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(54) **SCREEN, MAINLY FOR NOISE ATTENUATION**

SCHIRM, INSBESONDERE ZUM LÄRMSCHUTZ

ECRAN, PRINCIPALEMENT POUR L'ATTENUATION DU BRUIT

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(56) References cited:
EP-A- 0 213 521 **US-A- 4 214 411**

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Description

[0001] The present invention relates to a screen, mainly for noise attenuation, as defined in the introduction to claim 1. Such a screen is known from DE-C-32 44 618.

[0002] Such screens are used in for example dense urban environments wherein a high traffic load cannot be avoided and wherein the noise nuisances may cause substantial problems to the people being there or living dose to such trafficked areas.

[0003] Such screens may advantageously be transparent so that they will not block the view or be taken as visual "boundaries" in the urban enrironment. Moreover, for safety reasons for example, the screens may also be made semitransparent. Besides the primary function of noise attenuation, such screens are also suitable for physical screening, for example for increasing traffic safety or for providing shelter.

[0004] According to specification EP-A-0 213 521, an attachment system for mounting a number of glass or plastic plates end to end is known, wherein an intermediate rectangular, vertical steel profile connects and supports two adjacent plates. On one side thereof the steel profile is connected to a clip bar via bolts. In the intermediate area between the profile and the clip bar there are provided two vertically extending U-shaped profiles made of flexible plastic, wherein two adjacent glass plates are wedged. Alternatively, the steel profile may be designed to have an H-shape. The attachment system may advantageously be a component of a noise attenuation screen.

[0005] Patent specification US-A-4 214 411 describes a similar sound barrier wherein a number of vertical, H-shaped profiles each secure two plastic plates. At either end facing the profiles the plates are provided with a bend engaging a vertical round stick secured to the profile. The plates are mounted under a certain stress, and due to the resilience of the plates and the round sticks the structure can absorb changes in temperature and actions of the air so that the plates are more capabable of withstanding these over time. The structure has also been made acoustically proof at its lower end in that the plates are furthermore fixed in a bar facing the ground.

[0006] The above-mentioned attachment systems are intended for a linear erection and require an accurately measured and completely plane base for the shown standard modules just as relatively heavy demands are made on the tolerances of the system, including those of the plates. Mounting of and replacement of individual plates are moreover estimated to require a relatively heavy workload.

[0007] DE 32 44 618 C1 discloses a noise attenuation screen constructed of neighbouring partly overlapping concrete elements which are provided with a protruding side edge (8) which overlap the adjacent plate element, and which are held together by means of clamping bolts (11).

[0008] This system has limited chances of satisfying requirements in connection with the use of screen elements, because the cast side edges are shaped with specific angles. This makes the erection and exchange of the elements fairly complicated and difficult.

[0009] It is the object of the present invention to provide a screen which is built up by a small number of standard components.

[0010] It is moreover a primary object of the screen according to the invention to provide a screen which can 'take up' or be adapted to the curves of the ground, where the screen is to be erected, in a vertical as well as horizontal direction implying among other things that no particularly plane base or nor any particularly demanding preparation of the ground will be required.

[0011] It is furthermore a main object that the screen is capable of withstanding substantial wind loads by a minimum of material consumption.

[0012] These objects have been achieved by designing the screen as disclosed in claim 1.

[0013] The screen as defined according to claims 1 and 2 is moreover advantageous in that vibrations, which are for example generated by wind action, are effectively dampened.

[0014] The invention is moreover advantageous in that the joint member forms a tight seal applying a minimum of parts.

[0015] An advantage obtained by the screen according to the invention is that the suspension is very simple in the sense that the only critical tolerance by the erection of the screening is the fact that the support means should be mainly parallel, which is most simply achieved by ensuring that the support means are erected vertically a certain distance from each other, which, however, may vary by a considerable tolerance.

[0016] It is moreover advantageous that individual screen units are easily replaced without other screen units being affected thereby or requiring adjustment.

[0017] The invention is moreover advantageous in that the mounting means will ensure that the individual screen units are not exposed to adverse stresses by actions of the wind.

[0018] It is moreover advantageous that an extension of the screen units caused by temperature variations are easily absorped by the structure.

[0019] A number of preferred embodiments will be described in the following in greater detail with reference to the drawing from which further advantages will be apparent.

Description of the drawing

[0020]

Fig. 1 is a lateral view of the screen according to the invention in its entirety.

Fig. 2 is a lateral view of the screen according to the

invention from a direction perpendicularly to the one shown in fig. 1.

Fig. 3a is a top view of a section of the screen in fig. 1 comprising a support means, two screen units, mounting means and a first embodiment of a joint member.

Fig. 3 shows another embodiment of a joint member, but otherwise corresponding to fig. 3a.

Figs. 4, 4a, 5 and 6 show details of the mounting means seen laterally of the screen.

Fig. 7 is a side view of the support means secured to a base.

Fig. 8 is a side view of the support means mounted in connection with an edge beam of a bridge and a crash barrier of a bridge.

Description

[0021] The screen according to the invention is based on three main components: A preferably plane screen unit 10 made of glass or plastic; a support means 1, which advantageously consists of an extruded profile, and a set of mounting means 3 - 7, 9 and 9' supporting respective screen units 10 on the support means 1.

[0022] These components will now be described separately and in their mutual relations with particular reference to figs. 1-6.

[0023] The screen according to the invention is erected in such a manner that the individual screen units 10 suspend between the respective support means 1 and in such a manner that the screen units 10 are placed end to end. Furthermore, the individual screen units 10 on the support means 1 are placed in such a manner that the screen units overlap in the horizontal direction of the screen.

