(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 3 399 241 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
26.08.2020 Bulletin 2020/35

(51) Int Cl.:
F24C 15/20 *(2006.01)*

(21) Application number: **18166109.1**

(22) Date of filing: **06.04.2018**

(54) **INTEGRATED RANGE HOOD WITH SAFETY DEVICE**

INTEGRIERTE DUNSTABZUGSHAUBE MIT SICHERHEITSEINRICHTUNG

HOTTE DE CUISINIÈRE INTÉGRÉE AVEC DISPOSITIF DE SÉCURITÉ

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

(30) Priority: **04.05.2017 IT 201700048288**

(43) Date of publication of application:
07.11.2018 Bulletin 2018/45

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Printed by Jouve, 75001 PARIS (FR)

Description

Field of the invention

[0001] The present disclosure relates to an integrated range hood with a safety device, as defined in the preamble of claim 1.

[0002] Namely, the hood is a downdraft exhaust hood, i.e. a downward fume exhausting hood integrated in the cooktop.

Discussion of the related art

[0003] As known, downdraft exhaust range hoods, i.e. downward fume exhausting hoods integrated in the cooktop, comprise a box-like housing oriented parallel to a vertical wall of the range base, with its opening located at the cooktop, through which the hood can be fitted in and pulled out.

[0004] The fume intake is conventionally located on the upper cross member of a frame, which is adapted to be displaced from a first position in which said intake is entirely within the housing and below the cooktop, and a second position in which it is located outside said housing and above the cooktop, in an operating fume exhaust position.

[0005] The fume intake conventionally communicates with the interior of said box-like housing, which also contains means for evacuating and eliminating the fumes.

[0006] Furthermore, motor means are provided for displacement of said frame within the housing, these means comprising, for instance, a mechanical or hydraulic jack whose stem is fixed to one point of a cross member of the frame and is actuated by an electric motor in either displacement direction.

[0007] According to a particular known type of such hood, a worktop is sometimes associated with said cross member of said frame, above the intake, and has a contour that extends beyond the contour that delimits the cross member, coinciding, for instance, with additional lateral tops, which are designed to increase the useful surface of the worktop.

[0008] Documents WO 2015172666 A1 and CN 201351954 Y disclose examples of down-draft hood comprising mechanism to damp the whole weight of the hood frame during the lowering of the frame itself.

Prior art problem

[0009] With this arrangement of the worktop, as the hood is lowered into the box-like housing, a portion of the operator's hand, e.g. one finger, may be trapped below the worktop, between the projecting contour of the top and the edge of the housing opening of the hood frame.

[0010] In this circumstance, the downward displacement of the hood continues at least until the conventional energy absorption sensor, associated with the electric motor, is triggered as it detects a stress exceeding a predetermined maximum value, cuts off power to the motor, and reverses the direction of rotation to cause the hood to move upwards.

[0011] The motor is stopped and its direction is reversed, thereby releasing the finger trapped below the worktop, only upon reaching an energy absorption level that is necessarily higher, though slightly, than the energy absorption associated with a regular up and down motion of the hood imposed by the overall weight of the frame and the elements connected thereto.

[0012] Even in the case of an integrated hood that has no worktop attached above the upper cross member of the frame, a hand of the operator may be still introduced in the fume intake while the hood is driven by the motor members into the housing, and be trapped against the edge of the housing opening.

[0013] Here again, the torque sensors of the electric motor must be triggered to stop the downward movement of the hood an release the hand.

[0014] Since the weight of an integrated hood typically ranges from 8 to 10 kg, the potential damage to the finger trapped below the worktop, or the hand inserted in the intake, although the torque sensor of the motor is triggered, is not negligible and constitutes a drawback.

SUMMARY OF THE INVENTION

[0015] The invention has the object of providing a downdraft range hood that can solve the problems of the above discussed prior art.

[0016] Its purposes are achieved by the provision of a downdraft range hood as defined in claim 1 herein below.

Advantages of the invention

[0017] In one embodiment, a downdraft range hood can be provided that can limit the possible injury caused when a finger or hand of a user is accidentally pinched as the hood fits into the housing.

[0018] In one embodiment, a downdraft range hood can be provided that affords the same safety level as prior art arrangements, but is more reliable and less expensive.

BRIEF DESCRIPTION OF THE DRA WINGS

[0019] The characteristics and advantages of the present disclosure will appear from the following detailed description of a possible practical embodiment, illustrated as a non-limiting example in the set of drawings, in which:

- Figure 1 shows a schematic front view of the interior of the housing in which the frame of the integrated hood of the invention is moved;
- Figure 2 is a schematic perspective view of the upper portion of the hood with a worktop, lifted out of the

housing;

- Figure 3 is a schematic perspective view of the upper portion of the hood with a worktop, as taken from a point of view other than that of Figure 2;
- Figure 4 is a schematic sectional view as taken along line IV - IV of Figure 2;
- Figure 5 is a schematic view of the interior of the housing in which the frame of the integrated hood is moved, with the latter in a first position lifted from the bottom of the housing;
- Figure 6 is a schematic view of the interior of the housing in which the frame of the integrated hood is moved, with the latter in a second position, in which the elastic members of the ends of the columns contact the bottom of the housing;
- Figure 7 is a schematic view of the interior of the housing in which the frame of the integrated hood is moved, with the latter in a third position, in which the elastic members of the ends of the columns are axially deformed to such an extent as to impart a lifting thrust to the frame that is at least 20% the weight of the latter.

DETAILED DESCRIPTION

[0020] Even when this is not expressly stated, the individual features as described with reference to the particular embodiments shall be intended as auxiliary to and/or interchangeable with other features described with reference to other exemplary embodiments.

[0021] Referring to the aforementioned figures and particularly to Figure 1, numeral 1 designates the housing for moving a frame 1A of a downdraft domestic hood 1B, which may be either a filter or an extractor hood, i.e. a downward fume-exhausting hoods integrated in the cooktop.

[0022] This housing 1 is defined by the side walls 2 and 3, the bottom 4 and a top opening 5.

