

The invention concerns a mounting for electrical switches and designation plates associated with these, which are arranged at a panel, wherein the switches display a housing with a housing cover lying against the rear side of the panel, and the housing and the housing cover are screwed together with the panel.

Electrical switches, for example in the form of pushbutton switches, are frequently used for lifts, where they are used in the cage as cage call transmitter or on the storeys as storey call transmitter. The pushbutton switches and the designation plates, which are associated with these and for example indicate the storey number concerned, are in this case fastened at a panel. Pushbutton switches used for these purposes are exposed to great loadings in case of frequent actuation by lift users so that they must be constructed to be correspondingly robust. Beyond that, these switches and designation plates must be fastened at the panel in such a manner that unintentional damage or damage caused by vandalism is avoided.

A pushbutton switch, which fulfills the aforementioned conditions, has become known by US-PS- 4 504 713. The pushbutton switch displays a housing and a housing cover which lies directly against the rear side of the panel and engages into a circularly round cut-out of the panel by an annular extension, the height of which is equal to the thickness of the panel. The pushbutton of the pushbutton switch is guided to be displaceable in a bore, which extends concentrically to the annular extension, in such a manner that it does not project beyond the panel. Mutually overlapping dogs with holes for the reception of threaded bolts, which are welded to the panel and serve for the fastening of the pushbutton switch, are provided at the housing and at the housing cover.

As not more closely described in the aforementioned patent specification, a designation plate is usually mounted beside the pushbutton switch at the panel. The designation plate can be formed

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panel displays a rectangular depression, which is produced by stamping or pressing, of the size of the designation plate and a smaller, substantially rectangular cut-out, which lies within the depression and at the side walls of which projections are provided. The depression is so dimensioned that the designation plate does not project beyond the front plate. The projections serve for the bearing of an underlay washer pushed over the threaded bolt during the fastening of the designation plate.

The disadvantages of the aforescribed manner of fastening of the designation plate lie in that several working steps, which must be carried out on different machines, are required for the production of the depression and of the cut-out so that relatively high fabrication costs arise.

The invention is based on the object of proposing a mounting of the initially named kind, which does not display these disadvantages and by means of which the designation plate lets itself be mounted more rapidly and cheaply.

This problem is solved by the invention characterised in the patent claim 1. In this case, a housing cover of the electrical switch at one side displays a projecting arm lying against the rear side of the panel. The designation plate is guided laterally in the opening of the panel, for which it is screwed by means of a threaded bolt, which is fastened at it, to the projecting arm.

The advantages achieved by the invention lie in that only a simple opening in the panel is needed for the designation plate so that the manufacturing costs of the panel can be lowered substantially. Since the designation plates can be fastened at the projecting arm already before the installation of the switch, their separate delivery becomes superfluous so that time and costs in the final assembly of the panel can be saved. Due to both of the reinforcing walls of the projecting arm, which lie against the housing, it is achieved that no deformations of the housing cover can arise on the action of greater forces on the designation plate.

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switch and designation plate,

Fig. 2 to a scale enlarged by comparison with the Fig. 1, a partially sectioned side elevation of the mounting according to the invention and

Fig. 3 a perspective illustration of a housing cover of the mounting according to Fig. 2.

In Figs. 1 to 3, a panel is denoted by 1, which for example in the case of lifts is arranged in the cages or on the storeys beside the shaft doors. An electrical switch, for example in the form of a pushbutton switch 2, which displays a housing 3 and a housing cover 4, which lies against the rear side 1.1 of the panel 1 and is preferably produced of synthetic material, is fastened at the panel 1. A similar switch, which has become known by US-PS-4 504 713 and does justice to the special requirements for lifts, can be used as pushbutton switch 2. Mutually overlapping dogs 5 and 6 are provided respectively at the housing 3 and at the housing cover 4 and have holes for the reception of screw bolts 7, which are welded to the panel and by means of which the pushbutton switch 2 is fastened at the panel 1 with the use of nuts 8 and securing washers 9. Eyelets 10, which lie against the rear side 1.1 of the panel 1, are provided at the dogs 6 of the housing cover 4, whereby an intermediate space caused by the height of the eyelets 10 arises in the region of the pushbutton switch 2. An adapter 11 lies by one flange 12, the thickness of which corresponds with at least the height of the eyelets 10, on the housing cover 4. The adapter 11 at the one side displays an extension 13, which is guided in a recess 14 of the housing cover 4. Further annular extension 15, which is provided at the other side of the adapter 11 and the height of which is equal to the thickness of the panel 1, projects into a circularly round cut-out of the panel 1. A lens cap, which is pushed over a pushbutton 17 of the pushbutton switch 2, is denoted by 16. The lens cap 16 and thereby also the pushbutton 17 are guided to be displaceable in a

