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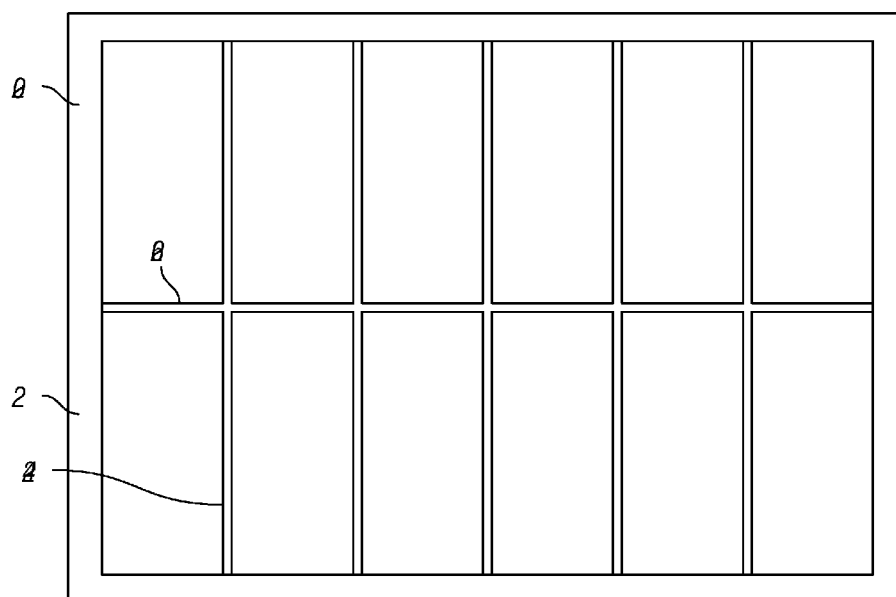


FIG 2A

(57) Abstract: A shale shaker for separating solids from a solids laden drilling mud, the shale shaker comprising a screen assembly (40) comprising a screen support (42) supporting at least one layer of screening material (48) having an outer periphery (48a) within an outer periphery of said support (42) said outer peripheries binding a peripheral area (46) characterised in that the periphery (48a) of the at least one layer of screening material (48) is planar with or recessed from at least a substantial portion of said peripheral area (46).

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A SHALE SHAKER AND A SCREEN ASSEMBLY THEREFOR

The present invention relates to a shale shaker and a screen assembly for a shale shaker and a method for making a screen assembly for a shale shaker.

5 Vibratory separators are used in a wide variety of industries to separate materials such as liquids from solids or solids from solids. Typically such separators have a basket or other screen holding or mounting apparatus mounted in or over a receiving receptacle or
10 tank and vibrating apparatus for vibrating the basket and thus the screen. One or more screens are mounted in the basket. Material to be treated is introduced to the screen(s) from above either by flowing it directly onto the screen(s) or by flowing it into a container, tank, or
15 "possum belly" from which it then flows on to the screen(s). Also in some multi-screen apparatuses material flows generally horizontally or uphill from one screen to another and, in certain systems, from an upper screen onto a lower screen which may have the same grade screen
20 or of a finer grade.

 In the drilling of a borehole in the construction of an oil or gas well, a drill bit is arranged on the end of a drill string and is rotated to bore the borehole. A drilling fluid known as "drilling mud" is pumped through
25 the drill string to the drill bit to lubricate the drill bit. The drilling mud is also used to carry the cuttings produced by the drill bit and other solids to the surface through an annulus formed between the drill string and the borehole. The drilling mud contains expensive
30 synthetic oil-based lubricants and it is normal therefore to recover and re-use the used drilling mud, but this requires the solids to be removed from the drilling mud. This is achieved by processing the drilling fluid. The

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first part of the process is to separate the solids from the solids laden drilling mud. This is at least partly achieved with a vibratory separator, such as those shale shakers disclosed in US 5,265,730, WO 96/33792 and WO 5 98/16328.