[0023] The housing is conventionally oriented parallel to a vertical wall of the base of a range, the latter being of conventional type and not shown, and having a cooktop that may coincide with the plane of the opening 5 of the housing 1 although, in one alternative, such opening may be located higher than the conventional plane of the cooktop with the burners.

[0024] Preferably, the housing 1 is oriented parallel to the rear of the base of the range.

[0025] The frame 1A of the integrated hood IB comprises the vertical columns 6 and 7, resting upon the walls 2 and 3 of the housing 1, which also act as guides for the columns, as well as an upper cross member 8 with a mainly longitudinally extending fume intake 9.

[0026] The opening 9 communicates with the interior of the housing 1 from which fumes are evacuated and eliminated from the range, using conventional suction means, generally referenced 10.

[0027] In addition to the cross member 8, the frame IB of the hood also has an intermediate beam 11 having the end 12 of a hydraulic or mechanical jack 13, actuated, for instance, by an electric motor 14, connected thereto. Such jack is equipped, as is known in the art, by a torque sensor or an implement for measuring the absorbed power, such that its operation may be stopped and its direction of rotation may be possibly reversed as a predetermined absorption value is exceeded.

[0028] A worktop, referenced 15, is associated with the cross member 8, and may be either at the same level as the cooktop or at a higher level.

[0029] The worktop 15 is embodied by the range top and defines a surface that is parallel to the walkway plane upon which the range is operatively placed.

[0030] Shelves 16 and 17 may be provided in the hood of the invention, at the sides of the worktop 15, and be attached outside the vertical walls 2 and 3 of the housing 1 respectively, at the same level as the top 15 when the hood is in its lowered position, with the frame retracted in the housing 1.

[0031] Referring to Figures 2, 3 and 4 it shall be noted that the worktop 15 is connected to the cross member 8 with the interposition of disconnection means 19, 24, which are configured to provide separation to a predetermined extent between the worktop 15 and the cross member 8.

[0032] This separation between the worktop 15 and the cross member 8 will ensure safety of the user, as it will prevent pinching of an obstacle, e.g. a finger of a user, below the top 15. This, when the hood 1B moves under the action of the means 14 to fit into the housing 1, the obstacle shall only bear the weight of the worktop 15 and not the entire frame 1A and the hence the hood IB.

[0033] Particularly, according to a preferred embodiment, the disconnection means 19, 24 comprise:

- a rod-like element 19, which projects transverse, preferably perpendicular, to the surface 18 of the top 15 that faces the cross member 8 of the frame,
- an abutment 22, which is rigidly joined to the free end 21 of the rod-like element 19,
- an elastic member 24 which reacts between the abutment 22 and the surface of the cross member 8.

[0034] In one aspect, the worktop 15 comprises at least one hole 20 formed in the cross member 8 and aligned with the element 19 that extends there through in axially sliding fashion.

[0035] It shall be noted that the rod-like element 19 is removably connected to the surface 18 of the top 15, e. g. with the interposition of a glue and/or another mechanical connecting arrangement.

[0036] In one embodiment, the top 15 is embodied by a rectangular element whose thickness is smaller than the width and length dimensions.

[0037] A material that may constitute this worktop 15 is, for instance, glass, steel or other materials.

[0038] In other words, a rod-like element 19 is attached to the bottom surface 18 of the top 15, and extends per-

pendicular to said surface toward the opening 5 of the housing 1, and extends through the hole 20 formed in the cross member 8 of the hood frame.

[0039] The free end 21 of the rod-like element 19 is equipped with the abutment 22 in the form of a plate, against which the end 23 of the elastic member 24 coaxially located on the rod-like element 19 engages.

[0040] The other end 25 of the elastic member 24 reacts against the cross member 8 around the hole 20.

[0041] The length of the elastic member 25 and its elastic properties are selected in view of ensuring an elastic separation, to a predetermined extent, of the top 15 from the cross member 8, if an obstacle, e.g. a finger of a user, is placed below the top 15, in its contour portion 15A that projects out of the contour of the cross member 8 and beyond the edge 5A of the opening 5 of the housing 1, as the hood is lowered.

[0042] In one embodiment, the elastic member 24 consists of a spring.

[0043] Namely, according to the invention, the extent to which the worktop 15 is elastically separated from the cross member 8, as set by the dimensions of the spring 24 and those of the rod-like element 19 during displacement of the hood frame, will generate an elastic reaction in the spring that is equal to a predetermined fraction of the overall weight on the jack 13 and the motor 14 which ensure the displacement of said frame in the housing.

[0044] For example, this fraction is smaller than 5%, preferably smaller than 3%, more preferably smaller than 1% the weight of the hood 1, which is conventionally about 8 to 10 kg.

[0045] Although the spring 24 and the rod-like element 19 have been only shown in the drawings of Figures 2 and 3 at the end of the worktop 15 that faces the column 6 of the hood frame, these structural members shall be intended to be also provided at the end of the worktop 15 that faces the column 7 of the same hood frame, thereby providing a pair of balancing members for balancing the horizontal position of the top 15.

[0046] In one aspect, the pair of such rod-like elements 19 and elastic members 24, i.e. the springs, are located proximate to a respective end of the worktop 15 in aligned and parallel relationship.

[0047] Referring to Figures 5, 6 and 7, it shall be noted that the integrated hood of the invention comprises elastic members 26, e.g. a spring, located at the end of each column 6 and 7 of the hood frame, as an extension thereof toward the bottom 4 of the housing 1.

[0048] Each spring 26 is fixed by its end 27 to its respective column by means of a cantilever support 28, which is rigidly joined to the column, and a screw 29.

[0049] The physical and elastic properties of the spring 26 are selected in view of balancing at least 20% the overall weight of the hood frame (which is known to range from 8 to 10 kg) at the end of the movement by which it fits into the housing 1.

[0050] The free end 30 of the springs 26 carried by each column of the frame 1B rests against the bottom 4 of the housing, the motor 14 is stopped and at least part of the whole weight of the frame is borne by the springs 26 and deforms them.

[0051] The connection between the motor 14 and the hood frame, when the motor is not powered, is deemed to be reversible (due to the clearance between the jack and the driving rod), to thereby allow the frame to move by gravity and the springs 26 to be deformed.

