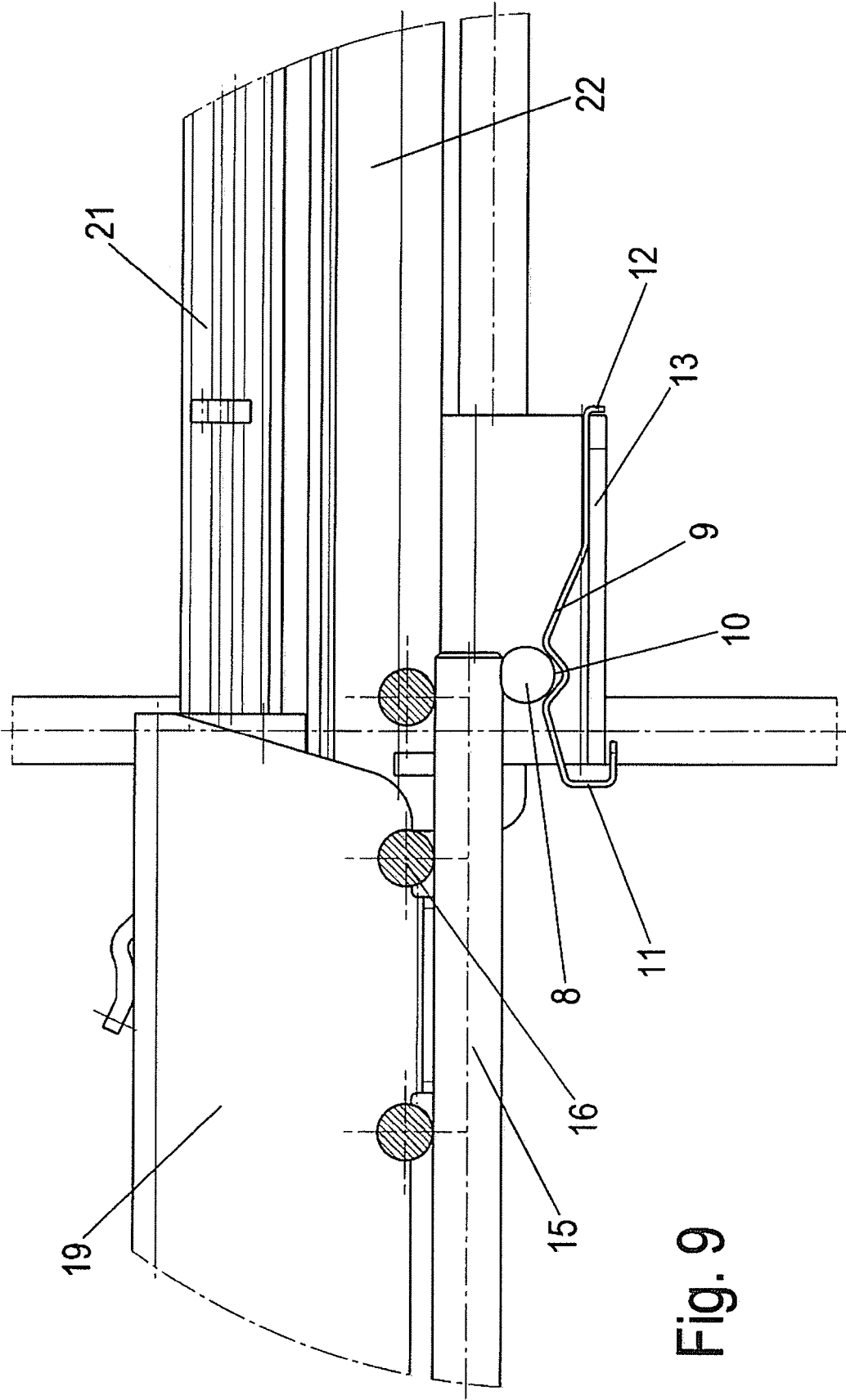


Fig. 9

PULL-OUT SYSTEM AND HOUSEHOLD APPLIANCE

[0001] The present invention relates to a pull-out system, in particular for baking ovens, having a support base that is held on opposing sides on a sliding rail of a pull-out guide, wherein a guide rail of the pull-out guide is fastened to a side grid or a side wall, and it relates as well to a household appliance.