Shale shakers generally comprise an open bottomed basket having one open discharge end and a solid walled feed end. A number of rectangular screens are arranged in the basket held in C-channel rails located on the basket 10 walls, such as those disclosed in GB-A-2,176,424. The basket is arranged on springs above a receptor for receiving recovered drilling mud. A skip or ditch is provided beneath the open discharge end of the basket. A motor is fixed to the basket, which has a drive rotor 15 provided with an offset clump weight. In use, the motor rotates the rotor and the offset clump weight, which causes the basket and the screens fixed thereto to shake. Solids laden mud is introduced at the feed end of the basket on to the screens. The shaking motion induces the 20 solids to move along the screens towards the open discharge end. Drilling mud passes through the screens. The recovered drilling mud is received in the receptor for further processing and the solids pass over the discharge end of the basket into the ditch or skip. In 25 some shale shakers material flows generally horizontally or uphill from one screen to another and, in certain shale shakers, from an upper screen onto a lower screen.

The screens are generally of one of two types: hook-strip; and pre-tensioned.

30 The hook-strip type of screen comprises several rectangular layers of mesh in a sandwich, usually comprising one or two layers of fine grade mesh and a supporting mesh having larger mesh holes and heavier

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gauge wire. The layers of mesh are joined at each side edge by a strip which is in the form of an elongate hook. In use, the elongate hook is hooked on to a tensioning device arranged along each side of a shale shaker. The shale shaker further comprises a crowned set of supporting members, which run along the length of the basket of the shaker, over which the layers of mesh are tensioned. An example of this type of screen is disclosed in GB-A-1,526,663. The supporting mesh may be provided with or replaced by a panel having apertures therein.

The pre-tensioned type of screen comprises several rectangular layers of mesh, usually comprising one or two layers of fine grade mesh and a supporting mesh having larger mesh holes and heavier gauge wire. The layers of mesh are pre-tensioned on a rigid support comprising a rectangular angle iron frame and adhered thereto. The screen is then inserted into C-channel rails arranged in a basket of a shale shaker. An example of this type of screen is disclosed in GB-A-1,578,948.

A further example of a known rigid support is disclosed in PCT Publication No. WO 01/76719, which discloses, amongst other things, a flat panel like portion having apertures therein and wing portions which are folded to form a support structure, which may be made from a single sheet of material. This rigid support has been assigned the Trade Mark "UNIBODY" by the applicants.

The layers of mesh in the screens wear out frequently and therefore need to be easily replaceable. Shale shakers are generally in the order of 5ft wide and 10ft long. A screen of dimensions 5ft wide by 10ft long is difficult to handle, replace and transport. It is known to use two, three, four or more screens in a single shale shaker. A standard size of screen currently used is

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of the order of 4ft by 3ft.

The prior art discloses a wide variety of screens and screen assemblies for use in vibratory separators and shale shakers and methods for making screen assemblies.

5 Many of these screen assemblies employ screening material that as installed in a screen assembly can have exposed rough portions and edges. Known methods for dealing with these rough parts have included grinding the edges in an attempt to smooth them out; cutting or shearing of the
10 screen edges; and applying hot melting tapes or adhesives to the edges. U.S. Patent 6,672,2460 discloses a screen assembly with a lip that forms a rim enclosure with a blunt edge around the perimeter of the screen assembly.

There are a wide variety of patents disclosing
15 screen assemblies for shale shakers and vibratory separators, including, but not limited to, those in U.S. patents 5,967,336; 6,202,856; 4,909,929; 6,543,621; 6,439,392; and in U.S. Application Ser. No. 10/473,262 filed Nov. 12, 2002.

20 The inventors have observed that solids material settles around the periphery of the screen assembly, increasing the mass of the screen assembly to be vibrated. This increase in mass interferes with vibration patterns which are tuned to obtain movement along the
25 length of the shale shaker to advance solids and solids laden drilling mud along the screen assembly fixed in the shale shaker. Furthermore, it has been observed that the solids, such as silt, settles in around the periphery of the screen assembly, and upon replacement, at least a
30 portion of the solids fall in to the sump of the shale shaker and returned with the screened drilling mud. The inventors have observed that occurs particularly, but not exclusively with shale shaker having wedge type screen

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assembly fitting systems.

There has long been a need, recognized by the present inventor for an effective and efficient assemblies with edges that are easily handled and which
5 are relatively smooth.

In accordance with the present invention, there is provided a shale shaker for separating solids from a solids laden drilling mud, the shale shaker comprising a screen assembly comprising a screen support supporting at
10 least one layer of screening material having an outer periphery within an outer periphery of the support the outer peripheries binding a peripheral area characterised in that the periphery of the at least one layer of screening material is planar with or recessed from at
15 least a substantial portion of the peripheral area. Preferably, the at least one layer of screening material is planar with or recessed from the entire area of the peripheral portion.

