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(54) **Device for protecting access to a cooking top**

(57) The invention relates to a device (10) for protecting access to a cooking top (12) comprising a frame (15) with a shield (53) that can be freely set in a position in which the shield (53) is operating and suitable for protecting the access to the cooking top (12) or in a position in which the shield (15) is not operating. The device can

be fastened to the cooking top and has a construction with an articulated quadrilateral structure allowing the shield (53) to shift from a position to the other without changing its direction relative to the cooking top (12). The invention also relates to a cooking top (12) comprising the device 10.

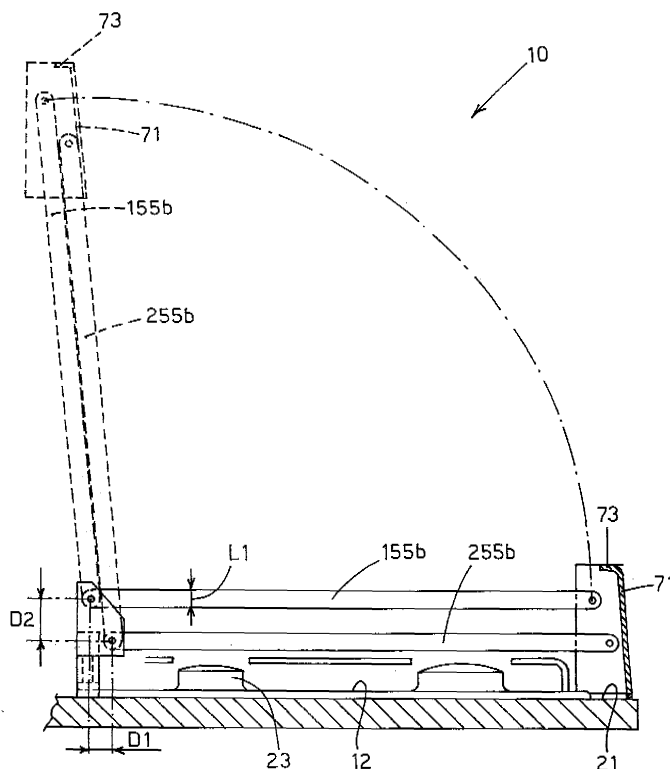


FIG. 2

Description

Field of the Invention

[0001] The present invention relates in general to a device for protecting access to a cooking top, and to the cooking top comprising the device. In particular, the present invention relates to a protection device applicable to a cooking top for kitchens for instance provided with electric stoves or gas cookers, in order to protect persons at risk, for instance children and elderly people, from approaching the cooking top and, particularly, containers laying on the cookers and/or stoves of the cooking top while food is being cooked.

Background art

[0002] Safety devices are known in the art, for protecting the access to a cooking top.

[0003] For instance a protection device is known from patent application AU-A-59355/86 arranged so as to protect access to the cookers and/or stoves of a cooking top. The known device is hinged to a base and is suitable for reaching a "rest" position, in which the device is in a substantially vertical position, and an "operating" position in which the device is in a substantially horizontal position and protects, by means of its own structure, the cooking top and the cookers and/or stoves from being reached by persons at risk.

[0004] The known device, as well as other similar devices such as the one described in the patent publication FR_2610704, have the common problem that the front obstructing surface suitable for protecting access to the cookers and/or stoves in the "operating" position, becomes, in the "resting" position, an obstructing surface that prevents or renders difficult suction of cooking-smokes or -vapors and the lighting of the cooking top.

[0005] The poor suction can imply, for instance, that the vapors cause accumulation of dirt on the safety device, bad smells or similar effects.

[0006] The poor lighting of the cooking top can involve the need of keeping the device permanently in the "operating" position.

[0007] A further problem of known devices is that they require that in the "resting" position blocking elements are provided suitable for stabilizing the substantially vertical position of the safety device; of course the blocking elements in the "resting" position can also consist of a wall facing the cooking top.

Summary of the Invention

[0008] An object of the present invention is a device for protecting access to a cooking top which, even though providing a large protecting surface in the "operating" position, provides a minimum obstructing surface with respect to the smoke flow and to the lighting of the cooking top in the "resting" position.

[0009] Another object is a device that in the "resting" position does not need blocking elements suitable for stabilizing the device itself.

[0010] According to the present invention, these objects are achieved by a device for protecting access to a cooking top having the features set forth in the claims that follow.