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setting, the lens cap 16 does not project beyond the front side 1.2 of the panel 1.

The housing cover 4 at one side displays a projecting arm 20, which lies against the rear side 1.1 of the panel 1. A support 21, which projects into an opening 22 of the panel 1, is provided at the projecting arm 20, wherein the height of the support 21 is less than the thickness of the panel 1. A designation plate 23, which is guided laterally in the opening 22, lies on the support 21. The support 21, the opening 22 and the designation plate 23 preferably have a square shape of substantially equal size. The thickness of the designation plate 23 consisting of metal is approximately equal to the difference between the thickness of the panel 1 and the height of the support 21 so that it does not project beyond the front side 1.2 of the panel 1. The designation plate 23 can for example be inscribed with a storey number in normal numerals and numerals of the Braille script, for which the numerals are preferably stamped in. A screw bolt 24, which projects through a hole 25 of the projecting arm 20 and by means of which the designation plate 23 is screwed together with the projecting arm 20 with the use of an underlay washer 26, a securing washer 27 and a nut 28, is welded to the designation plate 23. The support 21 is shaped by a cut-out portion 29 in such a manner that a strip 30, which runs round the rim in the shape of a square, and a strip 31, which annularly surrounds the hole 25, are formed. Two re-inforcing walls 32 and 33, which each extend parallelly to the other and lie against the housing 3 by bearing surfaces 34 oriented perpendicularly to the panel 1, are provided at the projecting arm 20 so that no deformations of the housing cover 4 can arise on the action of greater forces on the designation plate 23.

The mounting according to the invention is also suitable for electrical switches of other kind, such as for example rotary switches, key switches, toggle switches and so forth. It is also

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rectangular or other shape can be fastened.

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associated with these, which are arranged as a panel (1), wherein the switches (2) display a housing (3) with a housing cover (4) lying against the rear side (1.1) of the panel (1), and the housing (3) and the housing cover (4) are screwed together with the panel (1), characterised thereby that the housing cover (4) at one side displays a projecting arm (20), which lies against the rear side (1.1) of the panel (1), that the designation plate (23) is guided laterally in the opening (22) of the panel (1) and that a screw bolt (24) or the like, which projects through a hole (25) of the projecting arm (20) and by means of which the designation plate (23) is to be fastened at the projecting arm (20), is fastened at the designation plate (23).

2. Mounting according to claim 1, characterised thereby that a support (21), which projects into an opening (22) of the panel (1), is provided at the projecting arm (20), wherein the height of the support (21) is less than the thickness of the panel (1), and that the designation plate (23) rests on the support (21).

3. Mounting according to claim 1, characterised thereby that reinforcing walls (32, 33), which extend one parallelly to the other and lie against the housing (3) by bearing surfaces (34) oriented perpendicularly to the panel (1), are provided at the projecting arm (20).

4. Mounting according to claim 1, characterised thereby that an adapter (11), which lies by a flange (12) on the housing cover (4) and is guided by an extension (13), which is provided on the one side, in a recess (14) of the housing cover (4), is provided in the region of the switch (2) between the housing cover (4) and the rear side (1.1) of the panel (1) and that the adapter (11) at the other side displays a further, annular extension (15), the height of which is equal to the thickness of the panel (1) and which projects into a circularly round opening of the panel (1).

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cover (4) of the electrical switch (2) at one side displays a projecting arm (20) lying against the rear side (1.1) of a panel (1). A support (21), which projects into an opening (22) of the panel (1) and is lower than the thickness of the panel (1), is preferably provided at the projecting arm (20). The designation plate (23) lies on the support (21) and is guided laterally in the opening (22) of the panel (1), whilst it is screwed by means of a screw bolt (24), which is fastened at it, to the projecting arm (20).

