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(54) **Household appliance with a branching piece for switch terminals**

(57) The present invention relates to a household appliance, in particular an oven with a switch comprising a branching piece (40) having a terminal holding part (43) which provides connection to a switch output terminal (33); at least two branching arms (41, 42) whereon the

electrical cables arriving to the related loads are connected in order to multiplex the electrical signal exiting the input terminal (31) of the switch. Said branching piece is characterized in that said at least two branching arms (41, 42) are at a higher point than the switch terminals (33).

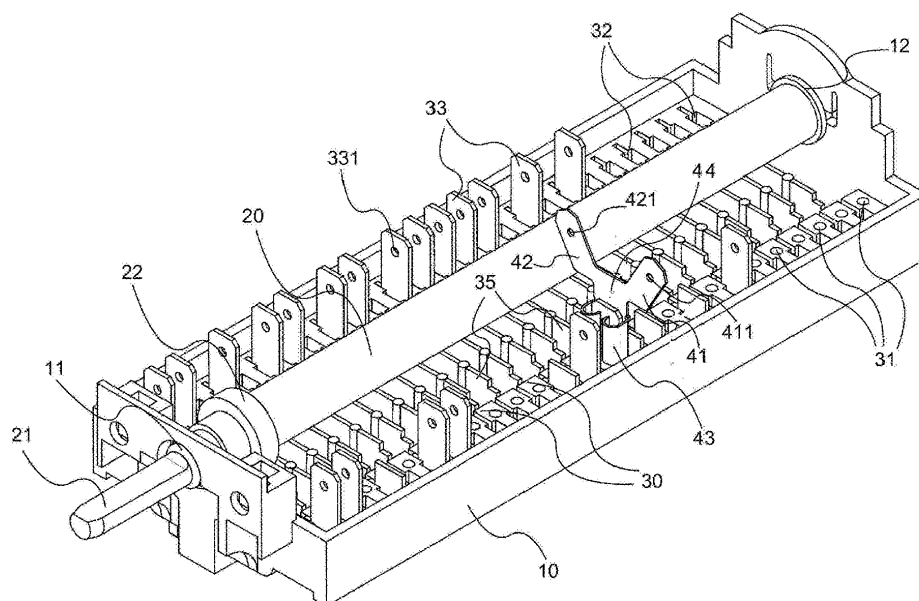


FIG. 1

Description

[0001] The present invention relates to household appliances, in particular cookers, comprising an electric switch being designed to apply different commands to the household appliance through a single control knob, the switch being equipped with at least one branching piece which has a terminal holding part which provides connection with the switch's terminal, and which has at least two branching arms whereon the electrical cables arriving to the related loads are connected in order to multiplex the electrical signal exiting the switch's input terminal.

KNOWN STATE OF THE ART

[0002] A switch is an apparatus which provides applying and interrupting electrical current in an electrical circuit or which provides the changing of the connections of the circuit in an arrangement. When the shaft inside the switch is rotated around the own axis thereof and when it is brought to a certain position, it completes the circuit by means of the movable contacts and it matches the signal arriving to the switch with the corresponding terminal and it provides the required result. In other words, switches can also be defined as switches which provide the electrical circuits to reach a plurality of results. In more details, switches have a plurality of terminals whose contact with the input is controlled by a movable contact. In general, said terminals are connected through the electrical cables to the members which are desired to be controlled. Accordingly, for instance, in a cooker, the user turns the control knob step by step and he/she can operate the lower or upper heating resistances of the oven. When both lower and upper heating is desired, two resistances at the same time have to be actuated by means of one command. In such cases, branching pieces are fixed to the resistance terminals.

[0003] In the picture related to the prior art, the general view of such a branching piece is given. With reference to the structure of the branching piece, at the continuation of the terminal holding part (a) whereon the terminal is placed, a first branching arm (b) which extends upwardly can be seen. The second branching arm (c) is positioned at the rear part of the holding part (a).

BRIEF DESCRIPTION OF THE INVENTION

[0004] The present invention relates to branching arms added to the terminals inside the switch, in order to bring new advantages in the related technical field.

[0005] An object of the subject matter invention is to provide a branching piece for the switch of a household appliance, which does not contact with the other switch terminal which is adjacent to the switch terminal whereon it is fixed.

