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(54) **EXPLOSION AND BULLET RESISTANT WALL CONSTRUCTION**

(57) The invention relates to an explosion-proof and bullet-proof wall construction(10), comprising:
- a first barrier (12A) and a second barrier(12B),
- a plurality of barrier connections (16) between the first and second barrier in the form of vertical frames (15), wherein each vertical frame comprises a first post (14A), which is associated with the first barrier, and comprises a second post (14B), which is associated with the second barrier, and wherein each vertical frame further comprises connections (39) between the first and second post,
- an innermost zone (18), which is located between the first and second barrier,
wherein at least one barrier comprises a plurality of protective slats (20), wherein the protective slats are directed obliquely upwards, extending from outside to inside, in order to absorb a shock wave of an incoming explosion or an incoming projectile and to deflect it upwards.

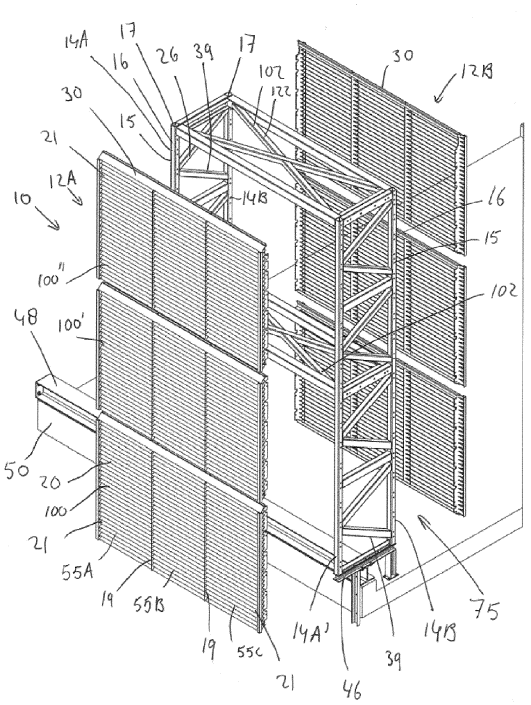

Fig. 3

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Description

FIELD OF THE INVENTION

[0001] The present invention relates to an explosion-proof and bullet-proof wall construction and to a method for offering protection against explosions and bullets. The wall construction also offers protection against other incoming projectiles.

BACKGROUND OF THE INVENTION

[0002] Explosion-proof and bullet-proof wall constructions are known. US2013239793A1 discloses a construction comprising stacked containers 122, 132. The containers are box-shaped elements. The wall according to US2013239793A1 turns out in practice to be complex and to be complicated to reconstruct.

[0003] EP1746379A1 discloses a wall construction having a single set of slats in an innermost zone. The wall comprises reactive (or explosive) armour-plating which is attached to the slats. The wall construction according to EP1746379A1 is fairly complex.

[0004] DE10028753A1 discloses a wall construction having plates which in top view form a zigzag formation. DE10028753A1 has a limited capacity to arrest explosions.

[0005] BE1013819 discloses a closed wall construction. The wall construction according to BE1013819 is not very efficient and fairly complex.

[0006] US3765299A discloses a wall construction having internal slats which are covered by a front plate and an end plate. The wall construction according to US3765299A is not very efficient in absorbing a shock wave of an explosion.

[0007] DE3633349A1 discloses another wall construction for offering protection against bullets. The wall construction according to DE3633349A1 is fairly complex and expensive to produce.

[0008] US2004261332 discloses a wall construction which is fairly solid and for this reason is expensive to reconstruct. Moreover, this wall construction is very heavy.

[0009] DE202012101350 discloses an anti-terror wall construction which has two walls and an innermost zone which is filled with concrete or a comparable material. The device according to DE202012101350 is fairly complicated to reconstruct. Moreover, this wall construction is very heavy.

[0010] US2010/0043629 discloses a portable wall construction which offers protection against projectiles. This wall construction does not offer a protection against explosions.

[0011] Not a single one of the known wall constructions offers an effective explosion-proof and bullet-proof wall which is relatively simple and can be constructed in a cost-effective manner.

OBJECT OF THE INVENTION

[0012] It is an object of the invention to offer an explosion-proof and bullet-proof wall construction which solves at least one of the problems of the known wall constructions.

[0013] It is an object of the invention to offer an explosion-proof and bullet-proof wall construction which is relatively simple, relatively light and can be constructed in a relatively cost-effective manner.

[0014] Another object of the invention is to provide an alternative explosion-proof and bullet-proof wall construction.

SUMMARY OF THE INVENTION

[0015] In order to achieve at least one object, the present invention provides an explosion-proof and bullet-proof wall construction, comprising:

- a first barrier and a second barrier, which are positioned at a distance from one another,
- a plurality of barrier connections between the first and second barrier in the form of vertical frames, wherein the vertical frames are placed at a regular distance from one another, wherein each vertical frame comprises a first post, which is associated with the first barrier, and comprises a second post, which is associated with the second barrier, and wherein each vertical frame further comprises connections between the first and second post,
- an innermost zone, which is located between the first and second barrier and which is substantially empty,

wherein at least one barrier comprises a plurality of protective slats, wherein the slats extend horizontally between a first post and a second, adjacent post of a barrier, wherein the protective slats are directed obliquely upwards, extending from outside to inside, in order to absorb a shock wave of an incoming explosion or an incoming projectile and to deflect it upwards, wherein the slats define between them obliquely upwardly directed channels,

wherein the slats and the obliquely upwardly directed channels form a partially closed, partially open construction, wherein the slats arrest a part of an incoming shock wave and wherein the channels are arranged to let another part of the incoming shock wave pass through the barrier and to deflect it upwards, and

wherein the slats are designed to transfer forces of an explosion or incoming projectile onto the vertical frames, and wherein the vertical frames are designed to transfer the forces onto the ground.

[0016] The present invention further relates to a method for offering protection against an explosion or against a bullet or some other incoming projectile, the method comprising the fitting of a wall construction according to the invention and the protection of a target object with

the aid of the wall construction.

[0017] The invention offers an effective alternative to known wall constructions. The wall construction is suitable for offering protection against explosions, bullets of different calibre and RPG's (Rocket Propelled Grenades). An explosion or incoming projectile will generally make a hole in the first barrier, but will not get through the second barrier. The force of the explosion or the projectile is weakened by the first barrier and dispersed in the innermost space, so that the explosion or the incoming projectile no longer gets through the second barrier. An RPG has a tailpiece that will get caught in the first barrier, with the result that the RPG too no longer gets through the second barrier.

[0018] The invention offers a relatively light and simple wall construction which can be constructed relatively quickly.

[0019] In one embodiment, both barriers have the said slats, and the slats of the first barrier have an opposite inclination to the slats of the second barrier. This produces a mirror-symmetrical construction which can be quickly constructed.

[0020] In one embodiment, extending between every two adjacent vertical frames is at least one horizontal frame, which is fastened to both vertical frames, and the vertical frames and the horizontal frames together form a self-supporting construction. The self-supporting construction makes a neat and simple construction possible. Firstly the self-supporting construction is constructed, and after this the panels are mounted.

[0021] In one embodiment, a number of slats are respectively attached to a framework to form a slatted panel, which is mounted as a stand-alone component on two vertical frames, and, in particular, between adjacent vertical frames, a plurality of slatted panels are fitted one above another. This embodiment has the advantage of a rapid assembly and simplicity of construction. Between adjacent posts, a plurality of slatted panels can be fitted one above another.

[0022] In one embodiment, the wall construction has no roof and the innermost zone is open on the top side and in this way provides an escape route for guiding an incoming shock wave up through the innermost zone and through an opening between the topmost ends of the first and second barrier. This configuration dampens the shock in an effective manner. In one embodiment, the innermost zone is empty, with the exception of the trusses.

