

Street ironwork having a frame and at least one covering element having limited movement within said frame

The present invention relates to a street ironwork, as well as a frame and a covering element for such a device.

It may be applied non-limitingly to a device for closing inspection manholes for underground networks, such as a street manhole or a storm drain crown device with at least one street grate.

Such street devices include a frame and at least one covering element arranged in the frame.

This frame includes a straight peripheral wall running with play along all or part of the adjacent edges of the covering element that rests on an inner bearing wall secured to the frame perpendicular to the straight peripheral wall.

In the closed position, each covering element can move in relation to the frame, in particular when that element is subject to intense moving loads in particular consisting of motor vehicles.

Under these conditions, the movement of each covering element relative to the frame may cause an edge of the covering element to collide with the adjacent straight peripheral wall portion of the frame, causing noise annoyance.

This problem of noise annoyance may be worsened when each covering element is made up of two lids or grates in the shape of right angled triangles mounted in the frame so that the hypotenuses of those two triangles are adjacent to one another. In fact, the intense moving loads circulating on these two triangular lids or grates also cause these two covering elements to move relative to one another while making the two hypotenuse sides thereof collide with one another.

The present invention aims to offset the aforementioned drawbacks by proposing a street ironwork designed so as to reduce, or even eliminate, the noise annoyance resulting from

intense moving loads circulating on one or more covering elements for closing a frame of the street ironwork.

To that end, according to the invention, the street ironwork has a frame and at least one covering element within
5 said frame comprising a straight peripheral wall portion running along at least one adjacent edge of the covering element with play and an inner bearing wall of the covering element perpendicular to the straight peripheral wall, and which is characterized in that the portion of the inner
10 bearing wall situated along the straight wall portion running along the adjacent edge of the covering element comprises at least one stud made of an elastomer material secured to the upper surface of the bearing wall portion, perpendicular to the latter, and which is inserted in a recess of the covering
15 element connected to the adjacent edge of said element and opposite the straight wall portion so as to constitute an abutment for limiting the movement of the covering element towards the straight wall portion when the covering element is subjected to intense moving loads.

20 Preferably, the inner bearing wall portion comprises two studs made from an elastomer material secured to the upper surface of the bearing wall portion perpendicular thereto while being spaced apart from one another and which are respectively inserted in two spaced recesses of the covering
25 element emerging from the adjacent edge of that element and opposite the corresponding straight wall portion to constitute two abutments for limiting the movement of the covering element towards the straight wall when the covering element is subjected to intense moving loads.

30 Advantageously, each stud inserted in a corresponding recess of the covering element also constitutes an abutment for limiting the displacement of the covering element in a direction substantially parallel to the straight wall portion opposite the edge of the covering element when the covering
35 element is subjected to intense moving loads in a direction

substantially perpendicular to that of the moving loads causing the movement of the covering element toward the straight wall portion.

Each covering element can be made up of a lid or grate in the shape of a right angled triangle.

The street ironwork can comprise a second covering element made up of a lid or grate in the shape of a right angled triangle and arranged in the frame while having its hypotenuse adjacent to the hypotenuse of the first covering element, the edge of the second covering element opposite the edge of the first covering element being bordered with play by a portion of the straight peripheral wall of the frame opposite and parallel to the straight wall portion opposite the edge of the first covering element, and the inner wall portion of the frame serving as bearing for the edge of the second covering element includes two studs made from an elastomer material secured to the upper surface of said inner bearing wall portion perpendicular thereto while being spaced apart from one another and which are respectively inserted in two spaced recesses of the second covering element emerging in the edge of said second element across from the opposite straight wall portion to constitute two abutments for limiting the displacement of the second covering element toward the opposite straight wall portion when the second covering element is subjected to intense moving loads.

Each stud inserted in its corresponding recess of the second covering element also constitutes an abutment for limiting the displacement of the second covering element in a direction substantially parallel to the straight wall portion across from the edge of the second covering element when said covering element is subjected to intense moving loads in a direction substantially perpendicular to that of the moving loads causing the second covering element to move toward the opposite straight wall portion.

