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(54) **Portable multiple electric socket outlet**

(57) A portable multiple socket outlet (1) connectable to the mains power supply, comprising a substantially parallelepiped-shaped body (2) with a plurality of electrical functions (3), in particular electrical socket outlets

of any standard for the connection of plugs to supply electrical appliances, there being provided on the base wall (4) of the body (2) at least two seats (20) suited for receiving fixing means (40, 30, 110) for fixing the socket outlet to supports.

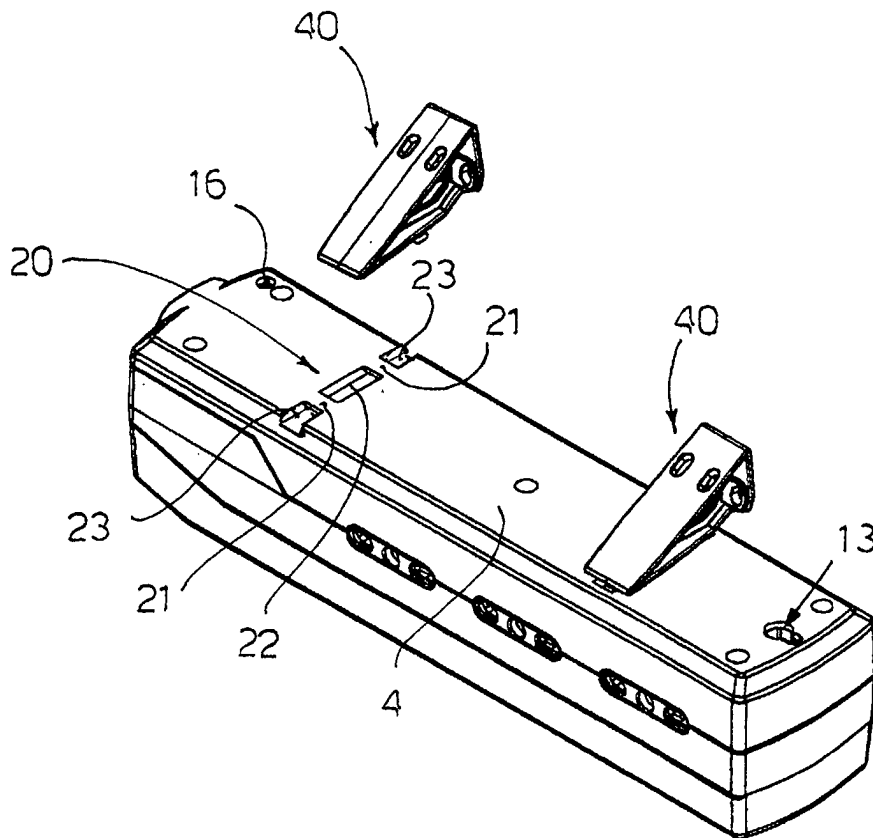


FIG. 3

Description

[0001] The present invention refers to a portable multiple electric socket outlet.

[0002] As is known, a portable multiple electric socket outlet, or table socket outlet, comprises a box-shaped body containing a certain number of socket functions, such as electrical connection elements, accessible from the outside of the body, suited for receiving electrical plugs in turn connected to user appliances. The electrical plugs can be of the straight type and have cylindrical poles or pins of various diameters according to the Italian standard, or flat pins according to the US standard, or round pins according to the German standard and so on. The socket functions are supplied by an electrical cable coming out from the box-shaped socket outlet body and intended to be connected to the electrical power mains.

[0003] The body of the socket outlet has a base intended to be placed on a generally horizontal supporting surface. Consequently the socket functions are accessible from the face of the socket outlet opposite the base.

[0004] These types of portable socket outlets present drawbacks, especially if several socket functions are required and there is little space available. In fact, the fact of having to make the socket functions accessible on a single face of the socket outlet body makes the socket outlet very bulky because of its lengthwise measurement. A socket outlet of this type consequently occupies a large amount of space.

[0005] These drawbacks have been overcome in part by portable multiple socket outlets which provide for the socket outlet functions to be disposed on two opposite side faces. These socket outlets, though being smaller in height because they eliminate the socket outlet functions provided on the upper surface of the body, are still excessively large in length.

[0006] Portable multiple socket outlets are also known in which the body provides through holes to receive screw means able to secure them to surfaces that are vertical or inclined with respect to the horizontal. However, this type of socket outlet presents the drawback of not being able to be fixed to surfaces that are not flat, for example tubular elements such as table legs or the like, or to flat surfaces but with a slope with respect thereto.

[0007] The object of the present invention is to eliminate the drawbacks of the prior art, providing a portable multiple socket outlet that is practical, compact and suited for mounting on any type of surface.

[0008] Another object of the present invention is to provide such a portable socket outlet that is versatile and suited for receiving, on a plurality of sides, plugs with pins according to the standards of various nations.

[0009] Yet another object of the present invention is to provide such a portable multiple socket outlet that is economical and easy to make.

[0010] These objects have been achieved in accordance with the invention with the characteristics listed in appended independent claims 1 and 15.

[0011] Advantageous embodiments of the invention are apparent from the dependent claims.

[0012] The portable multiple socket outlet according to the invention has a substantially elongated parallelepiped body with a lower base wall and a plurality of electrical functions, in particular socket outlets, disposed on the two opposite side walls of the body and on the upper wall opposite the base wall. In this manner, it is possible to have a large number of electrical functions whilst having a socket outlet body of limited size.

[0013] A peculiar characteristic of the socket outlet according to the invention is that special seats suited for accommodating straps to fix the socket outlet to sections or tubular elements are formed in the lower base wall.

[0014] The special seats can accommodate, in a close-fitting relationship, small bars which have holes to receive fixing means for fixing the socket outlet to flat surfaces.