The shale shaker may be any suitable apparatus for
20 holding a screen assembly for separating solids from solids laden drilling mud, such as a vibratory separator comprising an open bottomed basket having one open discharge end and a solid walled feed end. A number of rectangular screens are arranged in the basket held in C-
25 channel rails located on the basket walls, such as those disclosed in GB-A-2,176,424 using pneumatic bladders or wedges to fix the screen assemblies therein. Alternatively, the shale shaker may be of the type using an upwardly directed flow through the screen assembly,
30 such as that disclosed in PCT Publication Number WO 2007/057711, WO 2008/041017 and WO 2008/041018.

Preferably, the screen support comprises an edge panel on the at least a substantial part of the

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peripheral area, the edge panel planar with the at least one layer of screening material. Advantageously, the screen support has a side and the edge panel extends from the periphery of the at least one layer of screening material over at least a portion of the side. Preferably, the side is substantially perpendicular to the plane of the peripheral area.

Advantageously, the screen support comprises a frame. Preferably, the frame is constructed from angled material, such as angle iron, aluminium or a composite material. Advantageously, the frame comprises cross-members to improve the rigidity of the frame. The cross-members may be arranged perpendicular or in-line with the direction of flow of solids laden drilling mud when in use. Alternatively or additionally the support comprises a folded structure, such as the structure shown in PCT Publication Number WO 01/76719.

Preferably, filler material is applied between the periphery of the screen support and the periphery of the at least one layer of screening material. Preferably, the filler material is planar with the screen support and the at least one layer of screening material.

Advantageously, the at least one layer of screening material comprises a perforate plate. Preferably, the perforate plate is planar with the plane of the peripheral area. Advantageously, the at least one layer of screening material comprises at least one layer of screening mesh. Preferably, the top surface of the at least one layer of screening mesh is planar with the plane of the peripheral area. Advantageously, the at least one layer of screening material comprises a plurality of layers of screening mesh. Preferably, the top surface of the uppermost layer of screening mesh is

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planar with the plane of the peripheral area.

Advantageously, the screen support comprises a recessed portion for receiving the at least one layer of screening material. Preferably, the peripheral area is
5 formed by a top member, the top member having an underside, and the outer edge of the at least one layer of screening material positioned under the underside of the top member of the top member. Advantageously, the at least one layer of screening material has a bend so that
10 a top surface of the at least one layer of screening material is planar with the at least a substantial portion of the peripheral area.

The present invention also provides a screen assembly of the shale shaker of the present invention.

15 The present invention also provides a method for making a screen assembly for a shale shaker, the screen assembly comprising a support supporting at least one layer of screening material having an outer periphery within an outer periphery of the support the outer
20 peripheries binding a peripheral area characterised in that the method comprises the step of ensuring the periphery of the at least one layer of screening material is planar with or recessed from at least a substantial portion of the peripheral area.

25 Preferably, the method further comprises the steps of placing an edge panel on the at least a substantial part of the peripheral area, the edge panel planar with the at least one layer of screening material.

Advantageously, the method further comprises the
30 steps of forming a recessed portion in the support for receiving the at least one layer of screening material.

Preferably, the method further comprises the steps of bending the at least one layer of screening material

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to be planar with or recessed from at least a substantial portion of the peripheral area.

Advantageously, the method further comprises the steps of providing a peripheral panel and securing the
5 peripheral panel to the at least one layer of screening material and the screen support to allow the at least one layer of screening material to be planar with or recessed from at least a substantial portion of the peripheral area.

10 Preferably, the method further comprises the steps of providing a perforate panel and securing the perforate panel to the at least one layer of screening material and the screen support to allow the at least one layer of screening material to be planar with or recessed from at
15 least a substantial portion of the peripheral area.

The present invention, in certain aspects, discloses a screen assembly for use in screening material on a vibratory separator in which the material is fed to the screen assembly as the screen assembly is vibrated by
20 vibratory apparatus of the vibratory separator, the screen assembly including: a support for supporting screen mesh, the support having an outer periphery, the screen mesh having an outer edge at the outer periphery of the support, and an edge panel with a portion of the
25 edge panel covering the outer edge of the screen mesh. In certain aspects, the vibratory separator is a shale shaker, and the material to be treated by the screen assembly is drilling fluid with drilled solids from a wellbore operation.