[0052] Alternatively, the compressive deformation of the springs 26 and their elastic load may be obtained by allowing the motor 14 to run an additional number of revolutions after those required and calculated to only move the ends 30 of the springs 26 to contact with the bottom 4 of the housing 1.

[0053] With the additional revolutions of the motor, the springs 26 undergo an axial deformation, as shown for instance in Figure 7, to impart a thrust to the columns 6 and 7 which is equal to at least 20% the overall weight of the frame and the members connected thereto.

[0054] Once the predetermined deformation is reached in the springs 26, the motor 14 is stopped and the hood frame is still in the position it has reached, with the springs 26 in the deformed state.

[0055] Of course, this position of the hood frame shall correspond to an exact position of the cross member 8 within the opening 5.

[0056] When the hood has to be pulled out, as the frame is lifted, the start of the motor 14 is facilitated by the initial thrust imparted by the elastic energy stored in the springs 26 and released as they are restored to their initial length.

[0057] Those skilled in the art will obviously appreciate that a number of changes and variants as described above may be made to fulfill particular requirements, without departure from the scope of the invention, as defined in the following claims.

Claims

1. A downdraft range hood, i.e. a downward fume exhausting hood integrated in the cooktop, comprising:

- a box-like housing (1) oriented parallel to a vertical wall of the range base, with an opening (5) located at the cooktop,
- a frame that can be displaced through said opening (5) between a first position in which it is entirely accommodated within said housing (1) and a second position in which it is at least partially outside said housing (1), said frame comprising two vertical columns (6, 7) and a cross member (8),
- a fume intake (9) communicating with the interior of said box-like housing (1), said fume intake (9) being formed on said cross member (8) of said frame,
- motor means (13, 14) for ensuring the lifting

and the lowering of said frame (1A) along said vertical wall moving said frame between said first and said second position,
- suction means (10) for extracting and evacuating said fumes from said housing (1),
- a worktop (15) associated with said cross member (8) of said frame, above said intake (9) with a contour (15A) that extends beyond the contour that delimits the cross member (8) said worktop (15) being movable by said frame (1A) through said motor means (13, 14) at least between said first and said second position, **characterized in** said worktop (15) being connected to a cross-member (8) with the interposition of disconnection means (19, 24) configured to allow a separation to a predetermined extent between said worktop (15) and said cross member (8), is vertically separable with respect to said frame (1A) by an obstacle interposed between said worktop (15) and said cooktop when said frame (1A) is in the first position passing from said second position to said first position.

2. A hood as claimed in claim 1, wherein said disconnection means (19, 24) comprise:

- a rod-like element (19) which project out of the surface (18) of said top that faces said cross member (8) of the frame,
- an abutment (22), which is rigidly joined to the free end (21) of said rod-like element (19), and
- an elastic member (24) which reacts between said abutment (22) and the surface of said cross member (8).

3. A hood as claimed in claim 2, **characterized in that** it comprises a pair of said rod-like elements (19) and said elastic members (24), which are placed proximate to respective ends of said worktop (15) in aligned and parallel relationship.

4. A hood as claimed in any of claims 2 to 3, wherein said elastic members (24) are adapted to exert on said worktop (15) an elastic reaction that is equal to a predetermined fraction of the overall weight borne by said motor means (14) that ensure the displacement of said frame in the housing (1).

5. A hood as claimed in any of claims 2 to 4, wherein said worktop (15) comprising at least one hole (20) formed in said cross member (8) and aligned with said rod-like element (19) which extends therethrough in axially sliding fashion.

6. A hood as claimed in any of claims 1 to 5, wherein said frame for ensuring the displacement of the fume intake (9) in said housing (1) comprises a pair of columns (6, 7) located at the sides of said cross member (8) and vertically extending in said box-like housing (1) with their free ends (28) facing the bottom (4) thereof, the free end (28) of each column being equipped with a respective elastic member (26), forming an axial extension of each column (6, 7), said elastic member (26) being adapted to react between said free end (28) of each column and the bottom (4) of said box-like housing (1), as said frame moves in the housing.

7. A hood as claimed in claim 6, wherein said elastic members (26) of each column (6, 7) of said frame have an elastic deformation ability that can impart a thrust to said frame, that is equal to a fraction of the overall weight of the frame and the members connected thereto.

8. A hood as claimed in claim 6 or 7, wherein the deformation of said elastic members (26) is adapted to generate a thrust that is equal to at least 20% said overall weight of the frame (1B).

Patentansprüche

1. Eine Downdraft-Abzugshaube, d.h. eine im Kochfeld integrierte, versenkbare Dunstabzugshaube, umfassend:

- ein kastenartiges Gehäuse (1), das parallel zu einer senkrechten Wand der Herdplatte ausgerichtet ist, mit einer auf dem Kochfeld angeordneten Öffnung (5),
- einen Rahmen, der durch die Öffnung (5) zwischen einer ersten Position, in der er vollständig in dem Gehäuse (1) untergebracht ist, und einer zweiten Position, in der er sich zumindest teilweise außerhalb des Gehäuses (1) befindet, verschoben werden kann, wobei der Rahmen zwei senkrechte Säulen (6, 7) und einen Querträger (8) umfasst,
- einen Raucheinlass (9), der mit dem Inneren des kastenartigen Gehäuses (1) in Verbindung steht, wobei der Raucheinlass (9) auf dem Querträger (8) des Rahmens ausgebildet ist,
- Antriebsmittel (13, 14), um das Heben und Senken des Rahmens (1A) entlang der senkrechten Wand zu gewährleisten, wobei der Rahmen zwischen der ersten und der zweite Position bewegt wird,
- Saugmittel (10) zum Absaugen und Ablassen der Dämpfe aus dem Gehäuse (1),
- eine Arbeitsplatte (15), die dem Querträger (8) des Rahmens zugeordnet ist, aufweisend eine Kontur (15A) oberhalb des Einlasses (9), die sich über die den Querträger (8) begrenzenden Kontur hinaus erstreckt, wobei die Arbeitsplatte (15) durch den Rahmen (1A) über die Antriebs-

mittel (13, 14), mindestens zwischen der ersten und der zweiten Position bewegbar ist, **dadurch gekennzeichnet, dass** die Arbeitsplatte (15) mit einem Querträger (8) unter Zwischenschaltung von Trennmitteln (19, 24) verbunden ist, die dazu konfiguriert sind, eine Trennung zwischen der Arbeitsplatte (15) und dem Querträger (8) in einem vorbestimmten Ausmaß zu ermöglichen; dass sie vom Rahmen (1A) durch ein Hindernis vertikal trennbar ist, das zwischen der Arbeitsplatte (15) und dem Kochfeld vorhanden ist, wenn der Rahmen (1A) sich in der ersten Position beim Übergang von der zweiten in die erste Position befindet.

