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(71) Applicant: **Hiomapojat Oy**
16300 Orimattila (FI)

(72) Inventor: **HYYTÄINEN, Mika**
16300 ORIMATTILA (FI)

(74) Representative: **Berggren Oy Ab**
P.O. Box 16
Eteläinen Rautatiekatu 10A
00101 Helsinki (FI)

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(54) **ATTACHEMENT SYSTEM FOR CLADDING PLATES**

(57) The invention relates to an attachment system (1) for mounting ferritic steel plates (2) removably on a wall (7). Said attachment system comprises:

- a plurality of metal strips (5), wherein through each metal strip extend apertures (4) for fastening said strip to the wall (7) with fasteners (4), and each metal strip's (5) face (5a), which is turned away from the wall, consists mostly of a continuous metal surface (5a1), whereby inside each metal strip (5) is formed a plurality of pocket-like recesses

(6) which extend to a surface (5b1) of the metal strip's (5) face (5b) turned towards the wall (7), said pocket-like recesses (6) having a plurality of permanent magnets (3) accommodated therein for generating a magnetic flux in the metal strip (5) and for attaching the ferritic steel plate (2) to said metal strip's continuous metal surface (5a1),
- a plurality of fasteners (4) capable of establishing a bolted joint (40), especially a screw joint, between the metal strip (5) and the wall (7).

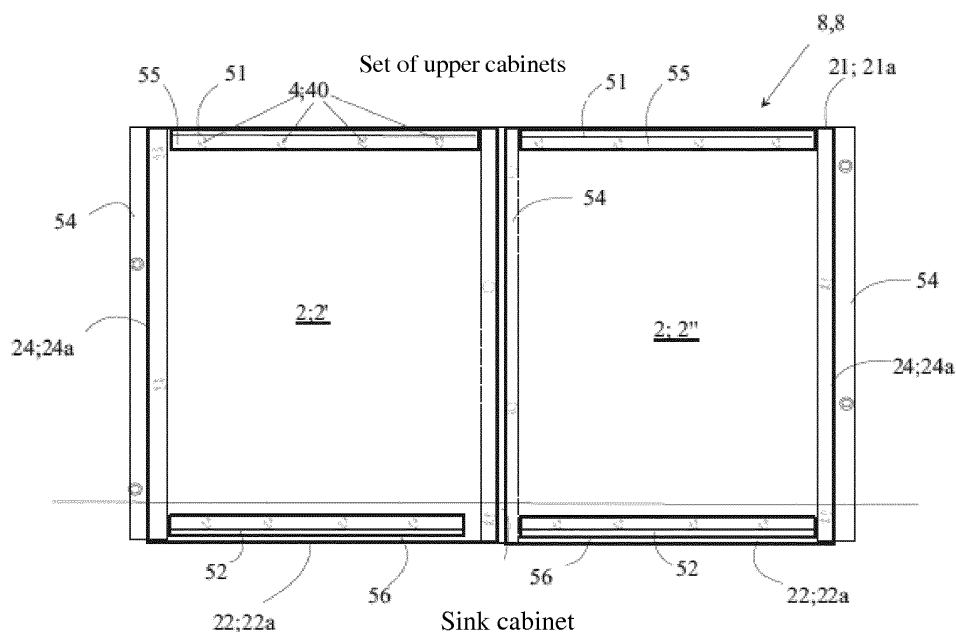


Fig. 3

Description

[0001] The invention relates to an attachment system according to claim 1 for mounting ferritic steel plates removably on a wall.

[0002] The invention relates also to a mounting arrangement according to claim 11, which comprises a combination of the attachment system and a ferritic steel plate.

[0003] The invention relates also to use of the attachment system for mounting ferritic steel plates removably on a vertical wall.

[0004] Kitchens make use of ceramic tile revetments inter alia for protecting walls associated with a kitchen worktop and range. The attachment of these tiles is mostly carried out by using grout or other adhesive, whereby the replacement of tiles requires tearing the tiles and grout off the wall and thereafter leveling the wall surfaces prior to the installation of new tiles. Institutional kitchens and ship galleys, in particular, have made use not of a ceramic tile revetment but, instead, smooth steel plates which are attached to the wall with an adhesive, making the replacement of these plates indeed just as arduous as that of ceramic tiles. However, these steel plates are not even intended for replacement but rather used only for protecting the wall from water splashes.

[0005] Based on the foregoing prior art, it was unexpectedly discovered by the inventors that, should steel plates be formed by grinding with a three-dimensional decorative surface pattern, such plates could be used as decorative interior panels. On the other hand, since decorative interior panels are used in kitchens both for protecting wall surfaces and also for providing new aesthetic thrills, it is likely that the consumers would from time to time wish to replace the steel plates mounted on their kitchen walls for enabling the creation of new surface patterns. However, the current attachment methods for wall-mountable steel plates do not enable replacement of the steel plates. Accordingly, the basic idea of the invention was indeed the above-discovered new domain of use for patterned steel plates (as a decorative interior panel) and the objective was to provide an attachment mode suitable explicitly for these surface-patterned steel plates for enabling the attachment of steel plates to the wall in a readily removable manner.