(Fig. 2)

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- 1.1 Rear side of panel
- 1.2 Front side of panel
- 2 Pushbutton switch
- 3 Housing
- 4 Housing cover
- 5 Dog
- 6 Dog
- 7 Screw bolt
- 8 Nut
- 9 Securing washer
- 10 Eyelet
- 11 Adapter
- 12 Flange
- 13 Extension
- 14 Recess
- 15 Annular extension
- 16 Lens cap
- 17 Pushbutton
- 18 Rim
- 20 Projecting arm
- 21 Support
- 22 Opening
- 23 Designation plate
- 24 Screw bolt
- 25 Hole
- 26 Underlay washer
- 27 Securing washer
- 28 Nut
- 29 Recess
- 30 Square strip
- 31 Annular strip
- 32 Re-inforcing wall
- 33 Re-inforcing wall
- 34 Bearing surface



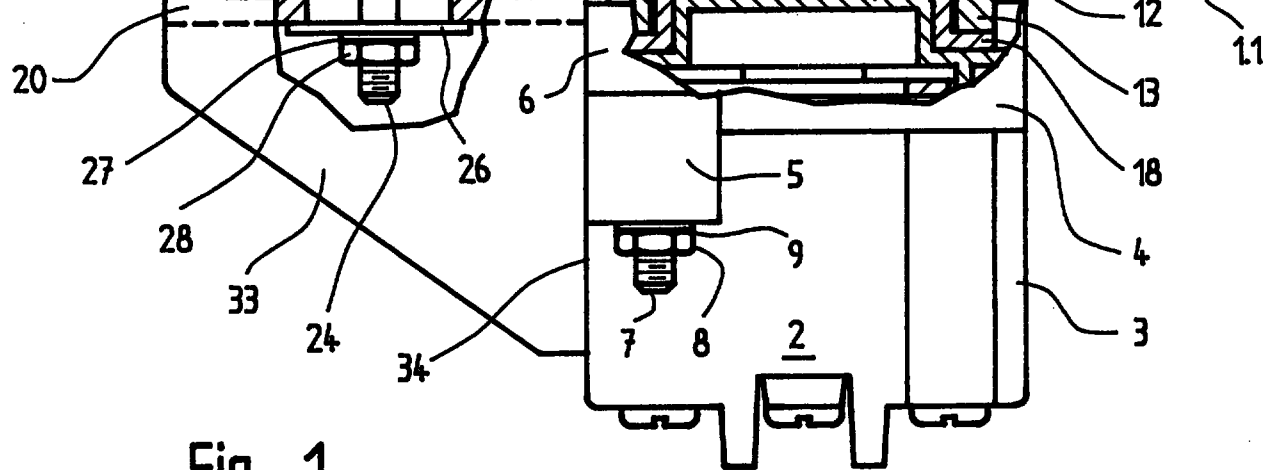


Fig. 1

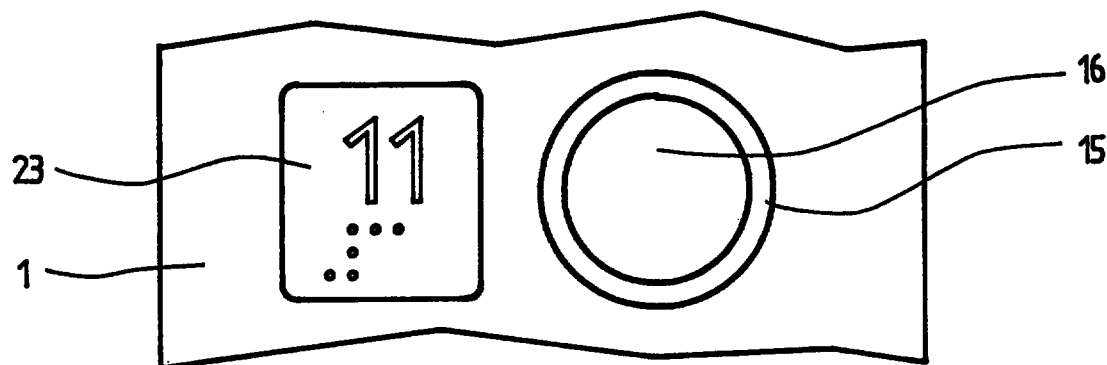
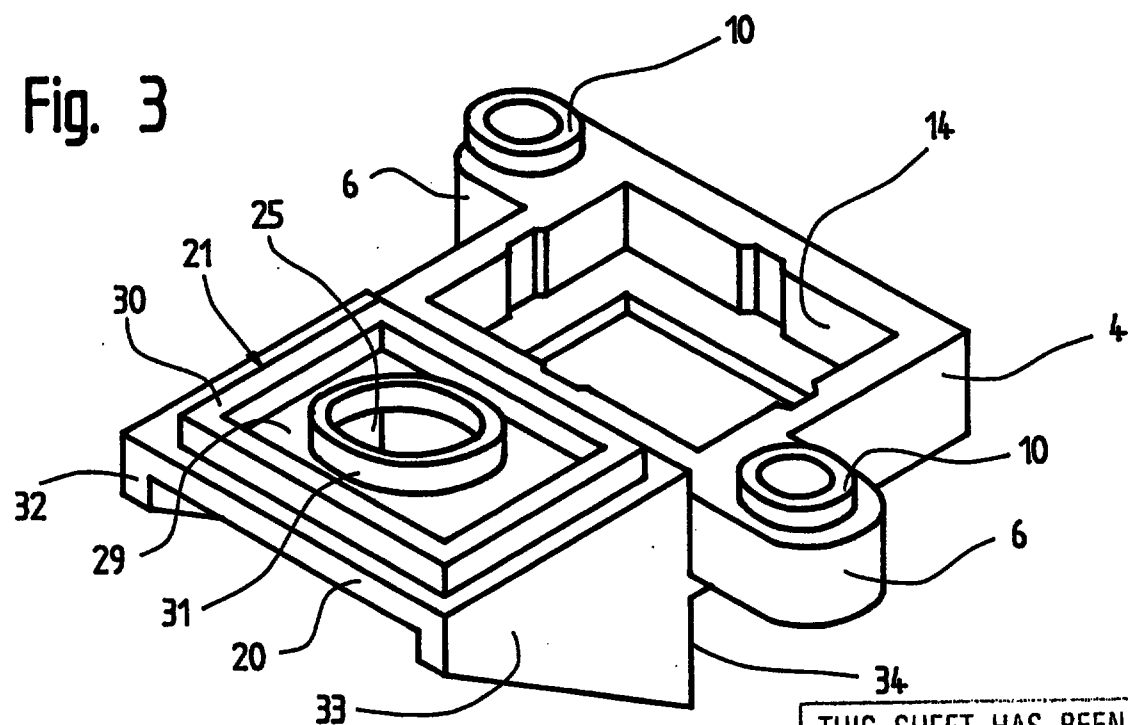


Fig. 3



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with these.

The invention concerns a mounting for electrical switches and designation plates associated with these, which are arranged at a panel, wherein the switches display a housing with a housing cover lying against the rear side of the panel, and the housing and the housing cover are screwed together with the panel.

Electrical switches, for example in the form of pushbutton switches, are frequently used for lifts, where they are used in the cage as cage call transmitter or on the storeys as storey call transmitter. The pushbutton switches and the designation plates, which are associated with these and for example indicate the storey number concerned, are in this case fastened at a panel. Pushbutton switches used for these purposes are exposed to great loadings in case of frequent actuation by lift users so that they must be constructed to be correspondingly robust. Beyond that, these switches and designation plates must be fastened at the panel in such a manner that unintentional damage or damage caused by vandalism is avoided.

A pushbutton switch, which fulfills the aforementioned conditions, has become known by US-PS- 4 504 713. The pushbutton switch displays a housing and a housing cover which lies directly against the rear side of the panel and engages into a circularly round cut-out of the panel by an annular extension, the height of which is equal to the thickness of the panel. The pushbutton of the pushbutton switch is guided to be displaceable in a bore, which extends concentrically to the annular extension, in such a manner that it does not project beyond the panel. Mutually overlapping dogs with holes for the reception of threaded bolts, which are welded to the panel and serve for the fastening of the pushbutton switch, are provided at the housing and at the housing cover.