[0011] The invention also relates to a cooking top comprising the device according to the invention.

[0012] Claims are an integral part of the teaching of the present invention.

[0013] According to a preferred embodiment, the device according to the invention comprises a frame having an articulated quadrilateral structure, so that shifting from the "operating" position to the "resting" position is made so that the front obstructing surface, suitable for protecting the cookers and/or stoves to be reached, does not become an obstacle to smoke suction and/or to lighting.

[0014] According to a further feature of the present invention, the frame of the device comprises at least a pair of bars that in the "operating" position are substantially parallel to the cooking top and spaced from each other and that in the "resting" position are substantially orthogonal to the cooking top, for instance arranged at about 5° sexagesimal degrees beyond the vertical, and in contact with each other so as to keep the device in stable and vertical position with no need of blocking elements.

List of Figures

[0015] This and other features of the present invention will appear more clearly from the following description of preferred embodiments, provided by way of non-limiting examples, with reference to the attached drawings, in which components designated by same or similar reference numerals indicate components having same or similar functionality and construction and wherein::

Figure 1 shows a perspective view of a device according to the invention;

Figure 2 shows a side view of the device according to the invention in "operating" and "resting" (in broken line) position; and

Figure 3 shows a top view of the device according to the invention in "operating" position;

Figure 4 shows a different embodiment of the front wall of the device of Figure 1.

Detailed Description of the Preferred Embodiments

[0016] With reference to Figure 1, a device 10 for protecting access to a cooking top 12 comprises, in the preferred embodiment, one pair of supporting elements 14a and 14b respectively, and a frame 15 releasably connected, by a fitting, to the pair of supporting elements 14a and 14b.

[0017] The supporting elements 14a and 14b, for instance, are fixed to the cooking top 12 that is preferably

fitted in a known way in a base (TOP) 21 (Figure 1, Figure 2) of a kitchen and comprises a plurality of cookers and/or stoves 23 of known type, such as gas cookers or electrical stoves, and respective knobs 25 (Figure 2, Figure 3), known per se, suitable for controlling the operation of the cookers and/or stoves 23.

[0018] In the preferred embodiment each supporting element 14a, 14b comprises respective fastening elements 41a, 41b (Figure 1, Figure 2), suitable for allowing the supporting element 14a or 14b to be fixed to the cooking top 12, for instance with screws, and respective fitting elements 43a and 43b suitable for allowing the frame 15 to be releasably fixed by fitting to the supporting elements 14a and 14b.

[0019] The fitting elements 43a and 43b can be made for instance with a "U" female shape, and can extend orthogonally to the cooking top 12 for a length sufficient for housing, as it will be hereafter described in further detail, a bearing element 51 of the frame 15 and for coupling said frame 15 to the cooking top 12.

[0020] In the preferred embodiment, the supporting elements 14a and 14b are arranged at opposite ends of a side of the cooking top 12 and arranged with the fitting elements, 43a and 43b respectively, facing one another so as to be able to perfectly house the bearing element 51 of frame 15.

[0021] Still more preferably the supporting elements 14a and 14b can be made up of supporting elements already existing in the cooking top 12 in order to support a possible cover of the cooking top 12.

[0022] Of course, in other further embodiments the supporting elements can be integral with the bearing elements and fixed either to the cooking top 12 or, for instance in the case of cooking tops already installed, to the TOP 21, even by maintaining the function of putting in positioning relation the cooking top 12 with the device 10 or with the frame 15.

[0023] In the preferred embodiment, the frame 15 comprises the bearing element 51, a screen (shield) 53 and two pairs of bars, a first pair of bars 155a, 255a, and a second pair of bars 155b, 255b respectively, having their end hinged, as it will be described later on in detail, to the support 51 and to the shield 53 respectively so as to form an articulated quadrilateral structure.

[0024] In the following description of a preferred embodiment, however, reference will be made to an articulated quadrilateral structure since this kind of structure comprises structures provided with four bars connected with one another by means of hinges so as to form a quadrilateral. In this kind of structure the bars can have different lengths, or they can also be equal and opposite in pairs.

[0025] In the description of the preferred embodiment an articulated quadrilateral structure will be illustrated, provided with bars equal and opposite in pairs (articulated parallelogram), but it goes without saying that, as a technician skilled in the field can easily understand, the preferred embodiment does not change also in the case

in which, compatibly with the goal to be achieved, the bars are different length one with respect to another.