2. Haube wie in Anspruch 1 beansprucht, wobei die Trennmittel (19, 24) Folgendes umfassen:

- ein stabförmiges Element (19), das aus der Oberfläche (18) der Oberseite herausragt, die dem Querträger (8) des Rahmens zugewandt ist,
- ein Widerlager (22), das starr mit dem freien Ende (21) des stabförmigen Elements (19) verbunden ist, und
- ein elastisches Element (24), das zwischen dem Widerlager (22) und der Oberfläche des Querträgers (8) reagiert.

3. Haube wie in Anspruch 2 beansprucht, **dadurch gekennzeichnet, dass** sie ein Paar stabförmige Elemente (19) und die elastischen Elemente (24) umfasst, die in ausgerichteter und paralleler Beziehung nahe den jeweiligen Enden der Arbeitsplatte (15) angeordnet sind.

4. Haube wie in irgendeinem der Ansprüche von 2 bis 3 beansprucht, wobei die elastischen Elemente (24) so ausgelegt sind, dass sie auf die Arbeitsplatte (15) eine elastische Reaktion ausüben, die gleich einem vorbestimmten Bruchteil des Gesamtgewichts ist, das von den Antriebsmitteln (14) getragen wird, die die Verschiebung des Rahmens im Gehäuse (1) gewährleisten.

5. Haube wie in irgendeinem der Ansprüche von 2 bis 4 beansprucht, wobei die Arbeitsplatte (15) mindestens ein Loch (20) umfasst, das in dem Querträger (8) ausgebildet und mit dem stabförmigen Element (19) ausgerichtet ist, das sich dadurch in axial gleitender Art und Weise erstreckt.

6. Haube wie in irgendeinem der Ansprüche von 1 bis 5 beansprucht wobei, zur Gewährleistung der Verschiebung des Raucheinlasses (9) in dem Gehäuse (1), der Rahmen ein Paar Säulen (6, 7) umfasst, die an den Seiten des Querträgers (8) angeordnet sind und sich mit ihren zu dessen Boden (4) hin zugewandten freien Enden (28) vertikal in dem kastenartigen Gehäuse (1) erstrecken; das freie Ende (28) jeder Säule mit einem jeweiligen elastischen Element (26) ausgestattet ist, das eine axiale Verlängerung jeder Säule (6, 7) bildet; das elastische Element (26) dazu angepasst ist, zwischen dem freien Ende (28) jeder Säule und dem Boden (4) des kastenartigen Gehäuses (1) zu reagieren, sobald der Rahmen sich in das Gehäuse hinein bewegt.

7. Haube wie in Anspruch 6 beansprucht, wobei die elastischen Elemente (26) jeder Säule (6, 7) des Rahmens eine elastische Verformungsfähigkeit aufweisen, die dem Rahmen einen Schub verleihen kann, der gleich einem Bruchteil des Gesamtgewichts des Rahmens und der damit verbundenen Elemente ist.

8. Haube wie in Anspruch 6 oder 7 beansprucht, wobei die Verformung der elastischen Elemente (26) dazu angepasst ist, einen Schub zu erzeugen, der gleich mindestens 20% des Gesamtgewichts des Rahmens (1B) ist.

Revendications

1. Hotte de cuisinière à courant descendant, c'est-à-dire une hotte d'évacuation des fumées vers le bas intégrée dans la table de cuisson, comprenant :

- un boîtier en forme de caisson (1) orienté parallèlement à une paroi verticale de la base de cuisinière, avec une ouverture (5) située au niveau de la table de cuisson,
- un châssis qui peut être déplacé à travers ladite ouverture (5) entre une première position dans laquelle il est entièrement logé à l'intérieur dudit boîtier (1) et une seconde position dans laquelle il est au moins partiellement à l'extérieur dudit boîtier (1), ledit châssis comprenant deux colonnes verticales (6, 7) et une traverse (8),
- une prise d'admission de fumées (9) communiquant avec l'intérieur dudit boîtier en forme de caisson (1), ladite prise d'admission de fumées (9) étant formée sur ladite traverse (8) dudit châssis,
- des moyens de moteur (13, 14) pour garantir le soulèvement et l'abaissement dudit châssis (1A) le long de ladite paroi verticale en déplaçant ledit châssis entre ladite première et ladite seconde position,
- des moyens d'aspirations (10) pour extraire et évacuer lesdites fumées dudit boîtier (1),
- un plan de travail (15) associé à ladite traverse (8) dudit châssis, au-dessus de ladite prise d'admission (9) avec un contour (15A) qui s'étend au-delà du contour qui délimite la traverse (8),

ledit plan de travail (15) étant déplaçable par ledit châssis (1A) par le biais desdits moyens de moteur (13, 14) au moins entre ladite première et ladite seconde position, **caractérisée en ce que** ledit plan de travail (15), qui est connecté à une traverse (8) avec l'interposition de moyens de déconnexion (19, 24) configurés pour permettre une séparation dans une mesure prédéterminée entre ledit plan de travail (15) et ladite traverse (8), est séparable verticalement par rapport audit châssis (1A) par un obstacle interposé entre ledit plan de travail (15) et ladite table de cuisson quand ledit châssis (1A) est dans la première position en passant de ladite seconde position à ladite première position.

