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(54) **Household appliance, in particular gas and electric range, including a cover and a safety device.**

Haushaltsgerät, insbesondere Gas- und Elektroherd, mit Deckel und Schutzvorrichtung.

Appareil ménager, en particulier cuisinière à gaz ou électrique, avec un capot et un dispositif de sécurité.

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(56) References cited:
EP-A- 0 102 413 **GB-A- 2 230 085**
US-A- 2 059 735 **US-A- 2 115 305**

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Description

BACKGROUND OF THE INVENTION

The present invention relates to a household appliance, in particular gas and electric range, including a movable cover and a safety device.

As is known, at present, the use conditions of a generic cooking apparatus, in particular of an intermediate quality standard, exclusively depend on a proper opening and closing operation of the supply source by the user.

Actually, in its rest condition, the electrical household appliance is not or can not be actuated by erroneous operations, for example in a mixed gas and electrically supplied range, or, as it frequently occurs, by children handling the control knobs of the apparatus, with a consequent very great danger.

Recently, thermal safety systems have been developed, specifically designed for locking the gas outflow as the flame is lacking, which systems are usually based on the use of thermocouples.

Another system, which is mainly used in northern countries provides for the use of mechanical shutoff valves which are driven as the appliance cover is displaced, thereby exclusively with the cover in its open condition the gas ejectors of the appliance are supplied with gas.

Such an approach, however, is very complex construction wise, since the provision of a mechanical valve originates great wear problems, with consequent possible leakages.

Moreover, it is possible to operate the control knobs to their open condition both with the cover open and with the cover closed, which thing represents a possible dangerous situation.

The document US-A-2 059 735 discloses a household appliance, in particular gas electric range, having substantially the features of the preamble of the main claim.

SUMMARY OF THE INVENTION

Accordingly, the aim of the present invention is to solve the above mentioned problem, by providing a safety device for household appliances, including a cover to be driven during the use of the appliance, in particular for gas and electric ranges, which is adapted to prevent the control knobs of the appliances from being operated as the cover is in its closed condition.

Within the scope of the above mentioned aim, a main object of the present invention is to provide such a safety device which can be used in association with or in replacement of the conventional integral safety systems such as thermocouples, used in cooperation with thermoresponsive locking systems, or mechanical locking systems, such as cam systems operating on the shaft or stem of the control knobs, so as to prevent the

cover of the appliance from being closed as the knob is turned for a set angle.

Yet another object of the present invention is to provide such a safety device for household appliances which is very simple construction-wise and which can be easily fitted to existing household appliances.

Yet another object of the present invention is to provide such a safety device which is very reliable in operation and which can be easily made starting from easily commercially available elements and materials and which, accordingly, is very competitive from a mere economic standpoint.

According to one aspect of the present invention, the above mentioned aim and objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by an households appliance having substantially the features of the main claim.

BRIEF DESCRIPTION OF THE DRAWINGS

Further characteristics and advantages of the invention will become more apparent hereinafter from the following detailed disclosure of some preferred embodiments thereof, which are illustrated, by way of an indicative, but not limitative, example, in the figures of the accompanying drawings, where:

Figure 1 is a schematic view illustrating the cooking panel of a range with its cover arranged in a closed position;

Figure 2 illustrates a detail of the slider element arranged withdrawn with respect to its control knob, which can be thus used;

Figure 3 illustrates the slider element arranged at a first position thereof, flush with the front portion of the control knob, in an embodiment thereof in which it also prevents the range over from being opened, the range oven door having a substantially U-shape cross-section outer profile;

Figure 4 illustrates an embodiment in which the driving means of the slider element are made by a small cable and an operating lever;

Figure 5 illustrates driving means with a lever actuated by a spring;

Figure 6 illustrates the device shown in Figure 5 cross-sectioned along a plane passing through the control lever.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to the figures of the accompanying drawings, and more specifically to Figures 1 to 6, the safety device for household appliances, including a movable cover, in particular for gas and electric ranges, according to the present invention, comprises a slider element which practically provides the "control dashboard" of a range generically indicated at the reference number 2.