[0026] Preferably the frame is made of aluminum material but, as a technician skilled in the field can easily understand, also other materials can be used such as light metal alloys, for instance for the bars, or glass, for instance for the shield.

[0027] In the preferred embodiment, the bearing element 51 comprises a bar 61, a pair of brackets 64a and 64b respectively, and a pair of embedding frame elements 63a and 63b respectively, arranged so that they can be embedded, in a known way, in the fitting elements 43a and 43b of the supporting elements 14a, 14b.

[0028] In the preferred embodiment, the brackets 64a and 64b and the embedding frame elements 63a and 63b are respectively fixed to or formed on the opposite ends of the bar 61 that has a length substantially equivalent to the width of the cooking top 12.

[0029] In the preferred embodiment each bracket 64a, 64b comprises two hinges 164a, 264a and 164b, 264b respectively, arranged according to a configuration determined by distances D1 and D2 respectively parallel (in a horizontal direction) and orthogonal (in a vertical direction) to the cooking top 12 and suitable for forming a articulated quadrilateral structure, through the bars 155a, 255a and 155b, 255b, hinged to respective hinges 164a, 264a and 164b, 264b.

[0030] For instance, using bars of same dimensions and same width L1 equal to about 20 millimeter, the distances D1 and D2 between the hinges can be, for instance, of about 25 millimeter in horizontal and 40 millimeter in vertical, respectively.

[0031] In the preferred embodiment, the shield 53 comprises or is shaped so as to form a front wall 71, for instance not permeable, and two side walls, 74a and 74b respectively, for instance not permeable they too and, as it will be illustrated in further detail hereafter, when the device 10 is in operating position is suitable for protecting the cookers and/or stoves 23 from being accessed, for instance, by persons at risk such as children or elderly people.

[0032] In other embodiments, the shield 71 (Figure 3, Figure 4) can comprise through holes 71a, having for instance circular or rectangular cross-section, suitable for making flow of air or comburent easier for feeding, in particular, the cookers and/or stoves 23 near the shield 71. In these other embodiments the through holes 71a are arranged preferably at a height corresponding to or a little lower than the height of cookers and/or stoves 23.

[0033] The front wall 71 of the shield 53 preferably comprises a handle 73 (Figure 2, Figure 3) made for instance by bending the front wall 71, and pointing preferably towards the cooking top 12 (inside of the device or the shield) when the device 10 is in operating position, so as not to be reachable by people at risk, such as children.

[0034] In the preferred embodiment, each side wall comprises two hinges, 174a, 274a and 174b, 274b re-

spectively, arranged with a configuration substantially identical or equivalent to the one already described for the hinges 164a, 264a and 164b, 264b comprised in the brackets 64a and 64b.

[0035] At its base the shield 53 can comprise a seal 75, for instance made of a rubber material, suitable for resting on the TOP 21 of the kitchen, when the device 10 is in operating position, and for slowing down a possible liquid flow, for instance boiling liquids, overflow from pots in the zone of cookers and/or stoves 23.

[0036] The shield 53 can also comprise two recesses 76a and 76b respectively, (Figure 1, Figure 3) at the base of the side walls 74a and 74b, the recesses too being provided for instance with rubber material seals, shaped so as to provide a light pressure sealing on the side walls of the cooking top 12.

[0037] The shield 53 can have quite variable height dimensions, according to space- and use needs. The Applicant thinks that optimal height dimensions can range between 135 and 175 millimeter, but other dimensions bigger or smaller than the quoted values can be used.

[0038] The bars 155a, 255a and 155b, 255b, have first ends, not numbered, hinged in a known way to the brackets 64a and 64b by the hinges 164a, 264a and 164b, 264b, and second ends, not numbered, hinged in a known way to the side walls 74a and 74b, of shield 53, preferably to the inner walls to device 10, by the hinges 174a, 274a and 174b, 274b respectively, so as to form an articulated quadrilateral.

[0039] The bars 155a, 255a and 155b, 255b, are suitable for rotating with fulcrum on the hinges 164a, 264a and 164b, 264b of the brackets 64a and 64b, around the supporting element 51, from a position in which the bars are substantially parallel to the cooking top and spaced one from another to a position in which they are substantially orthogonal to the cooking top and in contact.

[0040] The operation of the above described device 10 is the following.

