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# (54) A DRYING RACK ASSEMBLY AND A DRYING RACK SYSTEM

TROCKNERGESTELLANORDNUNG UND TROCKNERGESTELLSYSTEM

ENSEMBLE ÉTENDOIR ET SYSTÈME D'ÉTENDOIR

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## Description

### Technical field

**[0001]** The present invention relates generally to a drying rack assembly adapted to be mounted on a surface and a drying rack system comprising a mounting device and the drying rack assembly.

### Background art

**[0002]** When mounting an electrical drying rack, for example for drying towels in a bathroom or similar, on a vertical wall, more than two hands are often needed; more than one to hold the drying rack and more than one to attach it to the wall.

**[0003]** It is often also problematic to connect the drying rack to the electrical power mains, usually delivering its power output via electrical wires hidden in pipes in the walls.

**[0004]** These problems can be visualized in prior art GB1044051A which discloses a drying rack assembly according to the preamble of claim 1 and furthermore a towel dryer mounted on a vertical wall. The towel dryer has u-shaped heating members electrically connected to the electrical main supply via an electrical connection. The connection is hidden in a sleeve connected to a plated disc adapted to be secured to the wall. When mounting the dryer on the wall, the plated disc is screwed to the wall and the sleeve is secured to the discs. The sleeve then receives a boss connected to the u-shaped members of the towel dryer. Thus, the u-shaped members are hanging on the boss inserted in the sleeve. This is not a sufficiently rigid solution.

**[0005]** Further, in the towel dryer in GB1044051A the electrical main supply leads are connected to the dryer via a terminal block arranged in the sleeve. To be able to connect the main leads to the terminal block either really long leads has to be used or an opening has to be arranged in the sleeve in order to be able to reach the terminal block. Long leads are difficult to hide and an opening can be difficult to seal against the moisture present in a bathroom.

### Summary of invention

**[0006]** An object of the present invention is to create an electrically controlled drying rack assembly and a drying rack system comprising a mounting device and the drying rack assembly.

**[0007]** The term drying rack is hereafter used to define a rack capable of drying or heating all articles capable of being hung over such a rack.

**[0008]** The definition of horizontal is that is essentially transverse the surface on which the drying rack system is mounted and the definition of transverse is that it is essentially parallel to the surface on which the drying rack system is mounted. These directions differ if the drying rack system is mounted on a wall, on a floor or other surface. This definition is general and relates to all parts of the description.

**[0009]** The present invention relates to a drying rack assembly according to claim 1.

**[0010]** The present invention further relates to a drying rack system which comprises a mounting device and the drying rack assembly referred to above.

**[0011]** By connecting the inventive drying rack system to the mounting device an easily mountable and safe drying rack assembly is created.

**[0012]** When mounting the inventive drying rack assembly on a surface, for example a wall, a floor or other, first the mounting device is attached on the surface and then, due to its from the surface protruding shape, the drying rack assembly can be slid over on the mounting device, thus creating a rigid support of the drying rack when mounting the additional mounts on the surface. Further, by arranging an electrical connector in the distal end of the mounting device the drying rack can be more easily connected to the power system and to the drying rack itself.

**[0013]** In the drying rack system, a connection block may be arranged in a space in the first part and is adapted to connect an electrical power output cable with the electrical connector.

**[0014]** When connecting the electrical power output cable to a connection block arranged in the first part the connection to the power system is simplified and the installer can connect the cables without the need of extra long cable parts or the need of extra hands holding the drying rack.

**[0015]** In another embodiment of the drying rack system, a cover part is adapted to be removeably attached to the first part and arranged to cover the space containing the connection block.

**[0016]** A cover part arranged over the space in with the connection block is placed seals this space from moisture and debris and creates an electrically safe connection.

**[0017]** In another embodiment of the drying rack system, an opening is arranged in the proximal end of the first part through which an electrical power output cable is adapted to be fed into the space.

**[0018]** If an opening is created in the proximal end of the first part, i.e. the part mounted on the surface, it is possible to arrange the mounting device to enclose the output holes containing the power output cables. Thus, the output holes are protected from moisture and water can be prevented from entering the walls. In order to further seal between the proximal end and the mounting surface it is possible to arrange a seal or a string of sealing material between the parts.

**[0019]** In using a female electrical connector as a connector on the mounting device a safe electrical contact can be established between the drying rack and the mounting device.

**[0020]** In another embodiment of the drying rack sys-

tem, an electrical switch is arranged in the first part adapted to interrupt the current between the electrical power output cable and the connection block.

**[0021]** The drying rack assembly in having an elongated cavity to be slid over a part pre-mounted on the surface facilitates both the mounting and the electrical installation of the drying rack.

**[0022]** In an embodiment of the drying rack assembly, the elongated opening in the second part is located in an essentially horizontal part of the second part which is connected to an essentially vertical part of the second part. The vertical part is in turn connected to at least one of the heated members.

**[0023]** When using this T-shaped form on the second part adapted to be connected to the pre-mounted mounting, the alignment if the drying rack is facilitated.

**[0024]** In another embodiment of the drying rack assembly, at least a separate unit of the drying rack is rotatable around an axis coaxial with an essentially vertical centre axis located in the vertical part of the second part.

**[0025]** If the drying rack or at least a part of it is rotatable in relation to the second part and the surface it is mounted, the hanging up of items to dry is facilitated.

**[0026]** In one embodiment of the drying rack assembly, the electrical connector is a male electrical contact comprising at least two protruding pins.

**[0027]** When using a male electrical connector as a connector on the drying rack system a safe electrical contact can be established between the drying rack and the mounting device.