The slider element 1 is provided with a plurality of recesses 3, in which there are arranged the control knobs 4 which can operate in order to actuate the several flames or electric plates of the range.

The slider element 1 can be moved to a first position, shown in Figure 1, which will be called the "safety position" since said slider element is arranged flush with respect to the front portion of the control knob 4 so as to prevent the latter from being operated, even deliberately.

As shown in Figure 2, the slider element can be moved to a second position, in which the slider is withdrawn, thereby the control knobs project from said slider so as to allow the control knobs to be operated.

Moreover, as is clearly shown in Figure 3, the slider element can also operate as a safety element for the opening of the range oven since, by its bottom edge portion, it can close the slot for accessing the profiled U-shape cross-section element 7 of the door 8 of the oven which, accordingly, can not be actuated.

The mentioned slider element is slidably driven by driving means, which are operatively associated with the cover 10 of the range.

As shown in Figures 4 to 6, these driving means comprises a small cable 16 which, at one end thereof, is associated with the hinge 20 of the cover 10 and is entrained on a transmission roller 21 supported, for example, by the sidewalls of the range casing or cabinet.

At the other end thereof, the cable 16 is connected to one end of a lever 22 pivoted to the fixed structure, at its intermediate position, and controlled by a flexure spring 23 operating between, said lever and the fixed casing or structure.

At its end 24, the lever 22 engages in the slot 26 of the sidewalls 27 coupled to the slider element and supported by guide wheels 28 which are slidably engaged in a supporting section member or profiled element 29 associated with the range side walls.

With the disclosed arrangement, as the cover is in its closed condition, as shown in Figure 4, the cable 16 will overcome the resilient biasing of the flexure spring 23, thereby the lever 22 will be turned so that its end portion 24 will hold the sidewalls 27 and, accordingly, the slider element 1 at an advanced position, that is the first position, or safe position, in which said slider element will be flush with the front portion of the control knobs, which, accordingly, can not be actuated.

As the range cover is opened, as is shown in Figure 5, the spring 23 will turn the lever 22 and, accordingly, will withdraw the sidewalls 27 and the slider element 1, thereby the control knobs 4 can project by a quantity sufficient to allow them to be freely actuated.

In the disclosed arrangement, the driving means practically comprise a flexible element provided for driving the lever 22, depending on the specific position of the cover, so as to prevent the control knobs from being operated as the cover is in its closure position.

In this connection it should be moreover pointed out

that the slider element, in addition to providing the safety of the device, also offers the great advantages of providing the range with a very good aesthetic aspect, since it provides a frontal alignment of the dashboard, to prevent the control knobs from projecting as the cover is in its closure condition.

Claims

1. A household appliance, in particular gas and electric range (2), including a cover (10) for driving, in use, a safety device, whereby said safety device comprises a safety slider element (1) having a plurality of recesses (3) for housing therein control knobs (4), said slider element (1) being movable to a first position, or safety position, in which it is arranged flush with a front portion of the control knobs (4), so as to prevent the control knobs from being operated, and to a second position, or use position, wherein the control knobs (4) project from the slider element (1), driving means (16) being provided for driving the slider element (1), said driving means being associated with the cover (10) of the appliances or ranges and the like, characterized in that the driving means (16) for driving said slider element (1) comprise flexible or resilient means operating between the slider element (1) and the articulation region (20) of the appliance or range cover (10), and that said flexible or resilient means comprises at least a cable (16) associated with the cover hinge assembly (10, 20) and connected, at the other end thereof, to an end portion of a lever (22) pivoted at its intermediate region and connected, at the other end thereof, in a slot (26) provided through a sidewall (27) slidably guided by the casing of the appliance or range (2) and associated with the slider element (1).
2. A household appliance according to Claim 1, characterized in that said slider element (1) is adapted to cooperate with the gripping portion (7) of the door (8) of the range oven in order to prevent this door from being opened as the slider element (1) is arranged in its first position.
3. A household appliance according to Claims 1 and 2, characterized in that said lever (22) is associated with a flexure spring (23) operating between a fixed point of the range casing and said lever, the resilient biasing of said lever being exceeded by said cable (16) as the cover (10) is in its closure condition.