[0015] Furthermore, said special seats can receive, in a close-fitting relationship, brackets in the form of a triangular frame, for fixing the socket outlet to a surface, for example a table. Said brackets allow the multiple socket outlet to be fixed above or below a table and in different positions with different inclinations with respect to the surface of the table.

[0016] The advantages of the portable multiple socket outlet according to the invention are evident. Said socket outlet in fact allows the dimensions to be limited since it provides the possibility of housing the electrical functions on all three sides of its body.

[0017] Moreover the socket outlet according to the invention can be applied to any type of surface. The socket outlet according to the invention can be fixed, by means of the straps, to sections or tubes, such as table legs or columns, for example.

[0018] The fixing bars allow the socket outlet to be fixed to flat surfaces, such as tables. In addition, the fixing brackets allow the socket outlet to be fixed with its base plane in an inclined orientation with respect to the surface of the table.

[0019] Further characteristics of the invention will be made clearer by the detailed description that follows, referring to a purely exemplary and therefore non-limiting embodiment thereof, illustrated in the appended drawings, in which:

Figure 1 is a perspective view of a portable multiple socket outlet according to the invention;

Figure 2 is a broken away perspective view of the socket outlet of Figure 1, provided with an electrical cable, shown broken off, connected to an electrical plug;

Figure 3 is a perspective view of the socket outlet of Figure 1, turned through 180°, to which two brackets are fitted for fixing or fastening to a surface;

Figure 3A is a perspective view of a fixing bracket of the socket outlet according to the invention;

Figure 3B is a part sectional front view of the socket outlet according to the invention fixed on top of a surface by means of the bracket of Figure 3A;

Figure 3C is a view, like Figure 3B, of the socket outlet according to the invention fixed beneath a surface by means of the bracket of Figure 3A;

Figure 4 is a perspective view, like Figure 3, illustrating the socket outlet according to the invention to which two straps for fixing to tubes or sections are fitted;

Figure 5 is a perspective view, like Figure 3, illustrating the socket outlet according to the invention to which two bars are fitted for fixing to flat surfaces;

Figure 5A is a plan view of the socket outlet of Figure 5, seen from the opposite side with respect to said figure;

Figure 6 is a perspective exploded view, showing the socket outlet of Figure 1.

[0020] With reference to Figures 1-6 a portable multiple socket outlet according to the invention, denoted as a whole by reference numeral 1, is described.

[0021] The socket outlet 1 comprises a box-shaped body 2 with a substantially elongated parallelepiped shape, in which a plurality of electrical functions 3 are provided, in particular electric socket outlets suited for receiving electric plugs. By way of example, the socket outlet 1 provides nine electrical functions 3. To be precise, six electrical functions are disposed three by three in the two opposite side walls of the body 2 and three electrical functions are disposed in the top wall opposite the base wall 4 (Figures 3 and 4). No electrical function is provided in the base wall 4 because said wall is intended to abut against a support. In particular the electrical functions 3 provided in the top wall of the body 2 are configured as circular seats 5 which provide guide tracks 6 for insertion of the plugs and resilient metal tongues 7 forming resilient earth contacts.

[0022] Provided in the upper wall of the body 2 is a seat 8 suited for housing, for example, control devices and the relative switch, or protector devices, or luminous indicator devices (for example LED), or fuse protector devices.

[0023] As shown in Figure 2, provided in the rear wall 9 of the body 2 is a hole 10 for access to the inside of

the body from which an electrical cable 11 extends, connected, for example, to a straight plug 12 for connection to a socket outlet of the electrical mains.

[0024] In the upper surface of the body 2, in the front part, in a central position, is a first through hole 13 which extends to the base surface (Figures 3 and 4). As shown in Figures 3 and 4, the first through hole 13, in the part toward the base surface 4, has a slot 18 to allow the multiple socket outlet 1 to be hung on hooks. Around the first through hole 13, on the upper surface of the body 2, is a recess 14 to receive, for example, the head of screw means.

[0025] The upper surface of the body 2 has at its rear a slightly chamfered part 15. In the chamfered part 15, to the side so as not to interfere with the electrical power cable 11, a second through hole 16 which continues to the base surface 4 is formed. A recess 17 is formed around the second through hole 16, on the chamfered part 15, to receive, for example, screw means.

[0026] In this manner, the portable multiple socket outlet 1 can be fixed to a flat surface by means of two screws, which extend through the respective through holes 13 and 16.

[0027] As shown in Figures 3 and 4, formed in the base surface 4 of the body 2 are two special seats 20 disposed transversally at a distance of about a third of the length of the body 2 from the front end and the rear end, respectively, of the body 2. Each special seat 20 is substantially rectangular in shape. Two bridges 21 forming part of the base surface 4 are provided on the special seat 20. The bridges 21 divide the seat 20 into three openings: an elongated central opening 22 and two smaller side openings 23 communicating with the central opening 22. The side openings 23 are advantageously open towards the outside to allow crosswise insertion of suitable fixing means. More precisely, the central opening 22 opens on the base 4 of the socket outlet body and the side openings 23, besides being open on the base 4 of the socket outlet body, are also open on the edges formed between the base 4 and side walls of the socket outlet body.

[0028] As shown in Figure 4, the seats 20 are able to receive straps 30 of a standard type. Said straps 30 have, in a per se known manner, a free end 31 and a retaining block 32 fixed to the other end and able to receive the free end 31. The straps 30 are serrated. The free end 31 can be inserted in the retaining block 32, so as to form a noose, and can be pulled so as to tighten the noose and not in the opposite direction to widen the noose.