As not more closely described in the aforementioned patent specification, a designation plate is usually mounted beside the pushbutton switch at the panel. The designation plate can be formed

plate carries, for example, the number of the storey concerned. The panel displays a rectangular depression, which is produced by stamping or pressing, of the size of the designation plate and a smaller, substantially rectangular cut-out, which lies within the depression and at the side walls of which projections are provided. The depression is so dimensioned that the designation plate does not project beyond the front plate. The projections serve for the bearing of an underlay washer pushed over the threaded bolt during the fastening of the designation plate.

The disadvantages of the aforescribed manner of fastening of the designation plate lie in that several working steps, which must be carried out on different machines, are required for the production of the depression and of the cut-out so that relatively high fabrication costs arise.

The invention is based on the object of proposing a mounting of the initially named kind, which does not display these disadvantages and by means of which the designation plate lets itself be mounted more rapidly and cheaply.

This problem is solved by the invention characterised in the patent claim 1. In this case, a housing cover of the electrical switch at one side displays a projecting arm lying against the rear side of the panel. The designation plate is guided laterally in the opening of the panel, for which it is screwed by means of a threaded bolt, which is fastened at it, to the projecting arm.

The advantages achieved by the invention lie in that only a simple opening in the panel is needed for the designation plate so that the manufacturing costs of the panel can be lowered substantially. Since the designation plates can be fastened at the projecting arm already before the installation of the switch, their separate delivery becomes superfluous so that time and costs in the final assembly of the panel can be saved. Due to both of the reinforcing walls of the projecting arm, which lie against the housing, it is achieved that no deformations of the housing cover can arise on the action of greater forces on the designation plate.

There show:

Fig. 1 a partial view of a panel with installed electrical switch and designation plate,

Fig. 2 to a scale enlarged by comparison with the Fig. 1, a partially sectioned side elevation of the mounting according to the invention and

Fig. 3 a perspective illustration of a housing cover of the mounting according to Fig. 2.

In Figs. 1 to 3, a panel is denoted by 1, which for example in the case of lifts is arranged in the cages or on the storeys beside the shaft doors. An electrical switch, for example in the form of a pushbutton switch 2, which displays a housing 3 and a housing cover 4, which lies against the rear side 1.1 of the panel 1 and is preferably produced of synthetic material, is fastened at the panel 1. A similar switch, which has become known by US-PS-4 504 713 and does justice to the special requirements for lifts, can be used as pushbutton switch 2. Mutually overlapping dogs 5 and 6 are provided respectively at the housing 3 and at the housing cover 4 and have holes for the reception of screw bolts 7, which are welded to the panel and by means of which the pushbutton switch 2 is fastened at the panel 1 with the use of nuts 8 and securing washers 9. Eyelets 10, which lie against the rear side 1.1 of the panel 1, are provided at the dogs 6 of the housing cover 4, whereby an intermediate space caused by the height of the eyelets 10 arises in the region of the pushbutton switch 2. An adapter 11 lies by one flange 12, the thickness of which corresponds with at least the height of the eyelets 10, on the housing cover 4. The adapter 11 at the one side displays an extension 13, which is guided in a recess 14 of the housing cover 4. Further annular extension 15, which is provided at the other side of the adapter 11 and the height of which is equal to the thickness of the panel 1, projects into a circularly round cut-out of the panel 1. A lens cap, which is pushed over a pushbutton 17 of the pushbutton switch 2, is denoted by 16. The lens cap 16 and thereby also the pushbutton 17 are guided to be displaceable in a

annular extension 15, of the adapter 11, the rim 18, which lies against the extension 13 of the adapter 11, whereby an end setting of the pushbutton switch 2 is formed. In this setting, the lens cap 16 does not project beyond the front side 1.2 of the panel 1.