Patentansprüche

1. Ein Haushaltsgerät, insbesondere für Gas- und Elektroherde (2), einschließlich einer Abdeckung

(10), die bei ihrer Benutzung eine Sicherheitsvorrichtung betätigt, wobei diese Sicherheitsvorrichtung ein Sicherheits-Schiebeelement (1) mit einer Anzahl von Aussparungen (3) zum Einbau von Regelknöpfen (4) hierin umfaßt, wobei dieses Schiebeelement (1) in eine erste oder Sicherheitsstellung verschoben werden kann, in welcher es bündig mit einem vorderen Bereich der Regelknöpfe (4) angeordnet ist, um zu verhindern, daß die Regelknöpfe benutzt werden können, und in eine zweite oder Gebrauchsstellung, in welcher die Regelknöpfe (4) aus dem Schiebeelement (1) hervorstehen, wobei eine Antriebsvorrichtung (16) bereitgestellt ist, um das Schiebeelement (1) anzutreiben, wobei diese Antriebsvorrichtung mit der Abdeckung (10) der Geräte oder Herde und dergleichen verbunden ist, dadurch gekennzeichnet, daß die Antriebsvorrichtung (16) zum Antrieb dieses Schiebeelements (1) eine flexible oder federnde Vorrichtung umfaßt, die zwischen dem Schiebeelement (1) und der Gelenkverbindung (20) des Geräte- oder Herddeckels (10) wirkt, und dadurch, daß diese flexible oder federnde Vorrichtung mindestens ein Kabel (16) umfaßt, das an die Gelenkkonstruktion des Deckels (10, 20) angeschlossen und an seinem anderen Ende mit dem Endabschnitt eines Hebels (22) verbunden ist, der in seinem mittleren Bereich drehbar gelagert ist und an seinem anderen Ende in eine Rille (26) greift, die in einer Seitenwand (27) gebildet ist, die durch das Gehäuse des Gerätes oder Herdes (2) verschiebbar geführt wird und mit dem Schiebeelement (1) verbunden ist.

2. Ein Haushaltsgerät nach Anspruch 1, dadurch gekennzeichnet, daß dieses Schiebeelement (1) so gebaut ist, daß es mit dem Griffbereich (7) der Tür (8) des Ofens des Herdes zusammenwirkt, um zu verhindern, daß diese Tür geöffnet wird, wenn sich das Schiebeelement (1) in seiner ersten Stellung befindet.

3. Ein Haushaltsgerät nach Anspruch 1 und 2, dadurch gekennzeichnet, daß dieser Hebel (22) mit einer biegsamen Feder (23) verbunden ist, die zwischen einem festen Punkt des Gehäuses des Herdes und diesem Hebel wirkt, wobei die elastische Spannung dieses Hebels von diesem Kabel (16) überwunden wird, wenn sich die Abdeckung (10) im verschlossenen Zustand befindet.