[0024] The screen, which therefore basically consists of a number of connected screen units, provides a very high degree of freedom of erection, which is secondary to the prevailing, local conditions. The screen is capable of winding vertically as well as horizontally and of following the curves of the road or the landscape, where it is to be erected, in that the top edge of the individual screen units does not necessarily have to be flush just as two adjacent screen units may be arranged angularly relative to each other seen from above. Besides, there is nothing to prevent the screen from taking a completely linear course.

[0025] At certain points, preferably at each corner, each screen unit 10 is supported by a number of mounting means 3 - 7 in such a manner that each respective support means 1 supports a respective screen unit 10 in at least two points.

[0026] Naturally, also the height of the screen can be adapted to the given conditions. Several screen units of a set standard size may particularly advantageously be connected by means of a number of horizontal fitting strips 9' of for example aluminium, plastic or glass above and in direct continuation of each other. These fitting strips 9' are secured directly to the mounting means 3 - 7.

[0027] The mounting means 3 - 7, by means of which the individual screen units 10 suspend from the support means 1, will be dimensioned to carry a certain load and they will therefore be suitable for carrying one or two screen units 10 of a given standard size.

[0028] The support means 1 consists of an extruded profile describing an oval basic form and having two longitudinal grooves 2 at either side of the profile wherein a number of damping devices 3 can be inserted and be fixedly secured.

[0029] The support means 1 is arranged in such a manner that the long axis of the oval profile is mainly at right angles to the screen units 10. In most applications the support means will have the shape of a column.

[0030] Advantageously, a known aluminium profile complete with damping devices 3 from the firm Alusuisse TM is used. This structure has the advantage, among other things, that the damping devices 3 can be inserted directly into the grooves from a direction perpendicularly to the profile and then be fastened by means of a bolt (not shown). The damping devices can subsequently be slackened and slid up and down for adjustment in the longitudinal direction of the groove.

[0031] Naturally, other materials than aluminium can also be used provided they have a high strength and a low weight.

[0032] The support means is advantageously erected in a vertical position on a concrete base 12, wherein over embedded anchors 15 there is provided an embedded baseplate 13 on which the support means can be secured. See figs. 1, 7 and 8.

[0033] Besides, a strength profile (not shown) can form part of the lower, inner part of the support means for increasing the strength thereof.

[0034] The top of the support means 1 is covered by a cover 11, for example made of plastic or aluminium, preventing penetration of rain water and dirt into the profile. Also the bottom of the profile may be provided with a cover, as shown in fig. 8.

[0035] The preferred structure of the support means 1 shown in the drawing may be exposed to noticeable deflections by full wind load. It is therefore particularly advantageous that the mentioned support at certain points of the individual screen units 10 does not result in any fonred deformation thereof caused by the deflection of the support means.

[0036] Moreover, the individual screen units 10 will not interact in the lateral direction of the screen, whereby expansions due to changes in temperature will occur freely and thus not give rise to any problems.

[0037] The mounting means 3 - 7, which will now be

further described with particular reference to figs. 3 - 6, are of two types:

[0038] The first type of mounting means comprises, apart from the mentioned clamping device 3, a short connecting piece 4 which is interconnected to an insert fitting 6, which engages a fitting strip 9, 9' gripping the edge of a screen unit 10. The insert fitting 6 is provided with a groove 2 wherein the connecting piece 4 may rotate. This allows the screen unit 10 to be rotated about an axis which is parallel to the support means 1, prior to its final attachment.

[0039] The second type of mounting means is built up by a longer connecting piece 5 which is hinged to an arm 7, which again is connected to a mounting means 6 of the same type as mentioned above and which is likewise connected to a fitting strip 9, 9'.

[0040] The second type of mounting means allows the thus supported screen unit 10 to be rotated about two different axes, which are parallel to the support means 1, and to be slideable in a plane perpendicularly to the support means 1.

[0041] By the connecting pieces 4, 5 the two types of mounting means are attached to the clamping devices 3 within the two diametrically opposite grooves 2 in the support means allowing them to be slid upwards or downwards, and each mounting means supports one of two adjacent screen units 10.

[0042] The mounting means are advantageously cast in aluminium.

[0043] As shown in figs. 4 and 4a, the fitting strip 9 placed at the top of the support means is a short strip. This strip may, if desired, be cast, whereas the fitting strip 9' consists of a longer, for example extruded strip with an H- shaped cross-section. The fitting strip 9' will appear from figs. 3 and 3a.

[0044] Each screen unit 10 will in its most simple and cheap design be plane and rectangular and will advantageously be made of glass, for example having a thickness of 8 mm, corresponding to a mass of about 20 kg/m2, meaning that the sound penetration through the screen may be considered imperceptible relative to the sound which is spread across the screen. In tests with screen units of this weight composed into a screen of a height of 3 m, measurements show that a soundproofing of about 8 dB is achieved.

[0045] It is possible to use other materials than glass for the screen units. Where there is for example a risk of damages and screen units falling down, plastic or hardened laminate glass may be applied.

[0046] Although transparent noise attenuation screens will normally be preferable, there is nothing to prevent them from functioning as a visual screen, where this is desirable, just as it may be desirable to reduce reflections from the screen. Screen units made of glass may therefore be provided with silk screen printing in a pattern giving the desired degree of transparency.

[0047] For tightening the spaces which appear between the adjacent screen units 10 overlapping each other in the horizontal direction of the screen, each individual screen unit 10 is provided with a joint member 8, 8' consisting of an elastomer or rubber and placed close to and along a side edge of the respective adjacent screen units.

[0048] A first embodiment of the joint member 8', shown in fig. 3a, is for example glued directly onto the screen unit and protrudes from the screen unit at an angle which advantageously is within the range of 25' to 75' such that when mounted against an adjacent screen unit, the joint member 8' will always bend to the same side, and such that the member can be attached under a suitable stress. If desired, the joint member 8' may describe a slightly arched profile.