The housing cover 4 at one side displays a projecting arm 20, which lies against the rear side 1.1 of the panel 1. A support 21, which projects into an opening 22 of the panel 1, is provided at the projecting arm 20, wherein the height of the support 21 is less than the thickness of the panel 1. A designation plate 23, which is guided laterally in the opening 22, lies on the support 21. The support 21, the opening 22 and the designation plate 23 preferably have a square shape of substantially equal size. The thickness of the designation plate 23 consisting of metal is approximately equal to the difference between the thickness of the panel 1 and the height of the support 21 so that it does not project beyond the front side 1.2 of the panel 1. The designation plate 23 can for example be inscribed with a storey number in normal numerals and numerals of the Braille script, for which the numerals are preferably stamped in. A screw bolt 24, which projects through a hole 25 of the projecting arm 20 and by means of which the designation plate 23 is screwed together with the projecting arm 20 with the use of an underlay washer 26, a securing washer 27 and a nut 28, is welded to the designation plate 23. The support 21 is shaped by a cut-out portion 29 in such a manner that a strip 30, which runs round the rim in the shape of a square, and a strip 31, which annularly surrounds the hole 25, are formed. Two re-inforcing walls 32 and 33, which each extend parallelly to the other and lie against the housing 3 by bearing surfaces 34 oriented perpendicularly to the panel 1, are provided at the projecting arm 20 so that no deformations of the housing cover 4 can arise on the action of greater forces on the designation plate 23.

The mounting according to the invention is also suitable for electrical switches of other kind, such as for example rotary switches, key switches, toggle switches and so forth. It is also

for example indicator lamps. The designation plates are not restricted to a square shape. Thus, it is possible so to structure the mounting that designation plates for example of elongate rectangular or other shape can be fastened.

1.1	Rear side of panel
1.2	Front side of panel
2	Pushbutton switch
3	Housing
4	Housing cover
5	Dog
6	Dog
7	Screw bolt
8	Nut
9	Securing washer
10	Eyelet
11	Adapter
12	Flange
13	Extension
14	Recess
15	Annular extension
16	Lens cap
17	Pushbutton
18	Rim
20	Projecting arm
21	Support
22	Opening
23	Designation plate
24	Screw bolt
25	Hole
26	Underlay washer
27	Securing washer
28	Nut
29	Recess
30	Square strip
31	Annular strip
32	Re-inforcing wall
33	Re-inforcing wall
34	Bearing surface

associated with these, which are arranged at a panel (1), wherein the switches (2) display a housing (3) with a housing cover (4) lying against the rear side (1.1) of the panel (1), and the housing (3) and the housing cover (4) are screwed together with the panel (1), characterised thereby that the housing cover (4) at one side displays a projecting arm (20), which lies against the rear side (1.1) of the panel (1), that the designation plate (23) is guided laterally in the opening (22) of the panel (1) and that a screw bolt (24) or the like, which projects through a hole (25) of the projecting arm (20) and by means of which the designation plate (23) is to be fastened at the projecting arm (20), is fastened at the designation plate (23).

2. Mounting according to claim 1, characterised thereby that a support (21), which projects into an opening (22) of the panel (1), is provided at the projecting arm (20), wherein the height of the support (21) is less than the thickness of the panel (1), and that the designation plate (23) rests on the support (21).

3. Mounting according to claim 1, characterised thereby that reinforcing walls (32, 33), which extend one parallelly to the other and lie against the housing (3) by bearing surfaces (34) oriented perpendicularly to the panel (1), are provided at the projecting arm (20).

4. Mounting according to claim 1, characterised thereby that an adapter (11), which lies by a flange (12) on the housing cover (4) and is guided by an extension (13), which is provided on the one side, in a recess (14) of the housing cover (4), is provided in the region of the switch (2) between the housing cover (4) and the rear side (1.1) of the panel (1) and that the adapter (11) at the other side displays a further, annular extension (15), the height of which is equal to the thickness of the panel (1) and which projects into a circularly round opening of the panel (1).