[0002] From the U.S. Pat. No. 7,448,508 a support base for a household appliance is known that is slidably held on opposing sides on a pull-out guide. The pull-out guide is arranged stationary by means of a guide rail in each case at a side grid. The problem of inadvertent movement of the support base can occur when moving said support base due to the smooth running of the pull-out guides, especially if the baking oven has not been installed in a level fashion. In addition, the support base can then also be moved when the operator is working on an article placed on the support base.

[0003] It is the object of the present invention to provide a pull-out system that avoids the aforementioned disadvantages and is simple to use.

[0004] This object is achieved by a pull-out system having the features of claim 1.

[0005] According to the invention, there is at least one detent means provided on the support base in order to be latched in a retracted and/or extended position of the pull-out guide. This way, the support base can be temporarily fixed at predetermined positions to avoid an unintentional movement. In particular, the support base can be latched in a retracted position, thereby safely avoiding the support base sliding out when in operation. This way, the risk of injury is reduced as the support base is generally installed in a baking oven and thereby can injure an operator due to the high temperatures involved. Additionally, the support base can also be latched in an extended position, making it possible to work on the food to be cooked on the support base without said support base being accidentally moved. In addition, this avoids the support base sliding out by itself if the installation of, in particular, a baking oven has not been carried out in an exactly horizontal manner.

[0006] Preferentially, the at least one detent means provided on the support base interacts with a spring element. This way, the retention forces can be set to the desired value. The spring element can thereby be mounted to a bracket that is attached to the guide rail or to a side grid.

[0007] In an embodiment, the bracket has a lug that protrudes below the support base. In this way, the detent means can also be provided under the support base so that it does not restrict the surface of the support base and is hardly visible to the operator.

[0008] Preferentially, the spring element is made of a thin metal sheet and is slipped onto the lug. This way, the spring element can be simply pulled off when dirty and then, after cleaning, be slipped back onto the lug.

[0009] The detent means is formed preferably as a downwardly protruding projection. The support base can thereby be formed as a grid so that the projection is fastened to a strut. The projection can thereby be formed spherically or bolt shaped, so that a simple latching to the spring element is ensured. Thereby, the position for latching the pull-out guides can also be designed to be adjustable, for example by a detachable mounting of the projection or a slidable fastening of the projection.

[0010] To securely fix the support base, detent means are provided on each opposing side. The support base can have four detent means, wherein two of said detent means in each case can be latched to one spring element, namely once in a retracted position with a first detent means and with a second detent means in an extended position. Thus, the spring element is used to latch the support base in both a retracted as well as an extended position. In doing so, both pull-out guides can be latched in a retracted and in an extended position, thus avoiding a misalignment of the support base and jamming. The detent means can also be formed on and/or in the support base as an integrated shaping.

[0011] The invention will subsequently be described in more detail on the basis of an embodiment with reference to the enclosed drawings, wherein:

[0012] FIG. 1 shows a perspective view of a baking oven according to the invention;

[0013] FIGS. 2 to 4 show several perspective views of the pull-out system of the baking oven of FIG. 1;

[0014] FIG. 5 shows a frontal view of the pull-out system, and

[0015] FIGS. 6 to 9 show several lateral views of the pull-out system in different positions.

[0016] A household appliance designed as a baking oven 1 comprises a housing that incorporates an inner chamber 2 in which at least one support base 3 is arranged. The support base 3 is movably supported at the opposing sides on each of one pull-out guide 4. Each pull-out guide 4 is mounted to a side grid 5 that is attached to a side wall 30 of the baking oven 1. The side grid 5 comprises horizontal struts 6 that at opposing sides have an angled end section 18 that is attached to an upright 7.

[0017] The pull-out system for moving the support base 3 is depicted in detail in FIGS. 2 to 9.

[0018] The grid-shaped support base 3 comprises multiple cross struts 16 that at an end section lie on a longitudinal strut 15. On the underside of the longitudinal strut 15 there are detent means 8 in the shape of a sphere attached at each end. The detent means 8 can be latched to a spring element 9. For this purpose, the spring element 9 has a flexible section at which a groove-shaped recess 10 extends perpendicular to the pull-out direction. The spring element 9 comprises further a U-shaped section 11 as well as a hook 12 at the opposite end. The spring element 9 can thereby be slipped onto a bar-shaped portion of a bracket 13 that protrudes below the support base 3. The spring element 9 can be pulled off the lug 13 and pushed back on again, as depicted in FIGS. 3 and 4.