[0006] The foregoing objectives will be attained with an attachment system of the invention, as well as with a mounting arrangement which comprises a combination of the attachment system and a steel plate.

[0007] The invention relates to an attachment system of claim 1.

[0008] More specifically, the invention relates to an attachment system for mounting ferritic steel plates removably on a wall, wherein said attachment system comprises

- a plurality of metal strips, wherein through each metal strip extend apertures for fastening said metal strip

to the wall with fasteners, and a side of each metal strip installable as its face turned away from the wall consists mostly of a continuous metal surface,

- 5 - a plurality of fasteners capable of establishing a bolted joint, especially a screw joint, between the metal strip and the wall. In the invention,
- 10 - inside each metal strip is formed a plurality of pocket-like recesses, which extend in a wall-mounted metal strip only to a surface of the discontinuous face of the metal strip turned towards the wall or the like vertical support, said pocket-like recesses being capable of accommodating a plurality of permanent magnets for generating a magnetic flux in the metal strip and for attaching the ferritic steel plate into contact with the continuous metal surface of said metal strip,
- 15 - each steel plate (2) is capable of being supported simultaneously on at least two wall-mounted vertical narrow metal strips,
- 20 - two adjacent ferritic steel plates are capable of being supported on one and the same metal strip, i.e. on an intermediate strip, by side portions of the steel plates,
- 25 - the metal strip/metal strips (5) employed for supporting the steel plate have a surface area smaller than that of the steel plate, preferably not more than 90% of the steel plate's surface area.
- 30

[0009] Preferably, the metal strip to be fitted under the steel plate has a surface area which is more than 5% but less than 90% of the steel plate's surface area. The invention relates also to a mounting arrangement of claim 11, which consists of a combination made up by ferritic steel plates attached removably to a wall or the like vertical surface and an attachment system of claim 1, wherein each metal strip of the mounting arrangement is fastened to a wall or the like vertical surface with a plurality of bolted joints, especially a plurality of screw joints, by way of apertures extending through the metal strip. In the mounting arrangement,

- 45 - each metal strip has its face with pocket-like recesses, i.e. its discontinuous face, in contact with a wall or the like vertical surface,
- 50 - each metal strip has its face, which is turned away from a wall or the like vertical surface, consisting mostly of a continuous metal surface, and in pocket-like recesses inside each metal strip is accommodated a plurality of permanent magnets for generating a magnetic flux in the metal strip and for attaching a ferritic steel plate to the continuous metal surface of said metal strip by means of the magnetic flux,
- 55

said permanent magnets extending not further than to a surface of the metal strip's discontinuous face turned towards the wall, i.e. to a contact surface between the metal strip as well as the wall or the like vertical surface,

- one steel plate is supported simultaneously on at least two wall-mounted narrow vertical metal strips,
- two adjacent ferritic steel plates are supported on one and the same metal strip, i.e. on an intermediate strip, by side portions of the steel plates
- the steel plate is in contact with a metal strip/metal strips, the area of whose surface coming to contact with the steel plate is smaller than the steel plate's surface area, preferably not more than of the steel plate's surface area.

[0010] Preferably, the ferritic steel plate is a decorative interior panel (steel plate) on whose surface is formed a pattern by grinding.

[0011] The metal strip is fabricated either from a magnetizable material or a nonmagnetic material such as aluminum.

[0012] The invention is first of all based on having the surface of attachable steel plates patterned by grinding to enable the use thereof as decorative interior panels. Secondly, the invention is based on the patterned steel plate being a ferritic steel plate, which can be attached magnetically and thereby removably to a wall. In the invention, the ferritic steel plates are attached to the surface of magnetizable thin and narrow metal strips after said metal strips have first been fastened with a removable bolted joint, preferably a screw joint, to the wall. The steel plate is in contact with the metal strip/metal strips, the contact surface of said metal strips being smaller than that of the steel plate, preferably not more than 90% of the steel plate's surface area.

[0013] As the steel plate is coupled to a magnetized metal strip over just part of its surface area, for example over 5-30% of its surface area, there is gained an important advantage of the steel plate being easy to detach from the metal strip.

[0014] In the invention, the narrow metal strips are further formed with pocket-like recesses with permanent magnets accommodated therein. Said ferritic steel plate is held stationary by a magnetic flux generated by the permanent magnets in each metal strip. This way, the ferritic steel plates are capable of being coupled magnetically and thereby in a readily removable manner to a wall.

[0015] A further benefit gained by the aforesaid attachment system is that each metal strip is also fastened to a wall with a readily removable bolt attachment.

[0016] In addition, the attachment of a steel plate can be secured by machining various steps, claws, etc. on top and bottom edges of the metal strip.

[0017] Accordingly, in one preferred embodiment of

the invention, a part of the metal strip's longitudinal edge, preferably its lower edge, is deflected into what in cross-section is a hook-like or claw-like member. The metal strip has its free front edge thereby turned onto the metal strip's continuous face, lying at a distance in the metal strip's thickness direction from said surface of the metal strip's continuous face.

[0018] In another preferred embodiment of the invention, on the metal strip's continuous metal surface, in the metal strip's top or bottom portion, is formed a step-like elbow lengthwise of the strip for supporting an edge of the steel plate.

