

DESCRIPTION

Device for securing an object

The invention relates to a device for securing an object, such as a wall cupboard or a shelf, to a wall according to the preamble of claim 1.

5 Furthermore, the invention relates to a wall-mounted kitchen system according to the preamble of claim 8 or according to the preamble of claim 11.

A device and a wall-mounted kitchen system of the type mentioned above are described in DE 102 41 684 A1. The wall-mounted kitchen system comprises functional modules arranged next to each other and a wall rail on which the functional modules are suspended. A supply channel is
10 formed in the wall rail, in which at least one supply line, at least one water, gas and/or power line, is laid for the functional modules.

WO 2018/028842 A1 relates to a device for securing a flat object, such as a shelf or seat, to a structure, such as a wall or floor. The device comprises a first holding element and a second holding element, which can be form-fittingly connected to the first holding element.

15 It is provided that the first holding element has a C- or U-shaped inner profile and that the second holding element has a C- or U-shaped outer profile, which can be received in a form-fitting manner in the inner profile of the first holding element and can be clamped into the inner profile by means of at least one clamping element.

DE 20 2006 005 260 U1 relates to a multi-part fitting for cupboard furniture for securing
20 furniture panels to a piece of furniture with a fitting part that can be positioned on the piece of furniture and a support rail inserted into the furniture panel, wherein the fitting part and the support rail have at least partially corresponding cross portions, which can at least partially be brought into form-fitting engagement with one another and can be displaced relative to one another with form-fitting engagement. In this embodiment, the fitting additionally has a clamping element that can be
25 secured to the furniture panel and/or the support rail and that, in its clamping position, engages

with a partial surface formed on the fitting part that runs in an oblique direction in relation to the direction of movement of the clamping element.

DE 196 18 515 A1 relates to a securing device between a substantially horizontally and a substantially vertically arranged plate, in particular a support plate and a side wall of a piece of furniture, with at least two securing elements that can be locked together, of which the first securing element is arranged in the support plate and the second securing element is arranged in the side wall. The support plate has a horizontally extending rail with at least one engagement region as the first securing element on each end face facing a side wall. At least one locking part engaging behind the engagement region is arranged in the side wall as a second securing element.

DE 102 07 715 A1 relates to a profile rail which is designed for a suspension device with supports which can be inserted into the profile rail. The supports are designed for suspending or supporting objects. The profile rail is secured horizontally to a supporting structure and has a passage extending from a front inlet into which the supports can be inserted. Inside the profile rail there is a power rail supplied via a power supply with power conductors which are accessible from the passage for electrical contact to supply a consumer which can be connected via a supply line.

US 2005/013605 A1 relates to a shelf element with integrated electrical power supply for lighting devices. The shelving element consists of a plate with several interlocking metal strip portions that are installed and secured to a flat wall and have longitudinal recesses. The recesses contain slats made of insulating plastic, which have longitudinal slots in which electrical conductors for the power supply run lengthwise.

WO 99/55205 A1 relates to a slatted wall assembly suitable for the presentation of equipment that must be connected to supply lines. The slatted wall assembly features a panel with recessed cross-sectional channels on the front of the panel. A supply line for connection to a device is routed along a channel in a groove on the side of the channel so that it is not visible.

EP 3 643 209 A1 relates to an arrangement comprising a suspension profile and a suspension element which can be suspended therein. The suspension profile comprises a first holding rail and

a second holding rail, on which the suspension element rests in a contacting position and contacts a contact surface of at least one electrical conductor, which is electrically insulated via an insulator from the first and second holding rails and a securing portion for mounting the suspension profile on a base.

5 DE 201 18 482 Ul relates to a kitchen wall system with at least one rail arranged on a wall and at least one wall module secured to this rail or associated with this rail. The rail has at least one guide channel, to which either a planar lighting module is assigned for illuminating a space in front of the wall and/or is arranged displaceably in the holding module for holding kitchen appliances and/or foodstuff, wherein the holding module is secured to the rail in a torque-free manner, at least
10 when arranged alone.

DE 10 2012 023 303 A1 relates to a furnishing system, in particular kitchen furnishing systems, with at least one structural element and at least one element which can be arranged on the structural element, wherein the structural element has a wave geometry, on which the element can be arranged in different positions.

15 The object of the present invention is to develop a securing device of the type mentioned at the outset in such a way that the objects are held securely and reliably on the wall with simple assembly of the securing device and, in addition, in which the possibility of supplying the objects with electricity is provided.

Furthermore, a wall-mounted kitchen system and/or an object in the form of a wall cupboard
20 or shelf, in particular a kitchen cupboard, with an integrated securing device and/or integrated supply channel is to be provided.

The object is achieved according to the invention, inter alia, by a securing device for suspending an object, such as a wall cupboard or a shelf, on a body, such as a wall, comprising a first holding element extending in the longitudinal direction, which can be secured to the object, a
25 second holding element extending in the longitudinal direction, which can be secured to the body,

wherein the object is suspended on the second holding element over the first holding element in the use state, and a supply channel for receiving at least one supply line, in particular a power line.

The invention is characterized in that the supply channel is a cavity delimited by a portion of the first holding element and a portion of the second holding element in the use state.

5 Because the supply channel is a cavity delimited by a portion of the first holding element and a portion of the second holding element, the advantage is achieved that the individual holding elements do not have to be designed as closed hollow profiles, which means that material can be saved overall.

10 In the use state, a passage in the form of a gap or a longitudinal slot for the wall-side passage of the supply line is formed between a lower edge of the lower portion or base portion of the second holding element and an upper edge of the second leg. The longitudinal slot makes it possible to insert a supply line, which for example is led out of the wall, into the supply channel along the entire length of the supply channel, thus enabling easy installation. Conversely, the supply line can be led out of the supply channel at any point along the channel, for example to connect to a wall
15 socket.