[0023] In one embodiment, a rearmost edge of each slat is located at a higher level than a front edge of a slat situated directly above it, so that the wall, viewed from outside, has a closed appearance. This ensures that the barrier blocks a substantial part of an incoming shock wave of an explosion. Moreover, as a result of the closed appearance, an incoming bullet or some other projectile cannot pass through the barrier without hitting a slat. In front view, the foremost part of a slat overlaps with the rearmost part of a below-situated slat.

[0024] The angle which the slats can make with the horizontal can vary within wide limits. If the slats are oriented relatively steeply (and the angle is thus relatively large), relatively less material is necessary. If the slats lie relatively flat (and the angle is thus relatively small), the wall construction has more stopping power. In one embodiment, the slats extend at an angle of 15 - 80 degrees to the horizontal.

[0025] In one embodiment, the slats are connected only to the ground via the vertical frames. This produces a simple and effective construction.

[0026] In one embodiment, a distance D between the slats amounts to between 20 and 80 percent of a width W of the slats.

[0027] In one embodiment, the distance between the first barrier and the second barrier amounts to 0.5 - 1.5 metres, in particular 0.7 - 1.0 metres. This distance produces a strong wall construction.

[0028] In another embodiment, the first barrier and the second barrier are not mutually connected in the intervals between the posts. This produces a simple and effective construction. In one embodiment, the wall construction has no other trusses than the trusses which connect the first and second barrier one to the other.

[0029] In general, the first and second barrier are vertical, which results in a simple construction. In one embodiment, the trusses, the slats and the posts are made of steel. This is a strong and cost-effective material.

[0030] It is also possible for the first and second barrier to be placed obliquely and to form in side view essentially a triangle or a trapezium, whose point or short side, respectively, is directed upwards.

[0031] In one embodiment, the distance between the first and second barrier measures less than 50 percent of the height of the wall construction, in particular less than 20 percent of the height of the wall construction.

[0032] In one embodiment, a steel girder is fitted under each truss in order to support the wall construction and provide a connection to the foundation. The steel girder stands transversely to the principal direction of the wall construction.

[0033] In one embodiment, the slats essentially transfer only horizontal forces at their ends, via the vertical frames.

[0034] In one embodiment, the slats of each barrier all have the same inclination. This produces simplicity of construction. In a further embodiment, the slats are all placed directly one above another.

[0035] In one embodiment, the wall construction has no reactive or explosive armour-plating, but rather it is a passive construction.

[0036] In one embodiment, the slats have a length of 1 - 5 metres, in particular 2 - 4 metres, wherein the length corresponds with the distance between the posts.

[0037] In one embodiment, the distance between the posts is 1 - 5 metres, in particular 2 - 4 metres.

[0038] These and other aspects of the invention will be illustrated and be better understood with reference to the

following detailed description which accompanies the appended drawings. Like reference numerals denote like components.

BRIEF DESCRIPTION OF THE FIGURES

[0039]

Figure 1 shows a front view of the wall construction according to the invention.
Figure 2 shows a cross-section in side view of a barrier of the wall construction according to the invention.
Figure 3 shows an isometric view of the wall construction in the dismantled state.
Figure 4 shows an enlarged partial cross-section in side view of a barrier of the wall construction according to the invention
Figure 5A shows a front view of a framework of a slatted panel.
Figure 5B shows a front view of a slatted panel.
Figure 5C shows an isometric view of a slatted panel.
Figure 5D shows an isometric view of a framework of a slatted panel.
Figure 6A shows a side view of a slatted suspension mounting.
Figure 6B shows a side view of a spacer.
Figures 7A, 7B show top views of the wall construction.
Figure 8 shows a side view of the assembly of the wall construction.
Figure 9 shows a top view comprising two wall constructions according to the invention and a protected object therebetween.
Figure 10 shows a side view of an alternative wall construction.

DETAILED DESCRIPTION OF THE FIGURES

[0040] Figures 1, 2, 3 and 4 show the explosion-proof and bullet-proof wall construction 10. The wall construction 10 comprises a first barrier 12A and a second barrier 12B (in general also denoted by 12), which are placed at a distance 42 apart. The first and second barrier 12 are vertical. The first barrier and the second barrier define an innermost zone 18 located between the barriers. The innermost zone is substantially empty.

[0041] The wall construction has no roof and the innermost zone is largely open on the top side and in this way provides an escape route for guiding an incoming shock wave through the innermost zone and, via an opening 28 between topmost ends 30 of the first and second barrier, upwards and outwards.

[0042] The wall construction 10 comprises a plurality of barrier connections 16 between the first and second barrier 12. The barrier connections 16 between the first and second barrier are realized as vertical frames 15. The vertical frames are placed at a regular distance 29 apart. The vertical frames 15 stand transversely to a principal direction of the wall construction. Each vertical frame comprises a first post 14A, which is associated with the first barrier, and a second post 14B, which is associated with the second barrier. Each vertical frame further has connections between the first and second post.

[0043] Both barriers have a plurality of protective slats 20, wherein the slats extend horizontally between a first post 14A and a second, adjacent post 14A. The protective slats are directed obliquely upwards, extending from outside to inside, in order to absorb a shock wave of an incoming explosion or an incoming projectile and to deflect it upwards.

[0044] The slats and the obliquely upwardly directed channels form a partially closed, partially open construction. The slats are placed at a mutual distance apart and thereby define between them obliquely upwardly directed channels 24. The slats arrest a part of an incoming shock wave and the channels are arranged to let another part of the incoming shock wave pass through the barrier and to deflect it upwards.

[0045] The slats are designed to transfer forces of an explosion or incoming projectile directly or indirectly onto the vertical frames, and the vertical frames are designed to transfer the forces onto the ground.

[0046] In Figure 3, it can be seen that extending between every two adjacent vertical frames 15 are two horizontal frames 102. One horizontal frame 102 is fitted halfway up the wall construction and one horizontal frame 102 is fitted on the top side. The horizontal frames extend between two vertical frames 15. The vertical frames 15 and the horizontal frames 102 together form a self-supporting construction 75.

[0047] The horizontal frames at the same time form wind bracings and for this purpose, in top view, comprise crosses.

[0048] In Figure 3, it can additionally be seen that the slats 20 are grouped into slatted panels 100, which are mounted as a stand-alone component on two vertical frames 15 of a barrier. Between adjacent vertical frames 15, three slatted panels (100, 100', 100") are fitted one above another. A different number is also possible, and it is also possible for just one slatted panel to be fitted between every two vertical frames.

[0049] The posts 14 are set up, just like the vertical frames, at regular distances 29 apart. The posts are vertical. The posts 14 of the first and second barrier are positioned directly opposite each other. The posts are generally vertical steel profiles and can, in particular, be square or rectangular tubes 17. In another embodiment, the posts can be made of wood.

[0050] Each vertical frame is realized as a truss 26. Each truss comprises a vertical post 14A of the first barrier and a vertical post 14B of the second barrier. The trusses further comprise profiles 39, which extend between the posts, both horizontally and diagonally. The vertical frames and the slats are made of steel. Both the

posts and the profiles 39 can be tubular profiles, so that the trusses consist wholly of tubular profiles.

[0051] Both barriers 12 comprise a plurality of protective slats 20. The slats bridge the distances 29 between the posts 14. The ends 27 of the slats are supported by the posts 14. The intervals 22 between the posts have a length 29 of 2 - 4 metres, in particular about 3 metres. The slats have a matching length 29 of 2 - 4 metres, in particular about 3 metres.

[0052] In another embodiment, only one barrier comprises the plurality of protective slats 20, while the other barrier is design differently.

[0053] The slats 20 are grouped into slatted panels 100. In the vertical direction, respectively three panels 100 are placed one above another, but this can also be a different number. Each panel comprises 25 - 30 slats one above another, but this can also be a different number.

[0054] Furthermore, in each interval 22 are fitted two vertical spacers 19 in order to keep the slats 20 at the required distance apart. The spacers 19 divide the intervals into three parts 56A, 56B, 56C. In one embodiment, the spacers 19 transfer no large horizontal forces onto the ground. The spacers 19 can be realized as metal strips or as an angle profile, containing recesses for the slats.