[0049] The joint member 8' will form an integral part of the screen unit 10, which contributes to rendering the mounting of the screen as well as replacement of individual screen units extremely simple.

[0050] At the places where the joint member intersects the fitting strips 9', there may be provided a notch by a suitable cutting in the joint member.

[0051] A wave-shaped joint member 8 is shown in the embodiment in fig. 3a.

[0052] This joint member 8 is secured at the end of the fitting strips 9 of two respective adjacent screen units, for example by being screwed into same. Furthermore, the joint member 8 may be glued onto the screen units 10 after the mounting of the screen units on the support means.

[0053] As will appear from fig. 3, the screen units are suspended asymmetrically relative to each of the support means in that the two adjacent screens are laterally staggered relative to the support means. The screens are situated on one side of the support means 1 at an inclined angle to the support means viewed from above.

[0054] This asymmetrical placing of the screen units 10, the intermediate flexible joint member 8, 8' and the placing of the support means 1 with its longest axis of the oval cross-section mainly perpendicularly to the screen units 10 contribute to effectively dampening vibrations, which may occur by a heavy wind load on the screen.

[0055] The two-sided load of the support means 1 is also advantageous in that it is thereby loaded more evenly.

[0056] Apart from the above-mentioned inner strengthening, the strength of the support means may be increased by attaching an outer stiffening member, which is easily secured to the profile by means of the mentioned damping device 3 within a location groove 2.

[0057] Such an outer stiffening member (not shown) may extend at an inclined angle from the support means to a position on for example the base at a certain lateral distance from the support means, just as it may be secured to objects, including buildings, by means of suitable fittings.

[0058] Fig. 7 shows an example of how the screen according to the invention may be mounted on a concrete

base.

[0059] The attachment takes place by means of a baseplate 13, which is reinforced by a so-called RHS-profile. The baseplate is secured to the top of the concrete base, which ensures that the screen will withstand even heavy moment loads. By boring holes for the anchors 15 in the concrete 12 there may for example be used a template which is arranged in the desired position. This will ensure the mutual, correct placing of the holes and the correct erection of the support means relative to the entire row of support means.

[0060] Below the lower screen unit 10 there is shown an acoustic closing plate 16, which may consist of glass or plastic and which is lowered into the underlying bed. This plate may also consist of other easily worked materials.

[0061] For considerations of space and sound it will be advantageous to erect the screen close to the roadway itself. In fig. 8 the support means 1 is secured to a bracket 19, which in its turn is secured to a crash barrier or an edge of a bridge 18. The crash barrier is provided with an upper part 14.

[0062] In this embodiment there is also mounted an acoustic closing plate 17, which can be bent, and which may for example consist of aluminium.

[0063] It will also be possible, however, to secure screen and crash barrier separately, which will reduce damages to the screen by collisions and reduce repair costs following such collisions.

[0064] The noise attenuation screen may also have its foundation on members which are driven into the underlying bed. As an example, there may be used hot galvanized, so-called IPE- profiles, which are provided with a top plate having oblong bolt holes. The support means with a baseplate can be mounted thereon within an adequate tolerance.

[0065] The noise attenuation screen according to the invention is not only limited to mounting on columnar profiles in that also shorter profiles with vertical grooves mounted on buildings, for example, may be applicable.

Reference numerals

[0066]

1 support means
2 groove
3 clamping device
4 short connecting piece
5 long connecting piece
6 insert fitting
7 arm
8 bellows-shaped joint member
8' arched joint member
9 extruded fitting strip with end plug
9' cast fitting strip
10 screen unit
11 cover
12 concrete base
13 baseplate
14 upper crash barrier
15 anchor (foundation iron)
16 acoustic closing plate facing ground
17 acoustic closing plate facing edge of bridge
18 edge of bridge (lower crash barrier)
19 bracket

Claims

1. Screen, mainly for erection by roadsides for noise attenuation, comprising

a number of screen units (10) arranged end to end,

a number of support means (1) each comprising mounting means (3 - 7, 9, 9') whereby at least one and preferably two successive screen units (10) can be secured relative to a base,

that the support means (1) and the mounting means (3 - 7, 9, 9') are designed in such a manner that two successive screen units (10) are mounted such that they overlap,

at least one elastic joint member (8, 8') for tightening the space between two adjacent screen units (10), and situated within the zone defined by the overlapping screen units (10),

characterised in that the mounting means (3 - 7, 9, 9') comprise a first set of mounting fittings (3, 4, 6) connecting to a first screen unit (10) and a second set of mounting fittings (3, 5, 6, 7) connecting to an adjacent screen unit (10), whereby at least one of the two sets of mounting fittings (3, 4, 6; 3, 5, 6, 7) are adjustable in such a manner that the screen can be fixedly secured in a number of different positrons relative to the support means (1).

2. Screen according to claim 1, **characterised in that**

the number of positions wherein the screen unit (10) is adjustable before being fixedly secured comprises a vertical sliding movement of the screen unit and a horizontal sliding movement and

a rotation about an axis situated parallel to a vertical side edge of the screen unit (10)

such that the side edges of two adjacent screen units (10) are slideable in three directions and can be fumed relative to each other and such that the overlap as well as the space between

two adjacent screen units are adjustable.

3. Screen according to claims 1 and 2, **characterised in that**

the support means (1) is columnar and designed for being mounted substantially parallel to the adjacent support means (1) and preferably vertically,

both mounting fittings (3, 4, 6; 3, 5, 6, 7) are slideable parallel to and along the support means (1),

a fitting strip (9, 9'), which is fixedly secured to the screen unit (10) and which permits the screen unit to slide horizontally, is connected to both mounting fittings (3, 4, 6; 3, 5, 6, 7).