**[0028]** In one embodiment of the drying rack system, the system may be connected to the electrical main supply via a concealed connection. The system is connected to the electrical main supply via a concealed connection hidden in the mounting device.

## Brief description of drawings

**[0029]** The invention is now described, by way of example, with reference to the accompanying drawings, in which:

Fig. 1 discloses an exploded view of the inventive drying rack system comprising mounting device and a drying rack.

Fig. 2a discloses a first detail view of the mounting device

Fig. 2b discloses a second detail view of the mounting device

Fig. 3 discloses a cut view of the second part of the drying rack system and drying rack assembly

Fig. 4 discloses a complete drying rack system including a mounting device and a first embodiment of a drying rack assembly mounted on a wall.

Fig. 5 discloses a second embodiment of a drying rack to be used with the drying rack system.

## Description of embodiments

**[0030]** The invention is here described more in detail. All examples herein should be seen as part of the general description and therefore possible to combine in any way falling within the scope of the appended claims.

**[0031]** In figure 1 the system comprising the mounting device A and the drying rack assembly B is disclosed. The mounting device A comprises a first part 1 adapted to mechanically carry a second part 2 attached to or being a part of the drying rack 10. The first part 1 has one proximal end 1a and one distal end 1b protruding from the proximal end 1a, where the proximal end 1a is adapted to be mounted on the surface S. The surface can be a wall, a floor, a roof or similar horizontal, vertical or another inclining surface.

**[0032]** The mounting device A can be mounted on the wall S by using any kind of fastening elements such as for example screws or glue. In the embodiment shown in figure 1 the mounting device A is mounted over a power output ac/dc in the form of electrical wires w2 protruding through a pipe in the wall. Thus, the mounting device A is enclosing the hole in the wall and protects it from the surrounding moisture. An opening (not shown in fig 1) is arranged in the proximal end 1a of the first part 1, through which the electrical power output wires are adapted to be fed into a space V in the first part, see also figure 2a.

**[0033]** The output holes can be further protected from moisture and water by arranging a seal or a string of sealing material between the first part 1 and the surface S.

**[0034]** In the distal end 1b of the first part 1 it is mounted an electrical connector 3 which is adapted to be electrically connected to the drying rack B. The electrical connector is a female part electrical connector 3a comprising at least two holes 3a1.

**[0035]** In figure 2a it is shown that the electrical connector 3 is by at least two, but preferably four, wires w1, w2 connected to the power output ac/dc via a connection block 4 arranged in a space V in the first part 1. A cover part 5 is covering the space V containing the connection block 4. The cover part 5 is adapted to be removeably attached to the first part so that it can easily be removed to reveal the connection block 4 and the wires, thereby facilitating connection of the electrical connector 3 cables w1 and the power output cables w2.

**[0036]** It is also possible to arrange an electrical switch 6 in the first part 1, see figure 2b. The switch 6 can interrupt the current between the electric power cord w2 and the electrical connector 3.

**[0037]** The drying rack assembly B includes a drying rack 10 comprising at least one electrically controlled and heated elongated drying member B1, B2 and a second part 2. The second part 2 is a part of the drying rack 10. The second part 2 comprises a horizontal part 2a adapted

to be attached to the mounting device 1 attached to the surface and a vertical part 2b in which the drying rack is arranged. The definition of horizontal is that is essentially transverse the surface S on which the drying rack system is mounted and the definition of transverse is that it is essentially parallel to the surface S on which the drying rack system is mounted.

**[0038]** The drying rack assembly B is more thoroughly disclosed in figure 3-5. Where figure 3 discloses a cut view of the parts and figure 4 and 5 discloses a complete drying rack system including a mounting device A and a drying rack assembly B mounted on a surface.

**[0039]** The drying rack assembly B in figure 4 is about to be attached to the surface S, in this embodiment a wall, by means of the mounting device A. More than one wall mount can of course be used to hold the entire drying rack assembly. However, these more than one wall mounts can be of the prior art kind.

**[0040]** The drying rack 10 includes at least one, but preferably more than one, drying member B1, B2 in which electrically heated wires are arranged. Preferably, the drying members B1, B2 have the form of at least one vertically arranged elongated profile B1 which can be connected with at least one horizontally arranged profile B2. Preferably, the vertically arranged profile B1 is arranged in the vertical part 2b of the second part 2.

**[0041]** In the embodiment in figure 3, the profiles are tubes and the horizontally arranged profiles B2 have a U-shape and are each connected to a separate part B11-B15 of the vertically arranged profile. A center axis A1 is arranged essentially vertical in the center of the vertical part 2b, coaxial with the center axis A2 of the separate parts B11-B15 of the vertically arranged profile B1. In one embodiment, a unit comprising at least one part of the drying rack 10 can rotate around these axles. Preferably, each unit comprises a U-shaped horizontal profile B1 and one separate part B11-B15 of the vertically arranged profile B1.

**[0042]** Of course are other than u-shaped profiles also possible to use with the drying rack system according to this invention. For example the drying rack may comprise two vertically arranged profiles B1'connected to one or several horizontal profiles B2', as disclosed in figure 5, or other previously known drying rack profiles. In figure 5 the drying rack system is rigidly mounted on the surface, i.e. it is not rotatable. It is also possible to use profiles with a square, quadratic or other shaped cross section.

**[0043]** An elongated cavity 7 with an open end 7a and a closed end 7b is arranged in the essentially horizontal part 2a of the second part 2. This is shown in figure 3. In the closed end 7b of the cavity 7 it is mounted an electrical connector 3 adapted to be electrically connected to the first part. Preferably, the electrical connector is a male electrical contact 3b comprising at least two protruding pins 3b1. The cavity 7 is adapted to be slid over the first part 1 until the closed end 7b of the cavity 7 is in vicinity of the distal end 1b of the first part 1.