[0055] Figure 1 shows an escape door 58, which is fitted in the barriers in order to let a person pass through the wall construction 10.

[0056] With reference to Figure 4, the slats 20 are directed obliquely upwards, extending from outside to inside, in order to deflect upwards a shock wave of an incoming explosion or an incoming projectile. The slats extend at an angle α of 15 - 80 degrees with respect to the horizontal. As a result of being directed upwards, the slats have a deflecting effect.

[0057] The slats define between them obliquely upwardly directed channels 24. The channels are open on the front side and rear side. A vertical distance between the front edges of the slats can be 50 - 80 mm.

[0058] The slats 20 and the inclined, open channels 24 form a partially closed, partially open structure. The slats 20 absorb a part of an incoming shock wave, and the channels are arranged to let another part of an incoming shock wave pass through the barrier and to deflect this upwards in the innermost zone. The slats 20 are designed to transfer a part of the forces of an explosion or an incoming projectile onto the posts.

[0059] With reference to Figure 4, a rearmost edge 32 of each slat 20 is placed at a higher level than a foremost edge 33 of a slat 20 located directly above it. In this way, the barrier acquires a closed appearance. Bullets and projectiles cannot fly through it.

[0060] Both barriers comprise the said slats 20, and the slats of the first barrier have an opposite inclination to the slats of the second barrier. In this way, the wall construction is essentially symmetrical about a virtual plane which subdivides the innermost zone into two equal parts.

[0061] With reference to Figure 4, a distance D between the slats lies between 10 and 80 percent of a width W of the slats. The width W of the slats lies between 50 and 150 mm, and is in particular 100 mm. The vertical distance 40 between the foremost edges is 50 - 100 mm, in particular 60 - 70 mm. A thickness of the slats 20 lies between 3 and 12 mm, more particularly between 4 and 10 mm. This is dependent on the desired degree of protection.

[0062] The distance 42 between the first barrier and the second barrier lies between 0.5 and 1.5 metres, in particular between 0.7 and 1.90 metres. The distance 42 between the first and second barrier is less than 50 percent of the height of the wall construction, in particular 10 - 20 percent of the height of the wall construction. A distance 43 between the outer sides of the posts 14 lies between 1.0 metre and 1.25 metres.

[0063] The height 44 of the wall construction can be about 3 - 10 metres, more particularly about 4 - 8 metres.

[0064] A steel girder 46 is fitted under each truss 26 to support the wall construction and to provide a connection to the foundation. The steel girder 46 extends transversely to the principal direction of the wall construction. The steel girder is supported by a further steel girder 48, which forms a component part of the foundation and which rests on a concrete substructure 50. The further steel girder 48 extends parallel to the principal direction of the wall construction 10. A steel plate 62 extends downwards from a foot of a barrier and serves as a shield for the foundation.

[0065] It will be clear that in this embodiment the wall construction has no reactive or explosive armour-plating has and is a passive device.

[0066] With reference to figures 5A, 5B, 5C and 5D and 6A, each slatted panel 100 comprises a framework 110. The framework comprises two horizontal girders 112, two vertical elements 114, which are located on the side edge, and two vertical spacers 19. The slats 20 are mounted on the framework 110. In this way, slatted panels, which can be mounted as a stand-alone component, are formed. This yields an advantage of rapid construction of the wall construction.

[0067] Figure 6A shows a side view of a slatted panel. It can be seen that the vertical element 114 has recesses 116, which are made at an angle. The ends of the slats are inserted in the recesses 116. In addition, the vertical element 114 has a stiffening rib 118 to provide flexural rigidity and to keep the slats in place. The slats are inserted by their ends and remain in place without having to be bolted. This produces a very simple assembly. Mounting points 120 are present for mounting on a post 14 of a vertical frame 15. Figure 6B shows a spacer without the slats 20 therein.

[0068] With reference to Figures 7A and 7B, top views are shown of the wall construction with the slatted panels. The vertical elements are fastened to the posts 14 of the vertical frames. The horizontal frames 102 have longitu-

dinal girders 121, diagonal elements 122, which serve as wind bracings, and transverse girders 123. Figure 7A shows a top view of the horizontal frame 102 halfway up the wall construction, and Figure 7B shows a top view of the topmost horizontal frame 102.

[0069] Figure 8 shows how the panels 100 are placed onto the self-supporting construction. Firstly, the self-supporting construction 75 is erected, and after this the slatted panels are mounted against it, on both sides. In this way, the wall construction can be rapidly constructed.

[0070] With reference to Figure 9, the wall construction 10, during operation, protects a target object 55 against explosions and against incoming bullets or other projectiles. Two wall constructions 10 are set up parallel to each other and define long sides of a rectangle. The rectangle encloses a space. The short sides are defined by concrete walls 59. The concrete walls 59 can also be realized as wall constructions 10 according to the invention. The wall constructions are placed at a distance 61 from the target object 55.

[0071] Different types of target objects can be protected, such as a building, an electrical installation, a vehicle, etc.

[0072] With reference to Figure 10, an alternative wall construction 200 is shown, wherein two rows 130A, 130B of slats 20 are placed close together. The distance 132 between the slats is less than the width W of the slats.

[0073] Otherwise, the slats have the same characteristics as the slats of the previous embodiment, as will be directly evident to the person skilled in the art.

[0074] Vertical tubular profiles 136 are erected at a regular centre-to-centre distance apart. These can also be other profiles. To each tubular profile are fastened plates 134 containing recesses for the slats 20. The alternative embodiment according to Figure 10 is very cost-effective.

[0075] Detailed embodiments of the present invention are disclosed in this document. It will be clear, however, that the disclosed embodiments are only examples of the invention and that the invention can be realized in various ways. Specific design and functional details which are disclosed herein should hence not be regarded as limiting, but merely as a basis for the claims and as an explanation to a person skilled in the art to enable the invention to be variously realized. Furthermore, the words and terms which are used should not be regarded as limiting, but as a comprehensible explanation of the invention

[0076] The word "one" which is used herein is defined as one or more than one. The term "a plurality of" is defined as two or more than two. The term "have" is defined as comprise, i.e. an open term in which other elements or steps are not excluded. Reference numerals in the claims should not be interpreted as limiting for the scope of protection of the claims or the invention.

[0077] The simple fact that characteristics are stated in different dependent claims does not mean that a combination of these characteristics could not advantageously be used.

Claims

1. Explosion-proof and bullet-proof wall construction (10), comprising:

- a first barrier (12A) and a second barrier(12B), which are positioned at a distance (42) from one another,
- a plurality of barrier connections (16) between the first and second barrier in the form of vertical frames (15), wherein the vertical frames are placed at a regular distance (29) from one another, wherein each vertical frame comprises a first post (14A), which is associated with the first barrier, and comprises a second post (14B), which is associated with the second barrier, and wherein each vertical frame further comprises connections (39) between the first and second post,
- an innermost zone (18), which is located between the first and second barrier and which is substantially empty,

wherein at least one barrier comprises a plurality of protective slats (20), wherein the slats extend horizontally between a first post (14A) and a second, adjacent post (14A') of a barrier, wherein the protective slats are directed obliquely upwards, extending from outside to inside, in order to absorb a shock wave of an incoming explosion or an incoming projectile and to deflect it upwards, wherein the slats define between them obliquely upwardly directed channels (24),

wherein the slats and the obliquely upwardly directed channels form a partially closed, partially open construction, wherein the slats arrest a part of an incoming shock wave and wherein the channels are arranged to let another part of the incoming shock wave pass through the barrier and to deflect it upwards, and

wherein the slats are designed to transfer forces of an explosion or incoming projectile onto the vertical frames, and wherein the vertical frames are designed to transfer the forces onto the ground.

2. Wall construction according to claim 1, wherein both barriers comprise the said slats, and wherein the slats of the first barrier have an opposite inclination to the slats of the second barrier.

3. Wall construction according to claim 1 or 2, wherein extending between every two adjacent vertical frames (15) is at least one horizontal frame (102), which is fastened to both vertical frames, and wherein the vertical frames (15) and the horizontal frames (102) together form a self-supporting construction.