tures (3) aptes à accueillir dans leur intérieur des boutons de commande (4), ledit coulisseau (1) étant déplaçable vers une première position ou position de sécurité où il est à fleur d'une partie frontale des boutons de commande (4) de sorte à empêcher l'actionnement des boutons de commande, et vers une seconde position ou position d'utilisation dans laquelle les boutons de commande (4) se projettent du coulisseau (1), un dispositif de commande (16) étant mis en oeuvre pour entraîner le coulisseau (1), ledit dispositif de commande étant relié au couvercle (10) de l'appareil ménager ou de la cuisinière etc., caractérisé en ce que ledit dispositif de commande (16) pour entraîner ledit coulisseau (1) comprend des moyens flexibles ou élastiques opérant entre le coulisseau (1) et la zone articulée (20) du couvercle (10) de l'appareil ménager ou de la cuisinière, et en ce que ledit moyen flexible ou élastique comprend au moins un câble (16) associé à l'assemblage à charnière (10, 20) du couvercle et relié à son autre extrémité à une extrémité d'un levier (22) pivotant sur son centre et inséré à son autre extrémité dans un évidement (26) mis en oeuvre dans une paroi latérale (27) guidée avec un mouvement de glissement dans la carcasse de l'appareil ménager ou de la cuisinière (2) et associée au coulisseau (1).

2. Un appareil ménager selon la revendication 1, caractérisé en ce que ledit coulisseau (1) est adapté à coopérer avec la partie accrochante (7) de la porte (8) du four de la cuisinière de sorte à empêcher l'ouverture de cette porte lorsque le coulisseau (1) se trouve dans sa première position.

3. Un appareil ménager selon les revendications 1 et 2, caractérisé en ce que ledit levier (22) est associé à un ressort à flexion (23) opérant entre un point fixe de la carcasse de la cuisinière et ledit levier, l'excursion élastique dudit levier étant surmontée par ledit câble (16) lorsque le couvercle (10) se trouve dans sa condition de fermeture.

Revendications

1. Un appareil ménager, notamment une cuisinière mixte gaz-électricité (2) comprenant un couvercle (10) pour actionner, pendant son usage, un dispositif de sécurité, ledit dispositif de sécurité comprenant un coulisseau (1) avec une multiplicité d'ouver-