[0006] In order to realize the abovementioned objects and all of the objects obtained from the detailed descrip-

tion below, the present invention relates to a branching piece comprising a terminal holding part which provides connection to a switch output terminal; and at least two branching arms whereon the electrical cables arriving to the related loads are connected in order to multiplex the electrical signal exiting the input terminal of the switch. As an improvement of the subject matter invention, said at least two branching arms are at a higher point than the switch terminals. Moreover, in the subject matter invention, the multiplexer can be at the same plane, or it may have arms at different planes which do not contact with the other switch terminal.

[0007] In a preferred embodiment of the present invention, said branching arms are in the same plane in the horizontal position and they are at the same height in the vertical position.

[0008] In another preferred embodiment of the present invention, said branching arms extend at the upward continuation of the holding part or of the body part at a certain angle so as to diverge from each other. The angle between the two branching arms can be narrow angle or wide angle or orthogonal angle.

[0009] In another preferred embodiment of the present invention, said branching arms are positioned symmetrically to each other.

[0010] In another preferred embodiment of the present invention, said branching arms are positioned asymmetrically to each other.

[0011] In another preferred embodiment of the present invention, there is a hinge which provides the movement of at least one of said branching arms with respect to the holding part.

[0012] In a plurality of embodiments of the present invention, the body opening between said branching arms has a form similar to a "trapezoid", "isosceles trapezoid", similar to "V", similar to "U", similar to "T" or similar to "L".

[0013] In a preferred embodiment of the present invention, the branching piece comprise branching arms which are directed to different directions so as not to contact with the switch shaft.

BRIEF DESCRIPTION OF THE FIGURES

[0014] In Figure 1, the general structure of the switch and the assembled view of the piece are given.

[0015] In Figure 2a, 2b, 2c and 2d, perspective views of the different embodiments of the subject matter branching piece are given.

THE DETAILED DESCRIPTION OF THE INVENTION

[0016] In this detailed explanation, the subject matter branching piece is explained with references to examples without forming any restrictive effect in order to make the subject more understandable. Accordingly, in the detailed description below, the subject matter invention is assumed to be used in the switch of a cooker. However, the subject matter invention can also be used in any

switch which provides applying different commands to the device through a single control knob.

[0017] In Figure 1, the perspective view of a switch is given. The switch comprises a protective chamber (10) whereon shaft housings (11, 12) are positioned and which protects the mechanism inside the switch. There is a switch shaft (20) which passes through the switch and which is related to the shaft housings (11, 12) which are positioned on the chamber (10). The switch shaft (20) can rotate around the own axis thereof. On the switch shaft (20), there is a shaft extension (21) where a control knob can be fixed in order to facilitate the rotation of the switch shaft (20) around the own axis thereof. Moreover, on the switch shaft (20), on the side of the switch shaft (21) extension, there is an adjustment part (22) ring which adjusts the rotation amount of the switch shaft (20) around the own axis thereof.

[0018] In the switch whose detailed figure is given, there is a switch group (30) which is placed inside the chamber (10) and whereon the circuit members are positioned. At the input of the switch group (30), there is a plurality of input terminals (31) and there are terminal housings (32). The terminals are placed into said terminal housings (32). On the output terminals (33), there are cable apertures (331) where the cables (not illustrated in the figure) can be connected through which signals are transferred. The electrical connection between the output terminals (33) and the input terminals (31) preferably in electrical terminal form is controlled by movable contacts (35). There are tabs which are positioned in a certain arrangement on the switch shaft (20). Accordingly, when the switch shaft (20) is rotated around the own axis thereof, these tabs correspond onto the related movable contact (35), and they make said contact change position, accordingly, it brings the circuit between the input terminals (31) and output terminals (33) to the open or closed position. Since this embodiment is a known member in the art, it will not be given in detail here.

[0019] In Figure 2a, a general view of the branching piece (40) is given. The branching piece (40) comprises a body (44) and a terminal holding part (43) on the body (44), which provides holding onto the terminals (33). Moreover, on the branching piece (40), there are the first branching arm (41) and the second branching arm (42), which are preferably positioned in a symmetrical manner and which extend upwardly so as to make a certain angle with the terminal holding part (43). Again preferably the first and the second branching arm (41, 42) extend up to the same height with respect to each other. On the first and second branching arms (41, 42), there are cable connection apertures (411, 421) where the cable transferring the arriving signals can be connected as realized in the terminals (33). Between the first and second branching (41, 42), there is the body end part (441). Between the branching arms (41, 42), there is a body opening (45) where the body end part (441) forms a base. In the preferred embodiment in Figure 2a, the body opening (45) has a form similar to an "isosceles trapezoid". In different

applications of the subject matter invention, the body opening (45) has a form similar to "V" and it forms a form similar to "Y" together with the body (44). As can be seen in Figure 2a, the first and the second branching arms (41, 42) can be in the same plane, or they can be embodied in different and parallel planes so as not to contact with the switch shaft (20).