4. Wall construction according to one of the preceding

claims, wherein a number of slats are respectively attached to a framework (108) to form a slatted panel (100), which is mounted as a stand-alone component on two vertical frames (15), and wherein, in particular between adjacent vertical frames (15), a plurality of slatted panels (100, 100', 100") are fitted one above another.

5. Wall construction according to one of the preceding claims, wherein the wall construction (10) has no roof has and the innermost zone is largely open on the top side, and in this way provides an escape route for guiding an incoming shock wave through the innermost zone and, via an opening (28) between topmost ends (30) of the first and second barrier, upwards and outwards.

6. Wall construction according to one of the preceding claims, wherein a rearmost edge (32) of each slat (20) is located at a higher level than a front edge (33) of a slat (20) situated directly above it, so that the barrier, viewed from outside, has a closed appearance.

7. Wall construction according to one of the preceding claims, wherein each frame is realized as a truss construction (26), wherein each truss comprises a post (14A) of the first barrier and a post (14B) of the second barrier.

8. Wall construction according to one of the preceding claims, wherein the slats extend at an angle of 15 - 80 degrees to the horizontal.

9. Wall construction according to one of the preceding claims, wherein a distance (D) between the slats lies between 20 and 80 percent of a width (W) of the slats.

10. Wall construction according to one of the preceding claims, wherein the distance (42) between the first barrier and the second barrier lies between 0.5 and 1.5 metres, in particular 0.7 - 1.0 metres.

11. Wall construction according to one of the preceding claims, wherein the first and second barrier are vertical.

12. Wall construction according to one of the preceding claims, wherein the vertical frames and the slats are made of steel.

13. Wall construction according to one of the preceding claims, wherein the distance between the first and second barrier is less than 50 percent of the height of the wall construction, in particular less than 20 percent of the height of the wall construction.

14. Wall construction according to one of the preceding claims, wherein the slats of each barrier all have the same inclination.

15. Wall construction according to one of the preceding claims, wherein the wall construction has no reactive or explosive armour-plating, but is a passive construction.

16. Wall construction according to one of the preceding claims, wherein the slats have a length of 1 - 5 metres, in particular 2 - 4 metres, wherein the length corresponds with the distance (29) between the vertical frames.

17. Wall construction according to one of the preceding claims, wherein under each frame a steel girder (46) is fitted to support the wall construction and provide a connection to the foundation, wherein the girder stands transversely to a principal direction of the wall construction, and wherein under these steel girders is fitted a central girder (48), which extends in a principal direction of the wall construction.

18. Method for offering protection against an explosion or against a bullet or some other incoming projectile, the method comprising the fitting of a wall construction according to one of claims 1 - 17 and protecting a target object with the aid of the wall construction.

19. Method according to claim 18, wherein firstly a self-supporting construction comprising the vertical frames (15) and the horizontal frames (102), which together form a self-supporting construction, is erected, and wherein, after this, slatted panels (100) are mounted on the self-supporting construction, wherein each slatted panel comprises a plurality of slats.

20. Explosion-proof and bullet-proof wall construction (200), comprising:

- a first barrier (12A) and a second barrier(12B), which are positioned at a distance (132) apart,
- a plurality of barrier connections (16) between the first and second barrier in the form of vertical profiles (136),
- an innermost zone (18), which is located between the first and second barrier and which is substantially empty,

wherein both barriers comprise a plurality of protective slats (20), wherein the slats extend horizontally between a first vertical profile and a second vertical profile, wherein the protective slats are directed obliquely, extending from outside to inside, wherein the slats define between them oblique channels (24), and wherein the slats of the first barrier and the second barrier have opposite inclinations,

wherein the slats and the oblique channels form a partially closed, partially open construction, wherein the slats arrest a part of an incoming shock wave and wherein the channels are arranged to let another part of the incoming shock wave pass through the barrier, and

wherein the slats are designed to transfer forces of an explosion or incoming projectile onto the vertical profiles (136), and wherein the vertical profiles (136) are designed to transfer the forces onto the ground.