[0019] The bracket 13 further comprises an angled section that is arranged on a horizontal strut 6 of the side grid 5. The angled section 14 is thereby fixed to a guide rail 22 of the pull-out guide 4. In order to avoid a displacement of the bracket 13, this can rest on an angled end section 18 of a horizontal strut 6, wherein a downwards-bent end 17 is provided for this purpose at the angled section 14.

[0020] The pull-out guide 4 comprises a guide rail 22 that is attached to the side grid 5 via fastening means. At the guide rail 22 there is a middle rail 21 movably supported by means of rolling elements 23; at the middle rail 21 there is a sliding rail 20 supported by further rolling elements 23 and to which said sliding rail 20 the support base 3 is fixed. For this purpose, attached to the sliding rail 20 there is a retention rail 19 that is fixed to a longitudinal strut 15 on the grid-shaped support base 3.

[0021] For latching the support base **3** in a retracted position, a front detent means **8** is provided at the support base **3**, and when in the retracted position said front detent means **8** engages with the recess **10** of the spring element **9**. When extending the support base, the spring element **9** is pressed down so that the detent means **8** is released and the support base **3** runs smoothly on the pull-out guide **4**. On reaching an extended position (FIGS. **8** and **9**), a rear detent means **8** of the support base **3** comes into engagement with the spring element **9**. This allows the operator to work on goods to be cooked or baked while they are on the support base **3** without the support base **3** accidentally moving. The support base **3** is thereby latched in each case to one spring element **9** at opposing sides, wherein detent means **8** pointing downwards are provided at four corner areas of the support base **3**.

[0022] In the depicted embodiment, the detent means **8** are formed as a sphere-shape. It is, of course, also possible to provide the detent means **8** in the form of projections that are bolt-shaped or that have an approach slope to enable latching with a spring element. In addition, spring elements can be provided at the support base **3** that interact with stationary detent means.

[0023] The pull-out guide **4** is fastened to a side grid **5**. It would also be possible to attach the pull-out guide **4** by using the fastening means of a side wall **30** of the baking oven **1**.

REFERENCES LIST

- [0024] **1** Baking Oven
- [0025] **2** Interior Chamber
- [0026] **3** Support Base
- [0027] **4** Pull-out Guide
- [0028] **5** Side Grid
- [0029] **6** Strut
- [0030] **7** Upright
- [0031] **8** Detent Means
- [0032] **9** Spring Element
- [0033] **10** Recess
- [0034] **11** Section
- [0035] **12** Hook
- [0036] **13** Bracket
- [0037] **14** Section
- [0038] **15** Longitudinal Strut
- [0039] **16** Cross Strut
- [0040] **17** End
- [0041] **18** End Section
- [0042] **19** Retention Rail
- [0043] **20** Sliding Rail

- [0044] **21** Middle Rail
- [0045] **22** Guide Rail
- [0046] **23** Roller Element
- [0047] **24** Side Wall

I claim:

1. A pull-out system, in particular for baking ovens, having a support base that is held on opposing sides on a sliding rail of a pull-out guide, wherein a guide rail of the pull-out guide is fastened to a side grid or a side wall, characterized in that at least one detent means is provided on the support base in order to be latched in a retracted and/or extended position of the pull-out guide.

2. The pull-out system according to claim **1**, wherein at least one detent means interacts with a coil element on the support base.

3. The pull-out system according to claim **1**, wherein the coil element is mounted to a bracket that is fixed to the guide rail or to the side grid.

4. The pull-out system according to claim **1**, wherein the bracket has a lug that protrudes below the support base.

5. The pull-out system according to claim **4**, wherein the spring element is manufactured from a thin metal sheet and which is slipped onto the lug.

6. The pull-out system according to claim **1**, wherein at least one detent means is formed as a downwardly protruding projection.

7. The pull-out system according to claim **6**, wherein the projection is formed spherically or bolt-shaped.

8. The pull-out system according to claim **1**, wherein at least one detent means is arranged at each opposite side on the support base.

9. The pull-out system according to claim **1**, wherein four detent means are provided on the support base, wherein two of said detent means are in each case latched to one spring element.

10. The pull-out system according to claim **1**, wherein the position for latching the pull-out guides can be adjusted.

11. The pull-out system according to claim **1**, wherein both pull-out guides can be latched in a retracted or extended position.

12. A household appliance, wherein the pull-out system according to claim **1** is mounted in an interior chamber of the household appliance.

13. A household appliance according to claim **12**, wherein the household appliance is designed as a baking oven.

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