According to one alternative embodiment, the covering element is a square or rectangular lid or grate whereof the edge opposite the other aforementioned edge is bordered with play by a straight peripheral wall portion of the opposite frame and parallel to the straight wall portion facing the other edge of the covering element, and the inner wall portion of the frame serving as a bearing for the opposite edge of the covering element includes two studs made from an elastomer material secured to the upper surface of said inner bearing wall portion perpendicular thereto while being spaced apart from one another and which are respectively inserted in two spaced recesses of the covering element emerging from the edge of that element and opposite the corresponding straight wall portion to constitute two abutments for limiting the displacement of the covering element toward the corresponding straight wall portion and parallel thereto when the covering element is subjected to intense moving loads.

Preferably, each abutment stud is made up of a cylindrical sleeve secured on the upper surface of the corresponding inner bearing wall portion by a bolt, the screw of which passes through said bearing wall portion and the sleeve.

The sleeve is secured bearing on an upside down U-shaped piece secured to the upper surface of the inner bearing wall portion of the frame, the core of the upside down U of the piece being passed through by the bolt, which is secured to the inner bearing wall portion by a nut housed in the upside down U of the piece screwed to the bolt so as to block the head of the bolt axially at the lower surface of the inner bearing portion.

Preferably, each abutment stud has a base of polychloroprene.

Advantageously, each abutment stud is housed in the corresponding recess of the covering element with play smaller

than the play between each straight peripheral wall portion and the adjacent edge of the covering element.

Each recess of a covering element is cast.

When the street ironwork is provided with two covering
5 elements in the shape of right angled triangles, the latter
are twinned to one another by at least one bolt, the screw of
which passes through two parallel webs secured to the inner
surfaces of the two elements perpendicular thereto and a
cylindrical sleeve made from a plastic material mounted
10 coaxially to the screw of the bolt between the two webs.

Advantageously, the sleeve bears by the ends thereof on
the two inner surfaces opposite one another of the two webs
respectively by means of two washers made from an elastomer.

The screw head of the bolt and the nut of the bolt bear
15 on the two opposite outer surfaces of the two webs
respectively by means of two washers made from an elastomer.

Preferably, the sleeve is of the polyamide type, such as
nylon, and each washer has a base of polychloroprene.

The frame is rectangular and made up of two beams and two
20 crosspieces each having at least one L shape in transverse
section.

The invention also relates to a frame for a street
ironwork, including a straight peripheral wall and an inner
wall intended to serve as a bearing for at least one covering
25 element and perpendicular to the straight wall, and which is
characterized in that at least one portion of the inner
bearing wall includes at least one stud made from an elastomer
material fastened on the upper surface of the bearing wall
portion perpendicular thereto.

30 Preferably, each stud is made up of a cylindrical sleeve
fastened on the upper surface of the inner bearing wall
portion by a bolt, the screw of which passes through said
bearing wall portion and the sleeve.

The sleeve is fastened bearing on an upside down U-shaped
35 piece secured to the upper surface of the inner bearing wall

portion of the frame, the core of the upside down U of the piece being passed through by the bolt, which is fastened to the inner bearing wall portion by a nut housed in the upside down U of the piece screwed to the bolt so as to axially block
5 the bolt head at the lower surface of the inner bearing portion.

Preferably, the stud has a base of polychloroprene.

Lastly, the invention relates to a covering element for a street ironwork and which is characterized in that at least
10 one of its edges includes at least one cast recess emerging from the edge toward the outside and which is intended to receive an abutment stud made from an elastomer material secured to a wall of a frame of the street ironwork and serving as bearing for that element.

15 The invention will be better understood, and other aims, features, details, and advantages thereof will appear more clearly in the following explanatory description in reference to the appended drawings, provided solely as an example illustrating one embodiment of the invention, and in which:

20 - figure 1 is a top perspective view of the street ironwork to which the invention applies;

- figure 2 is a top view of the street ironwork of figure 1;

25 - figure 3 is a top view similar to that of figure 2 where two covering elements of the street ironwork have been removed;

- figured 4 is a cross-sectional view along line IV-IV of figure 2;

30 - figured 5 is an enlarged view of the circled portion marked V of figure 4;

- figure 6 is a cross-sectional view along line VI-VI of figure 2;

- figure 7 is an enlarged view of the circled part marked VII of figure 6;

- figure 8 is an enlarged partial perspective view along arrow VIII of figure 3;

- figure 9 is an enlarged partial perspective view along arrow IX of figure 3;

5 - figure 10 is a bottom perspective view of the covering element that can be housed in a corresponding portion of the frame of the street ironwork;

- figure 11 is an enlarged view of the circled portion marked XI of figure 10;

10 - figure 12 is a bottom perspective view of a covering element according to the invention; and

- figure 13 is a cross-sectional view along line XIII-XIII of figure 3.