[0020] Under the light of the abovementioned details and under the light of Figure 1, the operation of the subject matter invention is as follows. The branching piece (40) is connected on the upper part of the desired terminal (33), and the first and the second branching arm (41, 42) of the branching piece (40) is at a higher point than the other terminals. Since the branching arms (41, 42) are at a higher level, the cables connected to the branching piece (40) are at a higher level than the cables connected to the other terminals (33) and a contact between the cables is prevented. Preferably the first and the second branching (41, 42) arms at the same height and they are horizontally in the same axis. By means of this, the cables can be easily assembled.

[0021] With reference to Figure 2b, in an alternative embodiment of the subject matter invention, the first and the second branching arms (41, 42) which are the above parts of the branching piece (40) can extend perpendicular to the ground instead of extending in an angled manner. In this embodiment, the body opening (45) has a form similar to "U". In another alternative embodiment of the subject matter invention, hinges can be added to the body end (441) or body opening (45) where they have an angle with the terminal holding part (43) and the extension angle of the branching arms (41, 42) can be changed and it can be fixed at a desired point. On the other hand, the branching arms (41, 42) may not be positioned symmetrical with respect to each other. Moreover, in the preferred embodiment, there may be more than two branching arms (41, 42).

[0022] With reference to Figure 2c, in another alternative embodiment of the subject matter invention, the first and the second branching arms (41, 42) exist at a position which is in a direction intersecting the body (40) so as to be in a different plane from the holding part (43) and the body part (44). In a preferred embodiment, the first and the second branching arms (41, 42) extend in a parallel manner to the extension direction of the chamber (10). The body opening (45) existing between the two arms (41, 42) and the body end (441) in this embodiment form preferably a prismatic form or preferably a form similar to a rectangular prism.

[0023] With reference to Figure 2d, in another alternative embodiment of the subject matter invention, so as to define an L like shape, the second branching arm (42) extends perpendicular to the ground and it extends at the continuation of the holding part (43) upwardly, the first branching arm (41) extends outwardly from the chamber (10) and parallel to the ground.

[0024] REFERENCE NUMBERS

10	Chamber		2.	A household appliance according to Claim 1, characterized in that said at least two branching arms (41, 42) are at a higher point than the switch terminals (33) and than the holding part (43) providing connection to these terminals (33).
11	Shaft Housing			
12	Shaft Housing	5		
20	Switch Shaft		3.	A household appliance according to Claim 1, characterized in that said at least two branching arms (41, 42) are at the same height.
21	Shaft Extension	10		
22	Adjustment part		4.	A household appliance according to claim 1 or 2, wherein said branching arms (41, 42) extend at the upward continuation of the holding part (43) or of the body part (44) at a certain angle so as to diverge from each other, where said angle can be narrow angle or wide angle or orthogonal angle.
30	Contact Group			
31	Input Terminal	15		
32	Terminal Housing		5.	A household appliance according to any of the preceding claims, wherein said branching arms (41, 42) are positioned symmetrically to each other.
33	Output Terminal	20		
331	Cable Connection Aperture		6.	A household appliance according to any of the preceding claims, wherein said branching arms (41, 42) are positioned asymmetrically to each other.
35	Movable Contact			
40	Branching Piece	25		
41	First Branching Arm		7.	A household appliance according to any of the preceding claims, wherein the body opening (45) between said branching arms (41, 42) has a form similar to a "trapezoid", "isosceles trapezoid", similar to "V", similar to "U", similar to "T" or similar to "L" or similar to a "prismatic" form.
411	Cable Connection Aperture	30		
42	Second Branching Arm			
421	Cable Connection Aperture		8.	A switch for a household appliance according to any of the preceding claims.
43	Holding part	35		
44	Body Part		9.	A branching piece for a household appliance according to any of claims 1 to 7.
441	Body End	40		
45	Body Opening			

Claims

1. A household appliance, in particular a cooker, comprising an electric switch being designed to apply different commands to the household appliance through a single control knob, the switch being equipped with a branching piece (40) having a terminal holding part (43) which provides connection to a switch output terminal (33); at least two branching arms (41, 42) whereon the electrical cables arriving to the related loads are connected in order to multiplex the electrical signal exiting the input terminal (31) of the switch, **characterized in that**, said at least two branching arms (41, 42) are at a higher point than the switch terminals (33).