 In a preferred embodiment, it is provided that the first holding element is a profile rail or a portion thereof, comprising a first leg, a second leg and a web connecting the legs, that the second holding element is a profile rail or a portion thereof, comprising a portion which can be secured to the body and a support element extending from the portion which, in the use state, interacts with
20 the first holding element at least in a force-fitting manner, wherein the cavity is delimited by the second leg and a portion of the web of the first holding element and a lower portion and a portion of the support element of the second holding element.

 In a particularly simple manner, the cavity which forms the supply channel is thus delimited by the second leg and a portion of the web of the first holding element and a lower portion and a
25 portion of the support element of the second holding element.

In order to easily connect an interior of the object, such as a kitchen cupboard, to the supply line, it is provided that a passage into the interior is formed in the second leg or the lower portion of the web of the first holding element.

The profile rail of the first holding element has a rectangular, in particular square, outer profile.

5 Due to the rectangular, in particular square, outer profile, the first holding element can easily be converted into a receiving channel of the object, such as a wall cupboard or shelf, and secured in it, e.g. using securing elements such as screws or adhesive.

Alternatively, the profile rail of the first holding element can be surrounded on the outside by a plastic enclosure, such as fiber-reinforced polyethylene, such as by over-molding, wherein the
10 plastic enclosure preferably has a rectangular, in particular square, outer profile. The plastic enclosure allows wood screws to be used to secure the first holding element, which further simplifies installation. Alternatively, it is of course also possible to glue the profile rail over-molded with the plastic enclosure into the receiving channel of the wall cupboard or shelf.

To improve stability, it is provided that the support element extending from the portion or base
15 portion of the second holding element is designed in the form of a web which, in the use state, engages in a recess formed in the web of the first holding element, such as a groove or longitudinal slot, or interacts with a projection extending from the web in a force-fitting and/or form-fitting manner.

Furthermore, the second leg of the first holding element has a length such that it rests against
20 the body, such as a wall, in the use state. This also results in improved stability compared to the prior art.

In a particularly preferred embodiment, the supply channel ends with a respective connector which is connected to the supply line in the form of the power line. This allows objects suspended next to each other to be electrically connected to each other via connectors.

25 An independent invention relates to a wall-mounted kitchen system, comprising functional modules arranged next to one another with a first holding element and a second holding element,

such as a wall rail on which the functional modules are suspended with the first holding element, as well as a supply channel for receiving at least one supply line, in particular a power line.

The wall-mounted kitchen system is characterized in that the supply channel is a cavity delimited by a portion of the first holding element and a portion of the second holding element in the use state. A separate supply channel or holding elements specifically designed as a supply channel are not required.

The holding elements are designed in such a way that when the second holding element (male part) is inserted into the first holding element (female part), a cavity is formed which can be used as a cable channel. Electrical cables can be laid in the cable channel, via which electrical devices inside the cupboard body can be connected with energy and/or data via a data network such as the Internet. Devices can be, for example, lights, sensors or actuators. Sensors that can be used include motion sensors or cameras that can be used to detect the inside of a cupboard. Actuators can be motors for opening and closing doors or drawers. LED lights or illuminated or dimmable (from transparent to opaque) changeable panes in cupboard doors can be used as lights. Sensors can also be used to measure the weight of a cupboard or a shelf, for example to determine the consumption of a product or to determine the number of certain goods. The connection of cupboards and their contents and appliances such as microwaves, refrigerators, sinks and/or stoves into a “smart home” environment is considerably simplified by the cable channel according to the invention.

A particularly preferred embodiment is characterized in that the first holding element is a profile rail or a portion thereof, comprising a first leg, a second leg and a web connecting the legs, that the second holding element is a profile rail or a portion thereof, comprising a portion which can be secured to the body and a support element extending from the portion which, in the use state, interacts with the first holding element at least in a force-fitting manner, wherein the cavity is delimited by the second leg and a portion of the web of the first holding element and a lower portion of the base portion and a portion of the support element of the second holding element.

Furthermore, the wall-mounted kitchen system is characterized by the fact that the supply channel ends with a respective connector, which is connected to the supply line in the form of a power line, wherein functional modules suspended next to each other are connected to each other via the connectors. The supply channel for the electrification is designed in such a way that it can be used with a plug-in system to easily connect the various functional modules, such as kitchen cupboards, to one another.

In order to supply an interior of the functional modules with electrical energy, for example, it is provided that a passage is formed in the second leg or the lower portion of the web of the first holding element, via which passage the supply line is guided into the interior of the functional module. Through the passage, for example, an electrical cable can be led into the interior of the functional module in order to supply electrical devices such as lights, fans, sensors, electric refrigerators, microwaves, extractor hoods, steam cookers, ovens and stoves with electricity.

In order to be able to decide flexibly at any time along the entire length of the supply channel where an electrical cable is to be laid in the wall, it is provided that in the use state a passage in the form of a longitudinal slot or gap for the wall-side passage of the supply cable is formed between a lower edge of the base portion of the second holding element and an upper edge of the second leg of the first holding element. By implementing the passage in the form of a longitudinal slot or gap, the advantage is also achieved that multiple wall connections can also be integrated into the supply channel over the length thereof or can be led out of the channel.

Another independent invention relates to a wall-mounted kitchen system, comprising at least one functional module which has a first holding element and a second holding element, such as a wall rail, which is secured to a wall and on which the at least one functional module is suspended with the first holding element.