4. Screen according to claims 1-3, **characterised in that**

the first set of mounting fittings (3, 4, 6) permits the screen unit to turn about a vertical axis, that

the second set of mounting fittings (3, 5, 6, 7) further comprises an intermediate arm (7) forming a connection to an adjacent screen unit (10), whereby said adjacent screen unit may turn about two axes parallel to, but not coinciding with the support means (1).

5. Screen according to claims 1-4, **characterised in that** the support means (1) is designed as a profile provided with a number of longitudinal grooves (2) wherein the first (4) and the second mounting fitting (5) are secured in different grooves for distributing the load on the support means.

6. Screen according to claims 1-5, **characterised in that** a screen unit (10) consists of a mainly plane glass plate.

Patentansprüche

1. Schutzwand, hauptsächlich zum Errichten an Straßenrändern zur Geräuschminderung, umfassend

eine Anzahl von mit den Enden aneinander angeordneten Schutzwand-Einheiten (10),

eine Anzahl von Stützmitteln (1), von denen jedes Befestigungsmittel (3-7, 9, 9') umfasst, wodurch wenigstens eine und vorzugsweise zwei aufeinanderfolgende Schutzwand-Einheiten (10) bezüglich einer Unterlage befestigt werden können,

wobei die Stützmittel (1) und die Befestigungsmittel (3-7, 9, 9') so gestaltet sind, dass zwei aufeinanderfolgende Schutzwand-Einheiten (10) derart angebracht sind, dass sie überlappen,

wenigstens ein elastisches Fugenmittel (8, 8') zum Abdichten des Zwischenraumes zwischen zwei benachbarten Schutzwand-Einheiten (10) und innerhalb des durch die überlappenden Schutzwand-Einheiten (10) definierten Bereiches gelegen,

dadurch gekennzeichnet, dass die Befestigungsmittel (3-7, 9, 9') einen ersten Satz von Befestigungsstücken (3, 4, 6) zur Verbindung mit einer ersten Schutzwand-Einheit (10) und einen zweiten Satz von Befestigungsstücken (3, 5, 6, 7) zur Verbindung mit einer benachbarten Schutzwand-Einheit (10) umfassen, wodurch wenigstens einer der zwei Sätze von Befestigungsstücken (3, 4, 6; 3, 5, 6, 7) derart einstellbar ist, dass die Schutzwand starr in einer Anzahl von unterschiedlichen Positionen bezüglich der Stützmittel (1) befestigt werden kann.

2. Schutzwand gemäß Anspruch 1, **dadurch gekennzeichnet, dass**

die Anzahl der Positionen, in denen die Schutzwand-Einheit (10) bevor sie starr befestigt ist einstellbar ist, eine vertikale Verschiebebewegung der Schutzwand-Einheit und eine horizontale Verschiebebewegung und eine Drehung um eine parallel zu einer vertikalen Seitenkante der Schutzwand-Einheit (10) gelegene Achse umfasst,

sodass die Seitenkanten von zwei benachbarten Schutzwand-Einheiten (10) in drei Richtungen verschiebbar sind und relativ zueinander gedreht werden können und dass sowohl die Überlappung als auch der Raum zwischen zwei benachbarten Schutzwand-Einheiten einstellbar ist.

3. Schutzwand gemäß den Ansprüchen 1 und 2, **dadurch gekennzeichnet, dass**

das Stützmittel (1) säulenartig ist und zu einer Befestigung im Wesentlichen parallel zu dem benachbarten Stützmittel (1) und vorzugsweise vertikal gestaltet ist,

beide Befestigungsstücke (3, 4, 6; 3, 5, 6, 7) parallel zu dem und entlang des Stützmittels (1) verschiebbar sind,

eine Ansatzleiste (9, 9'), die starr an der Schutzwand-Einheit (10) befestigt ist und eine horizontale Verschiebung der Schutzwand-Einheit

ermöglicht, mit beiden Befestigungsstücken (3, 4, 6; 3, 5, 6, 7) verbunden ist.

4. Schutzwand gemäß den Ansprüchen 1-3, **dadurch gekennzeichnet, dass**

der erste Satz von Befestigungsstücken (3, 4, 6), eine Drehung der Schutzwand-Einheit um eine vertikale Achse erlaubt, dass

der zweite Satz von Befestigungsstücken (3, 5, 6, 7) ferner einen Zwischenarm (7) umfasst, der eine Verbindung mit einer angrenzenden Schutzwand-Einheit (10) bildet, wodurch die angrenzende Schutzwand-Einheit um zwei zu dem Stützmittel (1) parallele, aber nicht damit übereinstimmende Achsen drehbar ist.

5. Schutzwand gemäß den Ansprüchen 1-4, **dadurch gekennzeichnet, dass**

das Stützmittel (1) als ein mit einer Anzahl von Längsnuten (2) versehenes Profil ausgeführt ist, wobei das erste (4) und das zweite Befestigungsstück (5) in unterschiedlichen Nuten zur Verteilung der Last auf das Stützmittel befestigt sind.

6. Schutzwand gemäß den Ansprüchen 1-5, **dadurch gekennzeichnet, dass**

eine Schutzwand-Einheit (10) aus einer im Wesentlichen ebenen Glasplatte besteht.

