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(54) **Assembly of a door hinge of an oven of a household appliance with dampened closing**

(57) An assembly (100) of a door hinge (50) of an oven of a household appliance with dampened closing of the oven from an ajar position to a final closed position of the door consists of a door hinge arranged in the door of the oven, a support housing (60) of the oven arranged on the inner side of the external wall of the housing of the oven, and a damper (70), wherein an oblong recess (6) is formed on lateral parts of the housing, inside of

which recess there is a freely movable limiting bolt (18) that is fixedly arranged on a two-leg connecting member (9) in the area of the beak-shaped holder (4). The longer leg of the beak-shaped holder (4) is provided with a longitudinal through guide hole (15), in which an abutting bolt (17) is arranged. When the door of the oven is in an ajar position, the abutting bolt (17) abuts on the damper (70) coaxially arranged on the support housing.

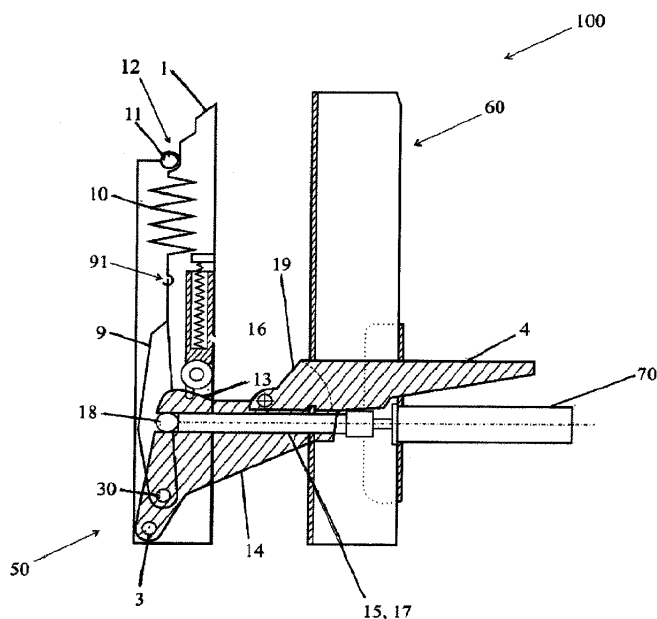


Fig. 1

Description

Object of Invention

[0001] The object of the present invention is an assembly of a door hinge of an oven of a household appliance with dampened closing of the door of the oven of the household appliance from an intermediate ajar position of the door of the oven to a final closed position of the door of the oven according to the introductory part of claim 1.

Technical Problem

[0002] The technical problem solved by the invention is how to conceive a hinge of a door of an oven of a household appliance disclosed in patent application P 2005 0 0243 of the same applicant that will allow dampened closing from an ajar position to a closed position without making any changes neither to the manipulation space between the oven and the door of the oven nor to the existing construction of the hinge of the door and the oven of the household appliance, wherein the original simple construction and mounting of the hinge for the needs of an automatic assembly should be preserved.

Prior Art

[0003] Due to various requirements of cooking and baking, hinges of a door of a household oven must allow the door to be set ajar in an intermediate position between the entirely closed and the entirely opened position, which is solved in various known ways. Because of the construction that allows such ajar setting of the door, the final phase of closing from an ajar position to a closed position is most often jerky, loud and can even cause injuries, especially of fingers. Jerky closing of the door in the final phase of closing is solved by variously conceived dampers that are arranged on the inner side of the door of an oven or partly integrated into the housing of the oven, thus disturbing the manipulation space. Consequently, they need to be resistant to heat and their lifetime is shortened due to huge probability of getting greasy. Such example is disclosed in DE 10 2007 029696. If dampers are arranged in the interior of the door of the oven, their construction is complicated, they are made of several parts as for instance the damper disclosed in patent application EP 2362050. This application discloses a solution to damping of a door of a domestic oven with an adequately constructed damper arranged at the end of a leg of a hinge of the door of a domestic oven and reaching into the oven compartment distantly from the door of the oven. The pneumatic damper, in which a piston is arranged, is fastened to the leg of the hinge through a snap-fit connection. It abuts with the piston on a slant element actuated by a special push element. The push element is arranged within a housing of the leg of the hinge and its functioning is connected to the move-

ment of the leg of the hinge via several levers. The damper is connected with the leg of the hinge of the oven door in a simple way; however its actuation and functioning is connected with numerous constructional elements within the basic hinge of the door. This results in a demanding and complicated mounting with numerous constituent parts, which considerably increases the production price and at the same time makes the automatic assembly of the component much more difficult. A further disadvantage of numerous mutually mechanically connected parts is also a high possibility of them getting dirty, especially greasy, which reduces the life time of the mentioned hinge.