30 The present invention, in certain aspects, discloses methods for making a screen assembly, the screen assembly for use in screening material to be treated by a vibratory separator, the vibratory separator having

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vibrating apparatus for vibrating the screen assembly to assist in treating of the material, the method including: placing screen mesh on a support, the screen mesh having an outer edge and the support having an outer periphery; and placing an edge panel on the screen mesh, a portion of the edge panel protecting the outer edge of the screen mesh.

The present invention, in certain aspects, discloses a method for making a screen assembly for a vibratory separator or shale shaker, the method including: placing screen mesh within an opening of a screen support, the screen mesh having an outer edge; maintaining the screen mesh within the opening with a maintenance member; placing an edge panel within the support, the edge panel having an inner part and an outer part, an inner part of the edge panel over the screen mesh's outer edge and the outer part of the edge panel on the screen support; securing the screen mesh to the support; and securing the edge panel to the support.

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For a better understanding of the present invention, reference will now be made, by way of example, to the accompanying drawings, in which:

Figure 1A is top plan view of a screen assembly,
5 with layers of screen mesh partially cutaway, the screen assembly in accordance with the present invention;

Figure 1B is top plan view of a screen assembly, with layers of screen mesh partially cutaway, the screen assembly in accordance with the present invention;

10 Figure 1C is a top plan view of a support frame for the screen assembly shown in Figure 1A;

Figure 1D is a top plan view showing the screen assembly shown in Figure 1A on the support frame shown in Figure 1C, with some hidden parts of the support frame
15 shown in dashed lines;

Figure 1E is a top plan view of an edge panel for a screen assembly in accordance with the present invention;

Figure 1F shows the edge panel shown in Figure 1E on the screen assembly on the support frame shown in Figure
20 1D, with some hidden parts of the support frame shown in dashed lines;

Figure 2A is an end cross-section view of part of a screen assembly in accordance with the present invention;

Figure 2B is an end cross-section view of part of a
25 screen assembly in accordance with the present invention;

Figure 3A is an end view of a screen support for a screen assembly in accordance with the present invention;

Figure 3B shows the screen support shown in Figure 3A with screen mesh thereon in accordance with the
30 present invention;

Figure 4A is a top plan view of a screen support in accordance with the present invention;

Figure 4B is a cross-section view along line 4B-4B

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of Figure 4A;

Figure 4C is a cross-section view along line 4C-4C of Figure 4A;

Figure 5A is an end view of screen mesh for use in a screen assembly in accordance with the present invention.

Figure 5B is an end view showing a screen support for supporting the mesh shown in Figure 5A;

Figure 5C is an end view showing the screen mesh shown in Figure 5A adjacent the screen support shown in Figure 5B;

Figure 5D is a top plan view of a panel for use in a screen assembly in accordance with the present invention;

Figure 5E shows a screen assembly with the panel shown in Figure 5D within the screen support shown in Figure 5C;

Figure 5F shows the screen assembly shown in Figure 5E in an upright position; and

Figure 6 is an end cross-section view of part of a screen assembly in accordance with the present invention.

Referring now to Figure 1A, a perforated plate 10 has thereon a plurality of screen mesh layers 11, 12 and 13, each with some rough edge portions 11a, 11b, 12a, 12b, and 13a, 13b, respectively. Optionally, as shown in Figure 1B, the rough edges have been removed.

Figure 1C shows a screen support or frame 20 with an outer frame 22 and crossmembers 24, 26. Figure 1D shows a combination of the plate 10 with the screen mesh layers 11, 12, 13 secured on the screen support 20 as shown in Figure 1A or 1B with the plate 10 secured to or simply laying on the screen support 20 in any known way and the mesh layers 11, 12, 13 may be connected to each other and/or to the plate 10 in any known way, such as with a hot melt glue, resin, stapled or sewn. The screen layers

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11, 12, 13 may be any known screen mesh or material suitable for use in screen assemblies for a shale shaker or vibratory separator (including, e.g., metal, fibreglass, and plastic).