Revendications

1. Ecran, essentiellement destiné à être dressé sur les bordures de route pour l'atténuation du bruit, comprenant

un certain nombre d'unités d'écran (10) placées bout à bout,
un certain nombre de dispositifs de support (1) comprenant chacun un dispositif de montage (3-7, 9, 9') de manière qu'au moins une et de préférence deux unités successives d'écran (10) puissent être fixées par rapport à une base,
le dispositif de support (1) et le dispositif de montage (3-7, 9,9') sont réalisés de manière que deux unités successives d'écran (10) soient montées de sorte qu'elles se recouvrent, et
un organe de joint élastique au moins (8, 8') destiné à serrer l'espace compris entre deux unités adjacentes d'écran (10) est disposé dans la zone délimitée par les unités d'écran qui se recouvrent (10),

caractérisé en ce que le dispositif de montage (3-7, 9, 9') comprend un premier ensemble d'embouts de montage (3, 4, 6) qui se raccordent à une première unité d'écran (10) et un second ensemble d'embouts de montage (3, 5, 6, 7) qui se raccordent à une unité adjacente d'écran (10), de manière que l'un au moins des deux ensembles d'embouts de montage (3, 4, 6 ; 3, 5, 6, 7) soit réglable et que l'écran puisse être fermement fixé à un certain nombre de positions différentes par rapport au dispositif de support (1).

2. Ecran selon la revendication 1, **caractérisé en ce que**

le nombre de positions auxquelles l'unité d'écran (10) est réglable avant d'être fixée fermement donne un mouvement de coulissement vertical de l'unité d'écran et un mouvement de coulissement horizontal, et
une rotation autour d'un axe parallèle à un bord latéral vertical de l'unité d'écran (10),

si bien que les bords latéraux de deux unités d'écran adjacentes (10) peuvent coulisser dans trois directions et peuvent être tournés l'un par rapport à l'autre et de manière que le recouvrement ainsi que l'espacement de deux unités d'écran adjacentes soit réglable.

3. Ecran selon les revendications 1 et 2, **caractérisé en ce que**

le dispositif de support (1) est colonnaire et réalisé afin gu'il soit monté en direction pratiquement parallèle au dispositif adjacent de support (1) et de préférence verticalement,
les embouts de montage (3, 4, 6 ; 3, 5, 6, 7) sont tous deux coulissants en direction parallèle au dispositif de support (1) et le long de celui-ci, et
une bande de montage (9, 9'), fermement fixée à l'unité d'écran (10) et qui permet un coulissement horizontal de l'unité d'écran, est raccordée aux deux embouts de montage (3, 4, 6 ; 3, 5, 6, 7).

4. Ecran selon les revendications 1 à 3, **caractérisé en ce que**

le premier ensemble d'embouts de montage (3, 4, 6) permet à l'unité d'écran de tourner autour d'un axe vertical, et
le second ensemble d'embouts de montage (3, 5, 6, 7) comporte en outre un bras intermédiaire (7) formant un raccord avec une unité adjacen-

te d'écran (10), si bien que l'unité adjacente d'écran peut tourner autour de deux axes parallèles au dispositif de support (1) mais ne coïncidant pas avec lui.

5. Ecran selon les revendications 1 à 4, **caractérisé en ce que** le dispositif de support (1) est réalisé sous forme d'un profilé ayant un certain nombre de gorges longitudinales (2), et tel que le premier (4) et le second (5) embout de montage sont fixés dans des gorges différentes pour la distribution de la charge sur le dispositif de support.

6. Ecran selon les revendications 1 à 5, **caractérisé en ce que** l'unité d'écran (10) est constituée d'une plaque de verre essentiellement plane.

Fig.1a

Fig.2

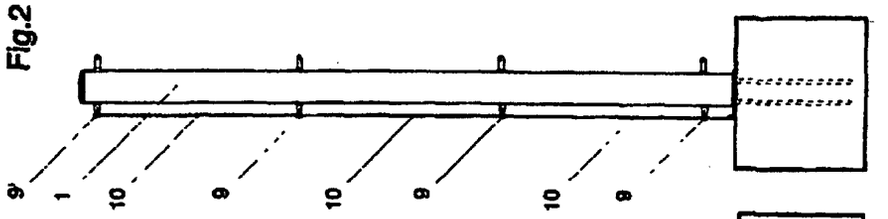
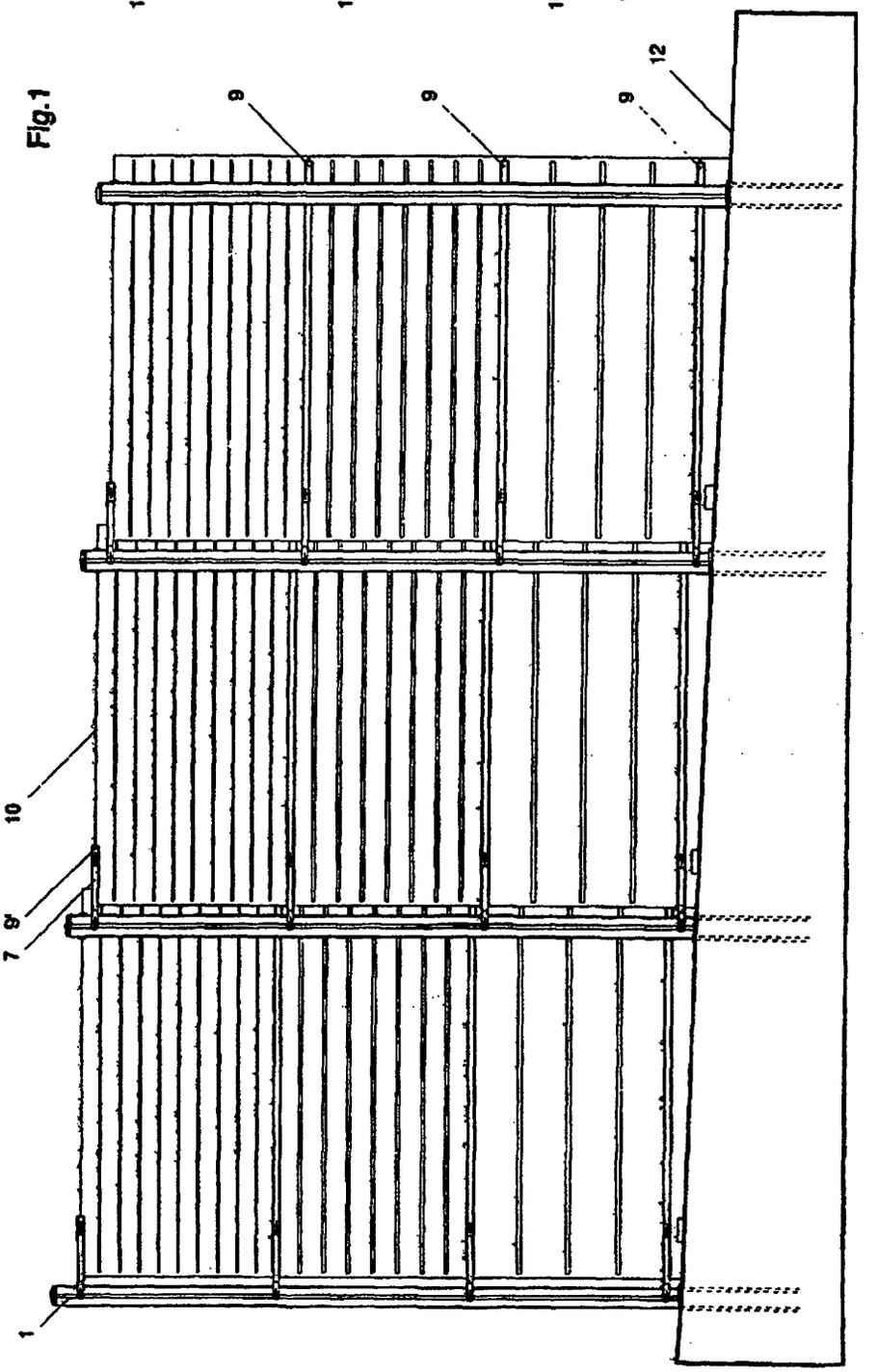