[0041] A position of the device 10 (Figure 1, Figure 2, Figure 3) hereafter referred to as, conventionally, "operating position", is taken as reference, for describing the operation. In the operating position the device 10 with its frame 15 is arranged so that the shield 53 rests on the TOP 21 of the kitchen.

[0042] In such a position the frame 15 has, for instance, its bars 155a, 255a and 155b, 255b, arranged substantially parallel to the cooking top 12, and the shield 53 is arranged in a position substantially orthogonal to the cooking top 12.

[0043] In the operating position, the shield 53 protects, by means of the front wall 71, that people at risk such as children or elderly people touch pots exposed to high temperatures or knock them over. Moreover the shield 53, since it rests on the TOP 21 of the kitchen, does not offer grips for lifting and only an adult can reach the handle 73 advantageously arranged inside the shield 53.

[0044] The shield 53 also protects people at risk from reaching the knobs 25 that control the operation of cook-

ers and/or stoves 23, while, at the same time, does not impede an adult from reaching said knobs 25.

[0045] The presence, preferably, of the sockets 76a and 76b suitable for providing pressure sealing on the side walls of the cooking top 12, can be helpful in order to ensure that the shield 53 is not movable across the direction of the bars (laterally) and therefore ensures a high stability of the device 10 in the operating position.

[0046] An adult can rotate, by means of the handle 73, the shield 53 and the bars 155a, 255a and 155b, 255b, of the device 10 around the bearing element 51, thanks to the presence of the hinges on the brackets 64a, 64b and on the side walls 74a, 74b of shield 53, so as to cause the device 10 with its frame 15 reach a position hereinafter referred to as, conventionally, "resting position", as shown in broken lines in Figure 3.

[0047] During rotation, the bars 155a, 255a and 155b, 255b, shift from a position in which they are substantially parallel to the cooking top 12, to a position in which they are substantially orthogonal to the cooking top 12, whereas the shield 53, thanks to the articulated quadrilateral structure of the frame 15, stays arranged in a substantially constant (orthogonal) position relative to the cooking top 12 during the whole rotation.

[0048] The terms "substantially orthogonal" and "parallel" in the present description is used for referring to positions substantially equivalent, with a certain degree of approximation, for instance some sexagesimal degrees, to conditions of parallelism and orthogonality.

[0049] When the resting position is reached, the shield 53, thanks to the substantially orthogonal position, provides, as a technician skilled in the field can easily understand, minimum resistance to a possible smoke- or vapor flow and does not prevent lighting from the top of the cooking top 12.

[0050] In the resting position, corresponding to a rotation of the bars 155a, 255a and 155b, 255b, by little more than 90°, for instance by about 95°, the device 10 advantageously is in a stable position since the bars 155a, 255a and 155b, 255b, come to contact self-supporting themselves and the shield 53.

[0051] In summary, the reached resting position in the preferred embodiment is both a condition limiting the rotation of the device and a no-spontaneous-return condition to the operating position.

[0052] Of course, an adult can bring the device 10 back from the resting position to the operating position according to what has already been described, by gripping the handle 73.

[0053] Up to now the device 10 has been described taking an articulated quadrilateral structure as reference, and having two pairs of bars.

[0054] Of course, as a technician skilled in the field can easily understand, in other embodiments the quadrilateral can be articulated also by means of a single pair of bars hinged to a flange arranged, for instance, centrally with respect to both the support element and the shield.

[0055] Of course, in further embodiments there can be

also more than two bars hinged to the flange or to the flanges.

[0056] In even further embodiments the pins to which the bars are hinged can comprise clutch discs of known type, suitable for allowing controlling the effort needed for shifting from the operating position to the resting position and viceversa.

[0057] The described device can be applied to any kind of cooking top, with knobs arranged both in a front- and side zone. The device, moreover, thanks to the presence of suitable embedding frame elements, can be easily fixed to or removed from the cooking top.

[0058] Obvious changes and/or variations to the above disclosure are possible, as regards dimensions, shapes, materials, components, as well as details of the described construction and operation method without departing from the scope of the invention as defined by the claims that follow.

Claims

1. Device for protecting access to a cooking top (12) comprising

- a frame (15) including at least a shield (53) and arranged for shifting from a first position, wherein said shield (53) is operating and arranged for protecting access to the cooking top (12), to a second position wherein said shield (53) is not operating;
- supporting means (14a, 14b) associated to the cooking top and arranged for shifting said frame (15) in positioning relation with the cooking top (12);

characterized in that said frame (15) has an articulated quadrilateral structure.