Such a wall-mounted kitchen system is characterized, with respect to the prior art, in that the first holding element is a profile rail or a portion thereof, comprising a first leg, a second leg and a web connecting the legs, in that the second holding element is a profile rail or a portion thereof,

comprising a portion that can be secured to the wall and a support element extending from the portion, wherein an upper part of the portion of the second holding element has a recess or a slope pointing away from the body, into which a projection of an L-shaped end of the first leg engages in a form-fitting and force-fitting manner in the use state, and wherein the support element
5 extending from the portion interacts with the first holding element in an at least force-fitting manner in the use state.

This embodiment is particularly suitable for securing in a wall-mounted manner functional modules in the form of kitchen cupboards, in particular wall-mounted kitchen cupboards for accommodating refrigerators, dishwashers, stoves, etc. The particular design of the first and second
10 holding elements allows very heavy functional modules to be suspended safely and easily. The particular design of the profile rail also takes into account the fact that the functional modules that accommodate the aforementioned devices have a depth in the range of 60 - 80 cm, usually at least 65 cm, and thus a high torque is acting on the holding elements.

Preferably, the first holding element is arranged in a receiving channel which is preferably
15 formed on the wall side at an upper edge of the functional module.

It is in particular provided that the profile rail of the first holding element has a rectangular, in particular square, outer profile.

For easy installation of the profile rail, it is provided that the profile rail of the first holding element is surrounded on the outside by a plastic enclosure, such as fiber-reinforced polyethylene,
20 such as an over-molding, wherein the plastic enclosure preferably has a rectangular, in particular square, outer profile.

The plastic enclosure has the advantage that the profile rail can be secured to the body of the functional module using standard wood screws. Separate metal screws are not required.

To improve stability, it is provided that the support element extending from the portion of the
25 second holding element is designed in the form of a web which, in the use state, engages in a recess

formed in the web of the first holding element, such as a groove or longitudinal slot, or interacts with a projection extending from the web in a force-fitting and/or form-fitting manner.

In other words, an “L-slot” is formed, namely an L-shaped projection of the second holding element (male part), which forms an additional base or support. In total, three contact points or surfaces are provided between the second holding element and the first holding element (male and female parts), namely, on the one hand, an inclined portion in the upper region and an essentially vertical portion, and then the L-slot in the central region.

A further structural improvement results from the fact that the second leg of the first holding element has a length such that it rests against the body, such as a wall, in the use state.

The embodiments according to the invention differ from known embodiments in that they are more stable and can carry large and widely projecting loads. For example, the first holding element can have dimensions of e.g. 85 mm in depth and e.g. 155 mm in height. These “heavy” embodiments are particularly suitable for mounting cantilevered loads such as kitchen cupboards, i.e. wall cupboards and base cupboards.

Compared to known embodiments, the advantage is that distortion or bending is excluded, which ensures faster and safer assembly.

Preferably, the first holding element (mother part) has a first leg, which is designed in its lower wall-side part as a support against the wall.

It is also possible for the first and second holding elements to be glued together. This means that a tensioning element for either bottom-side tensioning or head-side tensioning is not required.

However, bracing with a tensioning element is the preferred embodiment so that the kitchen cupboards can also be dismantled without causing damage to the wall.

The second holding element can be injection molded in a fiber-reinforced polyurethane material or partially over-molded with such a material. This material is firmly bonded to the surface of the aluminum profile. The advantage of this design is that these profiles can be more easily connected to wooden panel elements of a piece of furniture, such as a kitchen cupboard.

A further preferred embodiment is characterized in that a metal plate is arranged in a lower leg of the first holding element, which plate is designed as a spacer element. The metal plate is operatively connected to a screw, wherein turning the screw causes a horizontal displacement of the plate in such a way that the plate moves out of the leg when turning e.g. to the right and moves
5 into the first holding element when turning the screw to the left. This allows the "kitchen bracket" mounting device to be aligned if the wall is uneven.

Furthermore, the invention relates to a method for suspending functional modules of a wall-mounted kitchen system, wherein functional modules are suspended with a first holding element, preferably next to one another, on a second holding element, such as a wall rail.

10 According to the invention, it is provided that a profile rail or a portion thereof is used as the first holding element, comprising a first leg, a second leg and a web connecting the legs, that a profile rail or a portion thereof is used as the second holding element, comprising a portion that can be secured to the body and a support element extending from the portion, wherein an upper part of the portion of the second holding element has a recess or a slope pointing away from the
15 body, into which a projection of an L-shaped end of the first leg is suspended in a form-fitting and force-fitting manner in the use state and wherein the support element extending from the portion interacts with the first holding element at least in a force-fitting manner, in the use state.

Additional details, advantages and features of the invention will be apparent not only from the claims and the features specified therein, alone and/or in combination, but also from the following
20 description of preferred exemplary embodiments provided in the drawings.

In the figures:

Fig. 1 is a side view of an arrangement of objects, such as kitchen base cupboards or kitchen wall cupboards, each of which is secured to a wall by means of a securing device,

Fig. 2 is a side view of a body with receiving channel for the securing device,

25 Fig. 3 is a side view of a first embodiment of the securing device according to Fig. 1 in detail,

Fig. 4 is a side view of a second embodiment of a securing device,

Fig. 5 is a side view of a first variant of the second embodiment according to Fig. 4,
Fig. 6 is a side view of a second variant of the second embodiment according to Fig. 4,
Fig. 7 is a side view of a first variant of the second embodiment according to Fig. 4,
Fig. 8 is a side view of a third embodiment of a securing device,
5 Fig. 9 is a side view of a first variant of the third embodiment according to Fig. 8,
Fig. 10 is a side view of a fourth embodiment of a securing device and
Fig. 11 is a perspective view of a wall-mounted kitchen system.