Fig.1



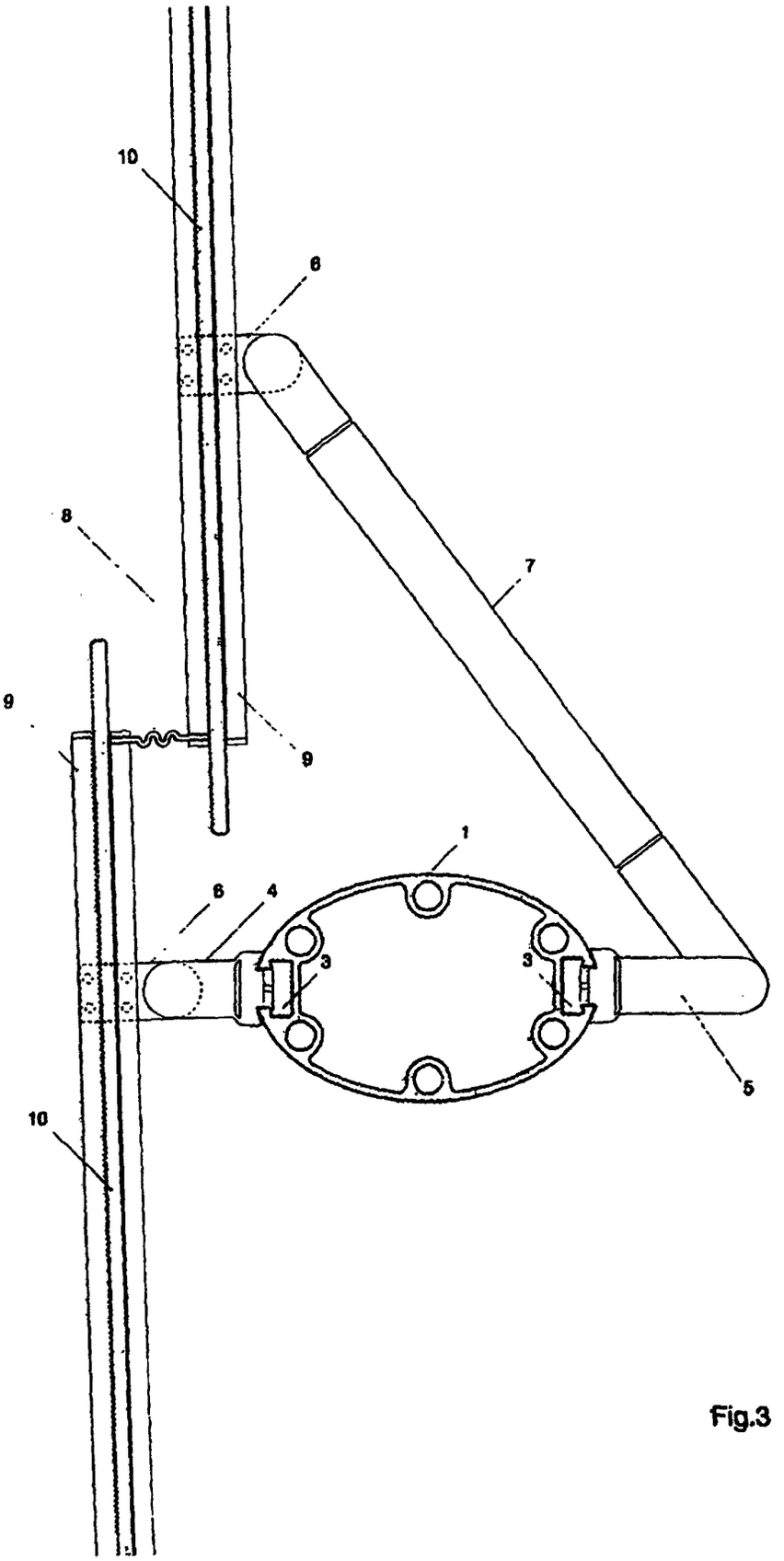


Fig.3

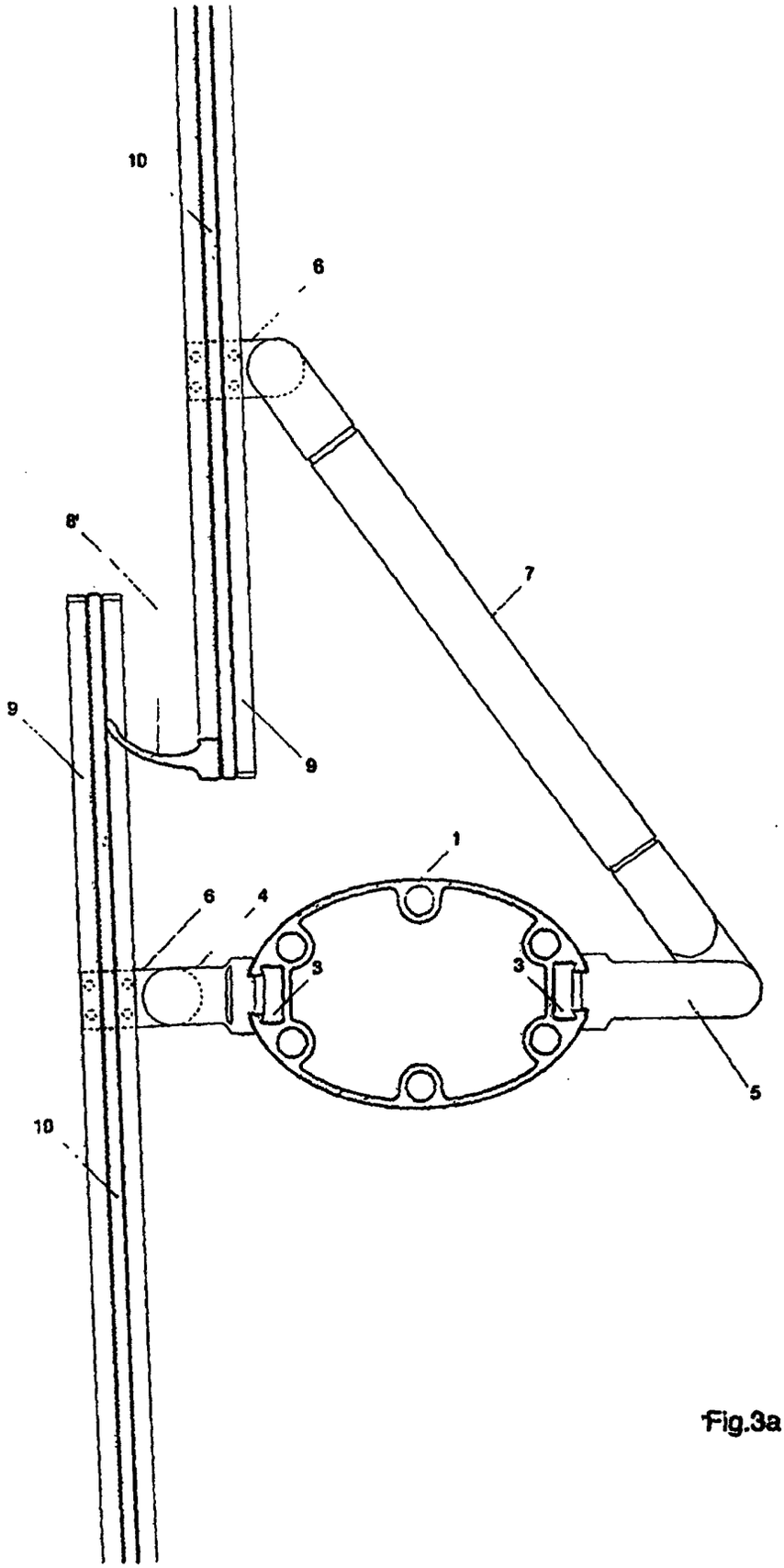


Fig.3a