[0029] Using the straps 30 the socket outlet 1 can also be fastened to irregular or rounded surfaces like poles, tubes or sections, such as table legs or shelving uprights for example. To be precise, the free end 31 of the strap 30 is inserted in a side opening 23, passes into the central opening 22 and exits from the other side opening 23, being retained by the two bridges 21. Thus the strap 32 wraps around the section on which the socket outlet

1 must be mounted, maintaining the base surface 4 in abutment against the section. Lastly the free end 31 of the strap is inserted in the retaining block 32 of the strap.

[0030] In this embodiment with the straps 30, the side edges of the side openings 23, instead of being open, can possibly be closed by means of tapered walls which facilitate insertion of the strap 30.

[0031] Moreover, the straps 30 can also be fitted in the through holes 13 and 16 to fix the socket outlet 1 respectively in its front and rear part.

[0032] With reference to Figures 5 and 5A, two bars 110 able to be inserted into the seats 20 for fixing the socket outlet 1 to flat surfaces are shown.

[0033] The bar 110 has at one end a pawl 111 suited for engaging with a close fit inside a side opening 23. The other end of the bar 110 is larger in size than the body of the bar and has a slot-shaped hole 112 able to receive fixing means such as screws 113. In this manner the end of the bar 110 with the pawl 111 is inserted into a side opening 23, it passes through the central opening 22 and it is snap locked into the other side opening 23. In this situation the end with the hole 112 protrudes outward from the body of the socket outlet 1 and the base of the end of the bar 110 with the hole is situated on the same plane as the base 4 of the socket outlet.

[0034] Figure 5A shows the socket outlet 1 with the bars 110 mounted in the respective seats 23 and ready to be fitted to a flat surface. This solution allows fixing of the multiple socket outlet 1 to flat surfaces, instead of perforated extensions or fixing holes (for example the holes 13 and 16 with the respective recesses 14 and 17) formed in the parallelepiped body of the socket outlet. In this manner the body of the multiple socket outlet is improved aesthetically, avoiding creating holes and extensions which are not used when the multiple socket outlet is employed only in the portable state.

[0035] Figure 3 shows two brackets 40 adapted to be fitted into the seats 20 of the base 4 of the socket outlet, to fix the socket outlet to a surface. As shown in Figure 3A, the fixing bracket 40 is shaped substantially like a triangular frame. Two slot-type holes 44 are formed on the hypotenuse 43 of the triangular frame 40, to receive screw means for fixing of the bracket 40 to a surface, such as a table.

[0036] The larger cathetus 41 of the triangular frame 40 is inclined with respect to the hypotenuse 43 by about 30°. Provided in asymmetrical positions on the larger cathetus 41 are two protruding hooks 42 designed to engage, in a close-fitting relationship, in one of the two side openings 23 and in the central opening 22 of the seat 20, respectively. In this manner, the bracket 40 is integrally secured to the socket outlet 1.

[0037] Two slots 46 are formed on the smaller cathetus 45 to receive screw means for fixing to a flat surface.

[0038] Figure 3B illustrates fixing of the socket outlet 1 on top of a table 100. The hooks 42 of the bracket 40 are fitted into the respective openings 22 and 23 of the base 4 of the socket outlet 1 so as to support it. Screws

47 are inserted in the slot-type holes 44 of the larger cathetus 43 of the bracket 40 and fixed to the surface of the table 100. In this manner the socket outlet 1 is fixed on top of the table 100 and its bottom surface 4 is inclined by about 30° with respect to the surface of the table 100.

[0039] Figure 3C illustrates fixing of the socket outlet 1 beneath the surface of a table 100. The hooks of the brackets 40 are fixed to the socket outlet 1. The screws 47 are inserted in slot-type holes 46 provided in the smaller cathetus 45 of the bracket 40 and fixed to the surface of the table 100. In this manner the socket outlet 1 is fixed beneath the table 100 and its base surface 4 is inclined by about 90° with respect to the surface of the table 100. Of course, it is possible to fix the socket outlet with its base surface at 90° above the surface 100 or at 30° beneath the surface 100, just as it is also possible to fix the socket outlet to sloping surfaces, according to requirements.

[0040] In this embodiment with the brackets 40, the side edges of the side openings 23, instead of being open, can be closed; what is important is that the side openings 23 allow the hooks 42 of the brackets 40 to be inserted.

[0041] Assembly of the portable multiple socket outlet according to the invention will be illustrated with the aid of Figure 6. The body 2 of the socket outlet 1 comprises an upper shell half 25 and a lower shell half 26 within which are contained nine blocks corresponding to switch devices of electrical socket outlets: six side blocks 50 and three central blocks 60. Three side blocks 50 are positioned on a side wall of the body 2 of the socket outlet between the upper shell half 25 and the lower shell half 26, another three side blocks 50 are positioned on the other side wall of the body of the socket outlet between the upper shell half 25 and the lower shell half 26 and the three central blocks 60 are positioned beneath the three circular seats 5 provided in the upper surface of the upper shell half 25.

[0042] The six side blocks 50 have three holes, two of which are slot-shaped side holes 51 and one is a circular central hole 52. In this manner, the side blocks 50 can allow insertion of straight plugs with cylindrical pins of different diameters and centre distances, according to Italian standards.

[0043] The central blocks 60 have three circular holes, two of which are side holes 61 and one a central hole 62. The holes 61 and 62 of the central blocks 60 are designed to be put in register with the respective holes provided in the seats 5 of the upper half shell 25.

[0044] Two supporting side bars 69 of conductive material, configured in an E-shape, are provided. An electrical contact assembly 70 is supported at the end of each arm of the E. Each electrical contact assembly 70 comprises two lateral slot-shaped contacts 71 disposed facing each other on two opposite sides and a central slot-type contact 72 facing upward.