2. Hotte selon la revendication 1, dans laquelle lesdits moyens de déconnexion (19, 24) comprennent :

- un élément en forme de tige (19) qui fait saillie de la surface (18) dudit plan qui fait face à ladite traverse (8) du châssis,
- une butée (22), qui est unie rigidement à l'extrémité libre (21) dudit élément en forme de tige (19), et
- un élément élastique (24) qui réagit entre ladite butée (22) et la surface de ladite traverse (8).

3. Hotte selon la revendication 2, **caractérisée en ce qu'**elle comprend une paire desdits éléments en forme de tige (19) et desdits éléments élastiques (24), qui sont placés à proximité des extrémités respectives dudit plan de travail (15) en relation alignée et parallèle.

4. Hotte selon l'une quelconque des revendications 2 à 3, dans laquelle lesdits éléments élastiques (24) sont adaptés pour exercer sur ledit plan de travail (15) une réaction élastique qui est égale à une fraction prédéterminée du poids total porté par lesdits moyens de moteur (14) qui garantissent le déplacement dudit châssis dans le boîtier (1).

5. Hotte selon l'une quelconque des revendications 2 à 4, dans laquelle ledit plan de travail (15) comprend au moins un trou (20) formé dans ladite traverse (8) et aligné avec ledit élément en forme de tige (19) qui s'étend à travers celui-ci d'une manière coulissante axialement.

6. Hotte selon l'une quelconque des revendications 1 à 5, dans laquelle ledit châssis pour garantir le déplacement de la prise d'admission de fumées (9) dans ledit boîtier (1) comprend une paire de colonnes (6, 7) situées au niveau des côtés de ladite traverse (8) et s'étendant verticalement dans ledit boîtier en forme de caisson (1) avec leurs extrémités libres (28) faisant face au fond (4) de celui-ci, l'extrémité libre (28) de chaque colonne étant équipée d'un élément élastique respectif (26), formant une extension axiale de chaque colonne (6, 7), ledit élément élastique (26) étant adapté pour réagir entre ladite extrémité libre (28) de chaque colonne et le fond (4) dudit boîtier en forme de caisson (1), lorsque ledit châssis se déplace dans le boîtier.

7. Hotte selon la revendication 6, dans laquelle lesdits éléments élastiques (26) de chaque colonne (6, 7) dudit châssis ont une capacité de déformation élastique qui peut appliquer une poussée audit châssis, qui est égale à une fraction du poids total du châssis et des éléments connectés à celui-ci.

8. Hotte selon la revendication 6 ou 7, dans laquelle la déformation desdits éléments élastiques (26) est adaptée pour générer une poussée qui est égale à au moins 20% dudit poids total du châssis (1B).