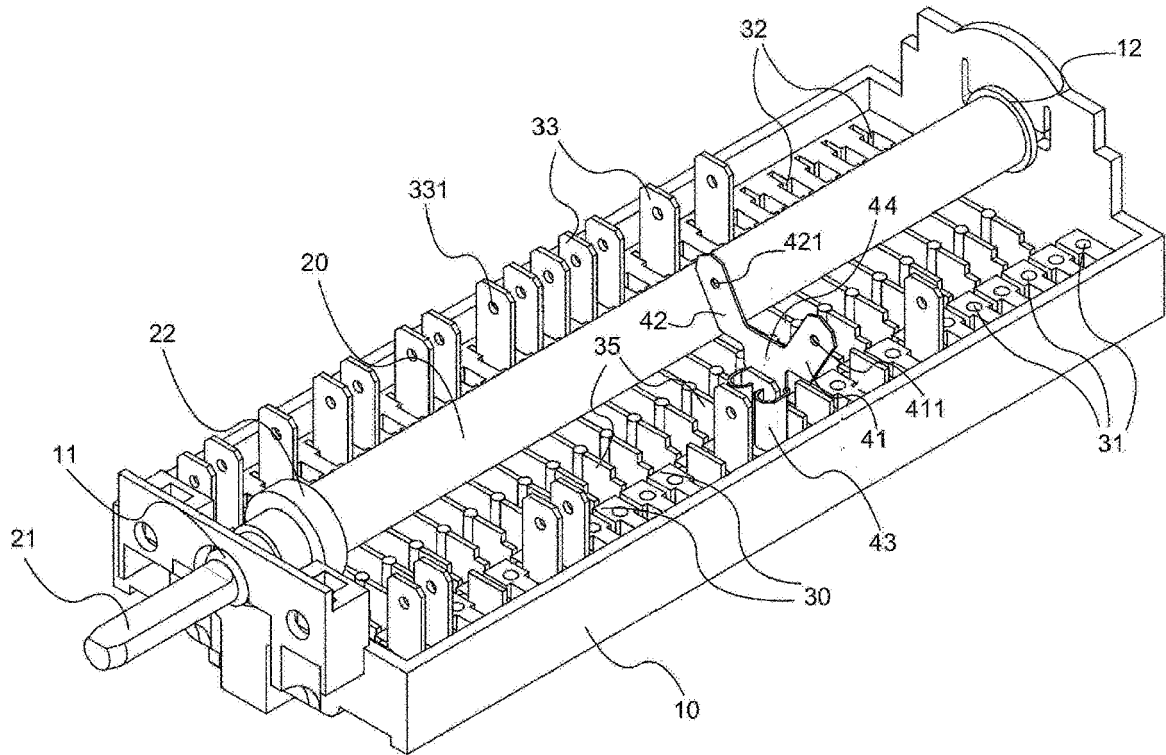


FIG. 1

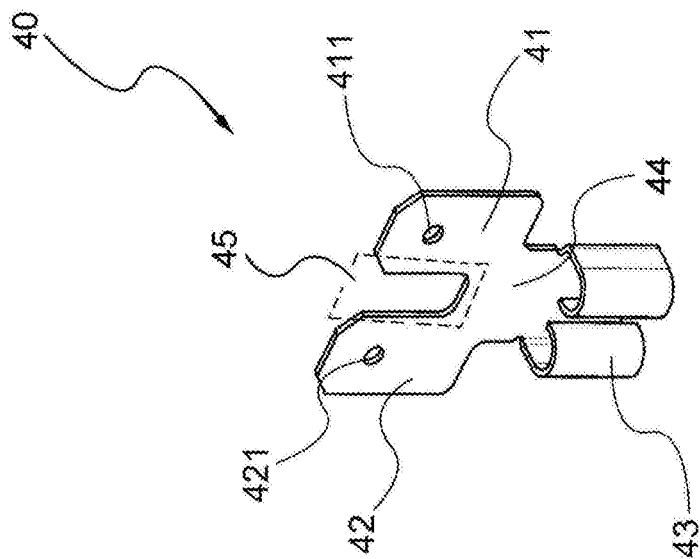


FIG. 2b