[0045] In this manner, by moving the arms of the E of

the two bars 69 toward each other, the six slot-type side contacts 71 on the first side of the socket outlet correspond with the six side holes 51 of the three side blocks 50 on the first side of the socket outlet, the six slot-type side contacts 71 on the second side of the of the socket outlet correspond to the six side holes 51 of the other three side blocks 50 on the second side of the socket, and the six central upward facing slot-type contacts 72 correspond to the six side holes 61 of the three central blocks 60.

[0046] An E-shaped central supporting bar 79 is provided, in which each arm of the E supports a respective contact assembly 80. The contact assembly 80 comprises two side contacts with respective holes 81 which face opposite sides, a central contact 82 comprising two tongues which define a central slot 83 and two tongues 7 which protrude upward from the side contacts to extend from the seats 5 so as to obtain the resilient contacts previously described.

[0047] By mounting the central bar 79 between the two side bars 69, the holes 81 of the side contacts correspond with the central holes 52 of the side blocks and the central slots 83 of the central contacts 82 will correspond with the central holes 62 of the central blocks.

[0048] The side bars 69 and the central bar 79 are mounted in special seats formed by means of walls disposed like a maze in the inner part of the lower shell half 26.

[0049] Numerous variations and modifications of detail within the reach of a person skilled in the art can be made to the present invention without departing from the scope of the invention, set forth in the appended claims.

Claims

1. A portable multiple socket outlet (1) connectable to the electrical power mains, comprising a substantially parallelepiped body (2) with a plurality of electrical functions (3), in particular electrical socket outlets of any standard for connection of electrical appliances, **characterized in that** provided on the base wall (4) of said body (2) of the socket outlet are at least two seats (20), with a plurality of openings (22, 23), able to receive fastening means (40, 30, 110) for fastening of said socket outlet to supports.
2. A multiple socket outlet according to claim 1, **characterized in that** said seat (20) comprises at least two openings communicating with each other.
3. A multiple socket outlet according to claim 1, **characterized in that** said seat (20) comprises a central opening (22) and two side openings (23) disposed to the side of the central opening (22) and communicating therewith.
4. A multiple socket outlet according to claim 3, **characterized in that** said central opening (22) has an elongated shape and is disposed transversally in said base wall (4).
5. A multiple socket outlet according to claims 3 or 4, **characterized in that** said side openings (23) are disposed in the vicinity of the side edges of the base (4) of the socket outlet and are open on said edges.
6. A multiple socket outlet according to any one of claims 3 to 5, **characterized in that** the two side openings (23) are separated from the central opening (22) by means of two bridges (21).
7. A multiple socket outlet according to any one of the preceding claims, **characterized in that** said fastening means comprise at least one strap (30) that can be inserted in said seat (20) to allow fastening of the socket outlet (1) to a support in the shape of a tubular element or section.
8. A multiple socket outlet according to any one of claims 1 to 6, **characterized in that** said fastening means comprise at least one bar (110) able to be locked in said seat (20) to allow fastening of the socket outlet to a flat surface.
9. A multiple socket outlet according to claim 8, **characterized in that** said bar (110) has one end with a pawl (111) able to engage with a close fit in an opening (23) of said seat (20) and the other end, larger in size, designed to protrude outward from the body of the socket outlet is provided with a slot-type hole (112) able to receive fastening means.
10. A multiple socket outlet according to claim 1 to 6, **characterized in that** said fastening means comprise at least one fastening bracket (40) able to be locked in said seat (20) to allow fastening of said socket outlet (1) on a support in the form of a flat surface (100).
11. A multiple socket outlet according to claim 10, **characterized in that** said fastening bracket (40) is in the form of a substantially triangular frame, in which fixing elements (42) able to engage in a close fit in said seat (20) of the socket outlet are provided on one side (41) of said triangle and holes (44, 46) to receive fixing means (47) for fixing to said flat surface (100) are provided on at least one of the other two sides (43, 45) of the triangle.
12. A multiple socket outlet according to claim 11, **characterized in that** said fastening bracket (40) is shaped like a right-angled triangle, in which the fixing elements (42) are disposed on the larger cathetus (41) and the holes (44, 46) are provided respec-

tively on the hypotenuse (43) and on the smaller cathetus (45).

13. A multiple socket outlet according to claim 12, **characterized in that** the angle between said larger cathetus (41) and said hypotenuse (43) is preferably about 30°. 5
14. A multiple socket outlet according to any one of the preceding claims, **characterized in that** said electrical functions are accessible on the two side walls of the socket outlet and on the top wall opposite the base wall (4). 10
15. A portable multiple socket outlet (1) connectable to the electrical power mains, comprising a substantially parallelepiped shaped body (2) with a plurality of electrical functions (3), in particular electrical socket outlets of any standard for connection to electrical appliances, **characterized in that** said electrical functions are provided on the two side walls of the socket outlet and on the upper wall opposite a base wall (4). 15
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16. A socket outlet according to claim 15, **characterized in that** said electrical functions provided on said two walls of the socket outlet are of the same or different types and in the same or different numbers on each of said walls. 25
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17. A socket outlet according to claim 15, **characterized in that** it comprises 3n socket functions provided with the same number of blocks (50, 60) forming switch devices of electrical socket, provided with holes for insertion of plugs, arranged n by n respectively on a side wall of the body (2), on an opposite side wall and beneath respective seats (5) formed on the upper wall. 35
18. A socket outlet according to any one of the preceding claims, **characterized in that** it comprises a seat (8) visible from the outside, suited for receiving control, protection and/or indicator devices. 40