**[0044]** An opening 8 between the cavity 7 and the environment is preferably arranged in the second part 2. When the drying rack system is in a fully mounted mode the opening 8 is arranged to be in line with the switch 6. Thereby, the switch 6 is touchable and operatable in the mounted mode and the power to the drying rack system can easily be turned on and off. When in the fully mounted mode the drying rack assembly B and the mounting device A can be locked together by means of a locking screw 9 arranged in the second part 2.

**[0045]** The mounting device A and the drying rack assembly B are together forming a drying rack system. The system is connected to the electrical main supply via a concealed connection hidden in the mounting device, via a wire directly connected to a connection block mounted in the wall or via an external wire and plug to be connected to a socket.

**[0046]** Further, it is possible to install a control unit CU in the second part 2 to control the heating of the drying rack. The control unit can be programmed to activate and deactivate the heating of the drying rack at one or several certain time or interval. The control unit CU can of course also be installed in the mounting device A.

**[0047]** The control unit CU may be used with or without the above described mounting device A and the drying rack assembly B, which together form the drying rack system.

**[0048]** A programmable control unit CU arrangement in a mounting device A, said programmable control unit CU comprising:

- a processing unit adapted to, in parallel, execute at least two drying programs;
- a timing unit adapted to provide a current time;
- a memory unit adapted to store said drying programs, wherein each drying program is based on a preset time period having start timing and wherein a drying rack is turned on during said preset time period;
- at least two light emitting diodes, wherein each of said light emitting diodes is capable of emitting at least a first color, a second color and a third color, wherein each color is mutually different;
- at least two push buttons, wherein a first push button is associated with a first drying program, and wherein a second push button is associated with a second drying program;

wherein said processing unit is further adapted to, based on an activation of said first push button, update said start timing of said first drying program based on the current time provided by said timing unit, and wherein said processing unit is further adapted to instruct a first light emitting diode to indicate, by emitting a first color in a stroboscopic manner for a preset number of flashes, that

an update of said first drying program has been performed; and
wherein said at least two light emitting diodes are further adapted to emit said second color to indicate that said first drying program has turned on the drying rack, and wherein said third color is emitted to indicate that said first drying program has turned off the drying rack.

**[0049]** According to one possible embodiment of the programmable control unit CU, wherein said programmable control unit CU is arranged in a drying assembly B.

**[0050]** A programmable control unit CU according to the one above-mentioned, wherein said processing unit is further adapted to, based on an activation of said second button, update said start timing of said second drying program based on the current time provided by said timing unit, and wherein said processing unit is further adapted to instruct a second light emitting diode to indicate, by emitting a first color in a stroboscopic manner for a preset number of flashes, that an update of said second drying program has been performed.

**[0051]** A programmable control unit CU according to the one above-mentioned, wherein said first color is green, and wherein said second color is red, and wherein said third color is blue.

**[0052]** A programmable control unit CU according to the one above-mentioned, wherein said first diode emits three stroboscopic flashes to indicate said update the start timing of said drying program.

**[0053]** A programmable control unit CU according to the one above-mentioned, wherein said drying programs are repeated on a daily basis.

**[0054]** A programmable control unit CU according to the one above-mentioned, wherein said preset time period corresponds to 6 hours.

**[0055]** A programmable control unit CU according to the above-mentioned, further comprising three light emitting diodes associated with each push button.

**[0056]** The programmable control unit CU as above described may bring several benefits to a drying rack system. One certain benefit may be reduced energy consumption without decreasing user satisfaction. Another certain benefit may be a user interaction which is easier to comprehend. The programmable control unit CU may be capable to clearly interact and indicate whether or not a drying program has turned on the drying rack system. Moreover, the programmable control unit CU is capable of running two or more drying programs in parallel. Thus, enabling two or more users of the drying rack system to adjust the heating of the drying rack system according to their individual needs.

## Claims

1. Drying rack assembly (B) comprising at least one electrically controlled elongated drying member (B1, B2) adapted to be mounted on a surface (S), the assembly comprising a second part (2) being a part of a drying rack, said the second part (2) comprising an elongated cavity (7) with an open end (7a) and a closed end (7b),
the second part (2) being adapted to be slid over a first part (1) mounted on a surface (S), said first part (1) comprising a first electrical contact (3a) of an electrical connector (3),
**characterised in that** said closed end (7b) of the cavity (7) comprises a second electrical contact (3b) of the electrical connector (3) adapted to be electrically connected to the first electrical contact (3a) of the first part (1).

2. Drying rack assembly (B) according to claim 1, wherein the elongated opening (7) in the second part (2) is located in an essentially horizontal part (2a) which is connected to an essentially vertical part (2b), which in turn is connected to at least one of the heated members (B1, B2).

3. Drying rack assembly (B) according to claim 2, wherein the at least a unit comprising at least one part of the drying rack (B) is rotatable around an axis coaxial (A1) with an essentially vertical centre axis (A2) in the vertical part (2b) of the second part (2).

4. Drying rack assembly (B) according to claim 1, 2 or 3 wherein the second electrical contact (3b) is a male electrical contact (3b) comprising at least two protruding pins (3b1).