[0019] Such metal strips enable the attachment of a ferritic steel plate and a metal strip to be secured effectively in the event that the wall is prone to soiling or the metal strip and the wall are exposed to vibrations for example in ships.

[0020] In yet another preferred embodiment of the invention, the apertures intended for fastening a metal strip have center lines thereof located on one or two lines lengthwise of the metal strip. If the recesses have their center lines located on two separate lines extending in the proximity of the metal strip's longitudinal edge, the result will be a so-called intermediate strip. In this case, two adjacent steel plates can be supported on the same intermediate strip by side portions of the steel plates so as to leave an expansion joint between the steel plates.

[0021] In one preferred embodiment of the invention, the magnet is disc-shaped and made from a mixture of iron and a rare earth element, such as a mixture of neodymium and iron, preferably a mixture of neodymium, iron and boron. Such a magnet generates a particularly powerful magnetic field in the metal strip.

[0022] In still another preferred embodiment of the invention, the steel plate is secured in its position with narrow metal strips extending around edge areas of the steel plate. Such an embodiment of the invention is particularly beneficial when attaching relatively small steel plates to a wall.

[0023] The invention will now be illustrated in more detail with reference to the accompanying figures, in which

[0024] Figs. 1A-1D show a metal strip according to a first embodiment of the invention from various angles of view:

in fig. 1A, the metal strip is visible in a view directly from the front,

in fig. 1B, the metal strip is shown in a view from the side,

in fig. 1C, the metal strip is shown in a view from behind, and

in fig. 1D, the metal strip is shown in a view directly towards the end face;

Figs. 2A-2E show a metal strip according to second

and third embodiments of the invention, whereby

in fig. 2A, the metal strip is visible in a view directly from the front,

in fig. 2B, the metal strip is shown in a view from the side,

in fig. 2C, the metal strip is shown in a view from behind, and

in fig. 2D, different metal strips are shown in a view directly towards the end face;

Fig. 3 shows, in a view directly from the front, two adjacent steel plate/attachment system combinations installed on a kitchen wall.

[0025] What follows next is a review of the invention aspects illustrated with figs. 1-3 and the features shown in the figures for an attachment system 1 as well as for a combination 8 of the attachment system and a steel plate.

[0026] In fig. 1 is shown a metal bar, which can be used, in the way illustrated in fig. 3, as a vertical intermediate strip 54 for the attachment of a ferritic steel plate's side edge 24a. A metal strip 5 is fabricated from a non-magnetizable material such as aluminum, and there-through extend apertures 41 for fastening the metal strip 5 to a wall 4 with fasteners 4. The apertures 41 for the fasteners 4 are only depicted in fig. 1A for simplifying the figures. As visible, especially from fig. 1A, a face 5a of the metal strip 5 turned away from the wall, i.e. the front face visible towards a viewer, consists of a continuous metal surface 5a1. On the other hand, as visible from figs. 1B, 1C and 1D, inside the metal strip 5 is formed a plurality of pocket-like recesses 6, which extend to a surface 5b1 of a discontinuous face 5b of the metal strip 5 turned towards the wall. The ends of the pocket-like recesses 6 on the side a metal strip lie at a distance E from the surface 5a1 of the metal strip's continuous face 5a, i.e. between the ends of the pockets and the surface 5a1 of the metal strip's continuous face 5a is left a web 5c whose thickness is E. This distance E must be adapted on the basis of the strength of a magnetic flux generated by permanent magnets 3 to be fitted in the pockets and the weight of a steel plate 2. In addition, the distance E should be at least such that the recesses 6 and the magnet do not become excessively long in shape, whereby the inventor has discovered that this web 5c should be at least 1 mm in thickness to prevent the metal strip from buckling at the web 5c as a result of the magnetic flux generated by the permanent magnet.

[0027] These pocket-like recesses 6 have accommodated therein a plurality of cylindrical or disc-shaped permanent magnets 3 for generating a magnetic flux in the proximity of the metal strip 5. The ferritic steel plate 2 to be placed thereafter on the continuous metal surface 5a1

of the metal strip 5 (fig. 1C) is attached by the magnetic flux to said surface 5a1 of the metal strip. The mode of engagement of the steel plate 2 with the metal strip 2 is visible both from figs. 2D, 2E and from fig. 3. Each permanent magnet 3 is disc-shaped and fabricated preferably from a mixture of iron and a rare earth element, in this case from a mixture of neodymium, iron, as well as boron. Each permanent magnet 3 can be for example 3 or 4 mm in thickness and 20 mm or 30 mm in diameter.

[0028] In practice, the steel plate 2 has a minimum thickness of 0.6 mm for enabling its attachment magnetically to a steel strip of the invention. The density of such a steel plate is approximately 4 kg/m². Hence, in terms of the number and strength thereof, the permanent magnets 3 to be placed in the pockets 6 of the metal strip 5 must be arranged such that the strength of a joint magnetic flux generated thereby will be sufficient for retaining the steel plate 2 with a weight of at least 4 kg/m² on the steel strip's continuous surface 5a1. The steel plate 2 has its surface area naturally adapted to comply with intended use, the steel plate in typical interior design applications having dimensions of 1250 mm x 3000 mm and a thickness of 0.8 mm, while the density is 5.4 kg/m². The steel plate 2 consists preferably of brushed, patterned sheet.