2. Device according to claim 1 **characterized in that** said frame comprises

- bearing means (51, 63a, 63b) arranged for being coupled to said supporting means (14a, 14b) and comprising at least a bracket (64a, 64b) having at least two hinges (164a, 264a, 164b, 264b); and
- at least a pair of bars (155a, 255a, 155b, 255b) hinged to said at least two hinges (164a, 264a, 164b, 264b) and to said shield (53).

3. Device according to claim 2 **characterized in that** said bearing means (51, 63a, 63b) are releasably coupled to said supporting means (14a, 14b).

4. Device according to any one of claims 2 to 4, **characterized in that**

- said first position corresponds to a position wherein said bars are arranged substantially parallel to the cooking top and spaced from each other by a predetermined distance; and
- said second position corresponds to a position wherein said bars are substantially orthogonal to the cooking top and in contact with each other.

5. Device according to any one of the previous claims, **characterized in that** said shield comprises a front wall (71) and two side walls (74a, 74b).

6. Device according to any of the previous claims, **characterized in that** said shield remains positioned with a constant orientation relative to said cooking top both in said first position and in said second position.

7. Cooking top to be connected to a kitchen base (21), comprising

- a plurality of cookers and/or stoves (23);
- a device for protecting access to the cooking top (12) having at least a shield (53) and arranged for shifting from a first position wherein said shield (53) is operating and arranged for protecting the access to the cooking top (12) to a second position wherein said shield (53) is not operating;
- supporting means (14a, 14b) arranged for associating said device (15) to the cooking top (12);

characterized in that said device (10) comprises a frame (15) having an articulated quadrilateral structure.

8. Cooking top according to claim 7, **characterized in that** said frame (15) of said device (10) comprises

- at least a bracket (64a, 64b) provided with at least two hinges (164a, 264a, 164b, 264b); and
- at least a pair of bars (155a, 255a, 155b, 255b) hinged to said at least two hinges (164a, 264a, 164b, 264b) and to said shield (53).

9. Cooking top according to claim 8, **characterized in that** said first position of said device corresponds to a position wherein said bars are arranged substantially parallel to the cooking top and spaced from each other by a predetermined distance; and

- said second position of said device corresponds to a position wherein said bars are substantially orthogonal to the cooking top and in contact with each other.

10. Cooking top according to any one of claims 7 to 9, **characterized in that** said shield of said device re-

mains positioned with constant orientation relative to said cooking top both in said first position and in said second position.

11. Cooking top according to any one of claims 7 to 10, ⁵
characterized in that said shield of said device in
said first position rests on said kitchen base (21).