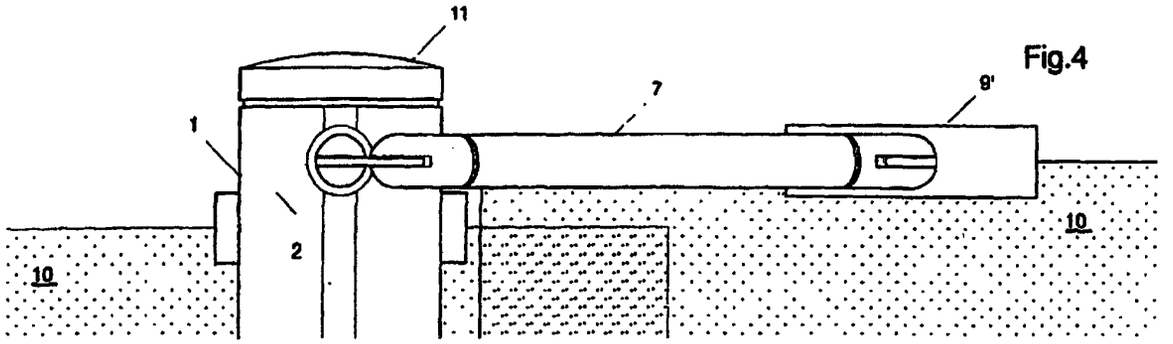


Fig.4

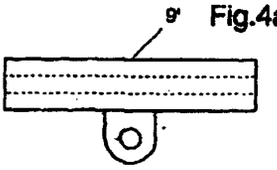


Fig.4a

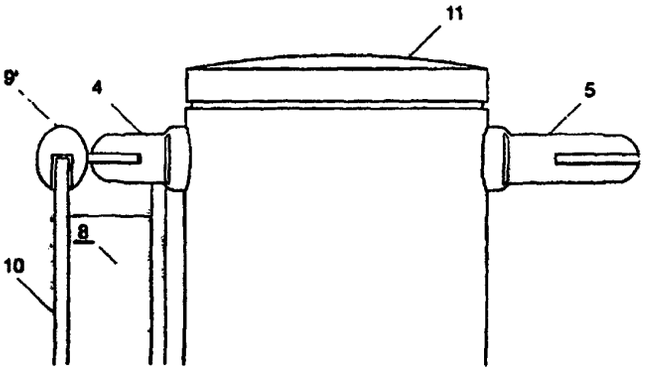