[0029] In an intermediate strip 5; 54 visible in figs. 1A-1D, the fastening apertures 4; 41 have center lines P2; P2' and P2; P2" located on two lines lengthwise of the intermediate strip 54. The center lines P2; P2' and P2; P2" extend near the side edges of an intermediate strip for securing the intermediate strip with fasteners firmly to a wall (cf. also fig. 3). The intermediate strip 5; 54 can be secured to a wall by way of the apertures 41 with fasteners 4 capable of establishing a bolted joint 40, particularly a screw joint, between the metal strip 5 and a wall 7.

[0030] On the other hand, figs. 2A-2E show details for metal strips 5 (top or bottom strip 55, 56) used for the attachment of a top portion 21 or a bottom portion 22 of the steel plate 2. Moreover, in figs. 2D as well as 2E there is further illustrated how the steel plate 2 will be mounted on the horizontal top strip 5; 55 or on the bottom strip 5; 56. In these metal strips 5; 55, 5; 56, the center lines P1 of the fastening apertures 41 are located on a single straight line, see fig. 2A, showing in the forefront a continuous face of the metal strip, i.e. a plate-side face to be rested against the steel plate 2. The top strip 5; 55 and the bottom strip 5; 56 are secured to a wall with the fasteners 4, such as screws, by way of the apertures 41 in horizontal direction. Thus, the top strip 5; 55 will become co-directional with a top edge 21; 21a of the steel plate 2, and the bottom strip 56 co-directional with a bottom edge 21; 22a of the steel plate 2. Otherwise, the top and bottom strips 55, 56 are structurally largely similar to the intermediate strip 54, regarding inter alia the magnet 3 and the pocket-like recess 6 intended therefor.

[0031] As can be seen from fig. 2D, in particular, the top strip 5; 55 has the surface 5a1 of its continuous face

5a, in an upper part of the top strip, further formed with a step-like elbow 51, which extends away from the plane of the steel plate and which is lengthwise of the metal strip, for supporting the edge of the steel plate 2 on said elbow. The ferritic steel plate 2 is supported on a continuous surface 5b; 5b1 of the top strip 56 by having its top edge bearing against the step-like elbow 51 of the top strip 55 when constructing a combination 8 of the attachment system and a ferritic steel plate.

[0032] As can be seen from fig. 2E, the bottom strip 5; 56 has its longitudinal lower edge 57 deflected for what in cross-section is a hook-like or claw-like member. The lower edge constitutes a free front edge, which is turned onto the continuous face 5a of the bottom strip 56 and which lies at a distance in the metal strip's thickness direction from said surface 5a1 of the bottom strip's continuous face 5a. It is further seen from fig. 2E how the ferritic steel plate 2 has its face 2a, which is turned towards a wall 7 or the like vertical surface, supported on the continuous surface 5b, 5b1 of the bottom strip 56 in such a way that the steel plate 2 has its lower edge 22a bearing against said hook-like claw 52 of the bottom strip 56 when constructing a combination 8 of the attachment system and a ferritic steel plate. Hence, the pocket 6 has its end face spaced from the plate-side face or continuous surface 5a1 of a metal plate at a distance which is E.

[0033] It can be seen from fig. 3 how two surface-patterned steel plates 2; 2' and 2; 2" are set side by side and coupled with an attachment system 1 of the invention to metal strips 5 present thereunder. This results in two side-by-side located combinations 8, 8 of the attachment system 1 and a ferritic steel plate. The side-by-side located combinations are mounted for example on a wall between a set of upper kitchen cabinets and a sink cabinet. Each steel plate 8 is here supported by its edge portions on two narrow horizontal metal strips 5, i.e. on the bottom and top strips 56, 55. These (aluminum) strips 56, 55 extend respectively co-directionally with a top edge 21 a of the steel plate's upper portion and co-directionally with a bottom edge 22a of the lower portion 22, as illustrated also with cross-section figures 2D and 2E. Each steel plate 2; 2' and 2; 2" is additionally supported by side edges 24a of side portions 24 on two wall-mounted thin and narrow vertical intermediate strips 54 of aluminum. The adjacent steel plates 2; 2' and 2; 2" are attached to one vertical intermediate strip 54 by side portions of the steel plates in such a way that between the side edges 24a thereof is left a narrow free expansion joint V. These metal strips 5 (bottom, top and intermediate strips 56, 55, 54) are structurally similar to what has been described above in connection with figs. 1 and 2.

[0034] In such a combination 8 of the attachment system 1 and the ferritic steel plate 2, each narrow metal strip 5 used for the attachment is first fastened to the wall 7 with a bolted joint, especially with the screw joint 40, in such a way that the metal strip 5 has its discontinuous face 5b, which is provided with pocket-like recesses and the magnets 3 present therein, turned towards the wall

7. After this, on the surface of the continuous face 5a of each metal strip 5, which face is turned away from the wall 7, is supported the ferritic steel plate 2 by its edges in such a way that the metal strips 5 extend around the steel plate 2. Said ferritic steel plate 2 is held stationary by a magnetic flux generated in the metal strip by the permanent magnets 3 present in the pocket-like recesses 6 of the metal strips 5.