5. A drying rack system comprising the drying rack assembly (B) of claim 1 and a mounting device (A) for mounting the drying rack to a surface, the mounting device comprising the first part (1) adapted to mechanically carry the second part (2), wherein said first part (1) has a proximal end (1a) adapted to be mounted on the surface (S) and one distal end (1b) protruding from the proximal end (1a), wherein said distal end comprises the first electrical contact (3a) of the electrical connector (3), and wherein the first electrical contact (3a) is a female part electrical connector comprising at least two holes (3a1).

6. Drying rack system according to claim 5, wherein a connection block (4) is arranged in a space (V) in the first part (1) and is adapted to connect an electrical power output cable (w2) with the electrical connector (3).

7. Drying rack system according to claim 6, wherein a cover part (5) adapted to be removeably attached to the first part (1) and arranged to cover the space (V) containing the connection block (4).

8. Drying rack system according to claim 5 or 6, wherein an opening (1c) is arranged in the proximal end (1a) of the first part (1) through which an electrical power

output cable (w2) is adapted to be fed into the space (V).

**9.** Drying rack system according to any of claims 5 to 8, wherein an electrical switch (6) is arranged in the first part (1) adapted to interrupt the current between the electrical power output cable (w2) and the connection block (4).

**10.** Drying rack system according to claim 5, wherein the system is connected to the electrical main supply via a concealed connection.

**Patentansprüche**

**1.** Trocknungsgestellanordnung (B), umfassend zumindest ein elektrisch gesteuertes, längliches Trockenelement (B1, B2), das angepasst ist, an einer Oberfläche (S) angebracht zu werden, wobei die Anordnung einen zweiten Teil (2) umfasst, der Teil eines Trocknungsgestells ist, wobei der zweite Teil (2) einen länglichen Hohlraum (7) mit einem offenen Ende (7a) und einem geschlossenen Ende (7b) umfasst,
wobei der zweite Teil (2) angepasst ist, über einen ersten Teil (1) geschoben zu werden, der an einer Oberfläche (S) angebracht ist, wobei der erste Teil (1) einen ersten elektrischen Kontakt (3a) eines elektrischen Steckverbinders (3) umfasst,
**dadurch gekennzeichnet, dass** das geschlossene Ende (7b) des Hohlraums (7) einen zweiten elektrischen Kontakt (3b) des elektrischen Steckverbinders (3) umfasst, der angepasst ist, mit dem ersten elektrischen Kontakt (3a) des ersten Teils (1) verbunden zu werden.

**2.** Trocknungsgestellanordnung (B) nach Anspruch 1, wobei die längliche Öffnung (7) in dem zweiten Teil (2) sich in einem im Wesentlichen horizontalen Teil (2a) befindet, der mit einem im Wesentlichen vertikalen Teil (2b) verbunden ist, der wiederum mit zumindest einem der geheizten Elemente (B1, B2) verbunden ist.

**3.** Trocknungsgestellanordnung (B) nach Anspruch 2, wobei die zumindest eine Einheit, die zumindest einen Teil des Trocknungsgestells (B) umfasst, um eine Achse koaxial (A1) mit einer im Wesentlichen vertikalen Mittelachse (A2) in dem vertikalen Teil (2b) des zweiten Teils (2) drehbar ist.

**4.** Trocknungsgestellanordnung (B) nach Anspruch 1, 2 oder 3, wobei der zweite elektrische Kontakt (3b) ein elektrischer Stiftkontakt (3b) ist, der zumindest zwei vorragende Stifte (3b1) umfasst.

**5.** Trocknungsgestellsystem, das die Trocknungsgestellanordnung (B) nach Anspruch 1 und eine Anbringvorrichtung (A) zum Anbringen des Trocknungsgestells an einer Oberfläche umfasst, wobei die Anbringvorrichtung den ersten Teil (1) umfasst, der angepasst ist, den zweiten Teil (2) mechanisch zu tragen, wobei der erste Teil (1) ein proximales Ende (1a), das angepasst ist, an der Oberfläche (S) angebracht zu werden, und ein distales Ende (1b) besitzt, das von dem proximalen Ende (1a) hervorragt, wobei das distale Ende den ersten elektrischen Kontakt (3a) des elektrischen Steckverbinders (3) umfasst und wobei der erste elektrische Kontakt (3a) ein elektrischer Mutterteil-Steckverbinder ist, der zumindest zwei Löcher (3a1) umfasst.

**6.** Trocknungsgestellsystem nach Anspruch 5, wobei ein Verbindungsblock (4) in einem Raum (V) in dem ersten Teil (1) angeordnet und angepasst ist, ein Kabel für den elektrischen Leistungsausgang (w2) mit dem elektrischen Steckverbinder (3) zu verbinden.

**7.** Trocknungsgestellsystem nach Anspruch 6, wobei ein Abdeckteil (5), der angepasst ist, entnehmbar an dem ersten Teil (1) befestigt zu werden, und so angeordnet ist, dass er den Raum (V) abdeckt, der den Verbindungsblock (4) enthält.

**8.** Trocknungsgestellsystem nach Anspruch 5 oder 6, wobei in dem proximalen Ende (1a) des ersten Teils (1) eine Öffnung (1c) angeordnet ist, durch die ein Kabel für den elektrischen Leistungsausgang (w2) angepasst ist, in den Raum (V) geführt zu werden.

**9.** Trocknungsgestellsystem nach einem der Ansprüche 5 bis 8, wobei ein elektrischer Schalter (6) in dem ersten Teil (1) angeordnet ist, der angepasst ist, den Strom zwischen dem Kabel für den elektrischen Leistungsausgang (w2) und dem Verbindungsblock (4) zu unterbrechen.

**10.** Trocknungsgestellsystem nach Anspruch 5, wobei das System über eine verdeckte Verbindung mit der elektrischen Hauptversorgung verbunden ist.