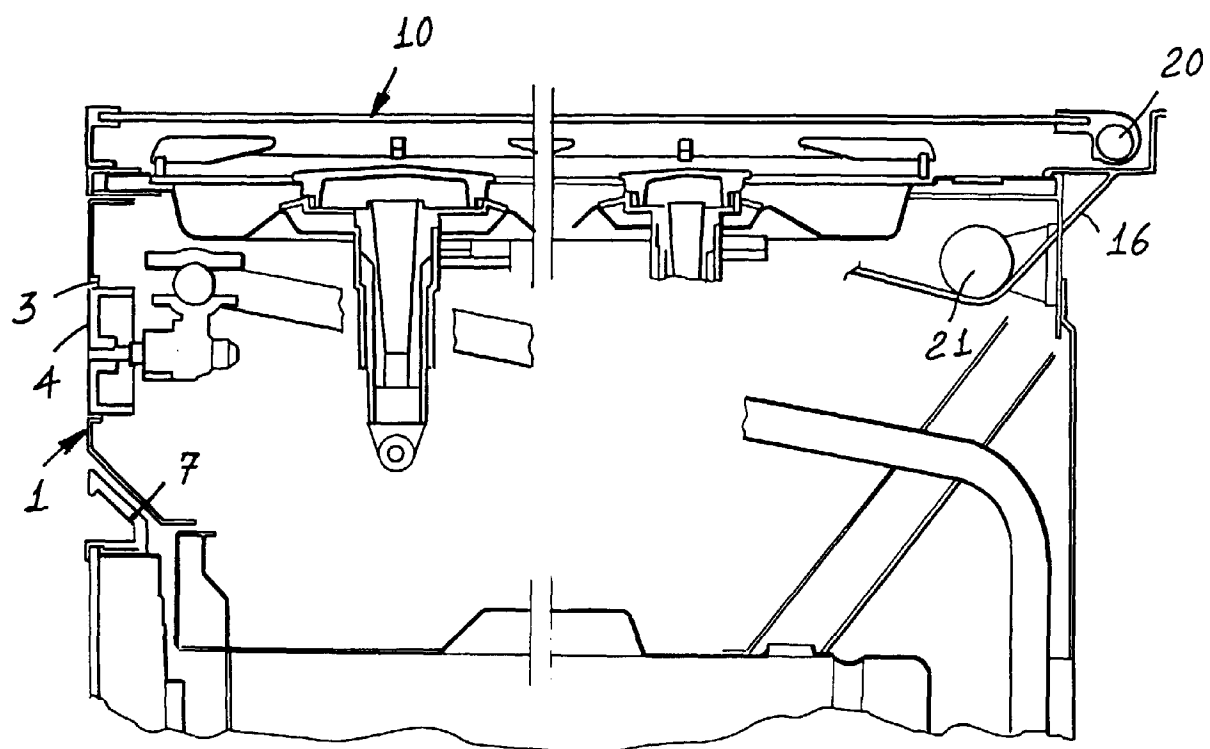


FIG. 1

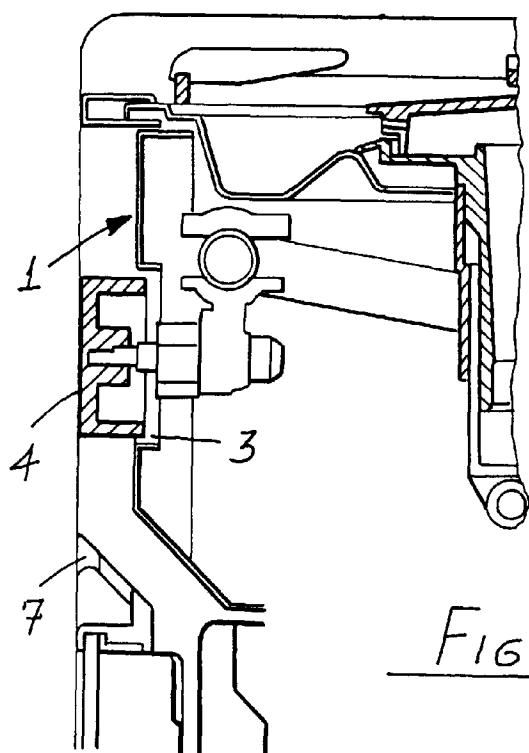


FIG. 2