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With this mounting, designation plates of electrical switches can be mounted more rapidly and cheaply. For this purpose, a housing cover (4) of the electrical switch (2) at one side displays a projecting arm (20) lying against the rear side (1.1) of a panel (1). A support (21), which projects into an opening (22) of the panel (1) and is lower than the thickness of the panel (1), is preferably provided at the projecting arm (20). The designation plate (23) lies on the support (21) and is guided laterally in the opening (22) of the panel (1), whilst it is screwed by means of a screw bolt (24), which is fastened at it, to the projecting arm (20).

(Fig. 2)

Fig. 1

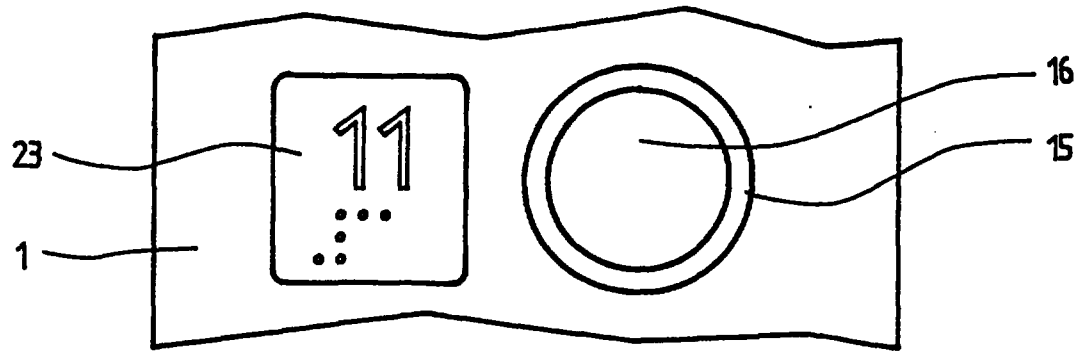


Fig. 2

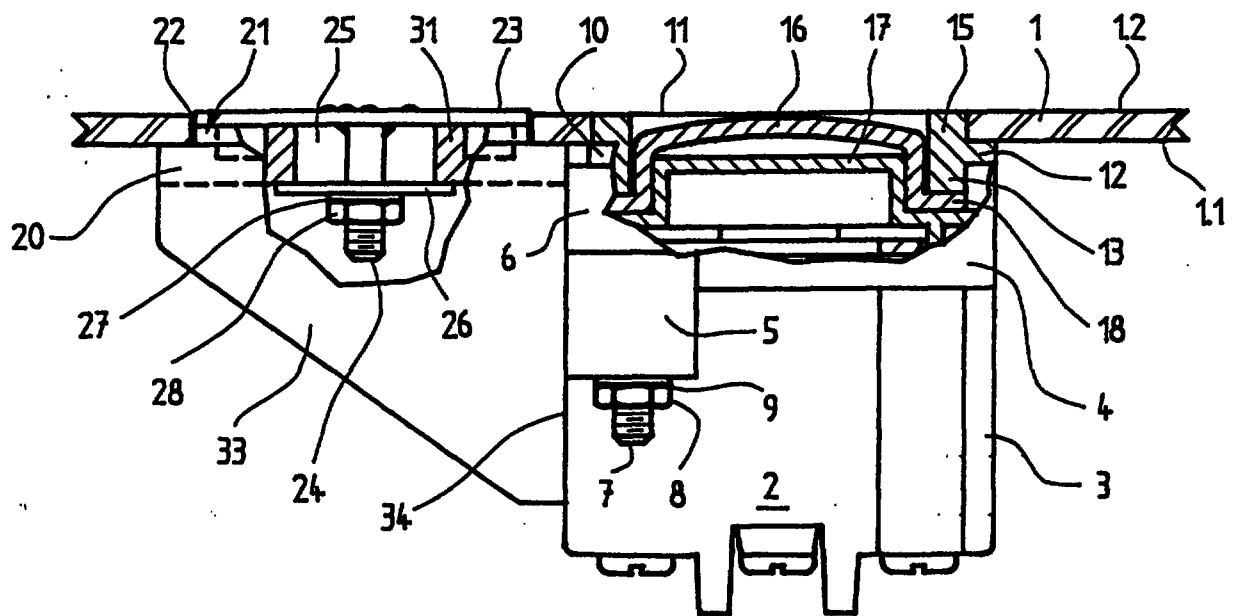


Fig. 3