**Revendications**

**1.** Ensemble étendoir (B) comprenant au moins un élément de séchage allongé commandé électriquement (B1, B2) adapté pour être monté sur une surface (S), l'ensemble comprenant une seconde partie (2) étant une partie d'un étendoir, ladite seconde partie (2) comprenant une cavité allongée (7) avec une extrémité ouverte (7a) et une extrémité fermée (7b),
la seconde partie (2) étant adaptée pour être coulissée sur une première partie (1) montée sur une surface (S), ladite première partie (1) comprenant un premier contact électrique (3a) d'un connecteur

électrique (3),
**caractérisé en ce que** ladite extrémité fermée (7b) de la cavité (7) comprend un second contact électrique (3b) du connecteur électrique (3) adapté pour être connecté électriquement au premier contact électrique (3a) de la première partie (1).

**2.** Ensemble étendoir (B) selon la revendication 1, dans lequel l'ouverture allongée (7) dans la seconde partie (2) est située dans une partie essentiellement horizontale (2a) qui est connectée à une partie essentiellement verticale (2b), qui à son tour est connectée à au moins l'un des éléments chauffés (B1, B2).

**3.** Ensemble étendoir (B) selon la revendication 2, dans lequel l'au moins une unité comprenant au moins une partie de l'étendoir (B) peut tourner autour d'un axe coaxial (A1) avec un axe central essentiellement vertical (A2) dans la partie verticale (2b) de la seconde partie (2).

**4.** Ensemble étendoir (B) selon la revendication 1, 2 ou 3 dans lequel le second contact électrique (3b) est un contact électrique mâle (3b) comprenant au moins deux broches saillantes (3b1).

**5.** Système d'étendoir comprenant l'ensemble étendoir (B) selon la revendication 1 et un dispositif de montage (A) pour monter l'étendoir sur une surface, le dispositif de montage comprenant la première partie (1) adaptée pour porter mécaniquement la seconde partie (2), dans lequel ladite première partie (1) a une extrémité proximale (1a) adaptée pour être montée sur la surface (S) et une extrémité distale (1b) faisant saillie depuis l'extrémité proximale (1a), dans lequel ladite extrémité distale comprend le premier contact électrique (3a) du connecteur électrique (3), et dans lequel le premier contact électrique (3a) est un connecteur électrique de partie femelle comprenant au moins deux trous (3a1).

**6.** Système d'étendoir selon la revendication 5, dans lequel un bloc de connexion (4) est agencé dans un espace (V) dans la première partie (1) et est adapté pour connecter un câble de sortie d'alimentation électrique (w2) avec le connecteur électrique (3).

**7.** Système d'étendoir selon la revendication 6, dans lequel une partie protection (5) adaptée être fixée de manière amovible à la première partie (1) et agencée pour recouvrir l'espace (V) contenant le bloc de connexion (4).

**8.** Système d'étendoir selon la revendication 5 ou 6, dans lequel une ouverture (1c) est agencée dans l'extrémité proximale (1a) de la première partie (1) à travers laquelle un câble de sortie d'alimentation électrique (w2) est adapté pour être introduit dans l'espace (V).

**9.** Système d'étendoir selon l'une quelconque des revendications 5 à 8, dans lequel un commutateur électrique (6) est agencé dans la première partie (1) adapté pour interrompre le courant entre le câble de sortie d'alimentation électrique (w2) et le bloc de connexion (4).

**10.** Système d'étendoir selon la revendication 5, dans lequel le système est connecté à une alimentation principale d'électricité par l'intermédiaire d'une connexion cachée.