5 Figure 1E shows an edge panel 30 in accordance with the present invention. Figure 1F shows the edge panel 30 in place over the edges of the screening mesh layers 11, 12, 13. The edge panel 30 may be secured in place by any suitable known method including, but not limited to,
10 securement to the plate 10 with fasteners and/or adhesives with or without fasteners passing through the edges of the layers 11, 12, 13 and/or with or without adhesive contacting the edges of the layers 11, 12 13. Any known suitable screen support or frame may be used in
15 place of the screen support 20 and any suitable known plate or other support may be used in place of the plate 10.

 Figure 2A shows a step in a method in accordance with the present invention for providing a smooth edge
20 for a screen assembly. A screen assembly 40 in accordance with the present invention (shown partially) has a screen support 42 with an upper ledge 44 having an upper surface 46. A combination of layer or layers of screen mesh and a perforated plate 48 (or a layer of
25 layers of screen mesh without a plate) is positioned on the screen support 42. In such a position the combination 48 has an exposed edge 48a. A border panel 47, e.g. like the edge panel of Figure 1E, is placed on the ledge 44. The border panel 47 has an inner surface
30 47a which abuts the edge 48a so that the edge 48a cannot be touched. Optionally the panel 47 has a bevelled outer edge 47b.

 Optionally, as shown in Figure 2B, the panel 47 has

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a downwardly extending lip 47c which lies adjacent a vertical part 42a of the screen support 42. the panel 47 may be made from any suitable material, e.g. metal, stainless steel, fiberglass, plastic, composite,
5 polytetrafluoroethylene, polypropylene, polyethylene, or wood.

Figure 3A is an end or side view of a screen support 50 in accordance with the present invention. The screen support 50 has four sides, each with a recess 52 for
10 receiving a screen layer, a combination of screen layers, or a combination of screen layer(s) and a perforated plate. Figure 3B shows a screen layer combination 54 positioned within the recesses 52. Edges (all edges; edges 54a, 54b shown) of the screen layer combination 54
15 are within the recesses 52 and, to this extent, the edges are more difficult to contact than if they were not within the recesses. Optionally spaces within the recesses between the edges and outer wall of the recesses is filled with a filler 58, e.g. plastic, epoxy, or glue.

20 Figures 4A to 4C show a screen support 60 in accordance with the present invention which has two sides 60a, 60b, an end 60c and an end 60d. All sides and ends include part of a recess 61 which is sized for receiving a screen or screen combination 62 (or combined layers of
25 screen mesh with a perforated plate). Optionally an amount of filler 68 is placed in the space between the edge of the screen combination 62 and the outer edge of the recess 61. Filler can also extend onto a top surface 60t of the screen support 60. Optionally the end 60d may
30 have a hook portion 60h. In one particular aspect the top of the screen combination 62 and the top of the filler material 68 are level with each other.

Figures 5A to 5F illustrate a step in a method for

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making a screen assembly 70 in accordance with the present invention. A screen support 71 has a top opening 72 into which a screen layer or screen combination 73 (or screen layers plus a perforated plate) is placed, e.g. supported by a maintenance member or support S. An link peripheral panel 74 is placed over (as viewed in Figure 5E) the edges of the screen combination 73 within the screen support 71. The screen combination 73 may be secured to the screen support 71 in any suitable known manner and the peripheral panel 74 may be secured to the screen support 71 and/or to the screen combination in any suitable known manner. For example, amounts of adhesive 75a are used for this securement. In one particular aspect the screen combination 73 is secured to the screen support 71 by a powder coating method and the peripheral panel 74 is secured to the screen support by a powder coating method.

Figure 5F shows the screen assembly 70 with edges of the screen combination 73 within the screen support 71 and not projecting up beyond the top surface of the screen support 71.

Figure 6 shows (partially) a screen assembly 80 with a support frame 81 with a top member 82 having an underside 87. A perforated plate 83 (and screening material 84 on the plate 83) may be substantially flat across its surface or, as shown, it may have a bend 85 so that a top surface 86 of the plate 83 (and screening material 84) is level with the top of the top member 82.

The plate 83 and material 84 may be secured to the top member 82 with glue, adhesive, epoxy and/or fasteners. Optionally, filler 88 (shown by dotted line) is put in a space between an outer edge of the plate 83 (and screening material 84) and an inner edge 82a of the

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top member 82. Optionally, any edge panel 89 (in dotted lines) in accordance with the present invention is used above the inner edge of the top member 82 covering part of the screening material around the periphery of the screening material.