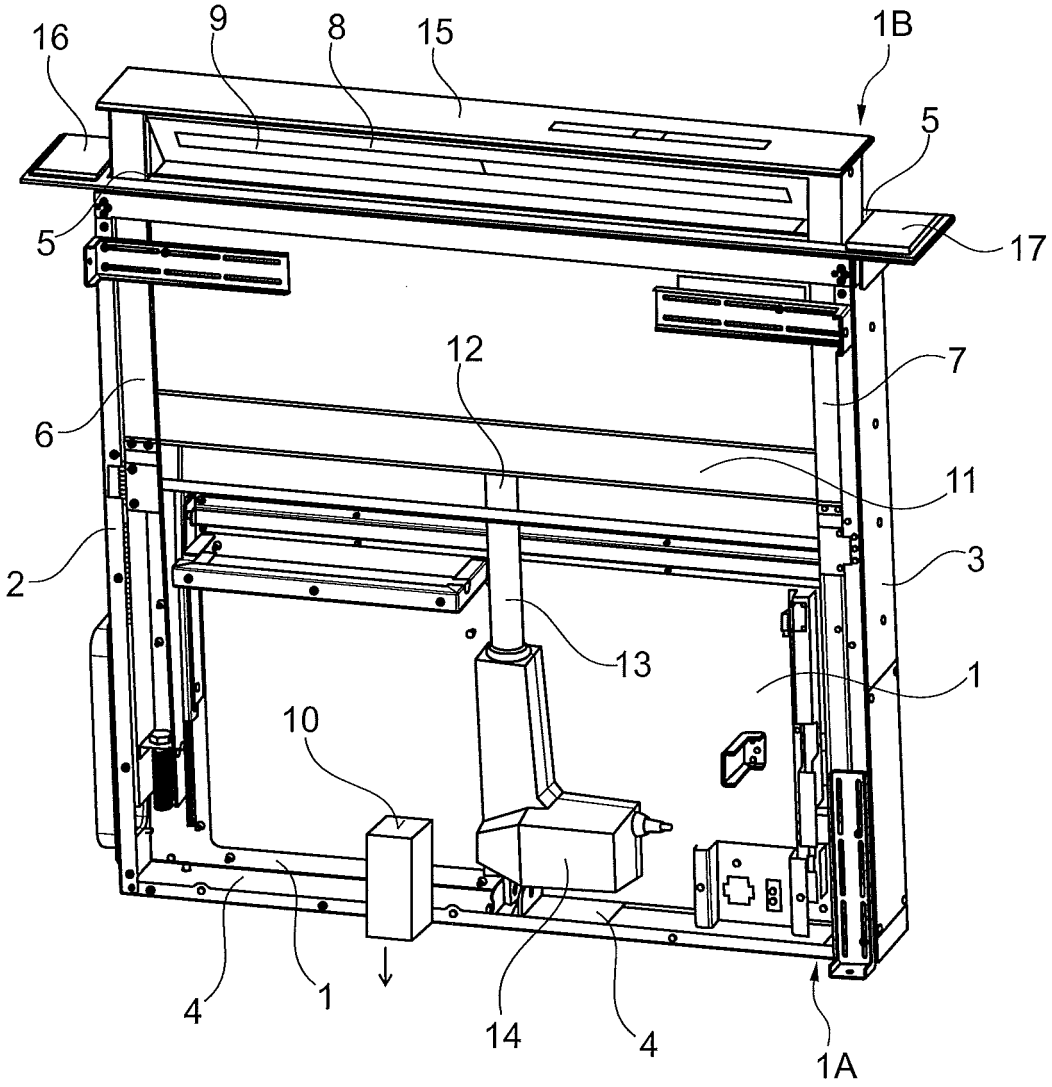

Fig. 1

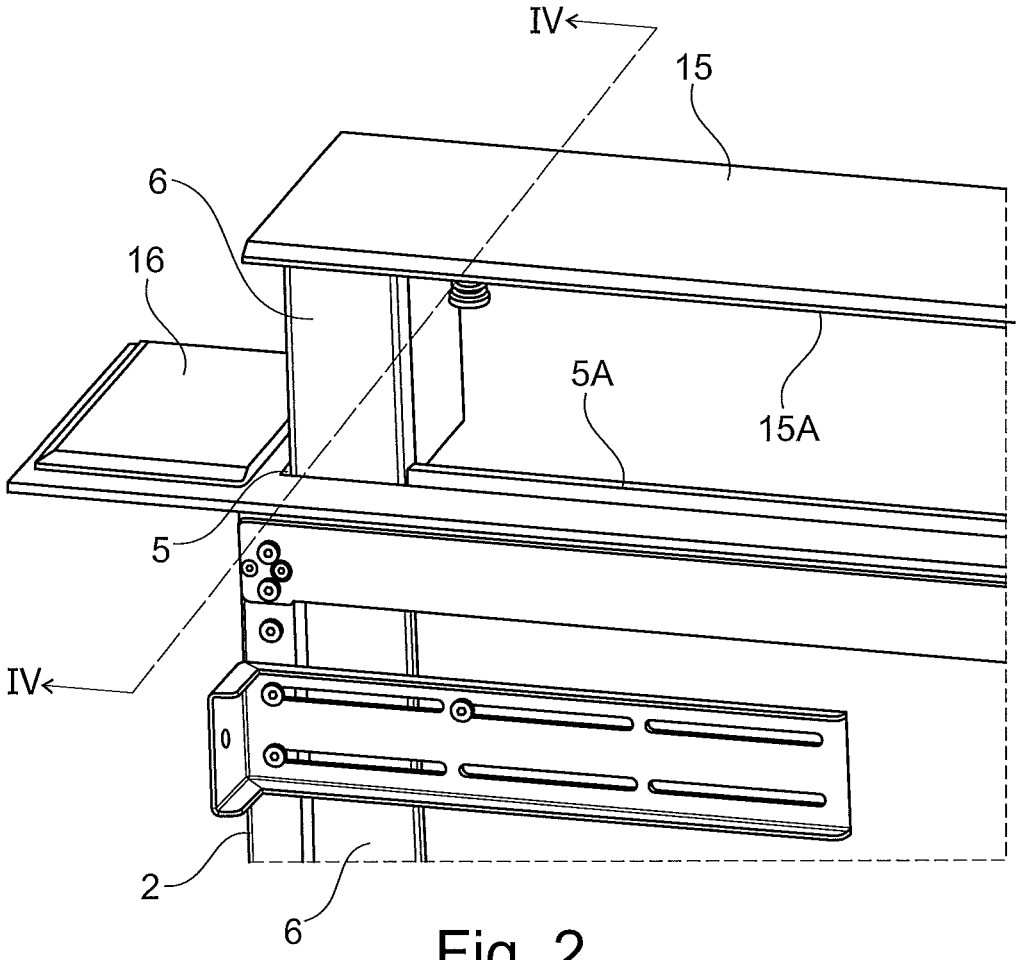

Fig. 2

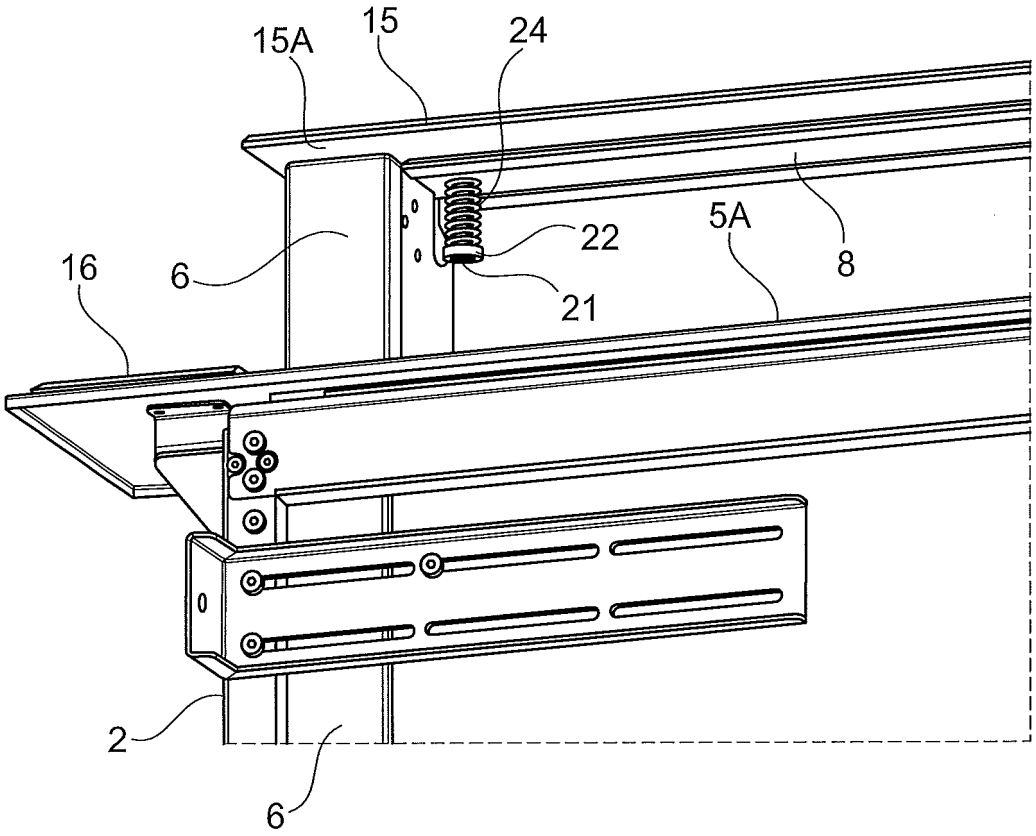

Fig. 3