Fig. 1 shows a side view of an arrangement of objects 10, 12 which are secured to a wall 16 by means of a securing device 14. The objects may be cupboards, such as kitchen base cupboards or
10 kitchen wall cupboards, which are suspended, particularly in a floating manner. For example, in the example shown, the kitchen base cupboard 10 is suspended from the wall 16 at a distance from a floor 18. The objects can be any type of object, such as shelf boards, pictures, lamps, etc.

The securing device 14 comprises a first holding element 20, which is arranged, e.g. secured, on the object 10, 12, and a second holding element 22, which is arranged, e.g. secured, on the wall.

15 The first holding element 20 is arranged in a receiving channel 24 formed in the object 10, 12, preferably at an upper edge, and is secured therein. The securing can be done by means of securing elements 26, such as screws, or alternatively by clamping or gluing.

The first holding element 20 and the second holding element 22 are designed as profile strips extending in the longitudinal direction and have portions 28, 30 with at least partially
20 corresponding cross sections, which can be at least partially brought into form-fitting engagement with one another.

According to an aspect of the invention, it is provided that in the first holding element 20, the second holding element 22 and/or between the first and the second holding element 20, 22 a cavity extending in the longitudinal direction is formed as a cable channel 32. At least one passage 34
25 extends from the cable channel 32 into an interior space 36 of the cupboard 10, 12, through which an electrical line accommodated in the cable channel 32 for operating an electrical device 38, such

as a light, sensor, camera or another electrical device, can be passed. In addition, it is provided that at least one passage 40 extends from the cable channel 32 in the direction of the wall 16, via which electrical cables emerging from the wall 16 can be introduced into the cable channel 32.

In the illustrated exemplary embodiment, the kitchen cupboard 10, 12 comprises a body 42 with an upper side 44, in the wall-side end of which the receiving channel 24 is arranged. In the embodiment shown, the upper side 44 of the body 42 is covered with a worktop 46, which ends on the wall side with a base 48.

Fig. 2 shows a side view of the prefabricated body 42 for the kitchen cupboard 10, 12 with the receiving channel 24 for the securing device 14.

Fig. 3 shows a side view of a first embodiment of the securing device 14. In the illustrated embodiment, the first holding element 20 consists of a preferably metallic profile rail 50, which according to one aspect of the invention is surrounded on the outside by a plastic enclosure 52, for example a fiber-reinforced polyethylene. The application of the plastic enclosure 52 can be carried out in a co-extrusion process. The plastic surround 52 preferably has a rectangular cross-portion on the outside, which is adapted to an inner cross-portion of the receiving channel 24. The plastic enclosure 52 allows easy securing of the first holding element 20 by means of, for example, wood screws in the receiving channel 24. To secure the first holding element 20, the securing elements 26, such as wood screws, are screwed into the plastic enclosure 52 through wooden wall elements of the body 44 delimiting the receiving channel 24.

The profile rail 50 is essentially C-shaped, with a first, lower leg 54, a second, upper leg 56 and a web 58 connecting the two legs 54, 56.

According to a further aspect of the invention, a securing element 59, such as a grub screw, can be provided for fixing the first holding element 20, which penetrates the upper wooden panel element 44 of the body 42, the plastic enclosure 52 and the first leg 56 and connects these elements to one another. After fixing the first holding element 20, the cover or worktop 46 can be mounted.

The C-shaped first holding element 20 has a longitudinally extending opening 60 on the wall side, by means of which the first holding element 20 can be suspended in the second holding element 22. As a result, the first and second holding element 20, 22 can be brought into form-fitting engagement with one another, at least partially.

5 According to a further aspect of the invention, a projection 64 extends from a surface 62 of the profile rail 50 facing away from the opening 60, which projection is enclosed by the plastic enclosure 64, such as by over-molding. This ensures a good connection between the profile rail and the plastic enclosure as well as high stability.

10 The second holding element 22, which is designed as a profile rail, rests against the wall 16 with a first portion 66 and is secured to the wall 16 by means of securing elements 67, such as screws. In an upper part of the portion 66, a wall-side recess 68 is introduced into which a projection 70 of an L-shaped end 72 of the second leg 56 engages. The recess 68 and the projection 70 form the corresponding cross sections via which the holding elements 20, 22 can be connected in a form-fitting manner.

15 According to a further aspect of the invention, a web 76 extends from a surface 74 of the portion 66 facing the first holding element 20, which runs essentially parallel to the surface of the portion 66 resting against the wall, which web rests against an inner wall 78 of the profile rail 50 and is supported on the underside against a projection 80 extending from the inner wall 78. The cable channel 32 is thus formed between the web 76, the inner wall 80 and the first leg 54 of the profile
20 rail 50.

The cable or supply channel 32 is a cavity delimited in the use state by a portion, such as inner wall 80, of the first holding element 50 and a portion of the second holding element 22.

Fig. 4 shows a further embodiment of a securing device 82 according to the invention, which is arranged in the receiving channel 24 of the body 42 of the cupboard 10, 14. The securing device
25 82 comprises a first holding element 84 and a second holding element 86, each of which is designed in the form of a preferably metallic profile rail. The first holding element 84 has a substantially

rectangular outer profile, which is received directly in the receiving channel 24 and is fixed therein via securing elements 88, such as screws. The screws 88 can be designed as wood screws or metric screws that engage in a thread or a threaded sleeve 90 that is arranged in the profile rail. The first holding element 84 is C-shaped and comprises a first, lower leg 92 and a second, upper leg 94, which is L-shaped.