15 In reference to the figures, reference 1 designates the street ironwork including a rectangular frame 2 and four covering elements 3, 4, 5, 6 that may be positioned in the frame 2 as shown in most of the figures to close the opening of said frame providing access to and access or inspection manhole of an underground network.

20 In the present case, the covering elements 3-6 are each made up of a lid in the shape of a right angled triangle so that in the closing position of the frame thereof, the hypotenuses 3a, 4a of the two adjacent covering elements 3, 4 are adjacent to one another, and the hypotenuse edges 5a, 6a
25 of the other two adjacent covering elements 5, 6 are adjacent to one another. The covering elements 3 to 6 are also positioned in the frame so that the two covering elements 4, 5 are adjacent by two of their respective straight edges 4b, 5b and their other respective straight edges 4c and 5c adjacent
30 to the edges 4b, 5b are positioned respectively opposite the two parallel and opposite beams 7, 8 of the frame 2. The respective straight edges 3b, 6b of the opposite covering elements 3, 6 are respectively positioned opposite two crosspieces 9, 10 of the frame 2 fastened to the ends of the
35 two beams 7, 8, and the other two respective straight edges

3c, 6c thereof are adjacent to the edges 3b, 6b respectively positioned facing the two beams 8, 7.

Each of the triangular covering elements 3, 4, 5, 6 comprises a plurality of cells 11 in which a filler material
5 can be inserted.

As an example, the triangular covering elements can be made from a casting like the frame 2, but they may be made from any other material, such as steel, for example.

However, the street ironwork 1 is not limited to the use
10 of four triangular lids and maybe based on the use of only two triangular lids or several pairs of triangular lids positioned in one, or even several independent support frames.

The covering elements can also be made up of square or rectangular lids positioned side-by-side in their support
15 frame.

In the application of the street ironwork to storm drains, the covering elements are made up of grates that may each have a square or rectangular shape or a right angled triangle shape as for the triangular lids 3 to 6 previously
20 described.

Returning again to figures 1 to 13, the beams 7, 8 of the frame 2 each have, in transverse section, a profile in the shape of an upside down T with the straight wall 7a of the beam 7 adjacent to the two edges 4c, 6c of the two covering
25 elements 4, 6 and the straight wall 8a of the beam 8 adjacent to the two edges 3c, 5c of the two covering elements 3, 5. The straight walls 7a, 8a of the beams 7, 8 define play Ja with the edges 4c, 6c and 3c, 5c of the covering elements 4, 6, 3, 5 as well as with the corresponding end corners of said
30 covering elements.

The two crosspieces 9, 10 of the frame 2 have, in transverse section, an L- or corner-shaped profile with the straight wall 9a of the crosspiece 9 adjacent to the edge 3b of the covering element 3 and the straight wall 10b of the
35 crosspiece 10 adjacent to the edge 6b of the covering element

6. The straight walls 9a of the crosspieces 9, 10 define play Jb with the edges 3b, 6b of the covering elements 3, 6.

In this way, the straight walls 7a, 8a of the beams 7, 8 and 9a, 10a of the crosspieces 9, 10 of the frame 2 run, with
 5 play, along the edges 3b, 3c, 5c, 6b, 6c and 4c of the covering elements 3-6.