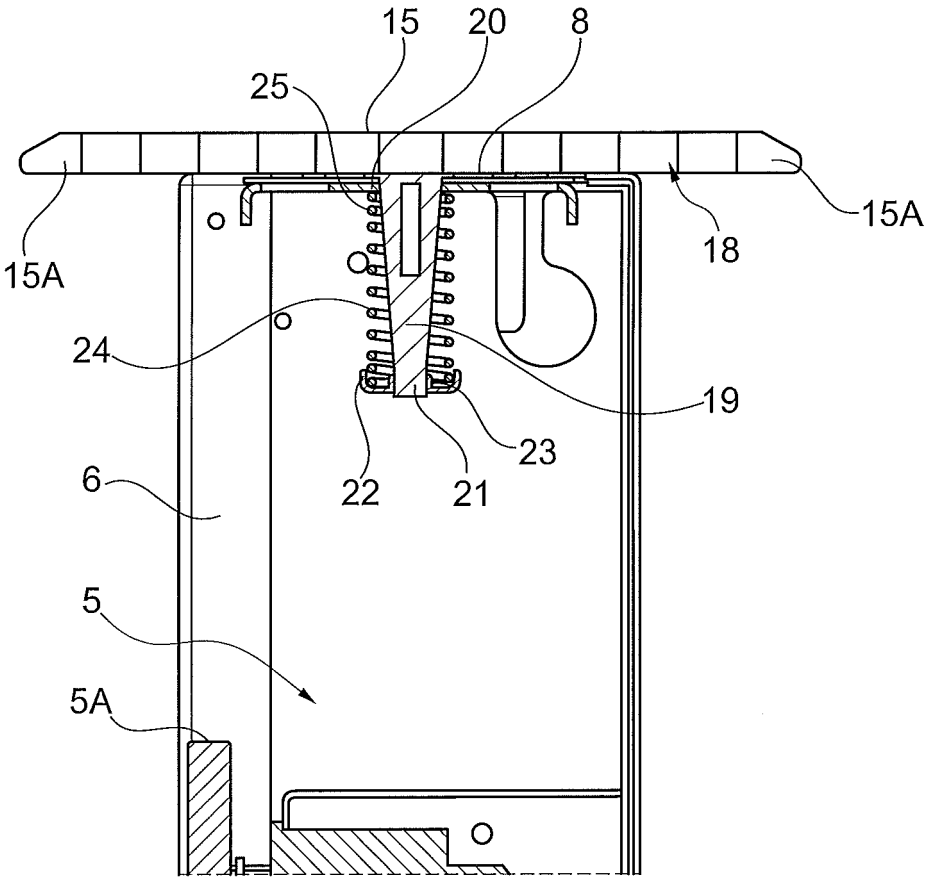

Fig. 4

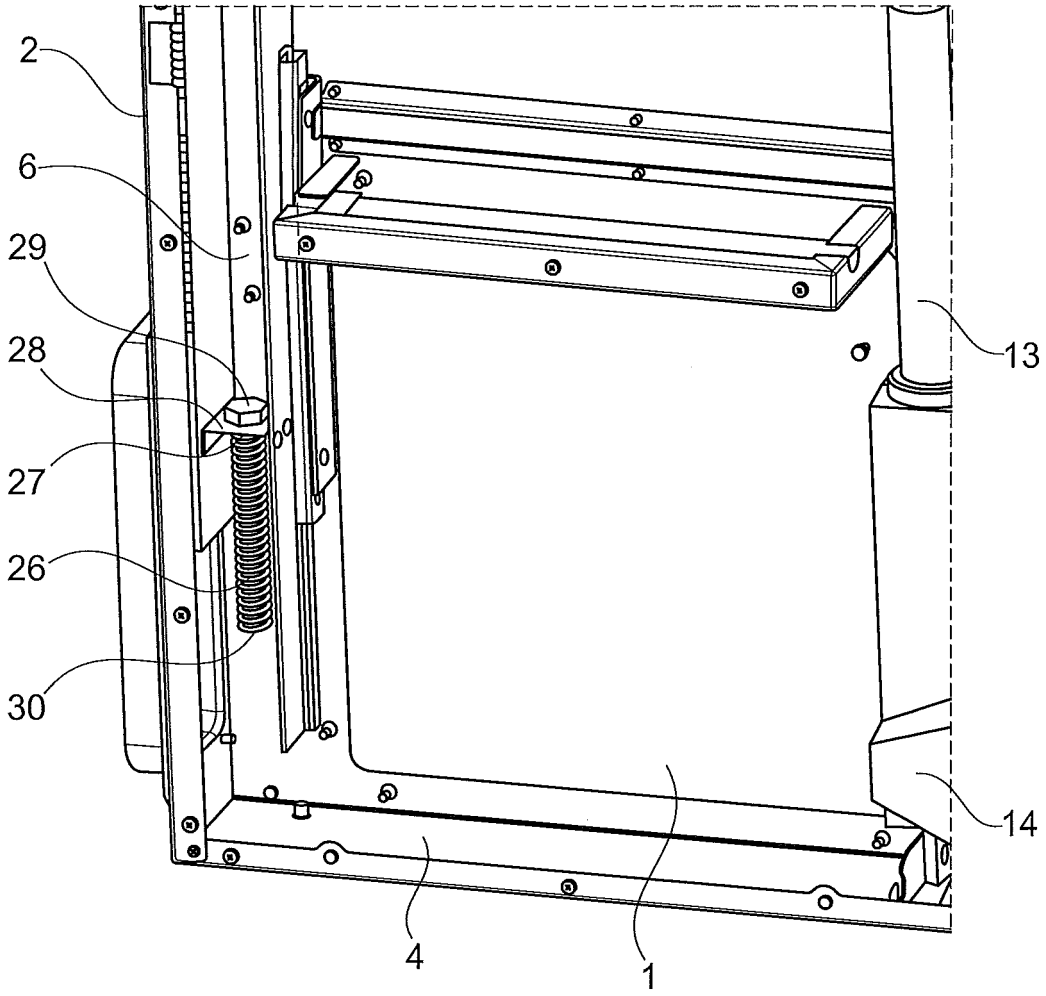

Fig. 5

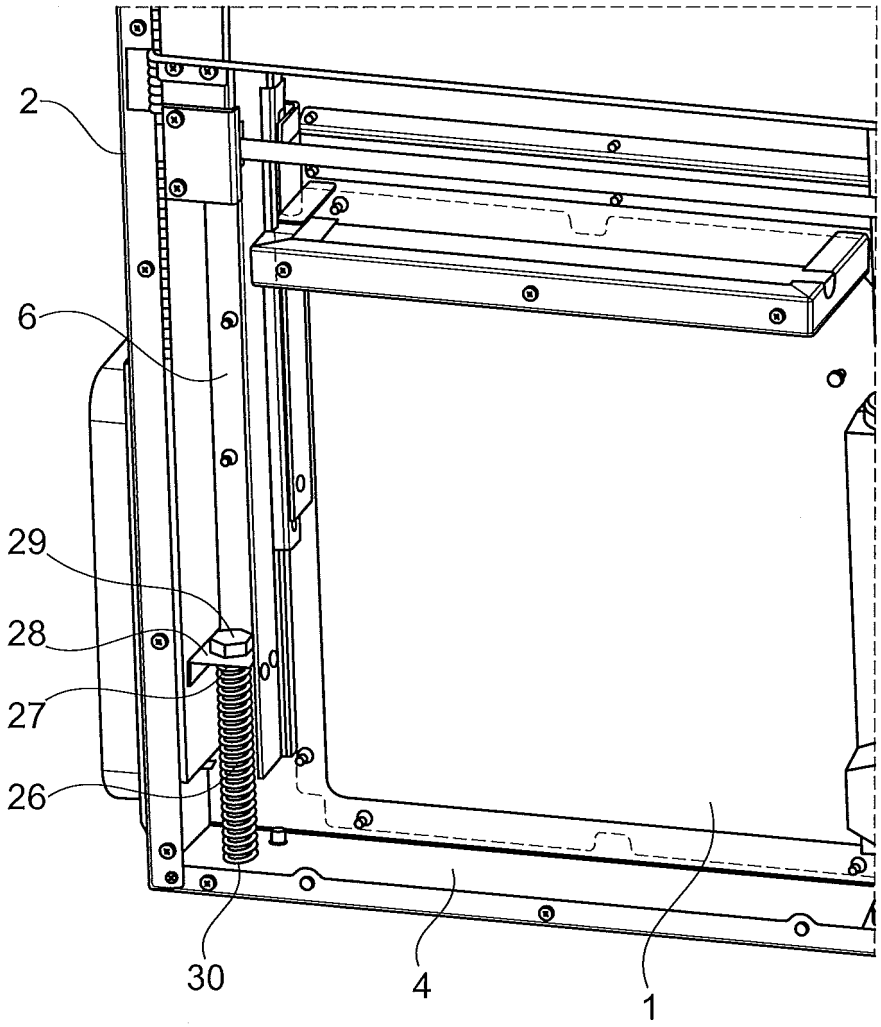

Fig. 6