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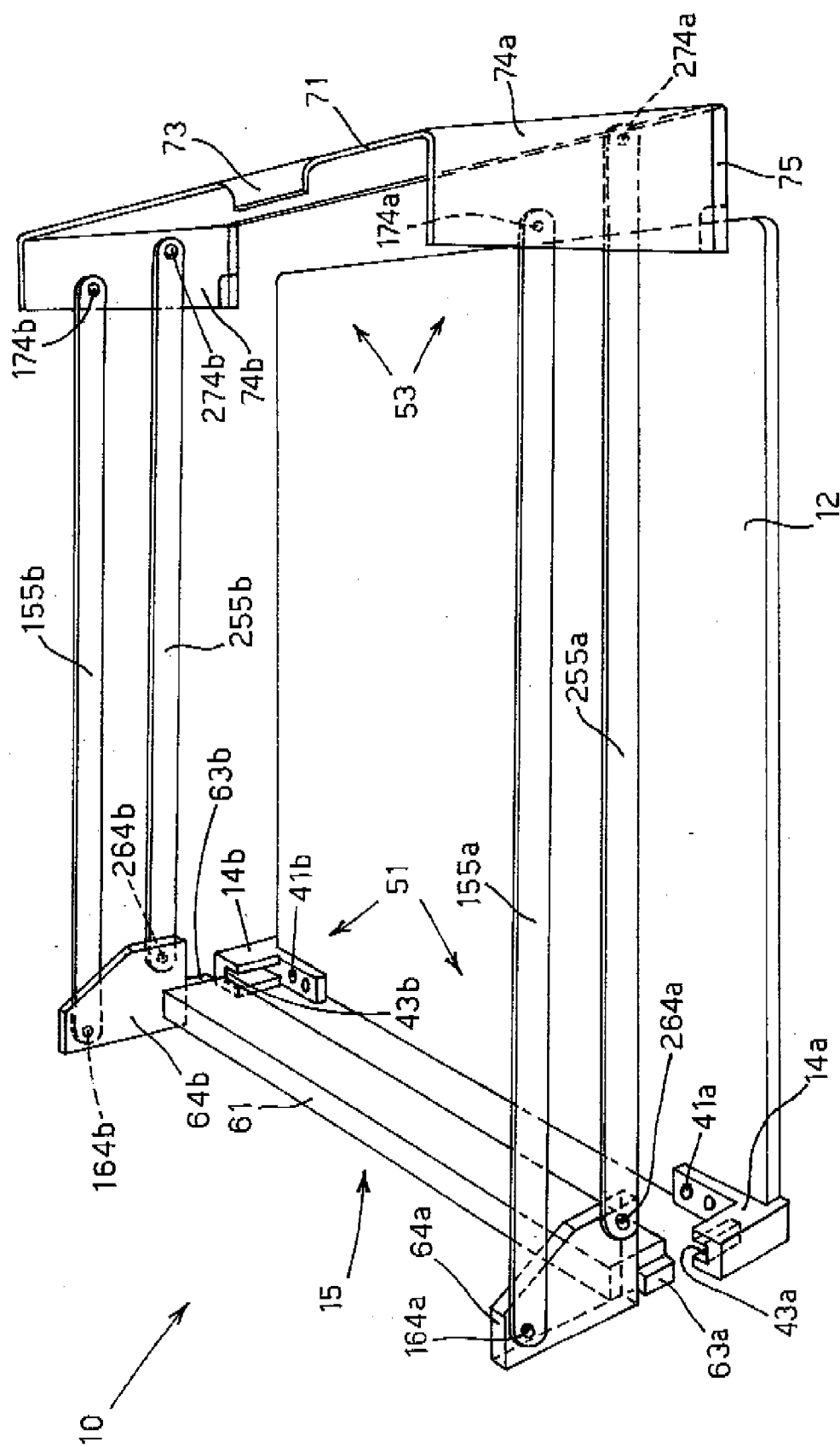