The base of the upside down T of the beam 7 of the frame 2 defines an inner wall 7b situated in the frame 2 and an outer wall 7c at the frame 2 extending along the entire
 10 straight wall 7a perpendicular thereto. The inner wall 7b serves as a bearing for the two covering elements 4, 6, i.e. the edges 4c and 6c of these covering elements bear on the inner wall 7b. More specifically, the edges 4c and 6c of the covering elements 4, 6 comprise support feet P, for example
 15 two, at the ends of each of said edges and which bear on the corresponding pads 12 secured, for example by welding, on the upper surface of the inner wall 7b. Furthermore, the end corner of the covering element 5 defined by the hypotenuse edge 5a and the adjacent edge 5b also rests by a foot P on the
 20 pad 12 secured to the upper surface of the inner wall 7b of the beam 7, and the same is true relative to the end corner of the covering element 3 defined by the hypotenuse edge 3a and the adjacent edge 3b of that element.

The base of the upside down T of the beam 8 of the frame
 25 2 defines an inner wall 8b positioned in the frame 2 and an outer wall 8c at the frame 2 extending along the entire straight wall 8a perpendicular thereto. The inner wall 8b serves as a bearing for the two covering elements 3, 5. More specifically, the two edges 3c, 5c of the two covering
 30 elements 3, 5 rest on the inner wall 8b of the beam 8 by means of two feet P for example situated at the two ends of each of said edges, said feet bearing on pads 12 secured, for example by welding, on the upper surface of the inner wall 8b of the beam 8. Furthermore, the end corner of the covering element 4
 35 defined between its hypotenuse edge 4a and its adjacent edge

4b also bears on the inner wall 8b of the beam 8 by means of the foot P and a corresponding pad 12 secured to the upper surface of the wall 8b, and the same is true for the end corner of the covering element 6 defined by its hypotenuse edge 6a and its adjacent edge 6b.

The two crosspieces 9, 10 include an outer wall 9b, 10b perpendicular to the straight wall 9a, 10a and which extends in the same plane as the walls 7b, 7c and 8b, 8c of the beams 7, 8.

The outer walls 7c, 8c of the beams 7, 8 and the outer walls 9b, 10b of the crosspieces 9, 10 are used to fasten the frame 2 to the ground.

According to the invention, the inner bearing wall 7b of the beam 7 includes, by the portion situated along the straight wall portion 7a thereof running along the adjacent edge 4c of the covering element 4, two studs 13 made from an elastomer material secured to the upper surface of the bearing wall portion 7b perpendicular thereto.

Two studs 13 are spaced apart from one another along the bearing wall portion 7b of the beam 7 and the material making them up preferably has a base of polychloroprene known under the name "neoprene" and which is a synthetic elastomer.

Likewise, the inner bearing wall portion 7b situated along the straight wall portion 7a of the beam 7 running along the adjacent edge 6c of the covering element 6 includes two studs 13 made from an elastomer material that are identical to the studs 13 previously described and that are secured to the upper surface of the bearing wall portion 7b perpendicular thereto.

Furthermore, the inner bearing wall 8b of the beam 8 includes two pairs of studs 13 made from an elastomer material identical to the studs previously described and which are fastened to the upper surface of the bearing wall 8b perpendicular thereto while being spaced apart from one another along the wall 8b. Two studs 13 of a same pair are

fastened to the inner bearing wall portion 8b situated along the straight wall portion 8a running along the adjacent edge 3c of the covering element 3, while the other two studs 13 of the other pair are situated on the inner bearing wall portion 8b situated along the straight wall portion 8a running along the adjacent edge 5c of the covering element 5.

The elastomer studs 13 fastened to the bearing wall 7b of the beam 7 and the elastomer studs 13 fastened on the bearing wall 8b of the beam 8 are situated two by two along a same axis perpendicular to the two beams 7, 8.

Preferably, each stud 13 is made up of a cylindrical sleeve that is fastened on the upper surface of the corresponding inner bearing wall portion 7b, 8b of the beam 7, 8 by a bolt 14, the screw 15 of which passes through the corresponding bearing wall portion 7b, 8b and the studs 13, and the nut 16, of the nylstop type, opposite the bearing wall portion 7b, 8b, axially maintains the studs 13 while bearing on the upper surface thereof.

The stud 13 is kept bearing by its lower end on the corner of an upside down U-shaped piece 17 fastened, for example by welding, on the upper surface of the bearing wall portion 7b, 8b. The core of the upside down U-shaped piece extends parallel to the corresponding straight wall 7a, 8a of the beam 7, 8.

