(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
23 February 2012 (23.02.2012)

PCT

(10) International Publication Number
WO 2012/023035 A2

(51) International Patent Classification:
E04H 17/16 (2006.01)

(21) International Application Number:
PCT/IB2011/001925

(22) International Filing Date:
22 August 2011 (22.08.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2010/06008 20 August 2010 (20.08.2010) ZA

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *without international search report and to be republished upon receipt of that report (Rule 48.2(g))*

(54) **Title**: FENCE PANEL

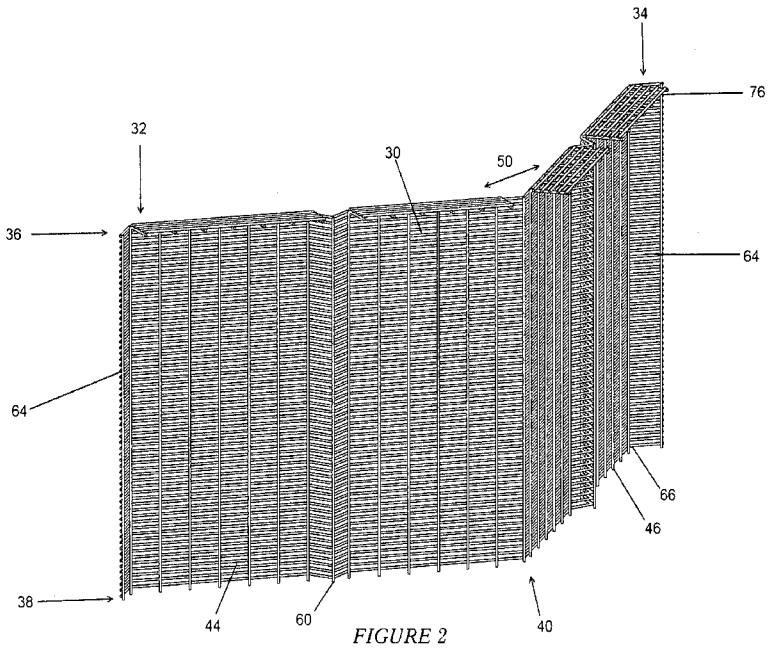


FIGURE 2

(57) **Abstract**: A fence which is formed from a plurality of mesh panels which, in plan, follow a zigzag path.

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FENCE PANEL

BACKGROUND OF THE INVENTION

[0001] This invention relates to a fence.

[0002] A fence which is erected for security purposes is generally highly visible and visually intrusive. In one type of security fence use is made of a high density welded mesh panel which is supported at opposing ends by means of posts, lower ends of which are embedded in the ground. The posts are made from tubular components, typically mild steel sheet, and are prominent and expensive. The panel on the other hand, despite being made from mesh, offers a see-through capability which does not unduly block vision.

[0003] Particular care must be taken to ensure that the poles are planted with a precise spacing between adjacent posts so that a fence panel which is formed under factory conditions to tight tolerances can be connected at an installation site to the posts with relative ease.

[0004] A primary requirement of a security fence is that it should offer a high degree of resistance to direct penetration. Of almost equal importance is that it should be difficult to scale the fence or burrow beneath the fence.

[0005] An object of the present invention is to address, at least in a preferred embodiment of the invention, the aforementioned requirements.

SUMMARY OF THE INVENTION

[0006] The invention provides in the first instance a fence panel which includes a sheet of welded mesh with first and second opposed vertical edges, and third and

fourth opposed horizontal edges, the sheet being formed with at least one fold line which extends vertically between, and parallel to, the first and second edges whereby the sheet is shaped to have at least two sections with an obtuse included angle between the sections.

[0007] By way of a non-limiting example the obtuse angle may be of the order of 135°.

[0008] The panel may be formed with at least a third fold line to form a third panel section with an obtuse included angle between the second panel section and the third panel section. In plan the fence panel may thus have a zigzag profile.

[0009] At least one panel section may include at least one rigidifying formation. The rigidifying formation may be in the form of a shallow V or channel which extends vertically. The formation may be positioned, preferably centrally, between a respective vertical edge and said fold line.