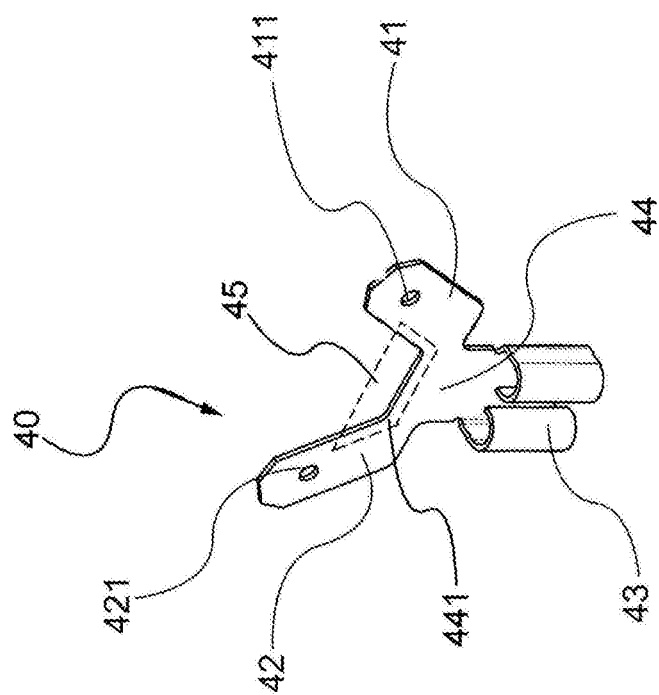


FIG. 2a

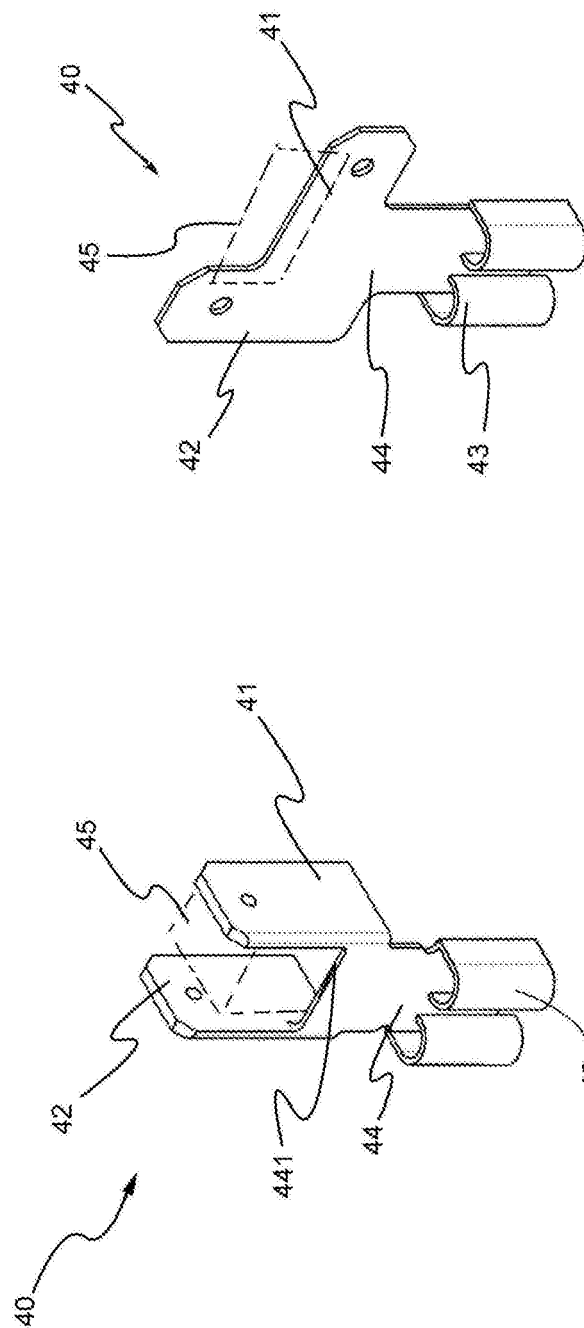


FIG. 2c

FIG. 2d