The screw 15 of the fastening bolt 14 is fastened to the bearing wall portion 7b, 8b by a nut 18, for example square, housed in the upside down U-shaped piece 17 and making it possible to block the head 15a of the screw 15 bearing on the lower surface of the bearing wall portion 7b, 8b by means of two washers 19.

Each stud 13 can be clamped on the upside down U-shaped piece 17 by the bolt 14 without being elastically axially deformed by compression, and the elastomer of the studs 13 allows elastic radial deformation, as will be seen later.

Each covering element 3, 4, 5, 6 includes two cavities 20 cast with the covering element of which are made in the corresponding edge 3c, 4c, 5c, 6c of the element while emerging from that edge to the outside.

5 Each cavity 20 extends from the outer or upper surface of the corresponding covering element in a general direction perpendicular to said surface without emerging therefrom.

As an example, as better emerges from figure 7, each cavity 20 has, in section along a plane perpendicular to the outer surface of the corresponding covering element and parallel to its edge, a generally semi-cylindrical upper blind portion 21 extended, opposite the outer surface of the covering element, by a downwardly flared lower portion 22 generally in the shape of a half-cone section, and emerging
15 opposite the outer surface of the covering element.

The two cavities 20 of a covering element are spaced apart from one another along the corresponding edge of that element by a distance equal to the distance separating two elastomer studs 13 of a bearing wall portion 7b, 8b of the beams 7, 8 of the frame 2.
20

In this way, when each covering element 3-6 is in its position covering the opening of the frame 2, two cavities 20 of a covering element 3-6 are opposite the corresponding straight wall portion 7a, 8a of the beam 7, 8 and two of the studs 13 secured to the straight wall portion 7b, 8b of said beams are housed with play respectively in the two cavities 20 of the corresponding covering element.
25

As better emerges from figure 5, each stud 13 and nut 16 assembly is housed in the corresponding cavity 20 of a covering element and the radial play Jc between the sleeve of the stud 13 and the inner surface of the upper portion 21 of the cavity 20 in a direction perpendicular to the straight wall, in the present case, 7a of the beam 7, still remains smaller than the play Ja between the upper edge of the covering element 4 and the wall 7a.
30
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Under these conditions, the two studs 13 respectively housed in two cavities 20 of a covering element 3-6 constitute abutments for limiting the displacement of the covering element toward the corresponding straight wall portion 7a, 8a when the covering element is subjected to intense moving loads oriented substantially perpendicular toward the corresponding straight wall portion 7a, 8a of the beams 7, 8 resulting from intense moving loads due to significant vehicle traffic circulating on the covering element.

In fact, when the covering element 3-6 moves toward the corresponding straight wall portion 7b, 8b of the beams 7, 8, the inner surface of the upper portion 21 of each cavity 20 bears on the stud 13, which is elastically radially deformed, but the radial compressibility of which is such that it prevents the edges 3c; 4c; 5c; 6c of the corresponding covering elements 3-6 from colliding with the corresponding straight wall portion 7a, 8a, thereby considerably reducing noise annoyances.

The studs 13 thus behave as silent blocks making it possible to reduce noise annoyances during any movement of the covering elements 3-6 in their frame when they are subjected to intense vehicle traffic.

Furthermore, figure 7 shows that, in a direction parallel to the straight wall portion 7a, 8a of the beam's 7, 8, the upper portion 21 of each cavity 20 defines, with the corresponding elastomer stud 13, two plays J_c , each equal to the play J_c previously defined so that the two studs 13 housed in the cavities 20 of the covering element constitute two abutments for limiting the displacement of that element in a direction substantially parallel to the straight wall portion 7a, 8a situated opposite the corresponding edge of the covering element when the latter is subjected to intense moving loads, resulting from intense vehicle traffic, and in a direction substantially perpendicular to that of the moving loads causing the displacement of said covering element toward

the straight wall portion 7a, 8a of the beams 7, 8. In this way, the studs 13 also consist of abutments for limiting the displacement of at least the two opposite covering elements 3, 6 toward the straight walls 9a, 10a of the crosspieces 9, 10 to prevent the edges 3b, 6b of said elements from colliding with the straight walls 9a, 10a, thereby reducing noise annoyances.