The second holding element 86 is secured to the wall 16 via securing elements 96, such as screws. In an upper portion 98 of the second holding element 86, a wall-side recess 100 is formed to form a cross-sectional surface. Correspondingly, the second leg 94 of the first holding element 84 has an L-shaped projection 102 which engages in the recess 100 in form-fitting connection. This creates a force- and form-fitting connection.

Additionally, a screw connection 103 can be provided. The screw 103 penetrates the wooden panel element 44 of the body 42, the second leg 94 of the first holding element 86 and engages in the portion 100 of the second holding element in order to additionally fix it. The screw 103 can engage in a thread or a threaded sleeve 104 which is arranged in one or both of the profiles 84, 86.

Furthermore, according to an inventive aspect, it is provided that a recess 108 running in the longitudinal direction, such as a longitudinal groove, is formed in an inner wall 106 of the first holding element 84, into which a web 110 extending from the second holding element 86 engages. The web 110 can be additionally fixed by a securing element 112, such as a screw, originating from the wooden plate element 44 of the receiving channel 24. The securing elements 103 and 112 are not mandatory.

In this embodiment, the cable channel 32 is formed as a cavity between the first holding element 84 and the second holding element 86. This is delimited by the first, lower leg 92, the inner side 106 of the first holding element 86 and the web 110 as well as a portion 114 of the second holding element 86.

Fig. 5 shows a side view of a first variant 500 of the securing device 82 according to Fig. 4. A first holding element 502 comprises a first leg 504 and a second leg 506, which are connected to

one another via a web 508. Outer surfaces of the first leg 504, the second leg 506 and the web 508 form a rectangular contour. A second holding element 510 is form-fittingly received in the first holding element 502.

A surface 512 of the second leg 506 facing the second holding element 510 has a cross section that at least partially corresponds to a cross section of a surface 514 of the second holding element 510. The corresponding surfaces 512, 514 comprise a straight portion 516 which runs parallel or substantially parallel to the first leg 504, a surface 518 which rises in the direction of the connecting web 508 at an angle of preferably 45° and which merges into a surface 520 which runs parallel to the first leg 504.

An inner surface 522 of the connecting web 508 extends perpendicular to the surface 520. According to a further aspect of the invention, a longitudinal groove 524 is formed in this surface. According to the invention, the surface 520 and the groove 524 form an L-shaped receptacle (L-slot) in the connecting web 508 into which a support element 528 extending from a surface 526 of the second holding element 510 facing the first holding element 502 engages.

The first leg 504 has an inner surface 530 which is arranged at a distance from an outer surface 532 of the web 528, so that the cable channel 32 is formed between the support element 528 and the leg 504. Furthermore, the cable channel 32 is formed by a wall 534 of the web 508 adjacent to the groove 24 and an inner surface 536 of a portion 538 of the second holding element 510 extending perpendicular to the support element 528.

Fig. 6 shows a side view of a second variant 600 of the securing device according to Fig. 4. The securing device 600 comprises a first holding element 602 in the form of a profile rail and a second holding element 604 in the form of a profile rail. The first holding element 602 comprises a first leg 605, a second leg 606 and a web 608 connecting the legs. The second holding element is L-shaped, wherein an inner surface 610 of the first leg 606 has a cross-section that corresponds to an outer surface 612 of the second holding element 604, so that the holding elements can be at least partially brought into form-fitting engagement with one another.

In addition, a longitudinal groove 614 is formed in the web 608, into which a support element 616 extending from the second holding element 604 engages. The groove 614 forms with the inner wall of the web 608 an L-shaped receptacle (L-slot) into which the support element 616 can engage.

A wall-side portion 618 of the second holding element 604 extends at right angles to the support element 616 and runs parallel to a wall portion 620 of the web 608. The cable channel 32 is formed between the first leg 605, the inner wall 620, the support element 616 and the portion 618 of the second holding element 604. The second holding element 604 is additionally fixed via a securing element 622, such as a screw, wherein the screw 622 extends through the second leg 606 of the first holding element 602 into the second holding element 604.

Fig. 7 shows a side view of a third variant 700 of the securing device 82 according to Fig. 4. The securing device 700 comprises a first holding element 702 and a second holding element 704, which is received in a form-fitting manner in the first holding element 702. A support element 706 extends from the first holding element 704 into a groove 708 which is formed in an inner wall 710 of the first holding element 702. For further fixation, a fixing element such as screw 712 is provided, which penetrates a first leg 714 of the first holding element 702 and applies force to the support element 708 against a boundary surface 716 of the groove 708.

Fig. 8 shows a side view of a further embodiment of a securing device 800 according to the invention, which is received in the receiving channel 24 of the body 42 of the cupboard element 10, 12.

The securing device 800 comprises a first holding element 802, which is arranged in the receiving channel 24, and a second holding element 804, which is fixed to the wall 16. The first holding element 802 is essentially C-shaped and comprises a first leg 806, a second leg 808 and a web 810 connecting the legs 806, 808. The first and second holding elements have at least partially corresponding cross sections 812, 814, which can be brought into form-fitting engagement with one another at least partially. The corresponding cross-sections 812, 814 are not fixed to a specific cross-section. In the example, the second leg 808 is essentially L-shaped, wherein a recess with

cross section 814 is formed in the wall side of the second holding element 804, into which the L-shaped portion 816 engages in a form-fitting manner.

The first holding element 804 has an inner surface 822 parallel to a surface 820 abutting the wall 16, which runs parallel to an inner surface 824 of the web 810 or abuts against it. A surface 826 extends perpendicular to the inner surface 822. The cable channel 32 is formed by a cavity formed between the surface 826 and the first leg 806.