[0010] The sheet, adjacent one of the vertical edges, may be bent along a vertical line to form a flange.

[0011] An upper horizontal edge of the sheet may include deterrent formations of any appropriate kind. The deterrent formations may be formed by bending a peripheral portion of the sheet, adjacent the upper horizontal edge, out of a plane which is occupied by the remainder of the sheet. Typically the peripheral portion is bent through about 70° to 80°.

[0012] The invention also provides a fence which is formed from a plurality of fence panels, each fence panel being of the aforementioned kind, wherein lower horizontal edges of the panels are embedded in concrete and adjacent panels have vertical edges, preferably overlapping, which are secured to each other.

[0013] In a variation of the invention the fence is formed from a plurality of mesh panels which, in plan, follow a zigzag path. Each panel may be suitably stiffened by means of one or more vertically extending reinforcing formations. The lower edges of the mesh panels may be embedded in concrete. In this form of the invention it is not necessary to form each panel with a V-shape. Instead each panel, which is generally planar although it does have one or more vertically extending reinforcing formations, is connected to an adjacent, similar, non-coplanar panel. In this way the zigzag path is achieved. In the other form of the invention the zigzag path results by forming the respective panels, again suitably reinforced with vertically extending rigidifying formations, into respective V-shapes.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] The invention is further described by way of example with reference to the accompanying drawings in which:

Figure 1 illustrates a fence according to the invention;

Figure 2 shows panels in the fence of Figure 1;

Figure 3 is a plan view of the fence shown in Figure 1; and

Figure 4 shows the fence in elevation.

DESCRIPTION OF PREFERRED EMBODIMENTS

[0015] The accompanying drawings illustrate a fence 10, according to the invention, which is made from a number of fence panels 12, 14, 16...

[0016] In plan the fence follows a zigzag path or profile, see Figure 3. At an installation site a trench 20 is dug in the ground along the zigzag path and lower edges of the respective panels are embedded in concrete 22 which is then allowed to set.

[0017] The panels are substantially identical to one another. Each panel is made from a respective sheet of welded mesh 30 which has a high density. The sheet has first and second opposed vertical edges 32 and 34 respectively and third and fourth opposed horizontal edges 36 and 38. Initially the sheet is planar. However in a metal working process which is carried out in a suitable factory the sheet is formed with a vertically-extending fold line 40. The fold line divides the sheet 30 into two panel sections 44 and 46 which are equal in size to one another. The sections 44 and 46 have an included obtuse angle 50 between them which is of the order of 135°.

[0018] In order to strengthen the panel, an elongate reinforcing formation 60 is formed in each respective section 44 and 46. Each formation is roughly V-shaped in cross-section and extends from the lower edge 38 to the upper edge 36 of the panel.

[0019] A peripheral portion 64 of the panel, adjacent the vertical edge 34, is bent around a vertical line 66 to form an included angle, relative to the section 46, equal to the angle 50. Thus when the panel 12 is positioned adjacent the panel 14 the peripheral section 64 overlies a portion of the panel 14 which is adjacent its vertical edge 32. Suitable fasteners 70 (Figure 4) are then used to secure the two panels firmly together.

[0020] When the fence is erected the base of each panel is positioned in the trench and adjacent panels are bolted together. Once the panels have been levelled vertically and horizontally the concrete 22 is poured into the trench. No posts are used in the erection of the fence.

[0021] The resulting structure has considerable rigidity due to the zigzag structure of the high density mesh panels. No posts are required. The erection process does not

call for the same degree of precision and accuracy as is the case when panels are connected to posts. The high density mesh structure is difficult to penetrate and, due to the concrete foundation, an intruder cannot easily dig underneath the fence. At an upper end of the fence a section 76 of each panel is bent through an angle of about 70°. This helps to rigidify the fence in its upper region and, moreover, constitutes a formation which makes it difficult for an intruder to scale the fence. If the fence traverses ground which is not level one panel can be lifted or lowered, relative to an adjacent panel, and then bolted together before concrete placement takes place, to ensure that the fence follows the ground contours.

[0022] Despite the high security value of the fence the panels are not visually obtrusive and provide a see-through capability.