Figure 13 is a bottom view showing the assembly or twinning of two right angled triangle covering elements 3 and 4 or 5 and 6.

In this way, two covering elements 3, 4 or 5, 6 of a same pair and adjacent by their respective hypotenuses 3a, 4a or 5a, 6a are assembled to one another using at least one bolt 30, the screw 31 of which passes through two substantially parallel webs 32 secured to the inner surfaces of the two covering elements, for example the elements 3, 4, perpendicular thereto, the two webs 32 also being positioned substantially parallel to the two hypotenuse edges 3a, 4a of said two covering elements.

A cylindrical sleeve 33 made from a plastic material is mounted coaxially to the screw 31 of the bolt 30 between the two webs 32 and the sleeve 33 bears by its ends on the two inner surfaces facing one another of the two webs 32 respectively by means of two washers 34 also made from an elastomer.

The screw 31 of the bolt 30 extends perpendicularly through the two webs 32, and the head 31a thereof bears on one of the surfaces of a web 32 opposite the sleeve 33 by means of an elastomer washer 35 with the insertion of a metal washer 36 between the washer 35 and the screw head 31a. The nut 37, for example of the nylstop type, of the bolt 30 bears on the outer surface of the other web 32 opposite sleeve 33, by means of an elastomer washer 38 with the insertion of a metal washer 39 between the washer 38 and the nut 37.

Preferably, the sleeve 33 is of the polyamide type, such as nylon for example, and the washers 34, 35 and 38 are made from a polychloroprene-based material as for the studs 13 and two adjacent covering elements 3, 4; 5, 6 are assembled to one another by two spaced parallel bolts 30.

The assembly of two triangular covering elements 3, 4; 5, 6 by the bolt 30, sleeve 33 and washer 34, 35, 38 assembly makes it possible to limit the displacement of these two elements relative to one another to prevent their hypotenuse edges 3a, 4a; 5a, 6a from coming into contact against one another when the two covering elements are subjected to intense moving loads due to intense vehicle traffic, thereby reducing noise annoyances.

As already explained above, the street ironwork according to the invention may be applied to covering elements, each having a square or rectangular shape and made up of a lid or grate, and that can be positioned in one or more frames.

In that case, the inner bearing wall portions opposite the frame situated along the corresponding straight wall portions of said frame and respectively running, with play, along two parallel edges opposite a square or rectangular covering element include two opposite pairs of studs made from an elastomer material secured to the bearing wall portions perpendicular thereto and which are respectively inserted in two recesses of the covering element emerging from the two opposite edges of the element across from the straight wall portions of the frame to constitute abutments for limiting the displacement of the covering element toward the straight wall portions opposite the frame or parallel thereto when the covering element is subjected to intense moving loads in opposite directions, one perpendicular to the straight wall portions of the frame and the other parallel to said straight wall portions.

The street ironwork according to the invention makes it possible to limit the displacement of one or more covering

elements in one or more corresponding frames and to effectively reduce the noise annoyances during those movements due to intense moving vehicle traffic on each of said covering elements.

CLAIMS

1. A street ironwork having a frame (2) and at least one covering element (3, 4, 5, 6) within said frame (2) comprising
5 a straight peripheral wall (7a, 8a) portion running along at least one adjacent edge (3c, 4c, 5c, 6c) of the covering element (3, 4, 5, 6) with play (Ja) and an inner bearing wall (7b, 8b) of the covering element perpendicular to the straight peripheral wall (7a, 8a), characterized in that the portion of
10 the inner bearing wall (7b, 8b) situated along the straight wall portion (7a, 8a) running along the adjacent edge (3c, 4c, 5c, 6c) of the covering element (3, 4, 5, 6) comprises at least one stud (13) made of an elastomer material secured to the upper surface of the bearing wall portion (7b, 8b),
15 perpendicular to the latter, and which is inserted in a recess (20) of the covering element (3, 4, 5, 6) connected to the adjacent edge (3c, 4c, 5c, 6c) of said element and opposite the straight wall portion (7a, 8a) so as to constitute an abutment for limiting the movement of the covering element (3,
20 4, 5, 6) towards the straight wall portion (7a, 8a) when the covering element is subjected to intense moving loads.