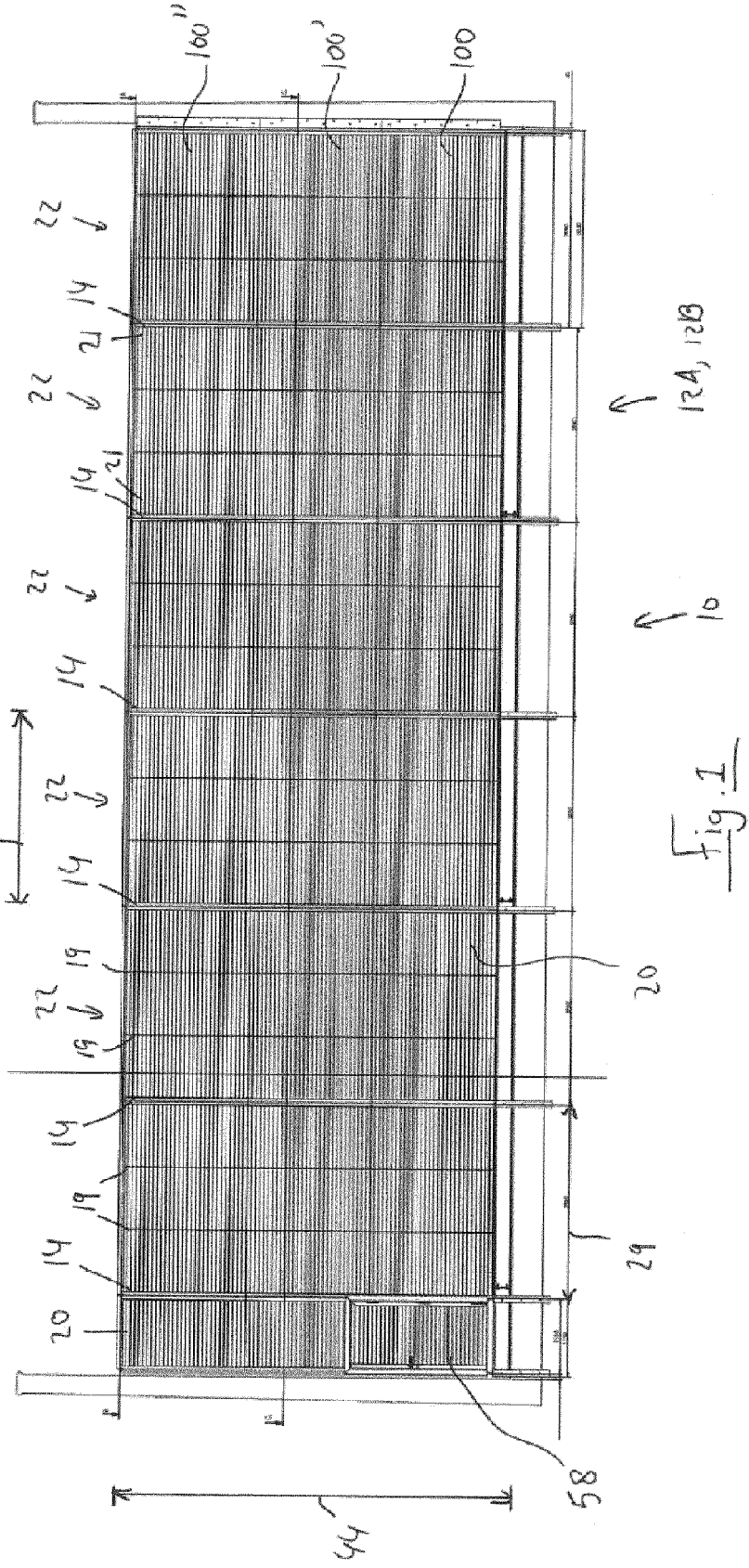
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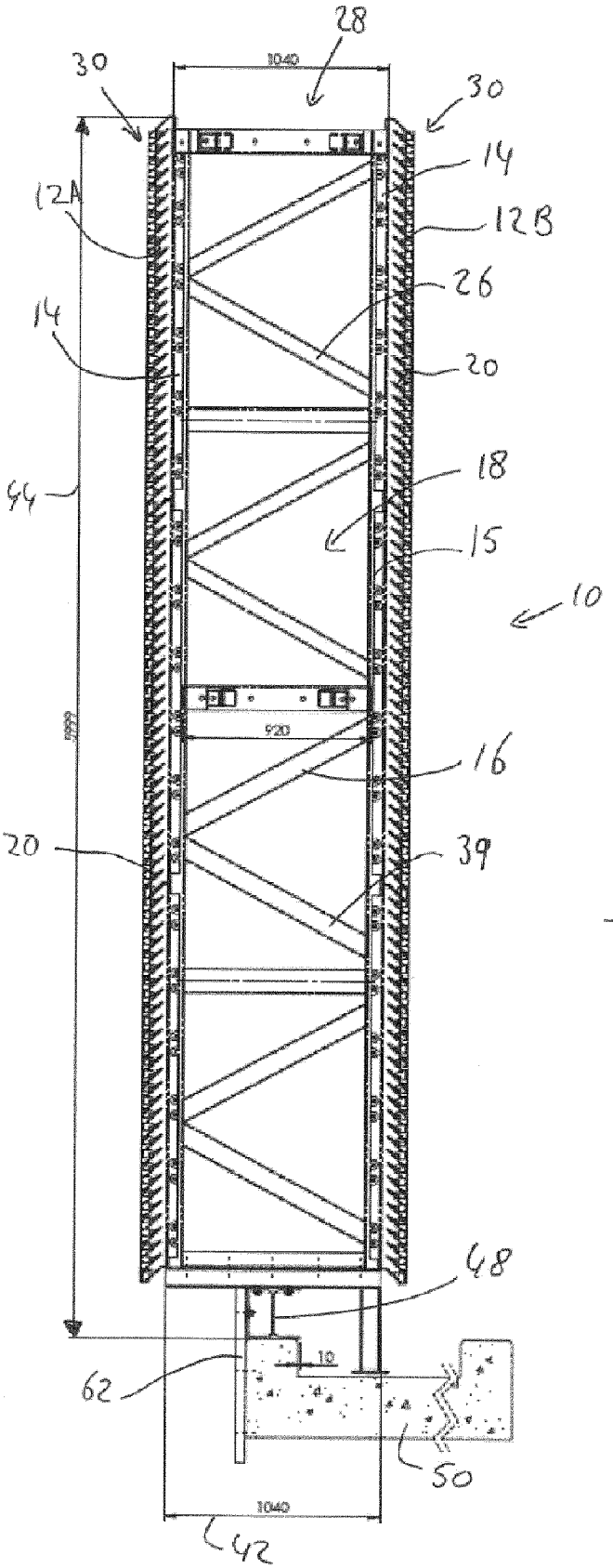
Fig. 1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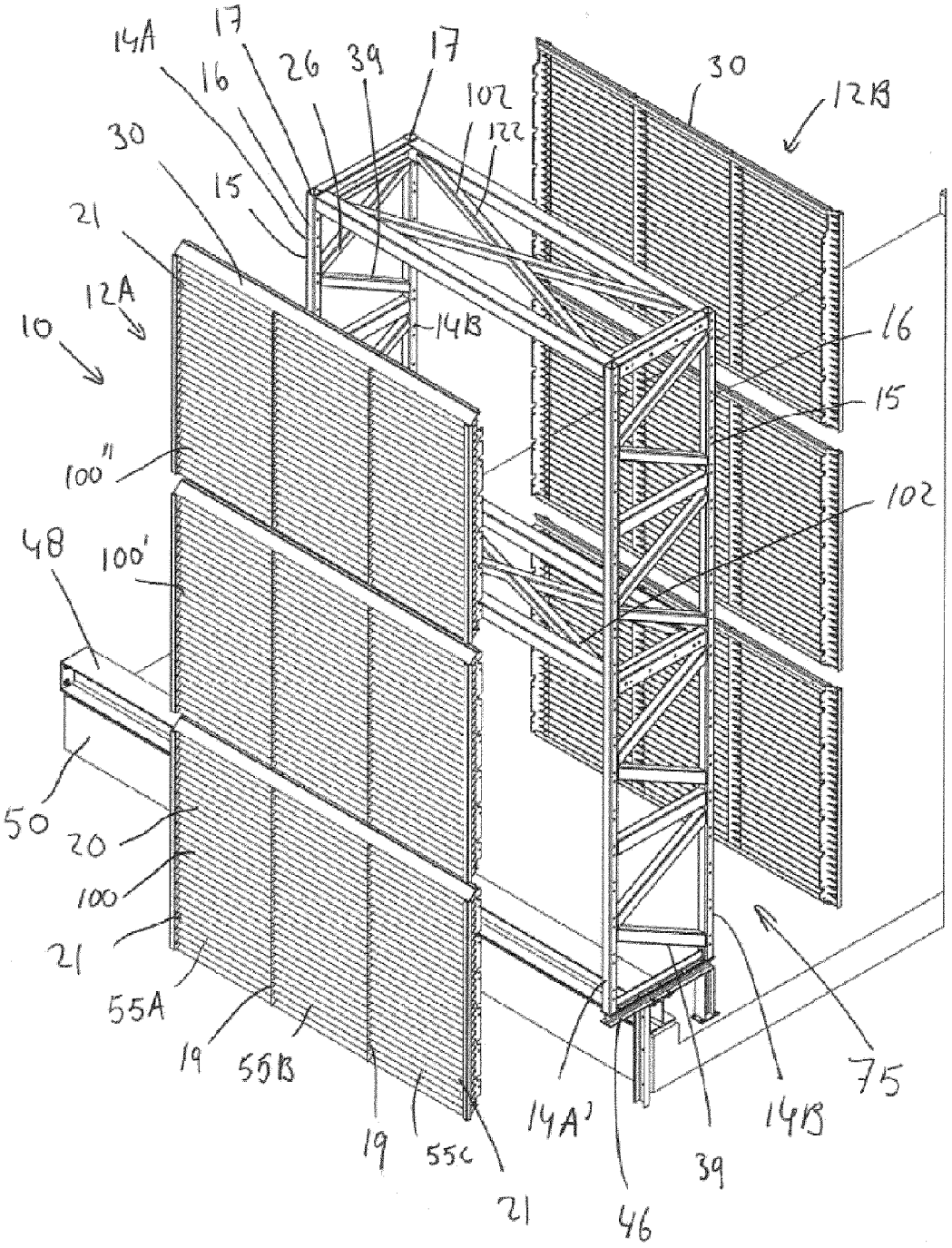
10
62
50
1040
42