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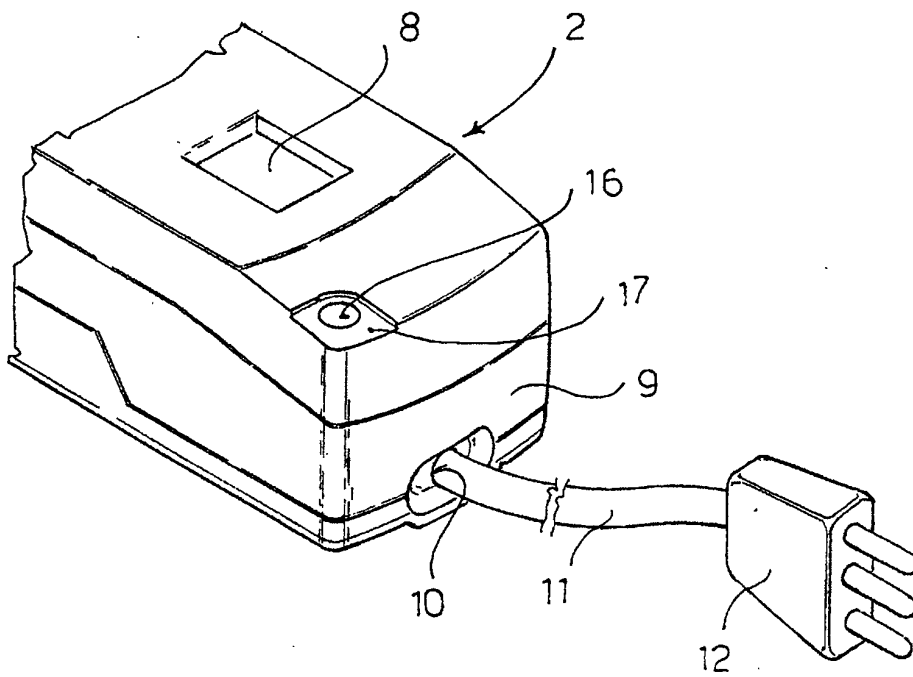
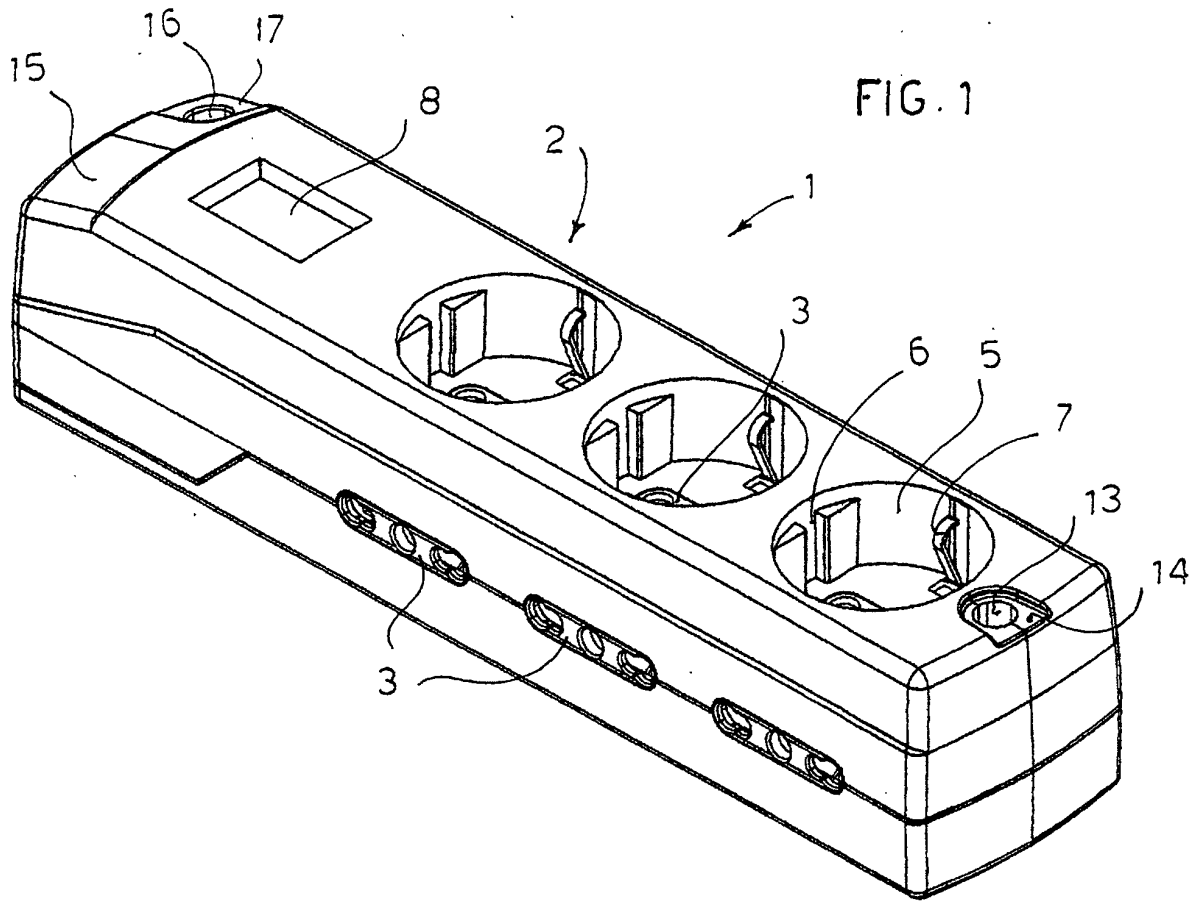