2. The device according to claim 1, characterized in that the inner bearing wall (7b, 8b) portion comprises two studs
25 (13) made from an elastomer material secured to the upper surface of the bearing wall (7b, 8b) portion perpendicular thereto while being spaced apart from one another and which are respectively inserted in two spaced recesses (20) of the covering element (3, 4, 5, 6) emerging from the adjacent edge
30 (3c, 4c, 5c, 6c) of that element and opposite the corresponding straight wall (7a, 8a) portion to constitute two abutments for limiting the movement of the covering element (3, 4, 5, 6) towards the straight wall (7a, 8a) portion when the covering element is subjected to intense moving loads.

3. The device according to claim 1 or 2, characterized in that each stud (13) inserted in a corresponding recess (20) of the covering element (3, 4, 5, 6) also constitutes an abutment for limiting the displacement of the covering element in a direction substantially parallel to the straight wall (7a, 8a) portion opposite the edge (3c, 4c, 5c, 6c) of the covering element (3, 4, 5, 6) when the covering element is subjected to intense moving loads in a direction substantially perpendicular to that of the moving loads causing the movement of the covering element (3, 4, 5, 6) toward the straight wall (7a, 8a) portion.

4. The device according to one of the preceding claims, characterized in that each covering element (3, 4, 5, 6) is a lid or grate in the shape of a right angled triangle.

5. The device according to claim 4, characterized in that it includes a second covering element (3, 4, 5, 6) made up of a lid or grate in the shape of a right angled triangle and arranged in the frame (2) while having its hypotenuse adjacent to the hypotenuse of the first covering element (3, 4, 5, 6), in that the edge of the second covering element opposite the edge of the first covering element is bordered with play (Ja) by a portion of the straight peripheral wall (7a, 8a) of the frame (2) opposite and parallel to the straight wall (7a, 8a) portion opposite the edge of the first covering element (3, 4, 5, 6), and in that the inner wall portion (7b, 8b) of the frame (2) serving as bearing for the edge of the second covering element (3, 4, 5, 6) includes two studs (13) made from an elastomer material secured to the upper surface of said inner bearing wall portion perpendicular thereto while being spaced apart from one another and which are respectively inserted in two spaced recesses (20) of the second covering element (3, 4, 5, 6) emerging in the edge of said second element across from the opposite straight wall (7a, 8a)

portion to constitute two abutments for limiting the displacement of the second covering element (3, 4, 5, 6) toward the opposite straight wall (7a, 8a) portion when the second covering element is subjected to intense moving loads.

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6. The device according to claim 5, characterized in that each stud (13) inserted in its corresponding recess (20) of the second covering element (3, 4, 5, 6) also constitutes an abutment for limiting the displacement of the second covering element in a direction substantially parallel to the straight wall (7a, 8a) portion across from the edge (3c, 4c, 5c, 6c) of the second covering element when said covering element is subjected to intense moving loads in a direction substantially perpendicular to that of the moving loads causing the second covering element (3, 4, 5, 6) to move toward the opposite straight wall (7a, 8a) portion.

7. The device according to one of claims 1 to 3, characterized in that the covering element (3, 4, 5, 6) is a square or rectangular lid or grate whereof the edge (3c, 4c, 5c, 6c) opposite the other aforementioned edge (3c, 4c, 5c, 6c) is bordered with play (Ja) by a straight peripheral wall portion of the opposite frame (2) and parallel to the straight wall (7a, 8a) portion facing the other edge of the covering element (3, 4, 5, 6), and in that the inner wall portion (7b, 8b) of the frame (2) serving as a bearing for the opposite edge (3c, 4c, 5c, 6c) of the covering element (3, 4, 5, 6) includes two studs (13) made from an elastomer material secured to the upper surface of said inner bearing wall portion perpendicular thereto while being spaced apart from one another and which are respectively inserted in two recesses spaced apart from the covering element (3, 4, 5, 6) emerging from the edge (3c, 4c, 5c, 6c) of that element and opposite the corresponding straight wall (7a, 8a) portion to constitute two abutments for limiting the displacement of the

covering element (3, 4, 5, 6) toward the corresponding straight wall (7a, 8a) portion and parallel thereto when the covering element (3, 4, 5, 6) is subjected to intense moving loads.