FIG. 1

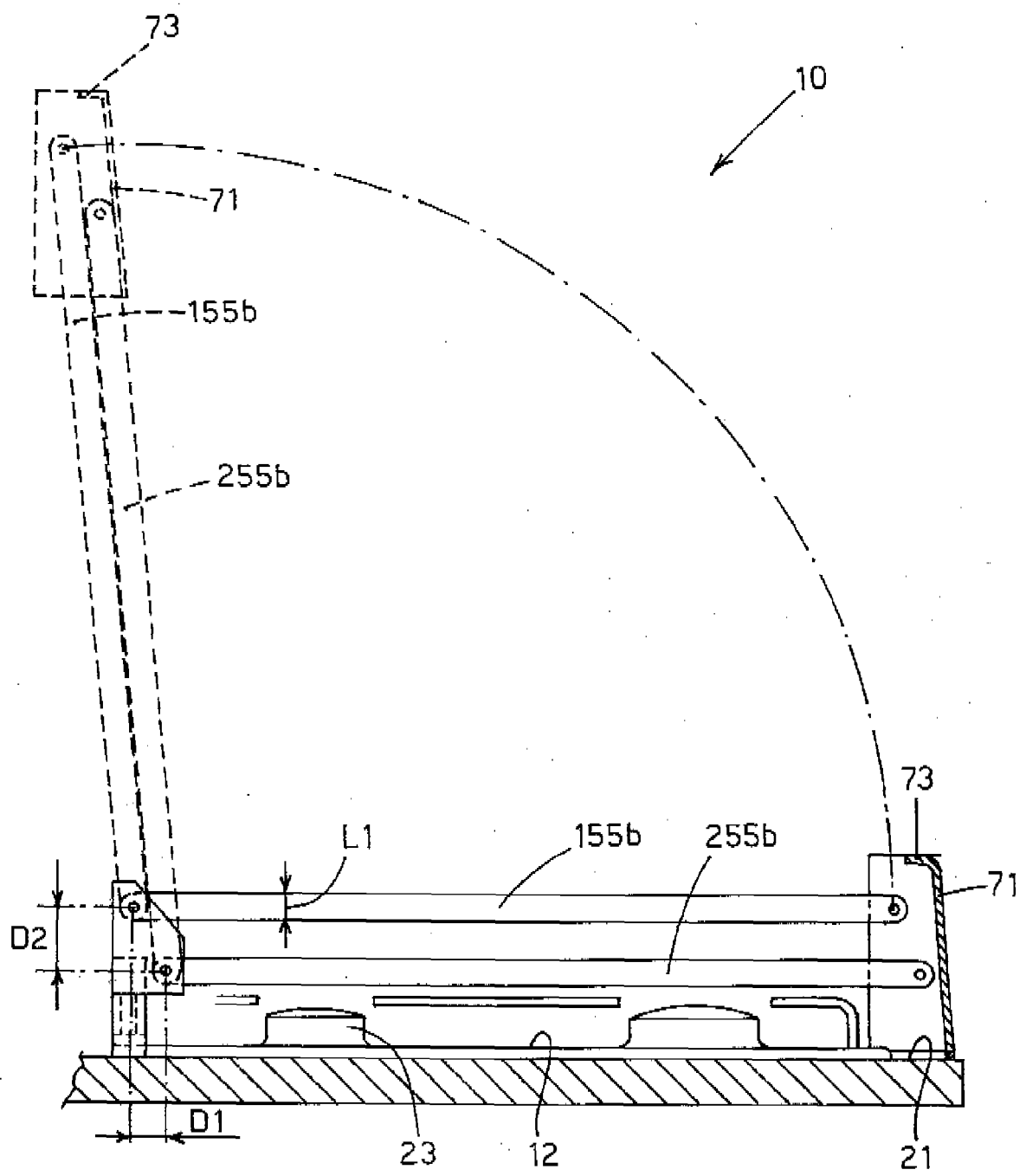


FIG. 2

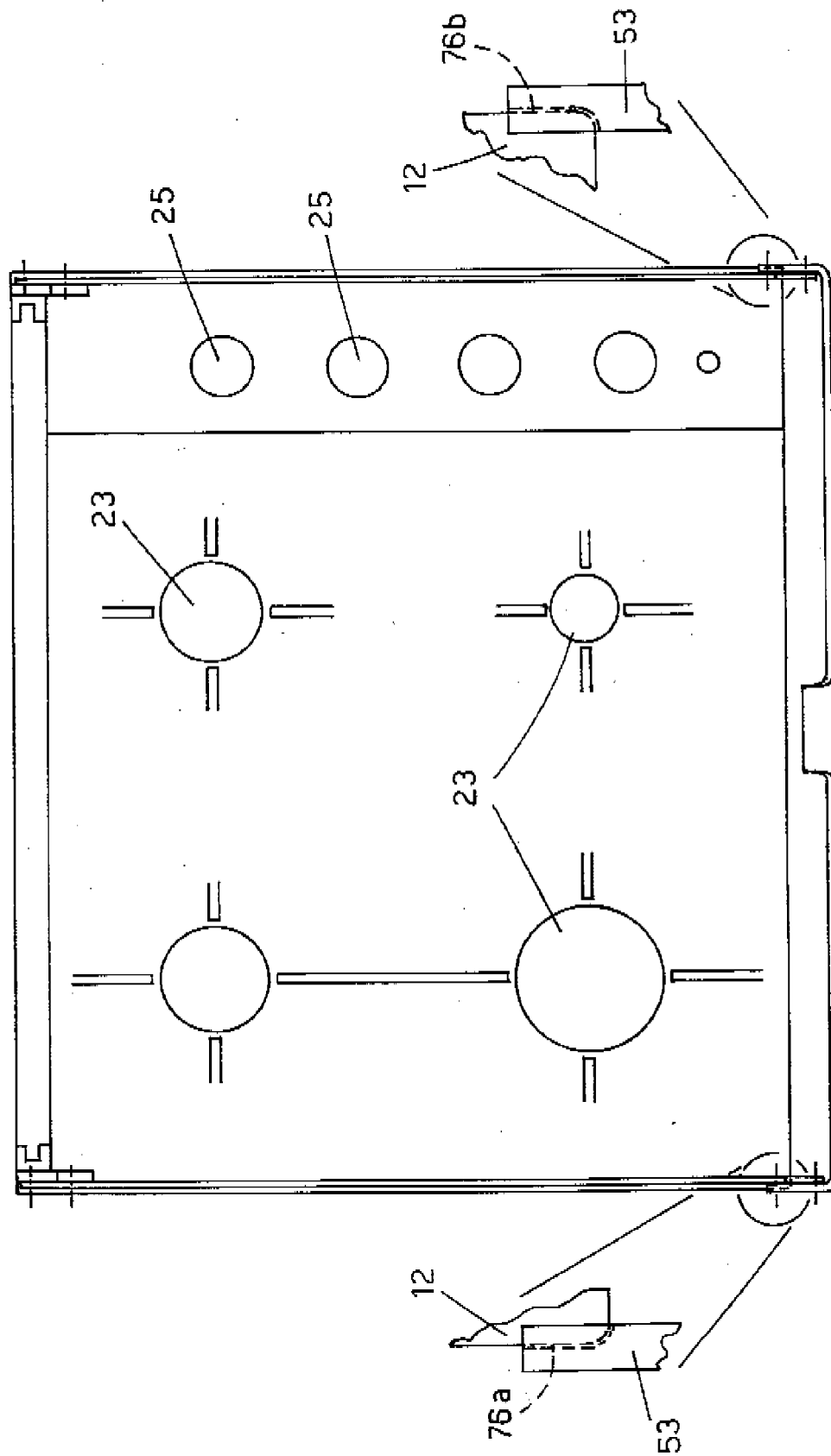


FIG. 3

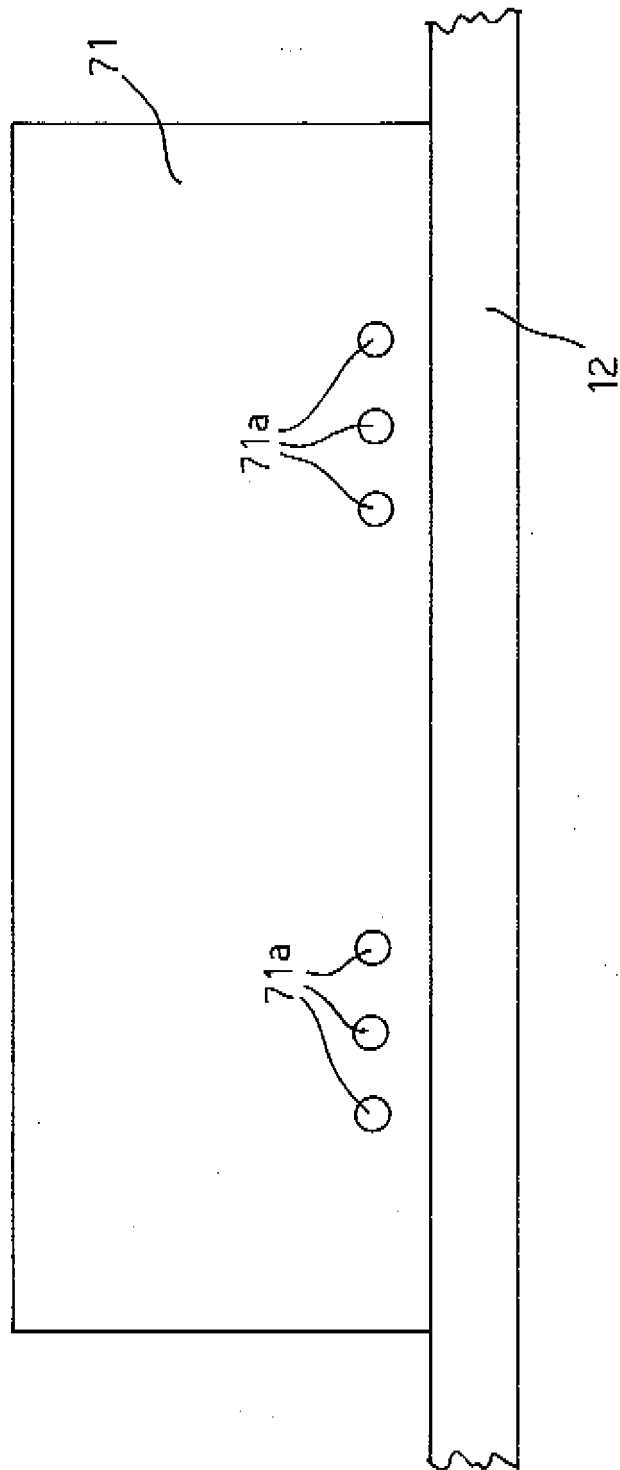


FIG. 4

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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