FIG. 2

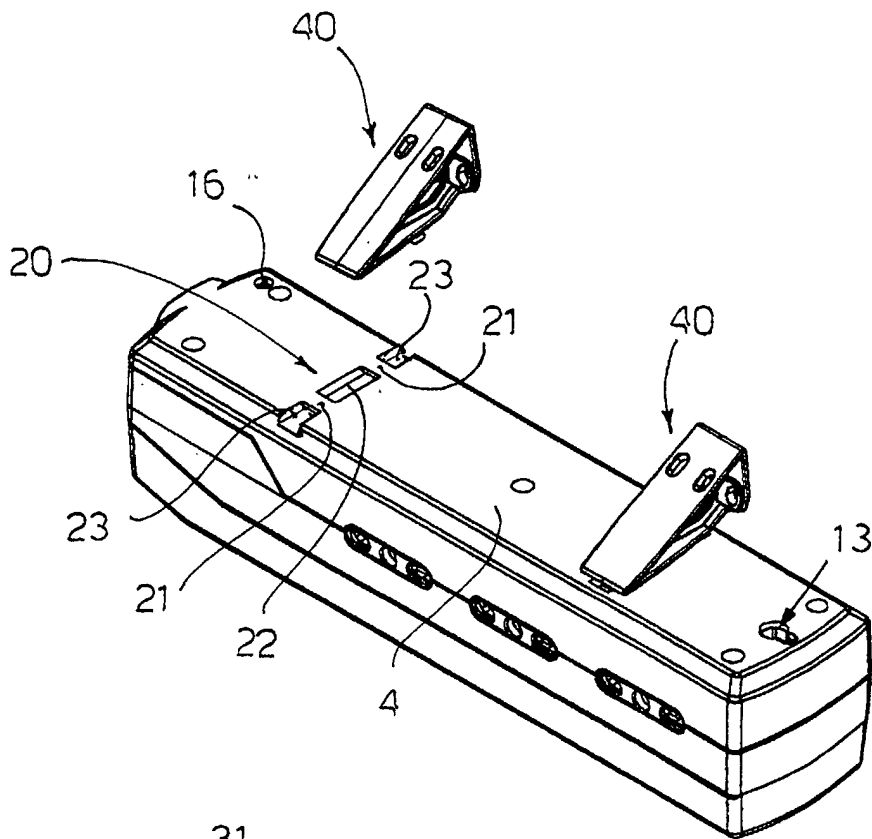


FIG. 3

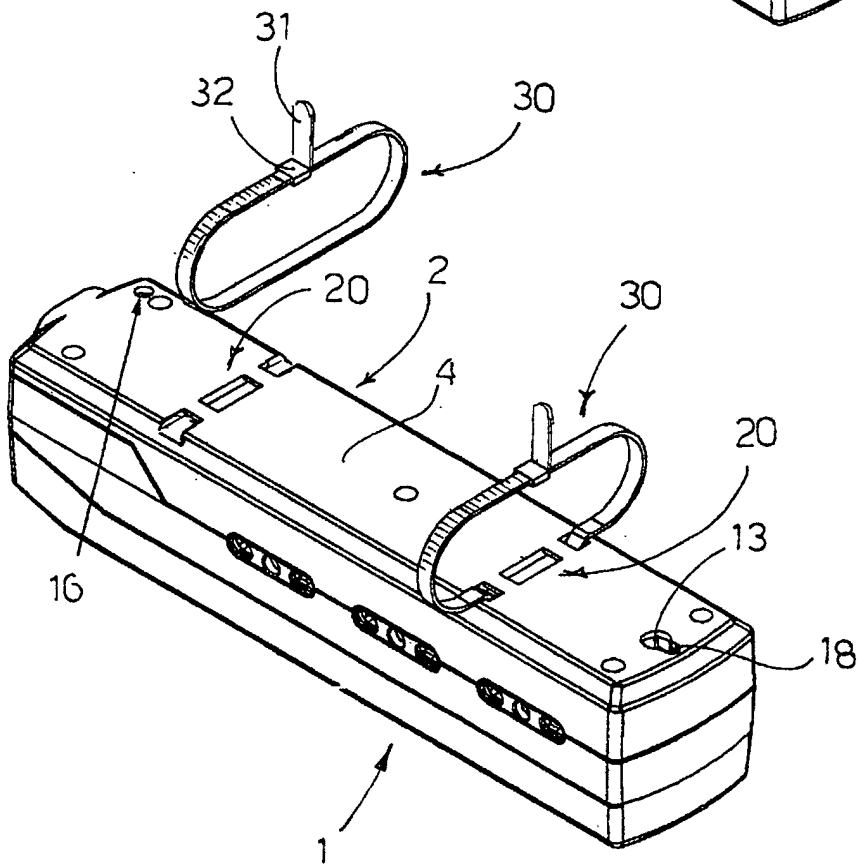
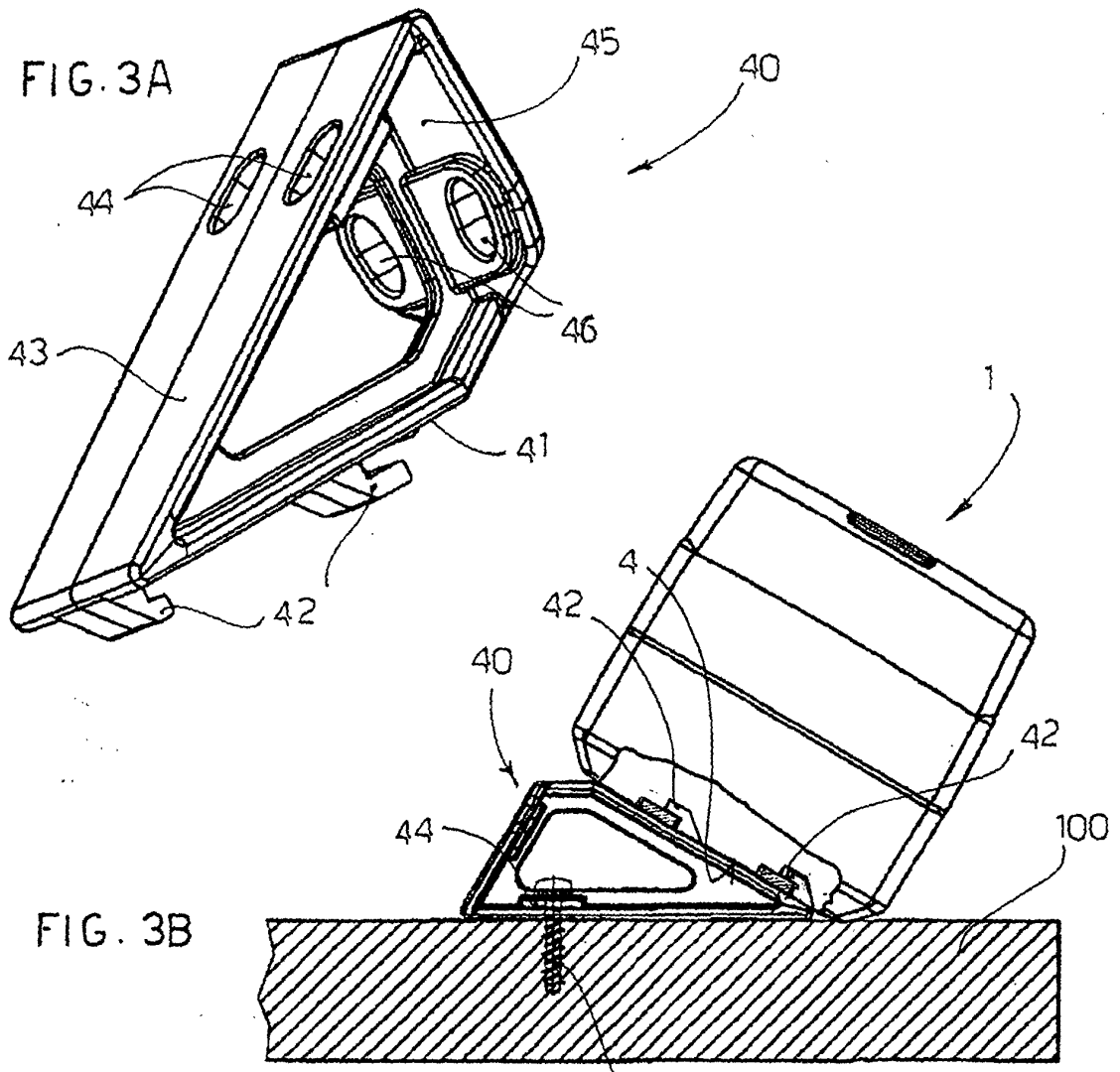