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8. The device according to one of the preceding claims, characterized in that each abutment stud (13) is made up of a cylindrical sleeve secured on the upper surface of the corresponding inner bearing wall (7b, 8b) portion by a bolt (14), the screw (15) of which passes through said bearing wall portion and the sleeve (13).

9. The device according to claim 8, characterized in that the sleeve (13) is secured bearing on an upside down U-shaped piece (17) secured to the upper surface of the inner bearing wall (7b, 8b) portion of the frame (2), the core of the upside down U of the piece (17) being passed through by the bolt (14), which is secured to the inner bearing wall (7b, 8b) portion by a nut (18) housed in the upside down U of the piece screwed to the bolt (14) so as to block the head (15a) of the bolt axially at the lower surface of the inner bearing portion (7b, 8b).

10. The device according to one of the preceding claims, characterized in that each abutment stud (13) has a base of polychloroprene.

11. The device according to one of the preceding claims, characterized in that each abutment stud (13) is housed in the corresponding recess (20) of the covering element (3, 4, 5, 6) with play (Jc) smaller than the play (Ja) between each straight peripheral wall portion (7a, 8a) and the adjacent edge (3c, 4c, 5c, 6c) of the covering element (3, 4, 5, 6).

12. The device according to one of the preceding claims, characterized in that each recess (20) of a covering element (3, 4, 5, 6) is cast.

5 13. The device according to claim 5 or 6, characterized in that the two covering elements (3, 4, 5, 6) in the shape of right angled triangles are twinned to one another by at least one bolt (30) , the screw (31) of which passes through two parallel webs (32) secured to the inner surfaces of the two
10 elements perpendicular thereto and a cylindrical sleeve (33) made from a plastic material mounted coaxially to the screw (31) of the bolt (30) between the two webs (32).

14. The device according to claim 13, characterized in
15 that the sleeve (33) bears by the ends thereof on the two inner surfaces opposite one another of the two webs (32) respectively by means of two washers (34) made from an elastomer.

20 15. The device according to claim 13 or 14, characterized in that the screw (31) head (31a) of the bolt (30) and the nut (37) of the bolt (30) bear on the two opposite outer surfaces of the two webs (32) respectively by means of two washers (38) made from an elastomer.

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16. The device according to claim 15, characterized in that the sleeve (33) is of the polyamide type, such as nylon, and each washer (34, 38) has a base of polychloroprene.

30 17. The device according to one of the preceding claims, characterized in that the frame (2) is rectangular and made up of two beams (7) and two crosspieces (9) each having at least one L shape in transverse section.

35 18. A frame for a street ironwork, including a straight peripheral wall (7a, 8a) and an inner wall (7b, 8b) intended

to serve as a bearing for at least one covering element and perpendicular to the straight wall (7a, 8a), characterized in that at least one portion of the inner bearing wall (7b, 8b) includes at least one stud (13) made from an elastomer material fastened on the upper surface of the bearing wall (7b, 8b) portion perpendicular thereto, and in that each stud (13) is made up of a cylindrical sleeve fastened on the upper surface of the inner bearing wall (7b, 8b) portion by a bolt (14), the screw (15) of which passes through said bearing wall portion and the sleeve (13).

19. The frame according to claim 18, characterized in that the sleeve (13) is fastened bearing on an upside down U-shaped piece (17) secured to the upper surface of the inner bearing wall (7b, 8b) portion of the frame (2), the core of the upside down U of the piece (17) being passed through by the bolt (14), which is fastened to the inner bearing wall portion by a nut (16) housed in the upside down U of the piece (17) screwed to the bolt (14) so as to axially block the bolt head (15a) at the lower surface of the inner bearing (7b, 8b) portion.

20. The frame according to claim 19, characterized in that the stud (13) has a base of polychloroprene.