[0035] In general, the metal strips 5 are relatively narrow with respect to the corresponding dimension of the steel plate 2. In the embodiments of the invention shown in figs. 2 and 3, the face 2a of a steel plate, which is turned towards the wall, has a surface area in contact with the metal strips, which is about 15% of the steel plate's entire surface area. The reason for this that, when the steel plate 2 is only attached magnetically to the metal strips 5 by its edges, its removal will be easier.

[0036] Above have been described a few embodiments of the invention and it is obvious for a person skilled in the art that there are a multitude of other ways of implementing the invention within the scope of an inventive concept defined in the claims. Accordingly, it is possible that a combination of the invention, comprising an attachment system and a ferritic steel plate, be also deployed in other locations in which it is desirable to replace the steel plates from time to time. In this case, the steel plates are provided with surface patterns, preferably surface patterns provided by grinding.

30 List of reference numerals

[0037]

1	Attachment system
2	Ferritic steel plate
2a	face turned towards the wall
2b	face turned away from the wall
21	upper portion
21a	top edge
22	lower portion
22a	bottom edge
24	side portion
24a	side edge
3	Permanent magnet
4	Fastener
40	bolted joint
41	aperture
42	screw, bolt
5	Metal strip
5a	continuous face
5a1	surface of the continuous face
5b	discontinuous face
5b1	surface of the discontinuous face
5c	web of metal plate
51	step-like elbow
52	hook-like member
54	intermediate strip
55	top strip

56	bottom strip	
57	lower edge, front edge	
58	upper edge	
6	Pocket-like recess	
7	Wall	5
8	Combination of the attachment system and a ferritic steel plate	
E	Distance of the pocket from the metal strip's continuous surface	
P1	Center lines of the fastening apertures in the metal strip	10
P2	Center lines of the fastening apertures in the intermediate strip	
V	Gap between steel plates	

Claims

1. An attachment system (1) for mounting ferritic steel plates (2) removably on a wall (7), wherein said attachment system comprises

- a plurality of metal strips (5), wherein through each metal strip extend apertures (41) for fastening said metal strip to the wall (7) with fasteners (4), and a side (5a, 5b) of each metal strip (5) installable as its face (5a) turned away from the wall consists mostly of a continuous metal surface (5a1),
- a plurality of fasteners (4) capable of establishing a bolted joint (40), especially a screw joint, between the metal strip (5) and the wall (7), **characterized in that**
- inside each metal strip (5) is formed a plurality of pocket-like recesses (6), which extend in a wall-mounted metal strip only to a surface (5b1) of the discontinuous face of the metal strip turned towards the wall (7) or the like vertical support, said pocket-like recesses (6) being capable of accommodating a plurality of permanent magnets (3) for generating a magnetic flux in the metal strip (5) and for attaching the ferritic steel plate (2) into contact with the continuous metal surface (5a1) of said metal strip,
- each steel plate (2) is capable of being supported simultaneously on at least two wall-mounted vertical narrow metal strips (5, 5),
- two adjacent ferritic steel plates (2, 2) are capable of being supported on one and the same metal strip (5), i.e. on an intermediate strip (54), by side portions of the steel plates,
- the metal strip/metal strips (5) employed for supporting the steel plate (2) have a surface area smaller than that of the steel plate (2), preferably not more than 90% of the steel plate's surface area.

2. An attachment system according to claim 1, **characterized in that**

between the pocket-like recess (6) and the continuous face surface (5a1) is left a distance which is not more than 20% of the plate's (2) thickness with the proviso, however, that said distance is at least 1 mm.

3. An attachment system according to claim 1, **characterized in that** the number and strength of magnets in the metal strip (5) is adapted to be such that the magnetic flux generated in the metal strip is capable of keeping stationary a steel plate (2) whose thickness is at least 0.5 mm and specific weight more than 4 kg/m².

4. An attachment system according to claim 2, **characterized in that** at least the pocket (6) present at each/either corner of the metal strip (5) houses a permanent magnet (3).

5. An attachment system according to any of claims 1-3, **characterized in that** the permanent magnet (3) is disc-shaped, 3-4 mm in thickness and 30-40 mm in diameter.

6. An attachment system according to claim 1, **characterized in that** the narrow metal strips (5) extend around the steel plate (2) in such a way that the steel plate has its edge area supported on a narrow metal strip (5) which is equipped with a permanent magnet (3).

7. An attachment system (1) according to claim, **characterized in that** at least a part of the metal strip's (5) longitudinal edge, preferably a lower edge (57), is deflected into what in cross-section is a hook-like member (52) which has its free front edge (57) turned onto the metal strip's continuous face (5a), lying at a distance in the metal strip's thickness direction from said surface (5a1) of the metal strip's continuous face (5a).

8. An attachment system (1) according to any of the preceding claims, **characterized in that** on the surface (5a1) of the metal strip's (5) continuous face (5a) is formed a step-like elbow (51) lengthwise of the metal strip for supporting an edge of the ferritic steel plate (2).