In the illustrated exemplary embodiment, purely by way of example, a securing element 828, such as a screw, is arranged in the first leg 806, by means of which the second holding element 804 can be subjected to force against the cross-sectional surface 812. Additionally or alternatively, a further securing element 830 is provided which, extending from the wooden panel element 44, passes through the first leg 808 and engages in the second holding element 804. The securing element 830, such as a screw, can be received in a thread or a sleeve 832.

Fig. 9 shows a further embodiment of a securing element 900 according to the invention, comprising a first holding element 902 and a second holding element 904, which is form-fittingly received in the C-shaped first holding element 902.

The first holding element and the second holding element have at least partially corresponding cross sections 906, 908, whereby they can be at least partially brought into form-fitting engagement with one another. The first holding element 902 substantially comprises a first leg 905 and a second leg 906, wherein the legs are connected to one another via a web 908. The second leg 906 is substantially L-shaped, with an L-shaped end 910 engaging in a recess 912 formed in the second holding element 904. The L-shaped leg 906 and the recess 912 each have corresponding cross sections 914, 916, which can be at least partially brought into form-fitting engagement with one another.

To form the cable channel 32, a surface 918 of the second holding element 904 facing the first leg 905 is designed to run obliquely, preferably at an angle of 45°, namely essentially parallel to

the cross-sectional surface 912, so that a cavity for forming the cable channel 32 is formed between the first leg 905 and the surface 918.

Fig. 10 shows a side view of a further embodiment of a securing device 1000 according to the invention, comprising a first holding element 1002 which is received and fixed in the receiving
5 channel 24 of the cupboard element 12. Furthermore, the securing device 1001 comprises a second holding element 1004, which is connected to the wall 16.

The first holding element 1002 comprises a first leg 1006, a second leg 1008 and a web 1010 connecting the two legs 1006, 1008. The first holding element in the illustrated exemplary embodiment is E-shaped according to the invention. A support element 1012 extends from the web
10 1010 and runs parallel to the legs.

The second holding element 1004 comprises an upper portion 1014 and a lower portion 1016, from which a support element 1018 extends at right angles. In the upper portion 1014, a recess 1020 is formed on the wall side, into which an L-shaped portion 1022 of the first leg 1008 engages. The first holding element 1002 and the second holding element 1004 have at least partially
15 corresponding cross sections 1024, 1026, which can be at least partially brought into form-fitting engagement with one another.

In this embodiment, it is provided that in the case of a form-fitting connection, the support element 1012 extending from the first holding element 1002 interacts with the support element 1018 extending from the second holding element 1004, so that additional support is achieved. The
20 cable channel 32 is formed between the support element 1018 and the first leg 1006.

Fig. 11 shows purely schematically a wall-mounted kitchen system 1100, comprising functional modules 1102, 1104, 1106, 1108, 1110 arranged next to one another, which have a first holding element 1112, 1114, and a second holding element 1116, 1118, such as a wall rail, on which the functional modules 1102, 1104, 1106, 1108, 1110 are suspended with the first holding
25 element, as well as a supply channel 1120, 1122 for receiving at least one supply line, in particular a power line.

According to the invention, it is provided that the supply channel 1120, 1122 is a cavity delimited in a use state by a portion of the first holding element and a portion of the second holding element. As the first or second holding element, one such as that described in connection with Fig. 1 to Fig. 10 can be used. It is in particular provided that the first holding element is a profile rail or a portion thereof, comprising a first leg, a second leg and a web connecting the legs, that the second holding element is a profile rail or a portion thereof, comprising a portion which can be secured to the body and a support element extending from the portion which, in the use state, interacts with the first holding element at least in a force-fitting manner, wherein the cavity is delimited by the second leg and a portion of the web of the first holding element and a lower portion and a portion of the support element of the second holding element.

The supply channel 1120, 1122 can end with a respective connector that is connected to the supply line in the form of a power line, wherein functional modules suspended next to one another are connected to one another via the connectors.

It is provided that a passage 1124, 1126, 1128 is formed in the second leg or the lower portion of the web of the first holding element, via which the supply lines are guided into an interior of the functional module.

Moreover it is provided that, in the use state, a passage in the form of a longitudinal slot for the wall-side passage of the supply line is formed between a lower edge of the base portion of the second holding element and an upper edge of the second leg.

All functional modules can be interconnected and connected to a network with only one connection c.

It is also possible to have electrical access to a wall connection along the entire length of the kitchen system, which wall connection is led out of the wall at points a and/or b, for example. Different voltage systems, such as 220 V, 12 V, 24 V or 26 V, can also be used. Overall, a very flexible arrangement of the functional modules and their electrification is possible. It is not necessary to install special sockets for laying the desired cables.

The subject of the invention is a securing device for suspending an object, such as a wall cupboard or shelf board, on a body, such as a wall, comprising a first holding element extending in the longitudinal direction of the object, which can be secured to the object, a second holding element extending in the longitudinal direction of the object, which can be secured to the body, wherein the object is suspended from the second holding element via the first holding element in the use state, and a supply channel for receiving at least one supply line, in particular a power line, which is characterized in that the supply channel is a cavity delimited by a portion of the first holding element and a portion of the second holding element in the use state, that the first holding element is a profile rail or a portion thereof, comprising a first leg, a second leg and a web connecting the legs, that the second holding element is a profile rail or a portion thereof, comprising a base portion which can be secured to the body and a web extending from the base portion, such as a support element, which in the use state interacts, at least in a force-fitting manner, with the first holding element, wherein the cavity is delimited by the second leg and a portion of the web of the first holding element and a lower portion of the base portion and a portion of the web of the second holding element, and wherein in the use state a passage in the form of a longitudinal slot for the wall-side passage of the supply line is formed between a lower edge of the base portion of the second holding element and an upper edge of the second leg.