FIG. 4



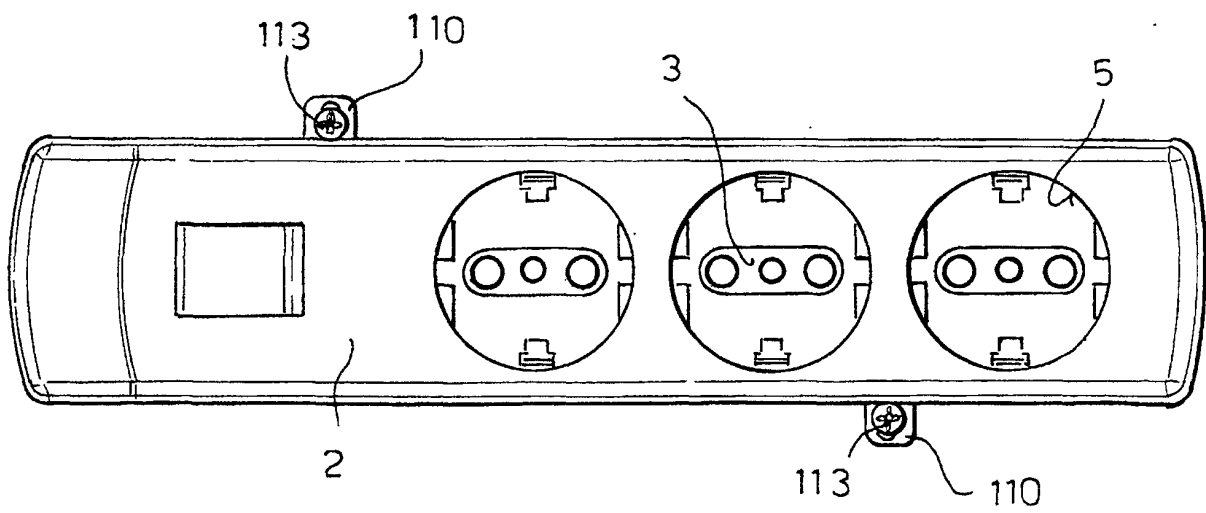
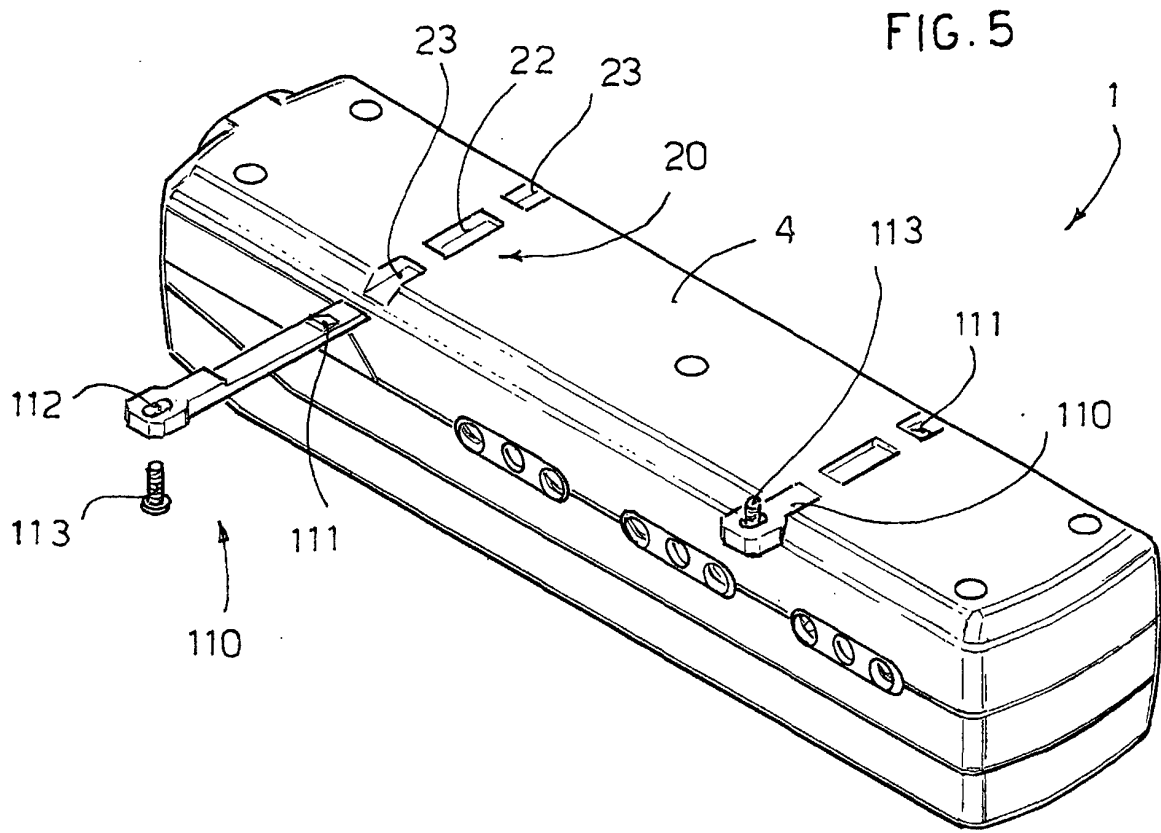
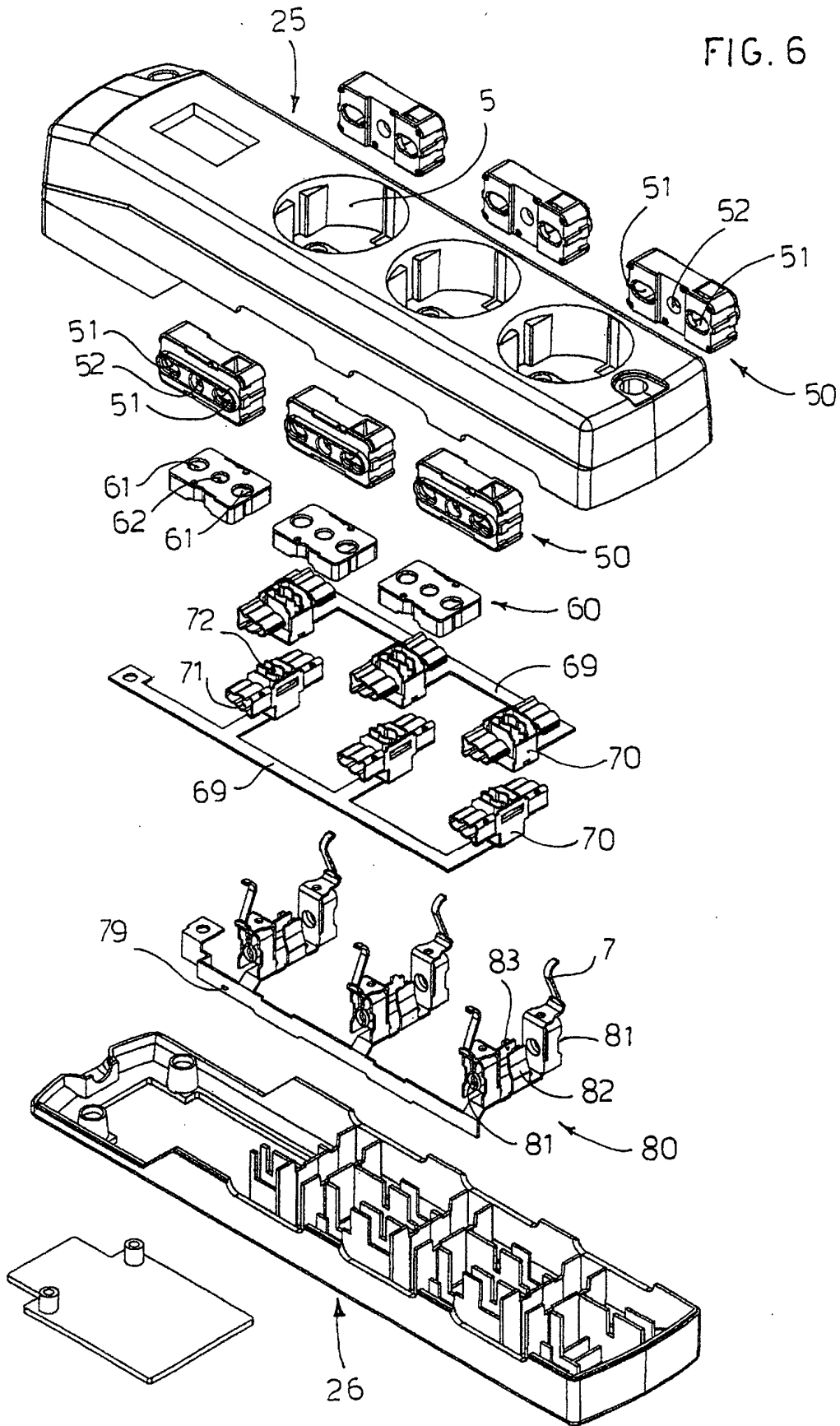


FIG. 5A

FIG. 6





European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 01 13 0044

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