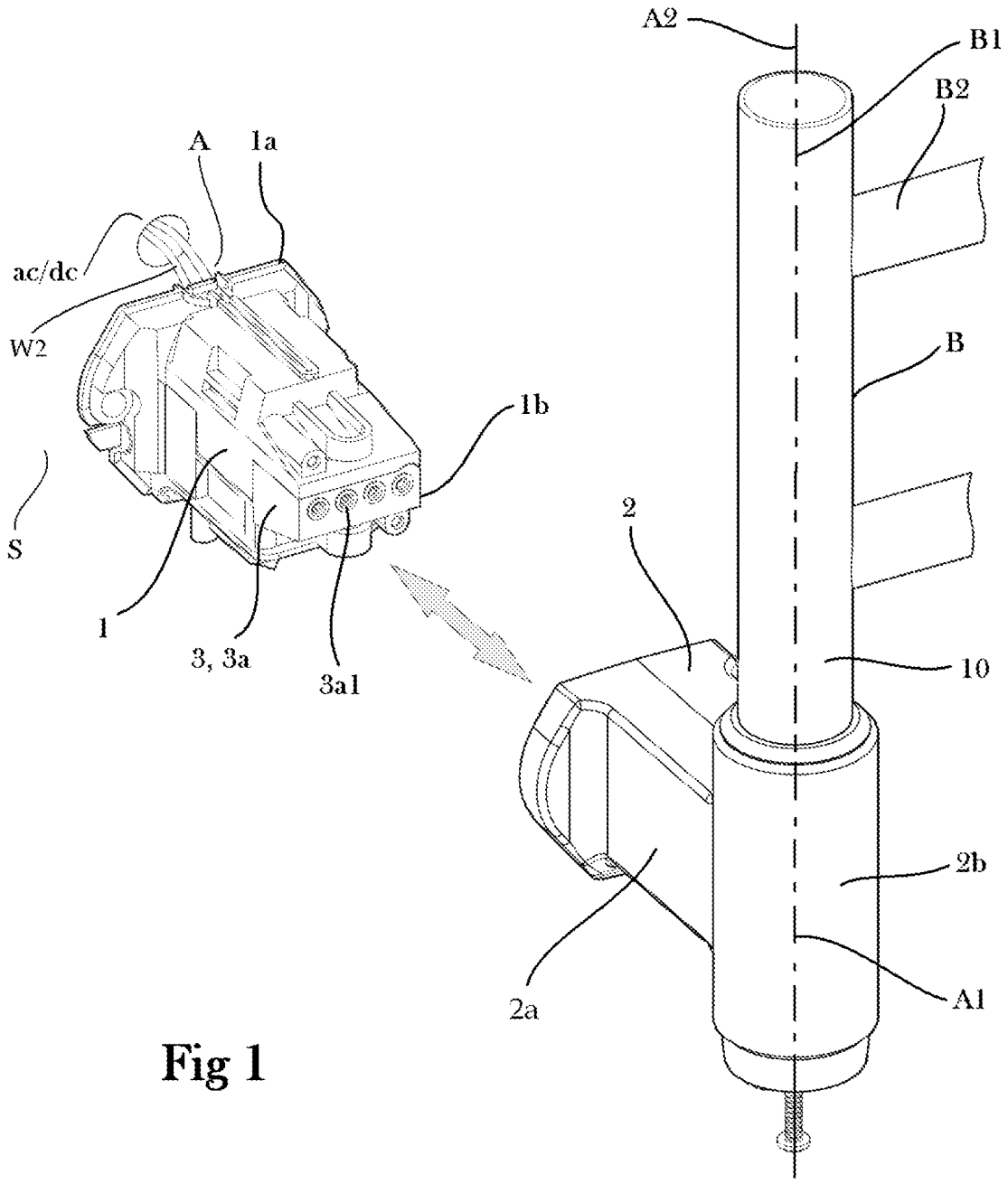



Fig 1

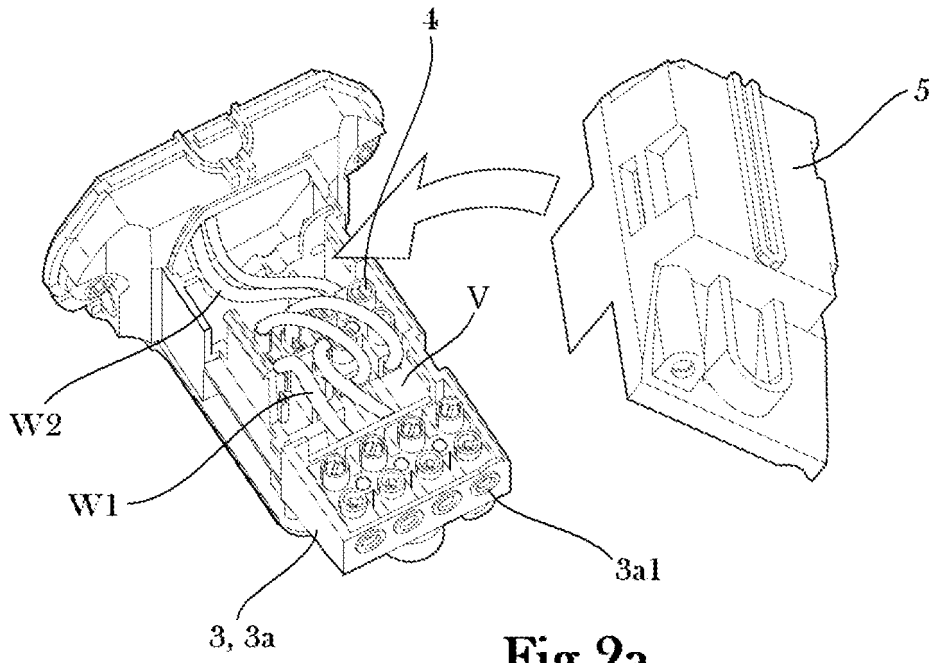



Fig 2a

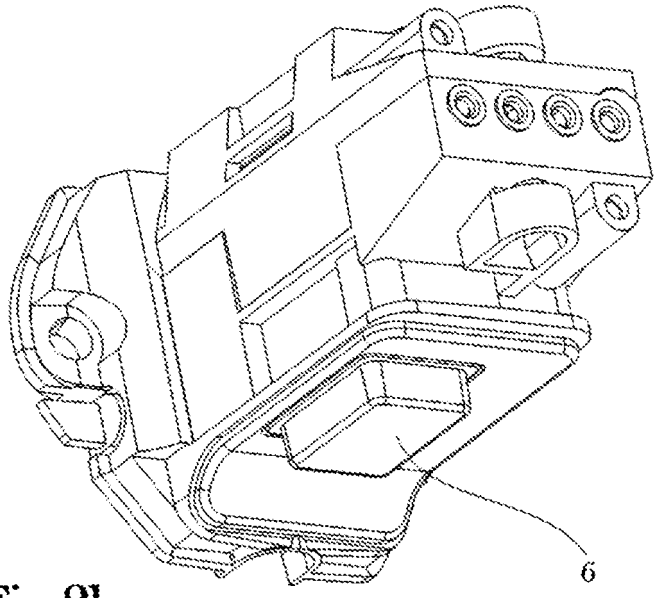



Fig 2b