[0023] In the preceding example the fence is constructed from a plurality of panels each of which is bent to have a V-shape. Appropriate rigidifying formations and flanges at vertical edges are formed, as necessary, to ensure that each panel is relatively stiff and to facilitate coupling of adjacent panels to each other. In a variation of the invention each panel, although formed with one or more rigidifying formations which, in use, extend vertically (generally of the kind 60 shown in Figure 3 say) is substantially planar and is not bent into two adjacent panel sections 44 and 46. Instead, each substantially planar panel is fixed to an adjacent substantially planar panel at an appropriate angle (viewed in plan) so that the resulting erected fence follows a generally zigzag path. In this form of the invention orientations of the panels vary to achieve the zigzag path. In the other form of the invention the zigzag path results from bending each panel into sections which, viewed in plan, are at an angle to each other. In the second form of the invention lower edges of the panels

are, also, embedded in concrete and vertical edges of the panels are formed with flanges, as appropriate, to facilitate coupling of adjacent panels to one another.

CLAIMS

1. A fence panel which includes a sheet of welded mesh with first and second opposed vertical edges, and third and fourth opposed horizontal edges, the sheet being formed with at least one fold line which extends vertically between, and parallel to, the first and second edges whereby the sheet is shaped to have at least two sections with an obtuse included angle between the sections.

2. A fence panel according to claim 1 wherein at least one panel section is formed with a vertically extending rigidifying formation.

3. A fence panel according to claim 1 or 2 wherein the sheet, adjacent one of the vertical edges, is bent along a vertical line to form a flange.

4. A fence panel according to any one of claims 1 to 3 wherein the sheet has deterrent formations, at an upper horizontal edge, formed by bending a peripheral portion of the sheet, adjacent the upper horizontal edge, out of a plane which is occupied by the remainder of the sheet.

5. A fence which is formed from a plurality of fence panels, each fence panel being according to any one of claims 1 to 4, wherein lower horizontal edges of the panels are embedded in concrete and adjacent panels have vertical edges which are secured to each other.

6. A fence which is formed from a plurality of mesh panels which, in plan, follow a zigzag path.

7. A fence according to claim 6 wherein lower horizontal edges of the mesh panels are embedded in concrete.

8. A fence according to claim 6 or 7 wherein each panel, in plan, is generally planar.

9. A fence according to claim 6, 7 or 8 wherein each panel is formed with at least one vertically extending reinforcing formation.