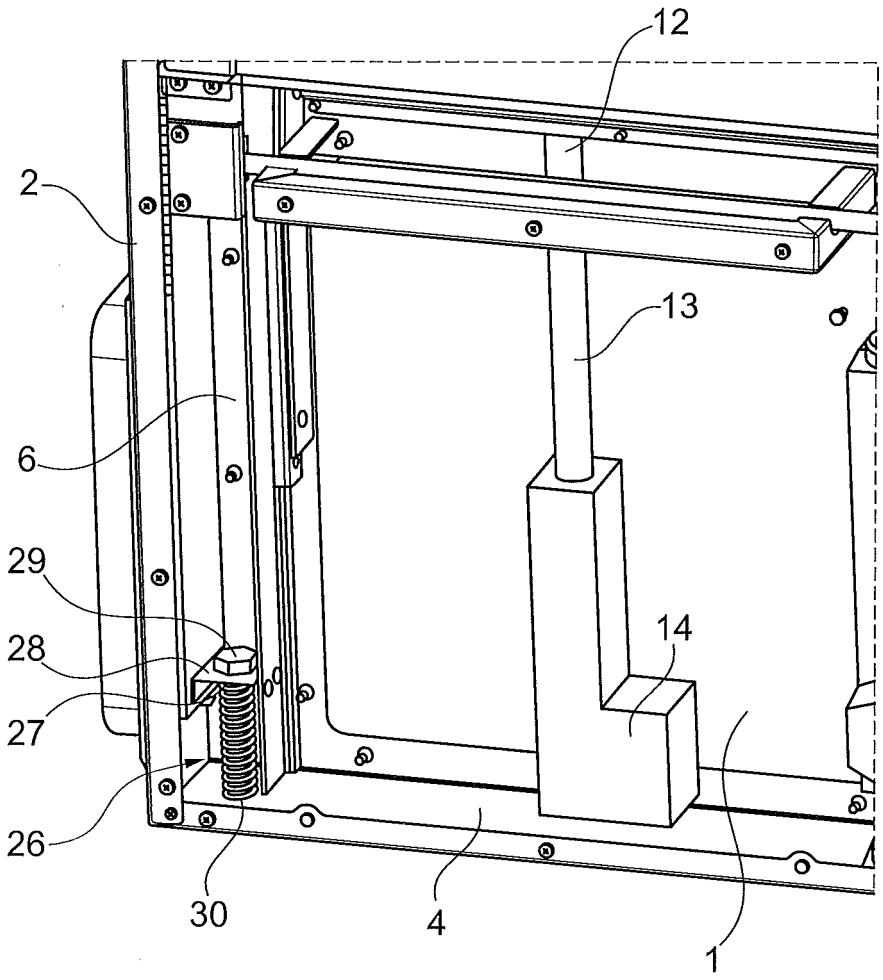

Fig. 7

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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