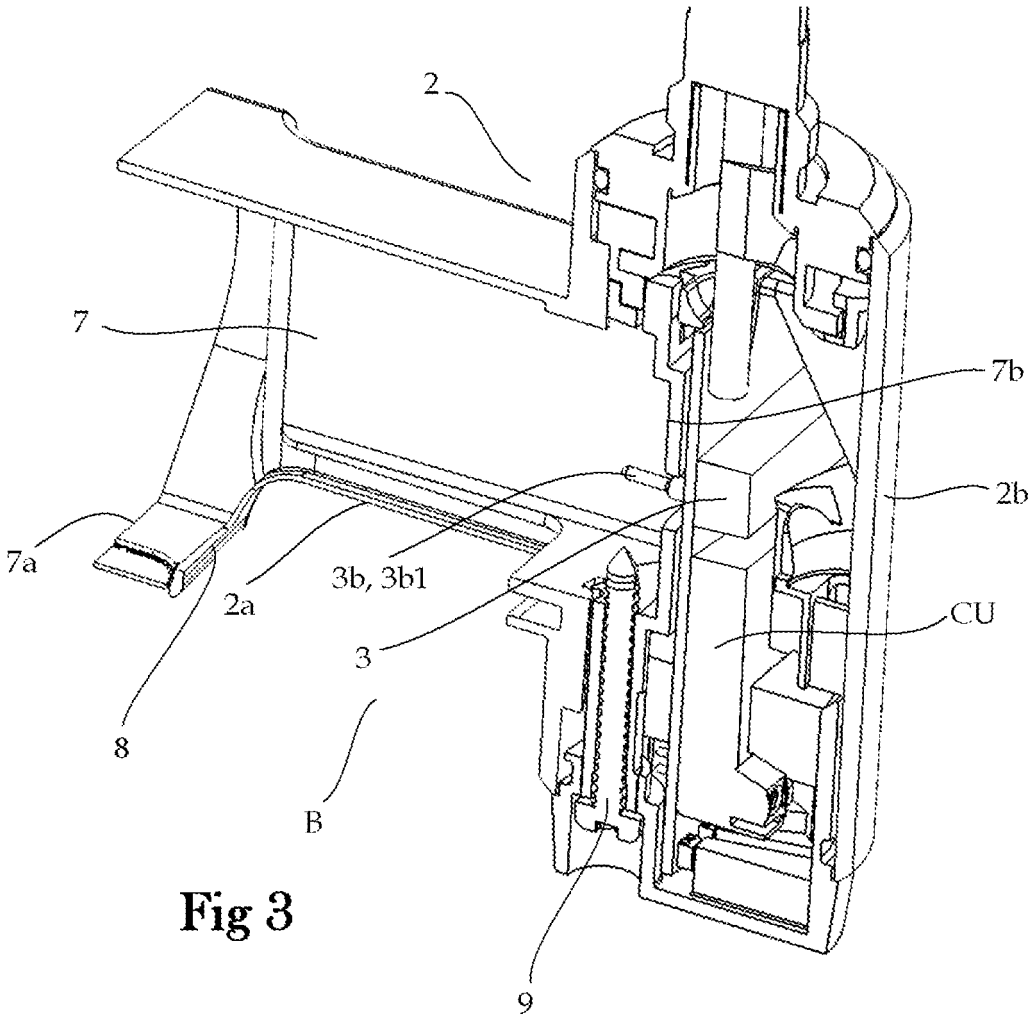



Fig 3

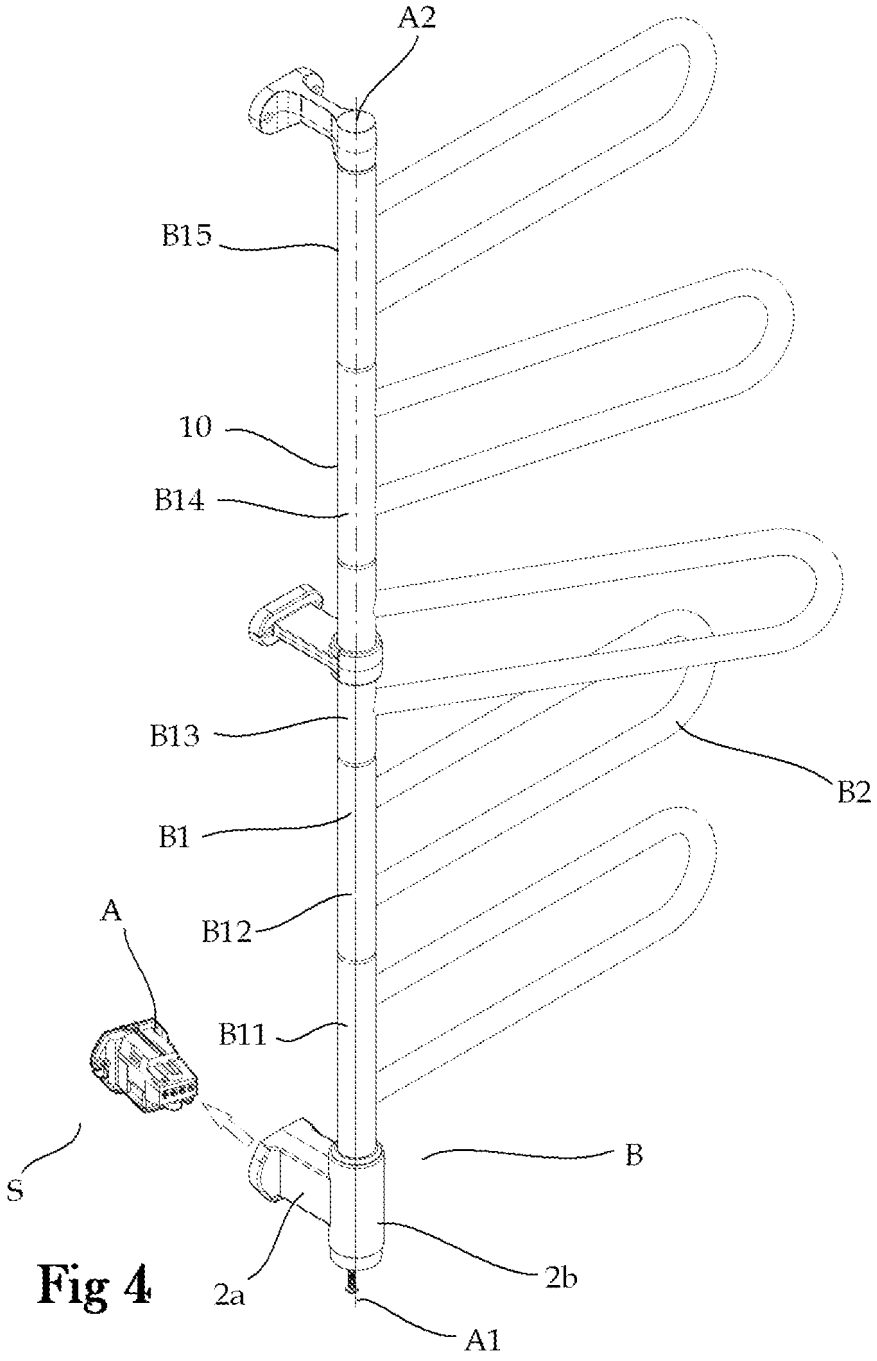



Fig 4

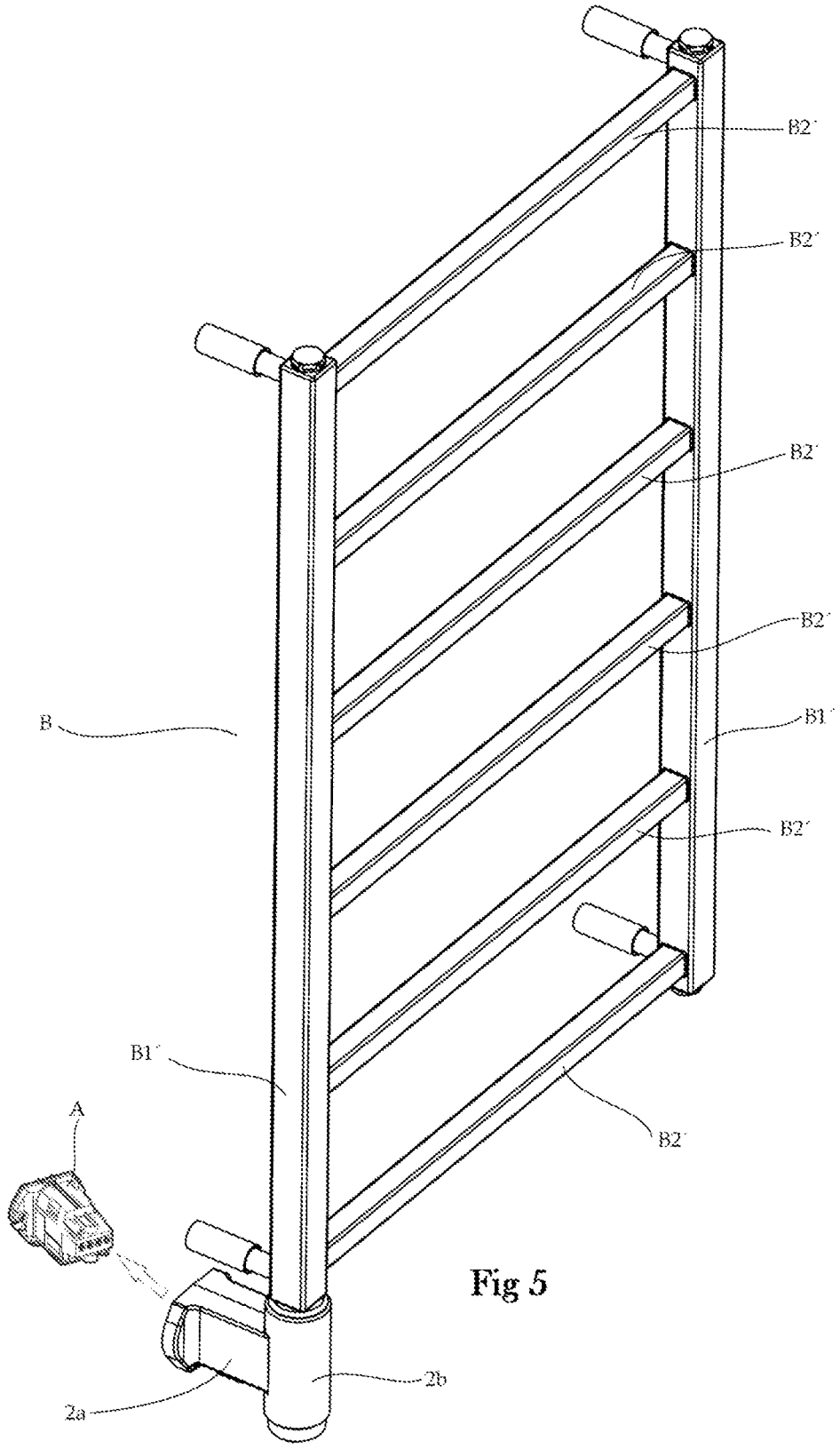



Fig 5

## REFERENCES CITED IN THE DESCRIPTION

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### Patent documents cited in the description


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