Solution to the Technical Problem

[0004] The set technical problem is solved by an embodiment of the invention in a way that in the known basic construction of the hinge as disclosed in patent application P 2005 0 0243 of the same applicant an oblong recess is provided on lateral parts of the hinge housing, within which recess a limiting bolt is freely movable, said bolt being fixedly arranged on a two-leg connecting member in the area of a beak-shaped holder, and that the beak-shaped holder includes a through guide hole arranged substantially parallel to the longer leg, in which hole the abutting bolt is arranged, wherein the bolt abuts with one of its free end on the limiting bolt and the other free end of the abutting bolt abuts on a damper arranged coaxially on the support housing.

[0005] The invention will be explained in more detail by way of an embodiment and the enclosed drawings representing in

Fig. 1 an assembly of a door hinge of an oven of a household appliance in cross-section

Fig. 2 the same as in Fig. 1 in side view

Fig. 3 the same as in Fig. 1 in partial front view

[0006] An assembly 100 of a door hinge of an oven of a household appliance for dampened closing of the door of the oven of the household appliance from an ajar position of the door to a final closed position of the door comprises a door hinge 50 of the oven of the household appliance arranged on the door (not shown) of the oven, a support housing 60 arranged on the inner side of an external wall of the housing of the oven (not shown), and a damper 70. The door hinge 50 comprises a housing 1 arranged in the door of the oven of the household appliance; a mechanism 16 arranged within the housing 1, said mechanism including a housing element, two parallel springs and a roller on the bolt and intended for holding the door of the oven in the ajar position, as disclosed in patent SI 22096 (patent application P 2005 0 0243) of the same applicant; and a beak-shaped holder 4 that cooperates with the mechanism 16 for holding the door of the oven in the ajar position when the door of the oven is closed/opened and when it is kept in the ajar position

via the roller.

[0007] The housing 1 is arranged on the inner side of the door (not shown) of the oven of the household appliance and is formed like a U-profile with two optional known fixing points 2, for instance with boreholes or lugs, to the housing of the door of the oven. Lateral parts of the housing 1 are provided with recesses 5, 5' with bends that define the area, in which the mechanism 16 for holding the door of the oven in the ajar position is installed as disclosed in the applicant's previous patent. At one end of the housing 1 the beak-shaped holder 4 of the door of the oven is pivotably arranged on the bolt 3. The housing 1 further has a recess 8, through which the beak-shaped holder 4 projects and allows rotation of the beak-shaped holder 4 for substantially a right angle, or rather for as much as necessary for the door of the oven to open. The lateral parts of the housing 1 are further provided with an oblong recess 6, the function of which will be described later.

[0008] In the proximity of its fastening in the bolt 3 the beak-shaped holder 4 is pivotably fastened in a bolt 30 through a two-leg connecting member 9 to a spring 10 that is fastened at its another end via a bolt 11 into the housing 1 into two slots 12. The spring 10 in the two-leg connecting member 9 is arranged in a borehole 91, whereas its hook-like end embraces the bolt 11. The bolt 11 is only inserted in the slot and the tensioned spring 10 prevents the bolt 11 from falling out of the slot. In the area of the beak-shaped holder 4 a limiting bolt 18 is fixedly arranged on the two-leg connecting member 9 in a way to reach with its ends into a respective oblong recess 6 on lateral parts of the housing 1 and is freely movable within these recesses 6.

[0009] In the area of the bolt 3, the beak-shaped holder 4 can be provided with a widening, preferably like a two-leg section, in order to reach better stability to potential lateral forces that occur when the door is opened and closed. In such a variant the two-leg connecting member 9 is fastened to the beak-shaped holder 4 by means of the bolt 30 in the widening zone.

[0010] The beak-shaped holder 4 is formed like a letter L, wherein the shorter leg is mounted in the bolt 3 and the longer leg projects through the recess 8 into the support housing 60 arranged opposite the housing 1, said housing 60 being fastened to the inner side of the external wall of the oven. The convex side of the contact of both legs is provided with a boss 13 that, during the opening and closing of the door, travels through the recess 8 of the housing 1 and fixes the ajar door of the oven at a certain angle. The concave side of the contact of both legs includes a reinforcing rib 14. The longer leg of the beak-shaped holder 4 is provided with a longitudinal through hole 15, in which an abutting bolt 17 is arranged and guided. The abutting bolt 17 of the holder is freely movable in its longitudinal axis and its length exceeds the length of the guide hole 15. When the door of the oven of the household appliance is in an ajar position, the abutting bolt 17 with its one free end abuts on the

limiting bolt 18, whereas another free end of the abutting bolt 17 abuts on the damper 70 of a known type fastened on the support housing 60 in a way that the longitudinal axis of the damper coincides with the longitudinal axis of the abutting bolt. The damper 70 occupies the space between the heat insulation of the oven and the external wall of the oven. Such arrangement of the damper 70 does not disturb the manipulation space between the oven and the door of the oven, said damper 70 is tightly closed to external influences and thus cannot get greasy, it is arranged symmetrically on both sides of the door of the oven, wherewith an equally dampened closing of the door is achieved.