It is also within the scope of the invention that a passage is formed in the second leg or the lower portion of the web of the first holding element, via which the supply line is guided into an interior of the object.

It is also within the scope of the invention that the profile rail of the first holding element has a rectangular, in particular square, outer profile.

It is also within the scope of the invention that the profile rail of the first holding element is surrounded on the outside by a plastic enclosure, such as fiber-reinforced polyethylene, such as by over-molding, wherein the plastic enclosure preferably has a rectangular, in particular square, outer profile.

It is also within the scope of the invention that the support element extending from the base portion of the second holding element is designed in the form of a web which, in the use state, engages in a recess formed in the web of the first holding element, such as a groove or longitudinal slot, or interacts with a projection extending from the web in a force-fitting and/or form-fitting manner.

It is also within the scope of the invention that the first leg of the first holding element has a length such that it rests against the body, such as a wall, in the use state.

Another inventive feature is that the supply channel ends with a respective connector in the end region that is connected to the supply line in the form of the power line.

The subject of the invention is also a wall-mounted kitchen system comprising functional modules arranged next to each other with a first holding element and a second holding element, such as a wall rail, on which they can be suspended with the first holding element, and a supply channel for receiving at least one supply line, in particular a power line, which is characterized in that the supply channel is a cavity delimited by a portion of the first holding element and a portion of the second holding element in the use state, that the first holding element is a profile rail or a portion thereof, comprising a first leg, a second leg and a web connecting the legs, that the second holding element is a profile rail or a portion thereof, comprising a base portion which can be secured to the body and a support element extending from the base portion, which in the use state at least interacts in a force-fitting manner with the first holding element, wherein the cavity is delimited by the first leg and a portion of the web of the first holding element and a lower portion of the base portion and a portion of the support element of the second holding element, and wherein in the use state a passage in the form of a longitudinal slot for the wall-side passage of the supply line is formed between a lower edge of the base portion of the second holding element and an upper edge of the first leg of the first holding element.

It is also within the scope of the invention that the supply channel can end with a respective connector that is connected to the supply line in the form of a power line, wherein functional modules suspended next to one another are connected to one another via the connectors.

It is also within the scope of the invention that a passage is formed in the first leg or the lower portion of the web of the first holding element, via which the supply line is guided into an interior of the functional module.

The subject matter of the invention also relates to a wall-mounted kitchen system, comprising at least one functional module which has a first holding element and a second holding element, such as a wall rail, which is secured to a wall and on which the at least one functional module is suspended with the first holding element, which is characterized in that the first holding element is a profile rail or a portion thereof, comprising a first leg, a second leg and a web connecting the legs, in that the second holding element is a profile rail or a portion thereof, comprising a base portion that can be secured to the wall and a support element extending from the portion, wherein an upper part of the portion of the second holding element has a recess or a slope pointing away from the body, into which a projection of an L-shaped end of the first leg engages in a form-fitting and force-fitting manner in the use state, and wherein the support element extending from the portion interacts with the first holding element in an at least force-fitting manner in the use state.

It is also within the scope of the invention that the first holding element is arranged in a receiving channel that is preferably formed on the wall side at an upper edge of the functional module.

It is also within the scope of the invention that the profile rail of the first holding element has a rectangular, in particular square, outer profile.

It is also within the scope of the invention that the profile rail of the first holding element is surrounded on the outside by a plastic enclosure, such as fiber-reinforced polyethylene, such as by over-molding, wherein the plastic enclosure preferably has a rectangular, in particular square, outer profile.

It is also within the scope of the invention that the support element extending from the base portion of the second holding element is designed in the form of a web which, in the use state, engages in a recess formed in the web of the first holding element, such as a groove or longitudinal slot, or interacts with a projection extending from the web in a force-fitting and/or form-fitting manner.

It is also inventive within the scope of the invention that the first leg of the first holding element has a length such that it rests against the body, such as a wall, in the use state.

The invention also relates to a securing device for suspending an object, such as a wall cupboard or shelf board, on a body, such as a wall, comprising a first holding element extending in the longitudinal direction which can be secured to the object, a second holding element extending in the longitudinal direction which can be secured to the body, wherein the object is suspended from the second holding element via the first holding element in the use state, and a supply channel for receiving at least one supply line, in particular a power line, which is characterized in that the supply channel is a cavity delimited in the use state by a portion of the first holding element and a portion of the second holding element.

It is also within the scope of the invention that the first holding element is a profile rail or a portion thereof, comprising a first leg, a second leg and a web connecting the legs, that the second holding element is a profile rail or a portion thereof, comprising a portion which can be secured to the body and a web, such as a support element, extending from the base portion which, in the use state, interacts with the first holding element at least in a force-fitting manner, wherein the cavity is delimited by the second leg and a portion of the web of the first holding element and a lower portion of the base portion and a portion of the web of the second holding element.

It is also within the scope of the invention that, in the use state, a passage in the form of a longitudinal slot for the wall-side passage of the supply line is formed between a lower edge of the base portion of the second holding element and an upper edge of the second leg.

The invention also relates to a wall-mounted kitchen system, comprising functional modules arranged next to one another with a first holding element and a second holding element, such as a wall rail on which they are suspended with the first holding element, as well as a supply channel for receiving at least one supply line, in particular a power line, which is characterized in that the supply channel is a cavity delimited in the use state by a portion of the first holding element and a portion of the second holding element.