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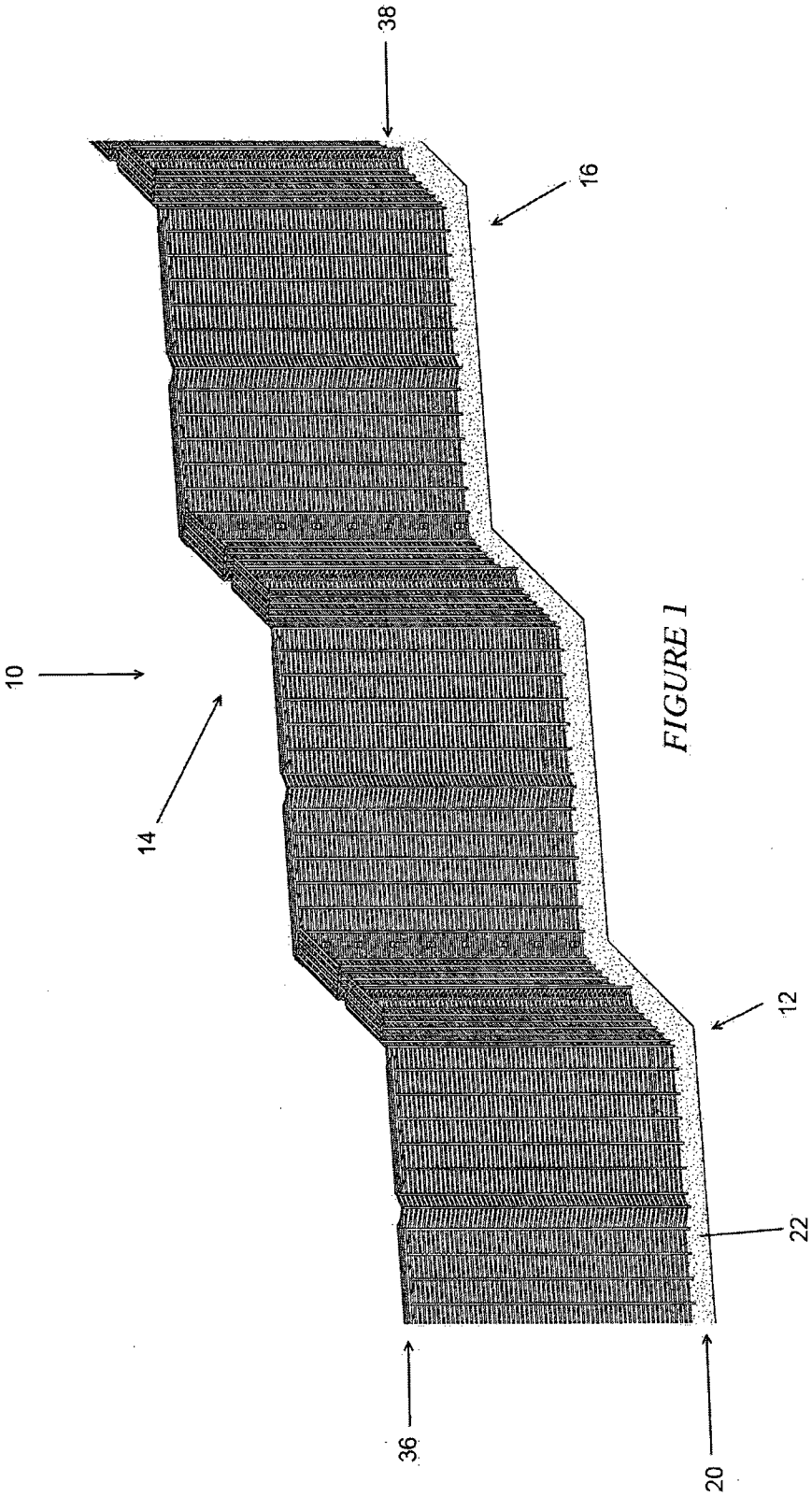