[0011] The hinge 50 of the door of the oven is detachably connected with the support housing 60 by means of a latch 19 of any known type arranged on the beak-shaped holder 4.

[0012] It is understood that a person skilled in the art can conceive different embodiments based on being acquainted with the above disclosure without circumventing the characteristics and novelties of the invention as defined in the appended claims.

Claims

1. An assembly of a door hinge of an oven of a household appliance with dampened closing of the oven door from an ajar position to a final closed position of the oven door, said assembly comprising a door hinge of the oven of the household appliance arranged in the door of the oven, a support housing of the oven arranged on the inner side of the external wall of the housing of the oven, and a damper, wherein the door hinge includes a housing formed like a U-profile with fastening points to the housing of the door of the oven and recesses, a mechanism for holding the door of the oven in the ajar position arranged in the interior of the housing and a beak-shaped holder formed like the letter L with a shorter and a longer leg and is provided on the convex side of the contact of both legs with a boss that co-operates with the mechanism for holding the door of the oven in the ajar position; and on the housing there is a recess on the housing that makes it possible to rotate the housing around the beak-shaped holder to open the door of the oven, wherein the beak-shaped holder is connected with the housing via bearing bolt and via bolt, a two-leg connecting member and a spring, **characterized in that** an oblong recess (6) is formed on lateral parts of the housing (1), inside of which recess there is a freely movable limiting bolt (18) that is fixedly arranged on a two-leg connecting member (9) in the area of the beak-shaped holder (4), and that the beak-shaped holder (4) is provided in the longer leg with a longitudinal through guide hole (15), in which an abutting bolt (17) is arranged, wherein

the abutting bolt (17) abuts with one its free end on the limiting bolt (18), whereas another free end of the abutting bolt (17) abuts on the damper (70) coaxially arranged on the support housing (60).

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2. The assembly of the door hinge according to claim 1 **characterized in that** the abutting bolt (17) is movable in the guide hole (15) in longitudinal axis and its length exceeds the length of the guide hole (15).

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3. The assembly of the door hinge according to claim 1 **characterized in that** the damper (70) is arranged in the area between the heat insulation and the external wall of the oven.

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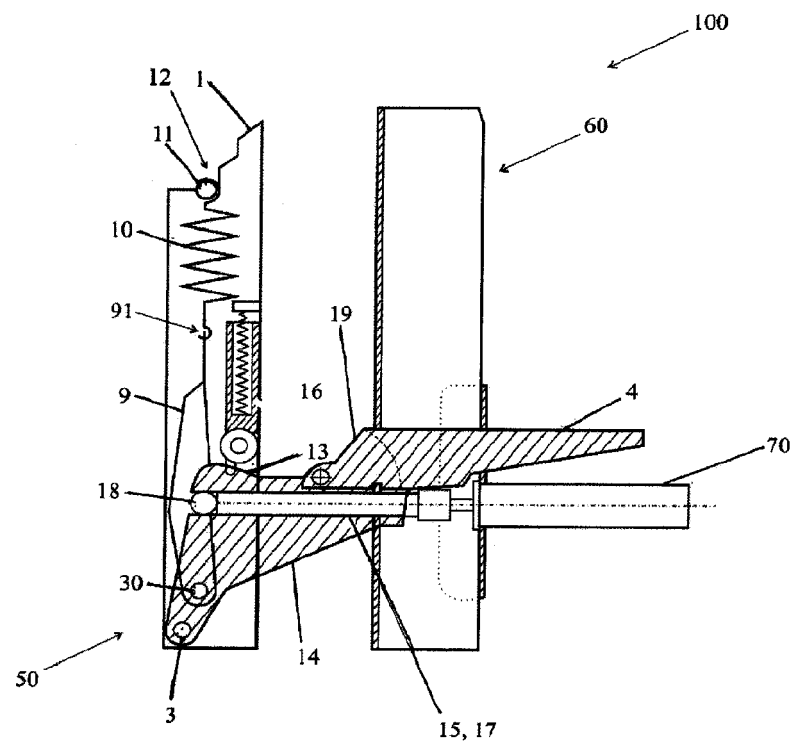


Fig. 1

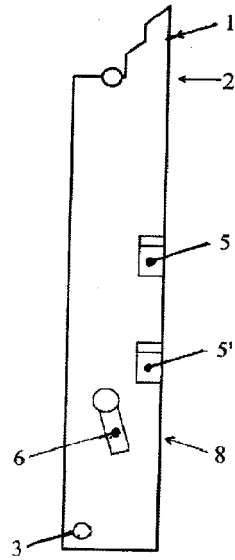


Fig. 2

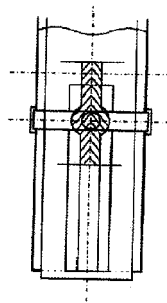


Fig. 3

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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- DE 102007029696 [0003]
- EP 2362050 A [0003]
- SI 22096 [0006]