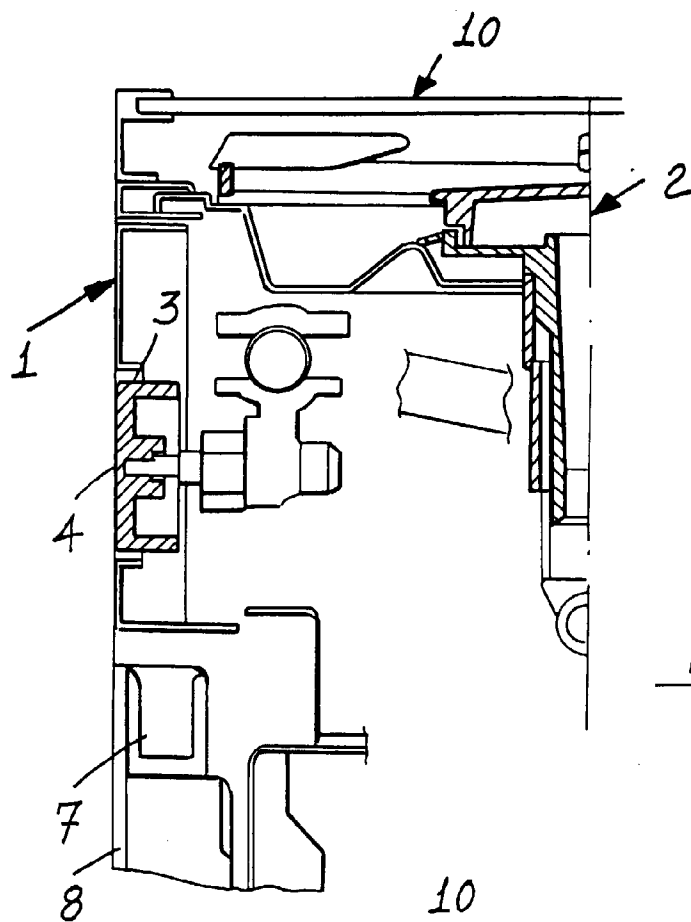


Fig. 3

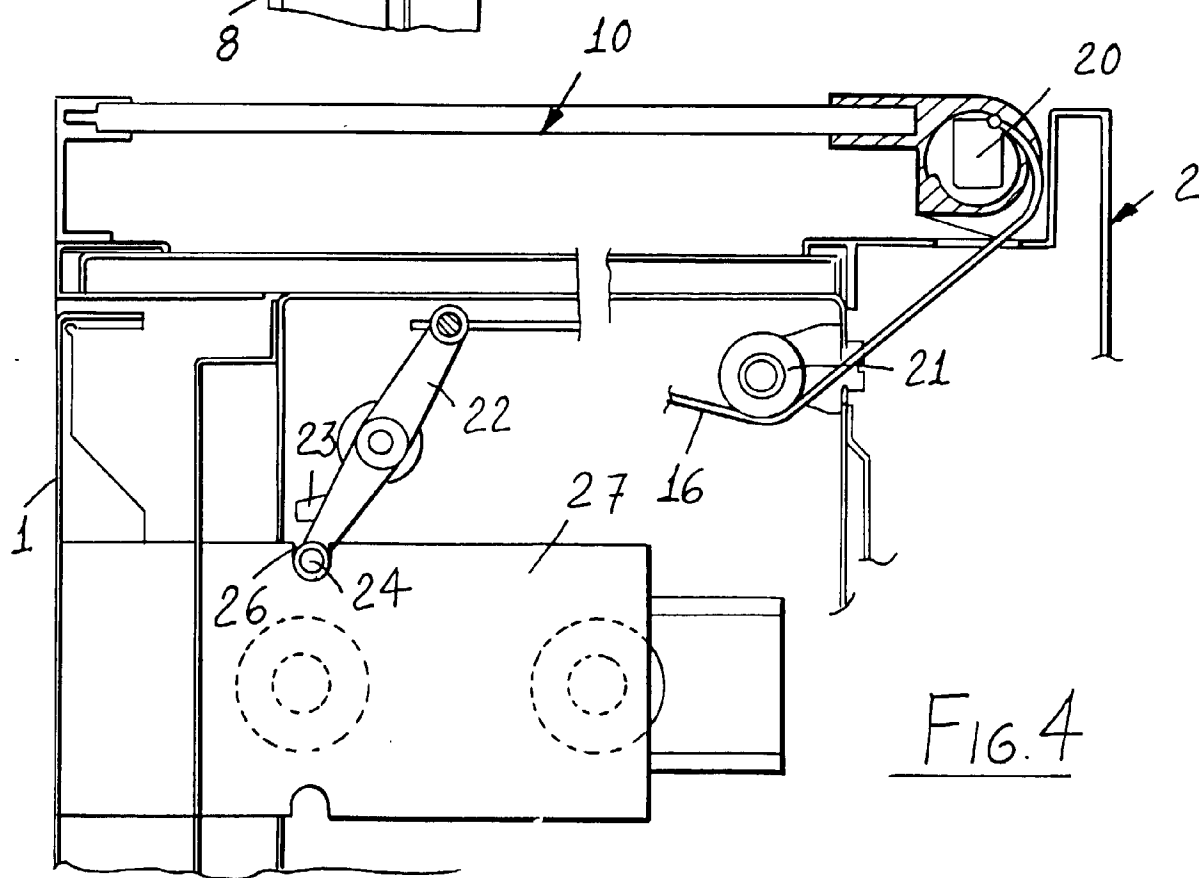


Fig. 4