Fig. 2


14A
17
16
26
39
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107
122
30
12B
30
15
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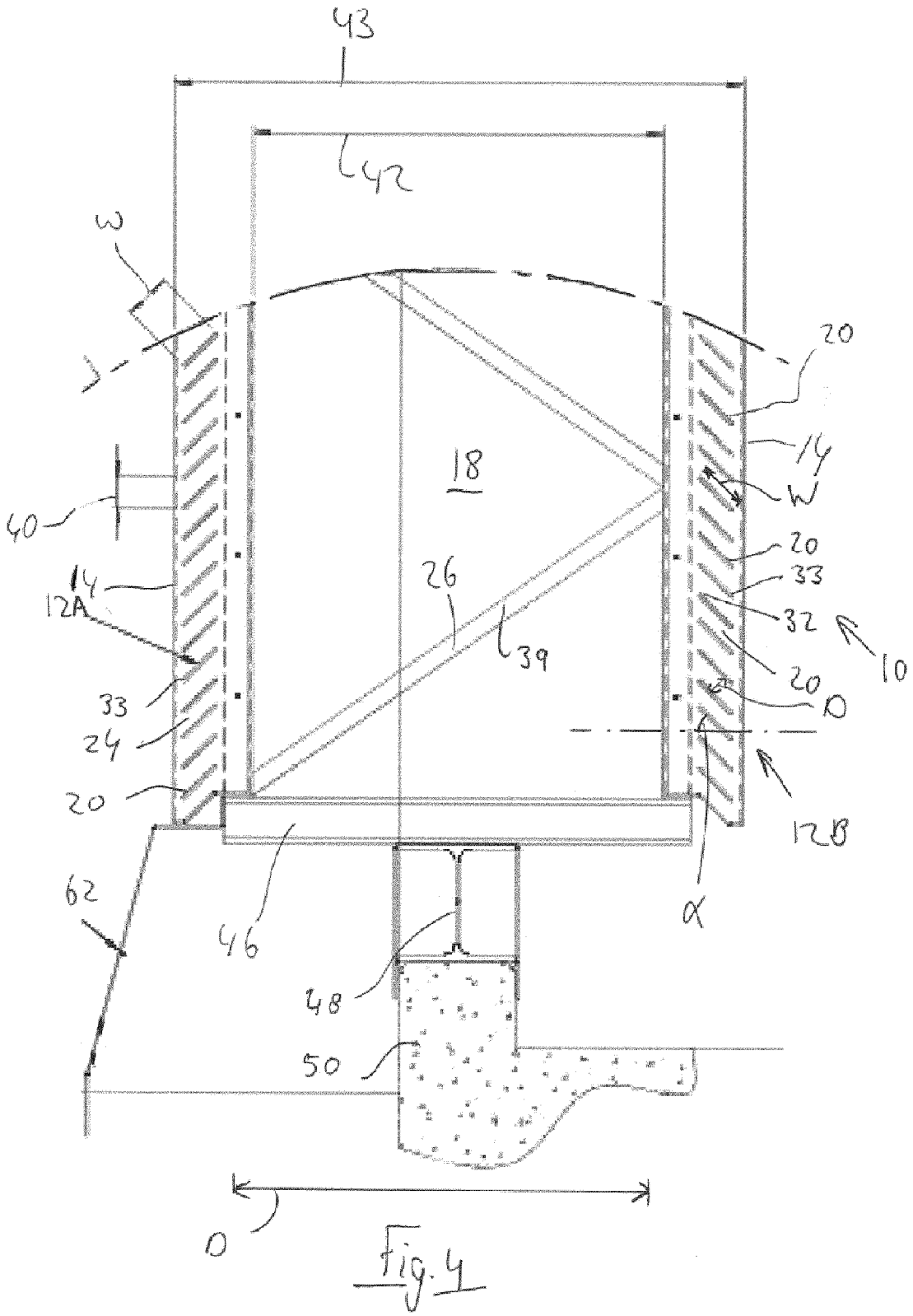
12A
10
14B
16
15
100"
102
48
100'
50
20
100
21
55A
19
55B
19
55C
21
46
14A'
39
14B
75

Fig. 3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42
W
20
18
14
W
40
20
14
33
12A
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32
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10
20
D
33
24
20
12B
62
46
α
48
50
D