FIGURE 1

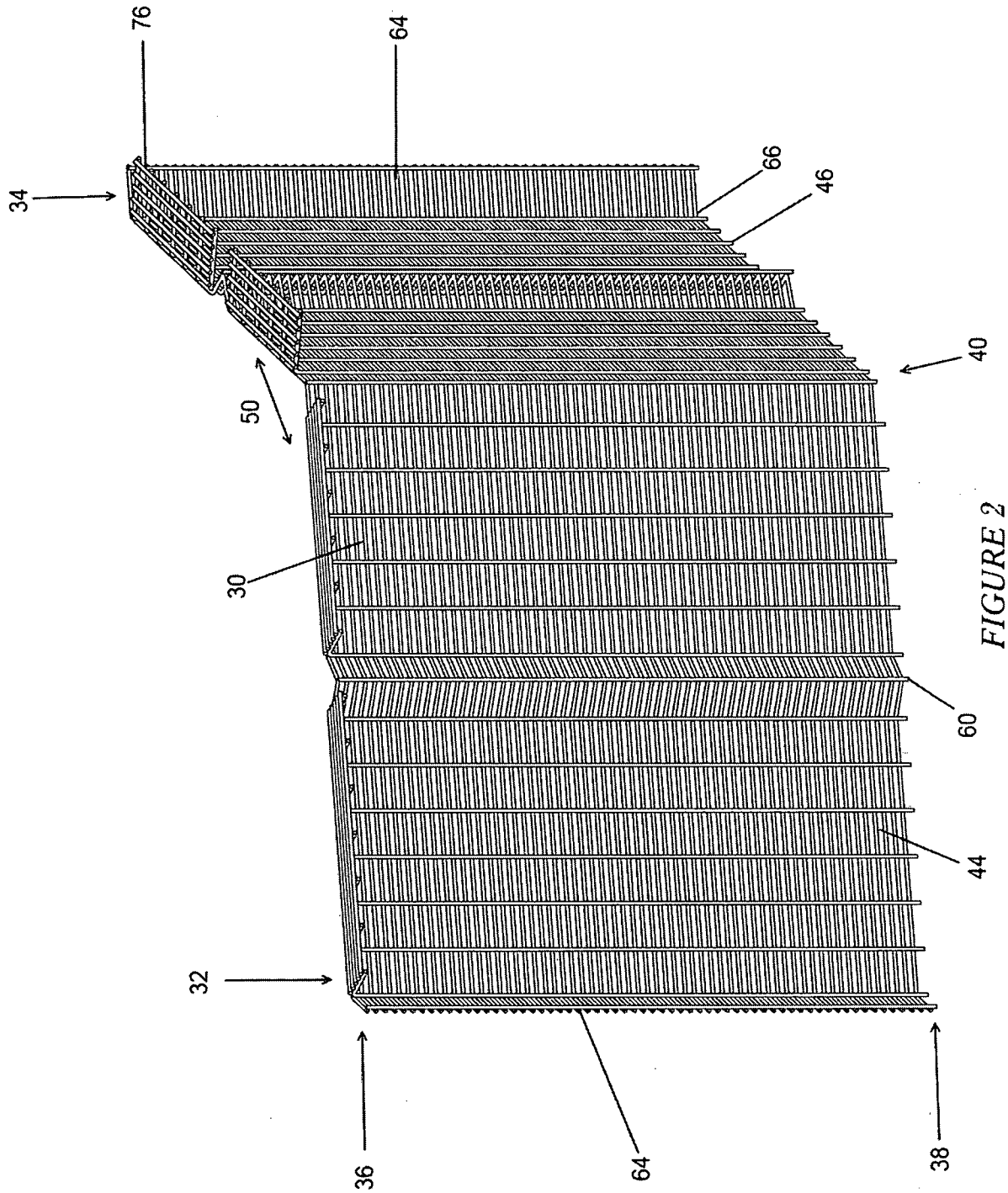


FIGURE 2

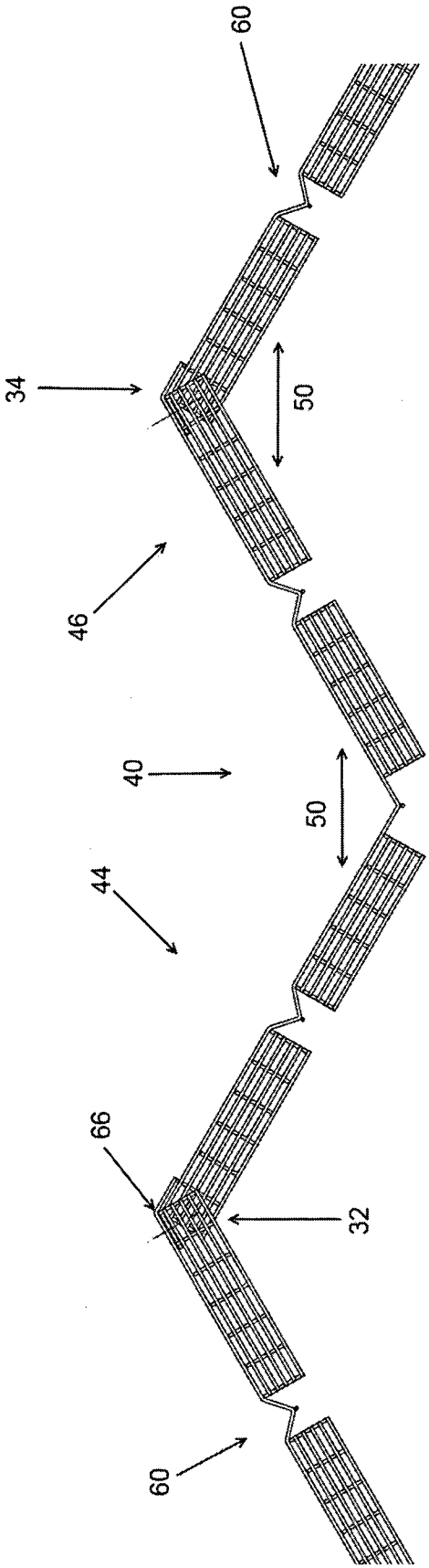