9. An attachment system (1) according to any of the preceding claims, **characterized in that** the apertures (41) intended for fastening a metal strip (5) to the wall (7) have center lines thereof located on one or two lines (P2; P2', P2'') lengthwise of the narrow metal strip.

10. An attachment system (1) according to any of the preceding claims, **characterized in that** the permanent magnet (3) is disc-shaped and made from a

mixture of iron and a rare earth element, such as a mixture of neodymium and iron, preferably a mixture of neodymium, iron and boron.

11. A mounting, which consists of a combination made up by ferritic steel plates (2) attached removably to a wall (7) or the like vertical surface and an attachment system of claim 1, wherein each metal strip (5) of the mounting arrangement is fastened to the wall (7) or the like vertical surface with a plurality of bolted joints, especially a plurality of screw joints (40), by way of apertures (41) extending through the metal strip, **characterized in that**

- each metal strip (5) has its face with pocket-like recesses, i.e. its discontinuous face (5b), in contact with the wall (7) or the like vertical surface,
- each metal strip (5) has its face (5a), which is turned away from a wall or the like vertical surface, consisting mostly of a continuous metal surface (5a1), and in pocket-like recesses (6) inside each metal strip (5) is accommodated a plurality of permanent magnets (3) for generating a magnetic flux in the metal strip (5) and for attaching a ferritic steel plate (2) to the continuous metal surface (5a1) of said metal strip by means of the magnetic flux, said permanent magnets (3) extending not further than to a surface (5b1) of the metal strip's (5) discontinuous face (5b) turned towards the wall (7), i.e. to a contact surface (5b1, 7) between the metal strip (5) as well as the wall (7) or the like vertical surface,
- one steel plate (2) is supported simultaneously on at least two wall-mounted narrow vertical metal strips (5, 5),
- two adjacent ferritic steel plates (2, 2) are supported on one and the same metal strip (5), i.e. on an intermediate strip (54), by side portions of the steel plates (2, 2)
- the steel plate (2) is in contact with a metal strip/metal strips, the area of whose surface coming to contact with the steel plate (2) is smaller than the steel plate's surface area, preferably not more than 90% of the steel plate's surface area.

12. A mounting arrangement according to claim 11, **characterized in that** the steel plate (2) mounted on the wall (7) or the like vertical surface has not more than 90% of its wall-facing surface (2a) each time in contact with a metal strip, whereby at least 10% of the same steel plate's (2) surface (2b) facing away from the wall or the like vertical surface consists of something that comprises a vacant space between said steel plate's (2) surface (2b) and the wall (7) or other vertical surface.

13. A mounting arrangement according to claim 11 or 12, **characterized in that** the intermediate strips (54), intended for the wall attachment of two adjacent steel plates (2, 2), has the center lines of apertures (41) intended for fasteners (4) located on one or preferably two lines lengthwise of the metal strip.

14. A mounting arrangement according to any of claims 11-13, **characterized in that** the ferritic steel plate (2) has its lower portion supported on the metal strip (5), a part of said metal strip's lower edge (57) having been deflected into what in cross-section is a hook-like member (52) whose free front edge is thereby turned upon the metal strip's (5) continuous face (5a), lying at a distance in the metal strip's vertical direction from said surface (5a1) of the metal strip's continuous face.

15. A mounting arrangement according to any of claims 11-14, **characterized in that** the ferritic steel plate (2) has its upper portion (21) supported on the metal strip (5), wherein on the metal strip's continuous face surface (5a1), at the metal strip's edge, is formed a step-like elbow (51) lengthwise of the strip for supporting a top edge (58) of the steel plate.

16. An attachment system (1) or a mounting arrangement according to any of the preceding claims 1-14, **characterized in that** the ferritic steel plate (2) is a decorative interior panel having formed on its surface a three-dimensional figure by brushing.

17. A mounting arrangement according to claim 11, comprising a kitchen tile revetment which consists of a combination made up by interior design panels (2) of ferritic steel mounted removably on a wall (7) and by an attachment system of claim 1, in which kitchen tile revetment each metal strip (5) is fastened to the wall or the like vertical surface with a plurality of bolted joints, especially a plurality of screw joints (40), by way of apertures (41) extending through the metal strip, **characterized in that**

- each metal strip (5) has its face with pocket-like recesses, i.e. its discontinuous face (5b), in contact with the wall (7) or the like vertical surface,
- each metal strip (5) has its face (5a), which is turned away from a wall or the like vertical surface, consisting mostly of a continuous metal surface (5a1), and in pocket-like recesses (6) inside each metal strip (5) is accommodated a plurality of permanent magnets (3) for generating a magnetic flux in the metal strip (5) and for attaching a ferritic steel plate (2) to the continuous metal surface (5a1) of said metal strip by means of the magnetic flux, said permanent magnets (3) extending not further than to a sur-

face (5b1) of the metal strip's (5) discontinuous face (5b) turned towards the wall (7), i.e. to a contact surface (5b1, 7) between the metal strip as well as the wall (7) or the like vertical surface, 5