Fig. 4

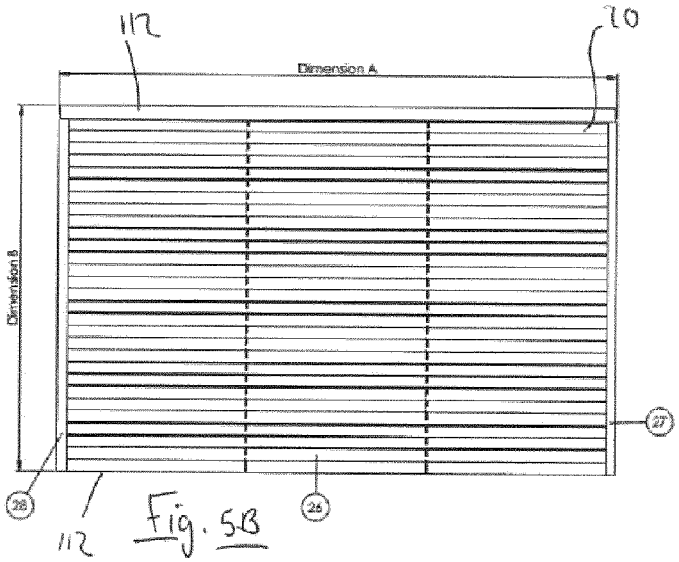

Fig. 5B

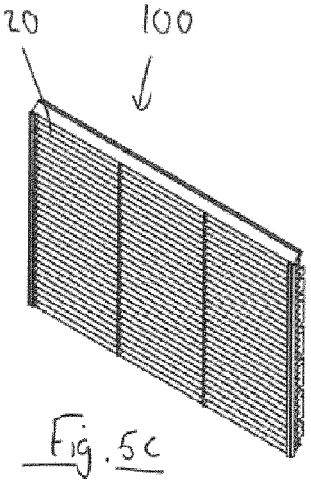

Fig. 5C

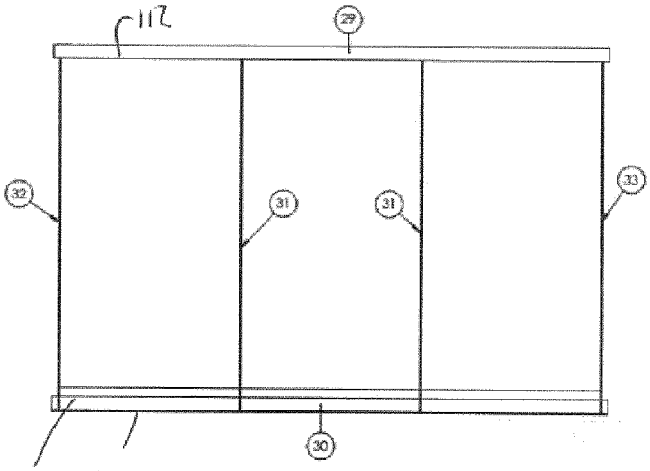

Fig. 5A

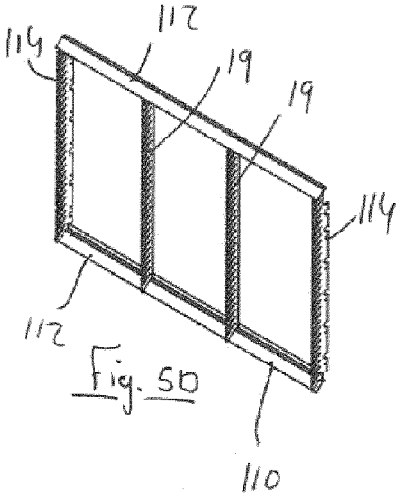

Fig. 5D

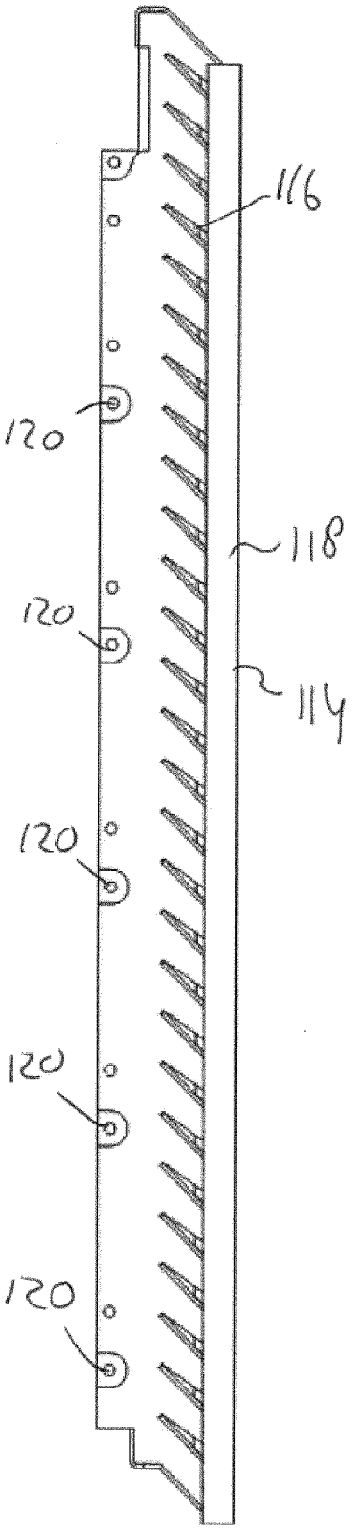

Fig. 6A

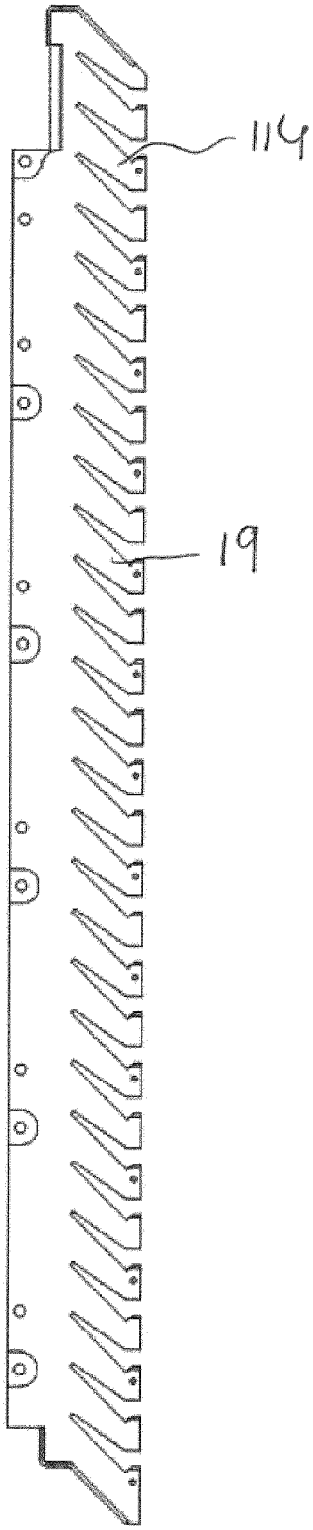

Fig. 6B

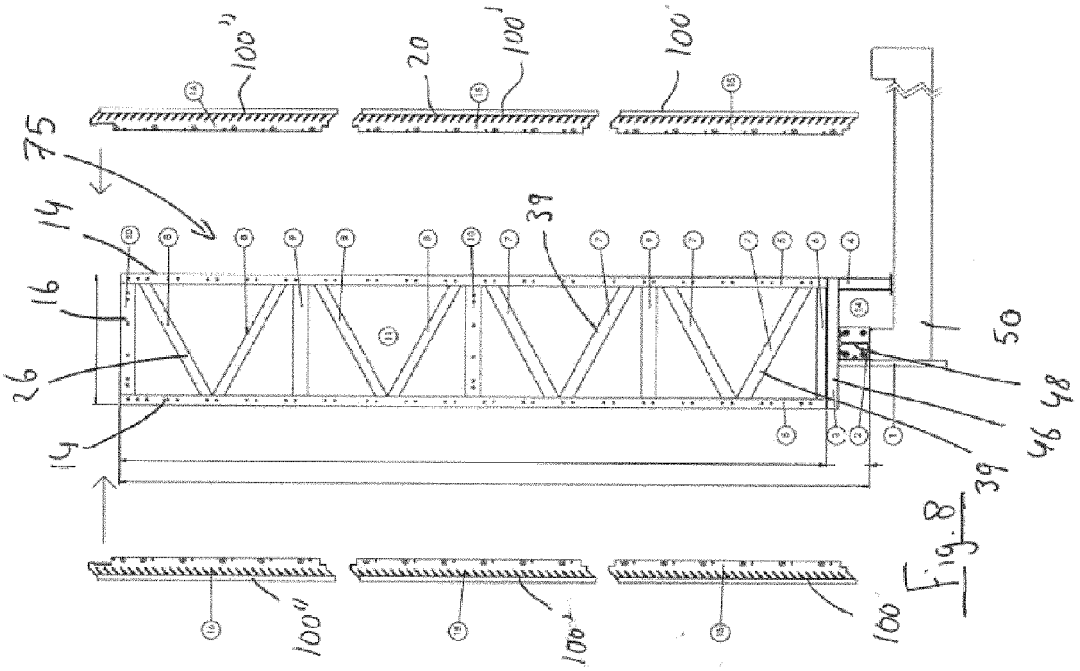

Fig. 8

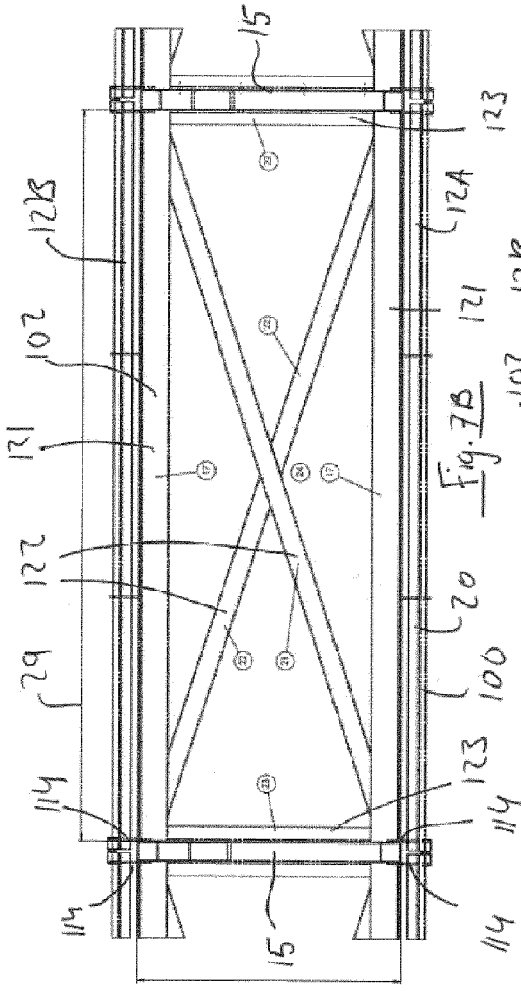

Fig. 7B

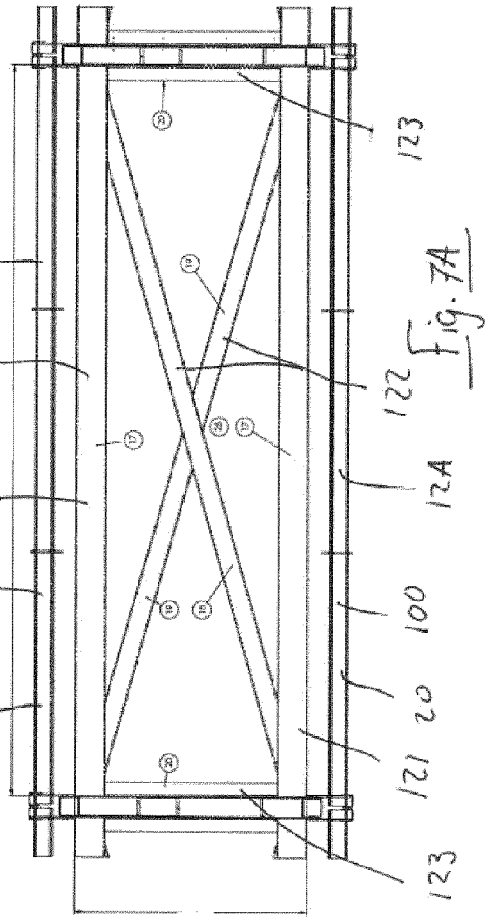

Fig. 7A

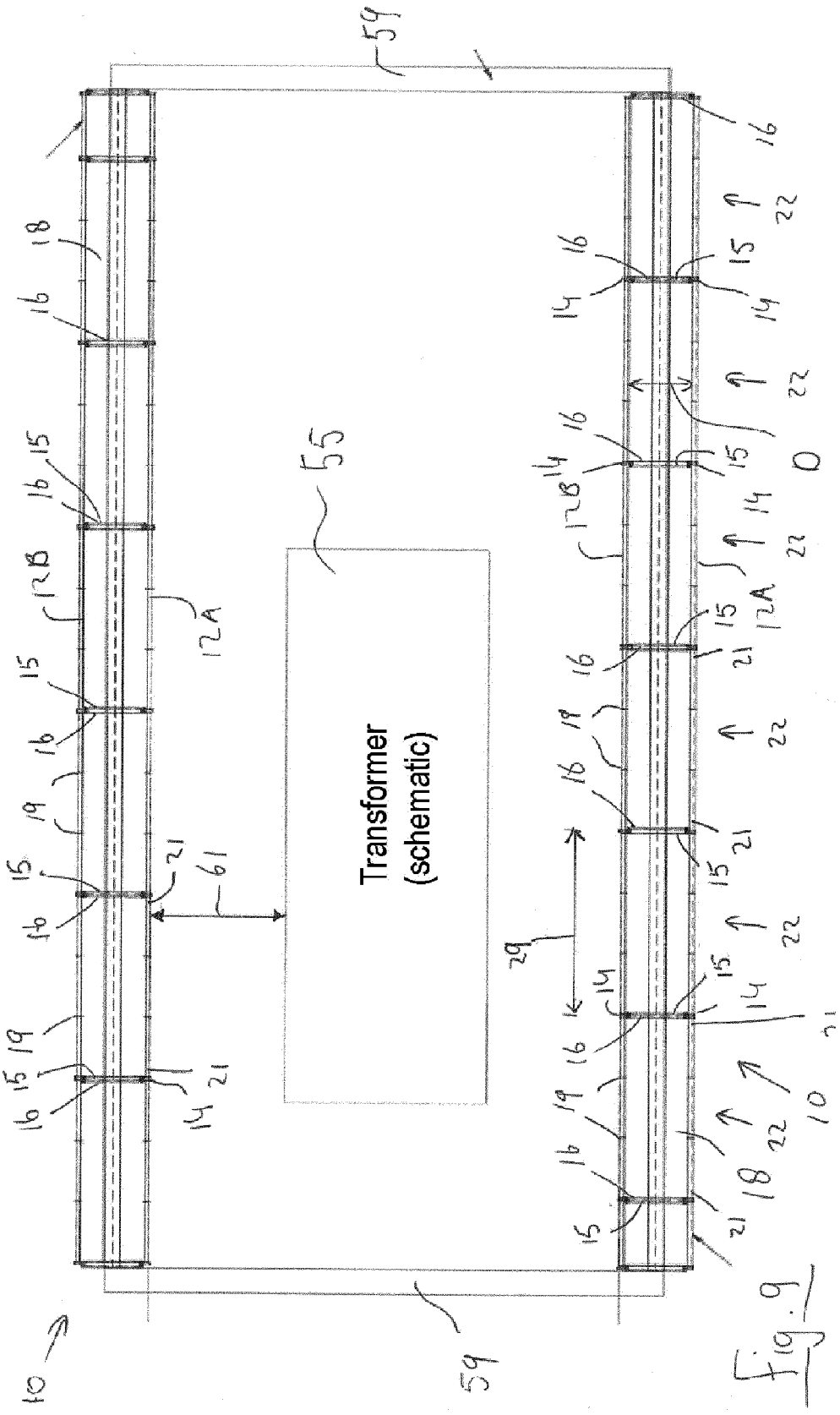

Fig. 9

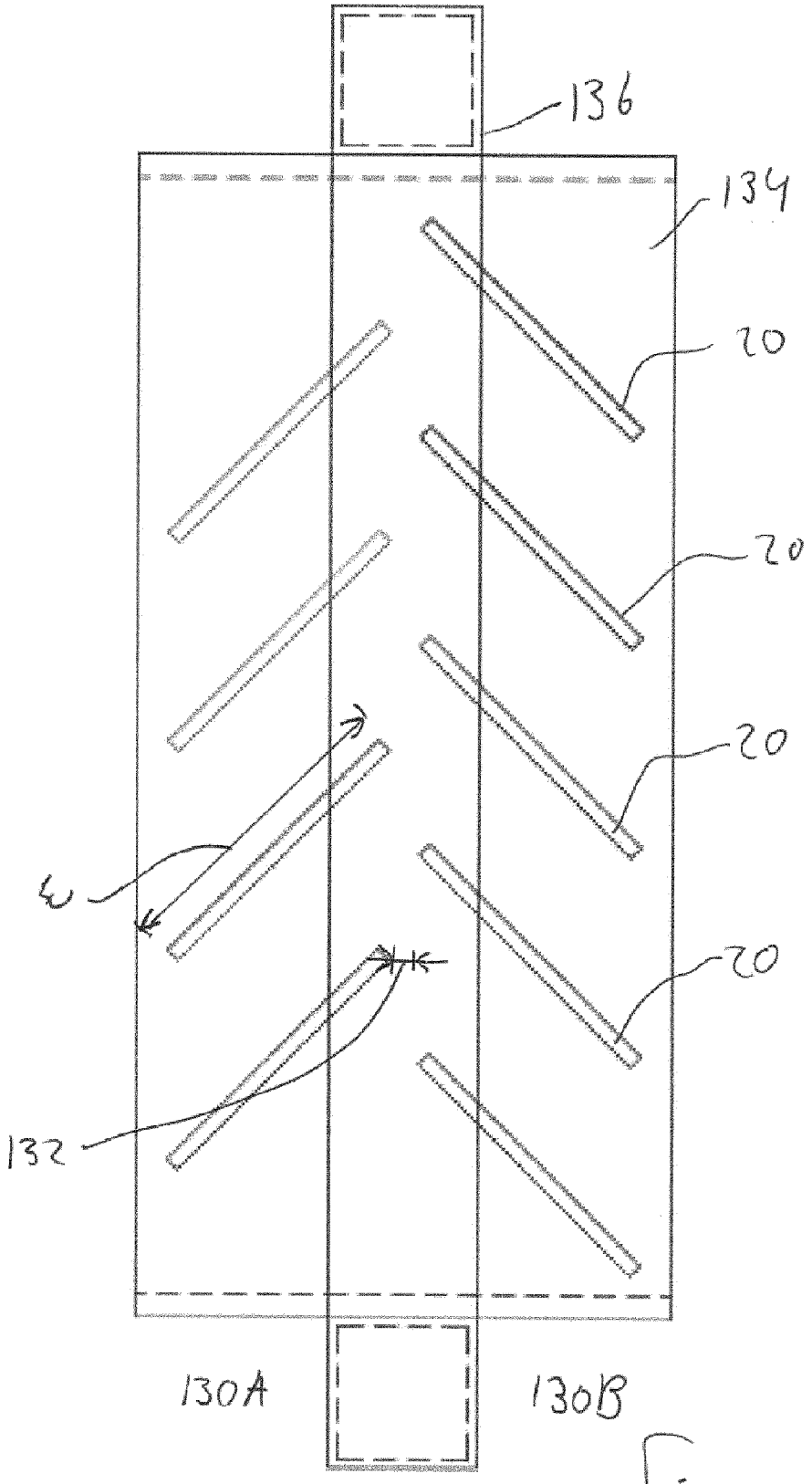

Fig. 10

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EUROPEAN SEARCH REPORT

Application Number
EP 15 17 6297

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 2010/043629 A1 (CARBERRY JOHN [US] ET AL) 25 February 2010 (2010-02-25) * page 2, right-hand column, paragraph 36 - page 5, right-hand column, paragraph 59; figures 1-6,17,18 *	1,3,5,7, 10,13, 15,17,18	INV. E04H9/10 F41H5/04
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TECHNICAL FIELDS SEARCHED (IPC)

E04H
F41H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	4 November 2015	Stefanescu, Radu

CATEGORY OF CITED DOCUMENTS

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