FIGURE 3

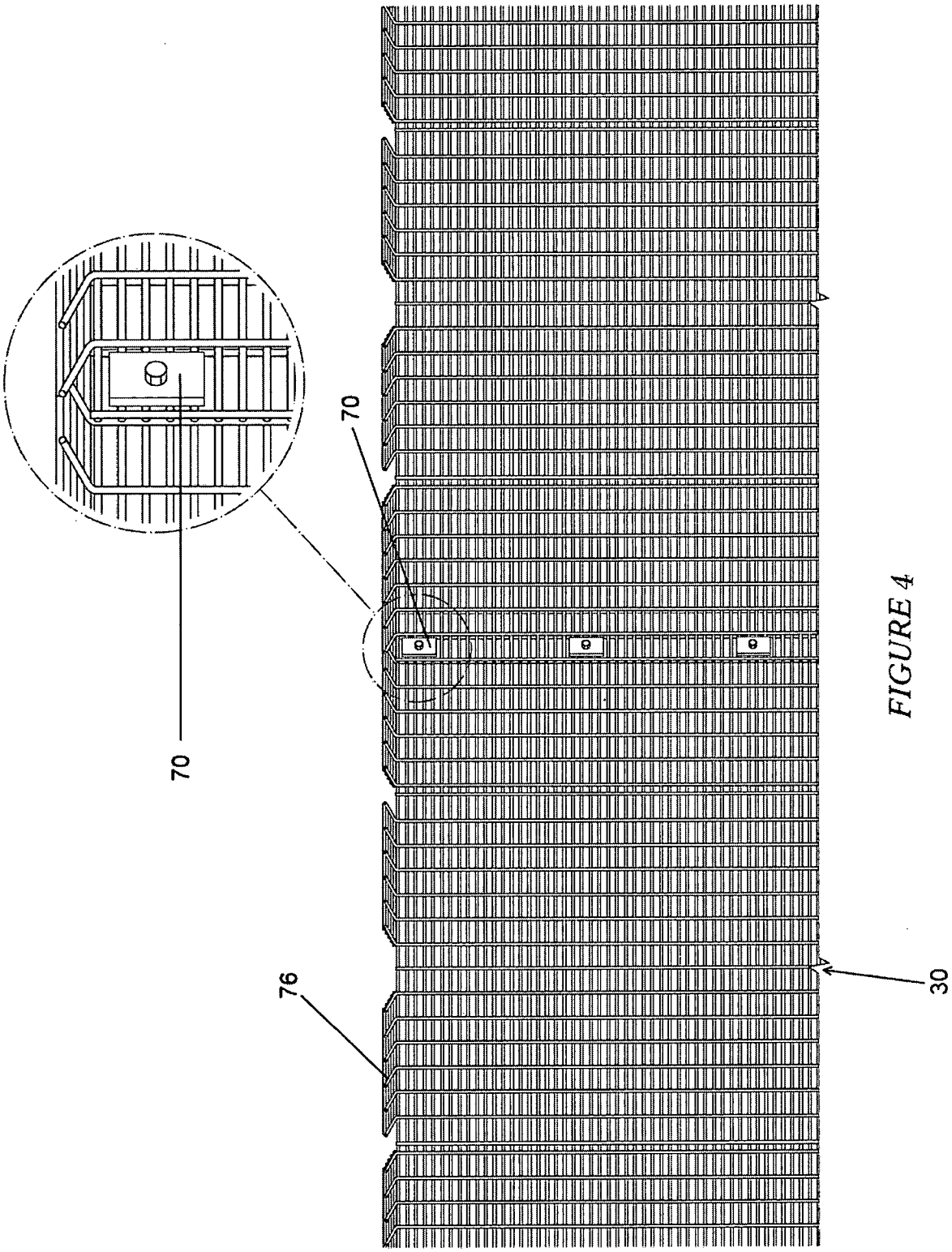


FIGURE 4