Fig.5

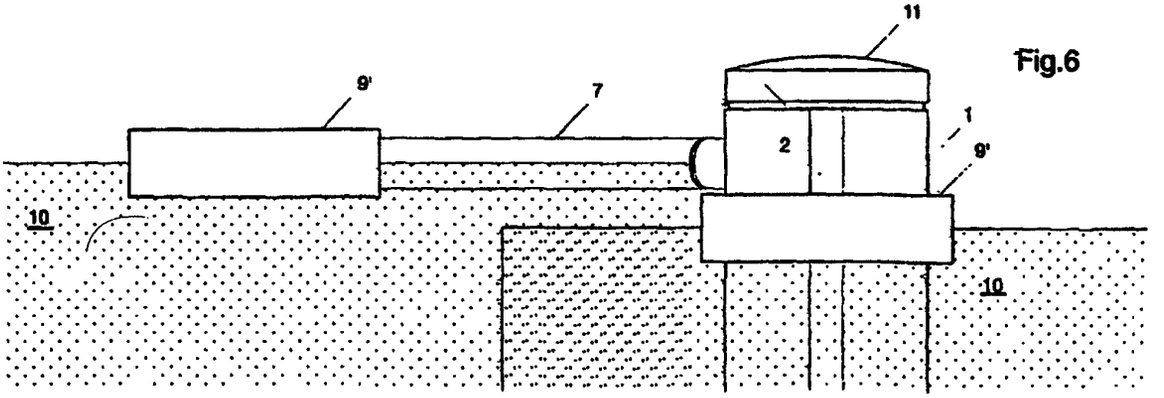


Fig.6

Fig.7

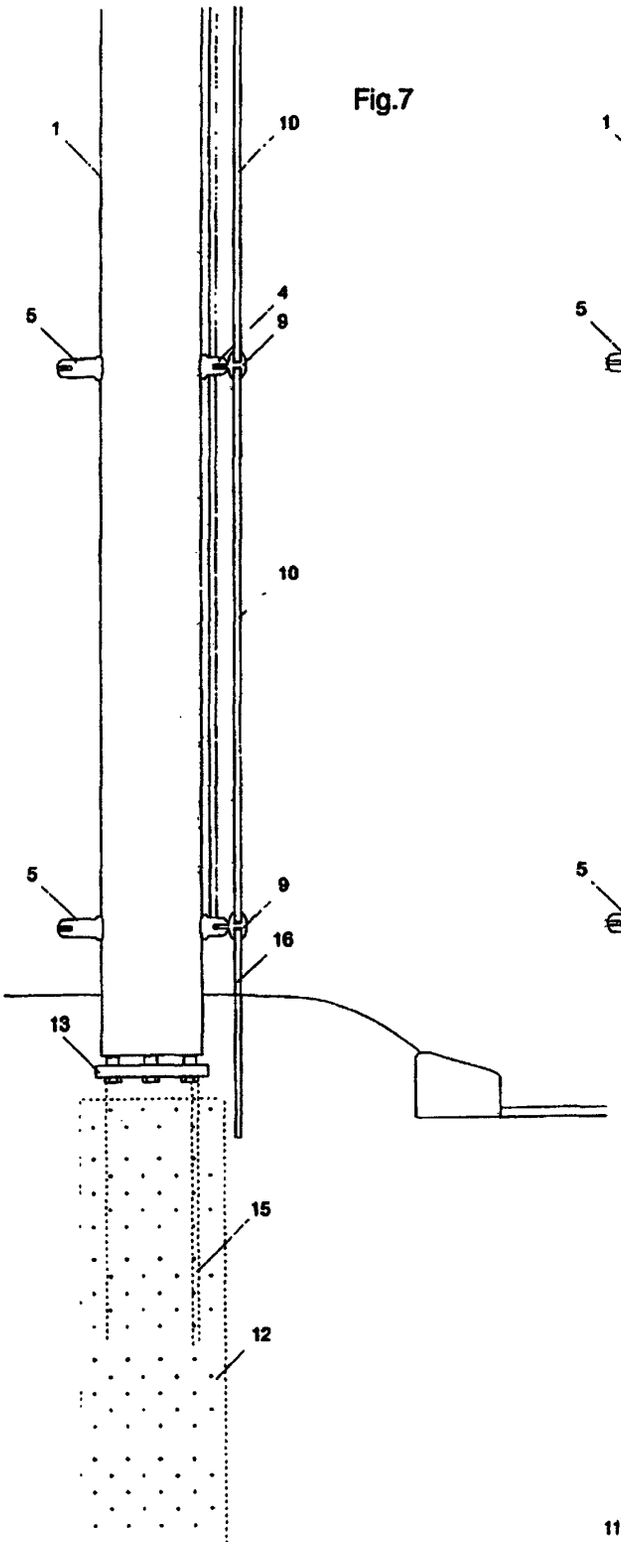


Fig.8