It is also within the scope of the invention that the second holding element is a profile rail or a portion thereof, comprising a base portion that can be secured to the body and a support element extending from the base portion, which in the use state interacts with the first holding element at least in a force-fitting manner, wherein the cavity is delimited by the first leg and a portion of the web of the first holding element and a lower portion of the base portion and a portion of the support element of the second holding element.

It is also within the scope of the invention that, in the use state, a passage in the form of a longitudinal slot for the wall-side passage of the supply line is formed between a lower edge of the base portion of the second holding element and an upper edge of the second leg of the first holding element.

The subject matter of the invention also relates to a wall-mounted kitchen system, comprising at least one functional module, which has a first and a second holding element, such as a wall rail, which can be secured to a wall and on which the at least one functional module is suspended with the first holding element, which is characterized in that the first holding element is a profile rail or a portion thereof, comprising a first leg, a second leg and a web connecting the legs, that the second holding element is a profile rail or a portion thereof, comprising a base portion that can be secured to the wall and a support element extending from the portion, wherein an upper part of the portion of the second holding element has a recess or a slope pointing away from the body, into which a projection of an L-shaped end of the first leg engages in a form-fitting and force-fitting manner in

the use state, and wherein the support element extending from the portion interacts with the first holding element in an at least force-fitting manner in the use state.

CLAIMS

1. A wall cupboard securing device (14; 82; 500; 600; 700; 1000) for suspending a wall cupboard (10; 12; 1102 - 1110) on a wall (16), comprising

5 a first holding element (20; 84; 502; 602; 702; 1002) which extends in the longitudinal direction of the wall cupboard and which can be secured to the wall cupboard (10; 12; 1102 - 1110),

a second holding element (22, 86; 510; 604; 704; 1004) which extends in the longitudinal direction of the wall cupboard and which can be secured to the wall (16),

10 wherein the wall cupboard (10; 12; 1102 - 1110) is suspended on the second holding element (22, 86; 510; 604; 704; 1004) over the first holding element (20; 84; 502; 602; 702; 1002) in the use state,

and a supply channel (32) for receiving at least one supply line (1120), in particular a power line, which is a cavity delimited by a portion of the first holding element (20; 84; 502; 602; 702; 1002) and a portion of the second holding element (22, 86; 510; 604; 704; 804; 904; 1004) in the use state,

characterized in that

the first holding element (20; 84; 502; 602; 702; 1002) is a profile rail (50), comprising a first leg (54; 92; 504; 605; 714; 1006), a second leg (56; 94; 506; 606; 1008) and a web (58; 96; 508; 608; 708; 1010) connecting the legs,

the second holding element (22, 86; 510; 604; 704; 1004) is a profile rail, comprising a base portion which can be secured to the wall (16) and a support element (76; 110; 528; 616; 706; 1018) extending from the base portion, which interacts with the first holding element at least in a force-fitting manner in the use state, and which engages in a recess (108; 524; 614; 716) formed in the web (96; 508; 608; 708) of the first holding element (86; 504; 604; 704) or which interacts in a force-fitting and/or form-fitting manner with a projection (80; 1012) extending from the web (50; 1010),

the supply channel (32) is delimited by the first leg (54; 92; 504; 605; 714; 806; 905; 1006) and a portion of the web (96; 508; 608; 708) of the first holding element (86; 504; 604; 704), which extends between the first leg (54; 92; 504; 605; 714; 806; 905; 1006) and the web-shaped support element (76; 110; 528; 616; 706; 1018), and a lower portion of the base portion and a portion of the web-shaped support element (76; 110; 528; 616; 706; 1018) of the second holding element

and wherein, in the use state, a passage (40) in the form of a longitudinal slot for the wall-side passage of the supply line is formed between a lower edge of the base portion of the second holding

element (22; 86; 510; 604; 704; 1004) and an upper edge of the first leg (54; 92; 504; 605; 714; 806; 905; 1006).

2. The wall cupboard securing device according to claim 1,
5 characterized in that
the profile rail (50) of the first holding element has a rectangular, in particular square, outer profile.

3. The wall cupboard securing device according to claim 1 or 2,
10 characterized in that
the profile rail (50) of the first holding element is surrounded on the outside by a plastic enclosure (52), such as fiber-reinforced polyethylene, such as by over-molding, wherein the plastic enclosure (52) preferably has a rectangular, in particular square, outer profile.

15 4. The wall cupboard securing device according to claim 1,
characterized in that
the recess (108; 524; 614; 716) is formed as a groove or longitudinal slot.

5. The wall cupboard securing device according to claim 1,
20 characterized in that
the first leg (54; 92; 504; 605; 714; 1006) of the first holding element has a length such that it rests against the wall (16) in the use state.

6. The wall cupboard securing device according to claim 1,
25 characterized in that
the supply channel (32) ends with a respective connector that is connected to the supply line in the form of the power line.

7. A wall-mounted kitchen system (1100), comprising functional modules (1102, 1104, 1106,
30 1108, 1110), in the form of wall cupboards, arranged next to one another and wall cupboard securing device (14; 82; 500; 600; 700; 1000) according to at least one of claims 1 to 6.

8. The wall-mounted kitchen system according to claim 7,
characterized in that

the supply channel (32) ends with a respective connector on the end side, that is connected to the supply line (1120, 1124, 1126, 1128) in the form of a power line, wherein functional modules suspended next to one another are connected to one another via the connectors.

- 5 9. The wall-mounted kitchen system according to claim 7 or 8,
characterized in that
a passage (38) is formed in the first leg (54; 92) or in the lower portion of the web of the first holding element, via which the supply line is guided into an interior of the functional module.