- one interior design panel (2) is supported simultaneously on at least two wall-mounted narrow vertical metal strips (5, 5),
- two adjacent ferritic interior design panels (2, 2) are supported on one and the same metal strip (5), i.e. on an intermediate strip (54), by side portions of the steel plates. 10

18. A mounting arrangement according to claim 11, **characterized in that** around the edges of each steel plate (2, 2) extends a metal strip (5), the pockets (6) inside which having permanent magnets (3) accommodated therein. 15
19. Use of an attachment system (1) according to claim 1 for mounting ferritic steel plates (2) removably on a vertical wall. 20

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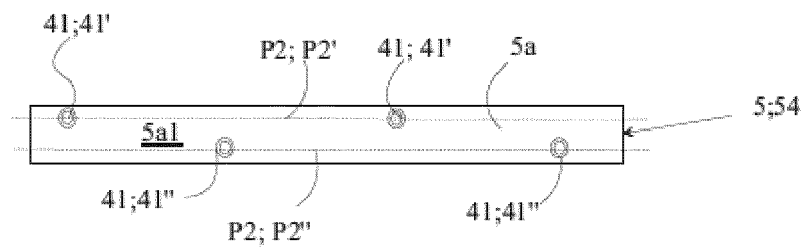


Fig. 1A

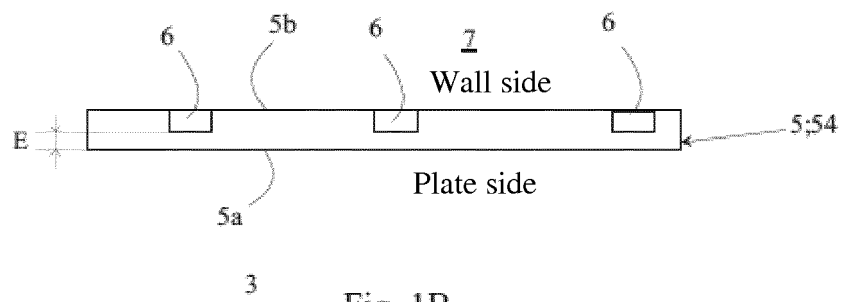


Fig. 1B

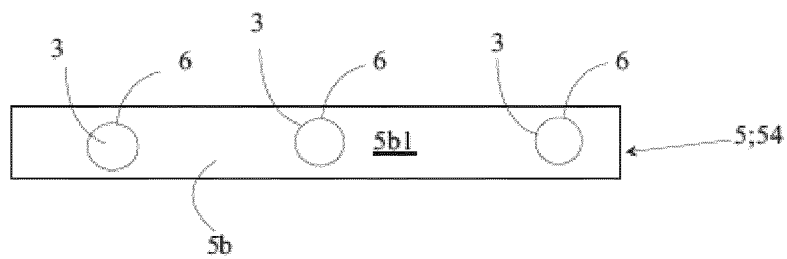


Fig. 1C

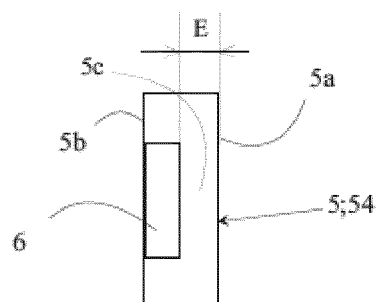


Fig. 1D

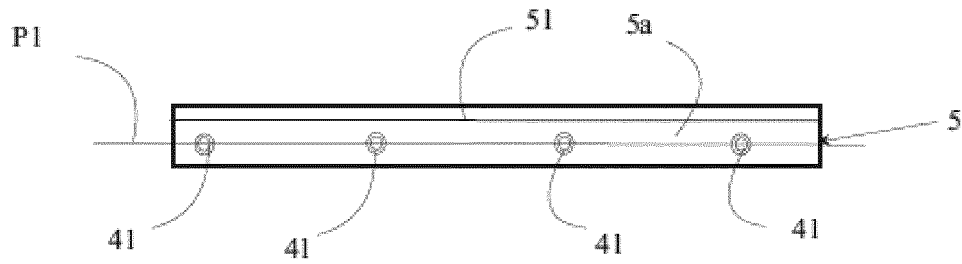


Fig. 2A

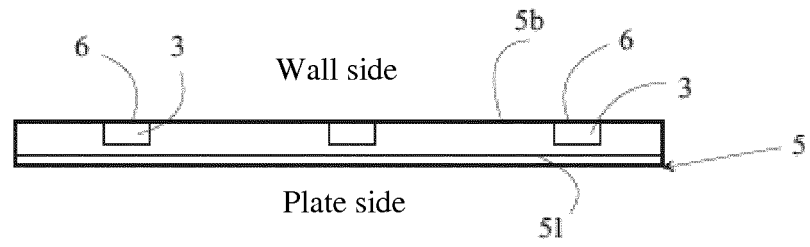


Fig. 2B

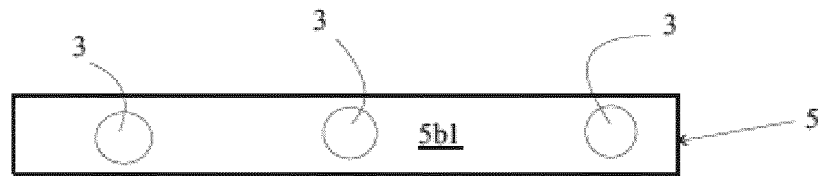


Fig. 2C

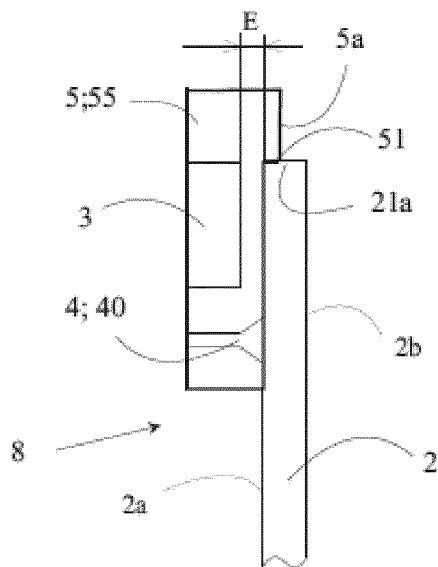


Fig. 2D

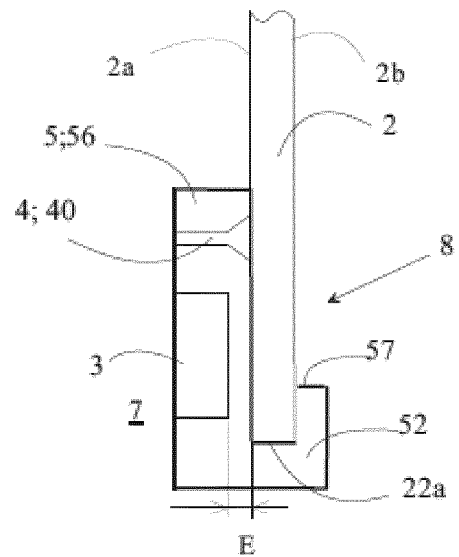


Fig. 2E

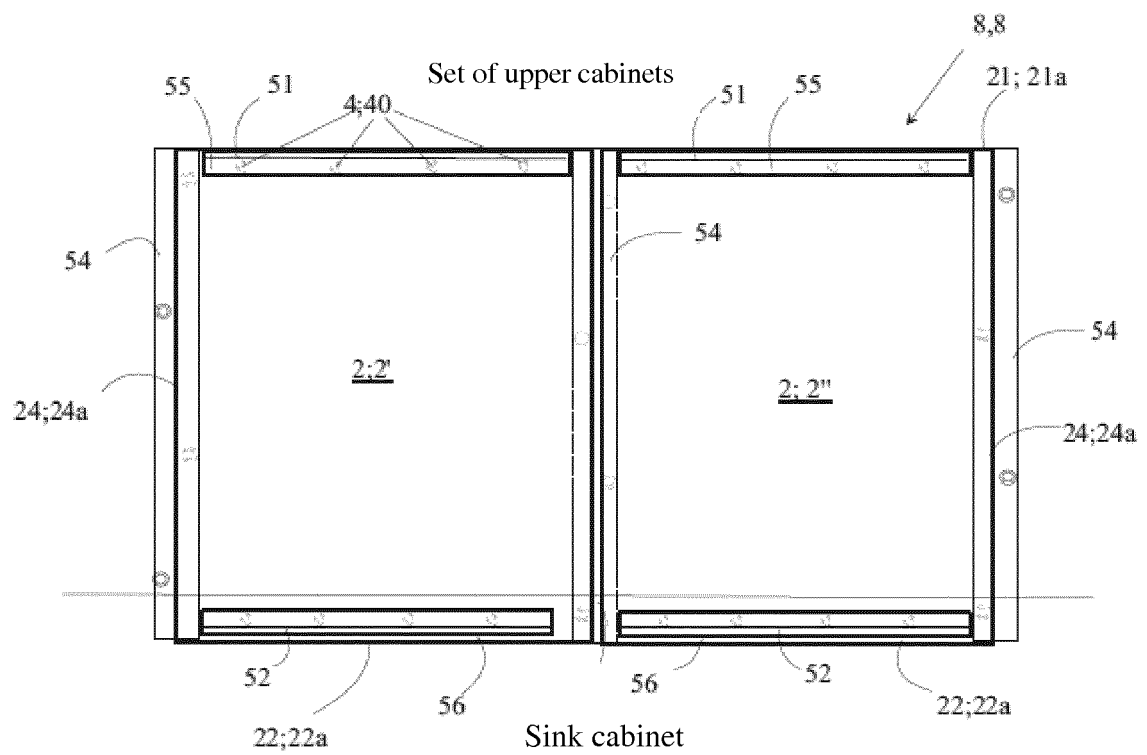


Fig. 3



EUROPEAN SEARCH REPORT

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 EP 16 16 0023

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Y	EP 1 489 241 A1 (SCHNEIDER DAEMMTECHNIK AG [CH]) 22 December 2004 (2004-12-22) * figures 1-3 * * paragraph [0007] * * paragraph [0017] * * paragraph [0020] *	1-19	
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Place of search Munich		Date of completion of the search 30 September 2016	Examiner Estorgues, Marlène
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