The present invention, therefore, provides in at least some embodiments, a screen assembly for use in screening material on a vibratory separator in which the material is fed to the screen assembly as the screen assembly is vibrated by vibratory apparatus of the vibratory separator, the screen assembly including: a support for supporting screen mesh; the support having an outer periphery; the screen mesh having an outer edge at the outer periphery of the support; and an edge panel secured to the support, a portion of the edge panel covering the outer edge of the screen mesh. Such a screen assembly may have one or some, in any possible combination, of the following: a frame, and the support on and secured to the frame; the support having a peripheral ledge; the screen mesh's outer edge extending around the peripheral ledge of the support, and the edge panel on the peripheral ledge and having an inner surface abutting the screen mesh's outer edge preventing contact with the screen mesh's outer edge; the peripheral ledge having an outer side, and the edge panel having a lip projecting down adjacent the outer side of the peripheral ledge; the peripheral ledge having a top with a first top surface and a second top surface, the first top surface located interiorly of the second top surface, the first top surface lower than the second top surface, the outer edge of the screen mesh extending along the first top surface, a space formed between the outer edge of the first top surface and the second top surface, and filler

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material filling the space; a portion of the filler material extending onto the second top surface; the screen mesh having a top surface, the filler material having a top surface, and the top surface of the screen mesh level with the top surface of the filler material; the peripheral ledge of the support having a top member, the top member having an underside, and the outer edge of the screen mesh positioned under the underside of the top member of the peripheral ledge; the screen mesh having a bend so that a top surface of the screen mesh is level with a top surface of the top member; the screen mesh is a plurality of layers of screening material stacked together; the support having a plurality of support sides, each support side having a recess, the screen mesh having a plurality of screen sides each screen side including a portion of the outer edge of the screen mesh, and each portion of the outer edge of the screen mesh positioned in a recess of a support side; a space is located between the outer edge of the screen mesh and inner surfaces of the recesses, and filler material fills the space; and/or the vibratory separator is a shale shaker, and the material to be treated by the screen assembly is drilling fluid with drilled solids from a wellbore operation.

The present invention, therefore, provides in at least some embodiments, a screen assembly for use in screening material on a vibratory separator in which the material is fed to the screen assembly as the screen assembly is vibrated by vibratory apparatus of the vibratory separator, the screen assembly including: a support for supporting screen mesh, the support having a peripheral ledge, the support having an outer periphery, the screen mesh having a top surface, an outer edge at

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the outer periphery of the support, the screen mesh's outer edge extending around the peripheral ledge of the support, an edge panel secured to the support, a portion of the edge panel covering the outer edge of the screen mesh, the edge panel on the peripheral ledge and having an inner surface abutting the screen mesh's outer edge preventing contact with the screen mesh's outer edge, the peripheral ledge has a top with a first top surface and a second top surface, the first top surface located interiorly of the second top surface, the first top surface lower than the second top surface, the outer edge of the screen mesh extending along the first top surface, a space formed between the outer edge of the screen mesh and the second top surface, filler material filling the space, the filler material has a top surface, and the top surface of the screen mesh is level with the top surface of the filler material.

The present invention, therefore, provides in at least some embodiments, a method for making a screen assembly, the screen assembly for use in screening material to be treated by a vibratory separator, the vibratory separator having vibrating apparatus for vibrating the screen assembly to assist in treating of the material, the method including: placing screen mesh on a support, the screen mesh having an outer edge and the support having an outer periphery, the outer edge of the screen mesh at the outer periphery of the support; and placing an edge panel on the screen mesh, a portion of the edge panel protecting the outer edge of the screen mesh. Such a method may have one or some, in any possible combination, of the following: securing the support with the screen mesh and edge panel thereon to a frame, the frame positioned beneath the support; the

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support has a peripheral ledge, the outer edge of the screen mesh is on the peripheral ledge, the method further including placing the edge panel so that an interior surface of the edge panel abuts the outer edge of the screen mesh to protect the outer edge of the screen mesh; the peripheral ledge having an outer side, the edge panel having a lip, the method further including locating the lip adjacent the outer side of the peripheral ledge; and/or the support having a peripheral ledge, the peripheral ledge having a lower inner surface and an upper outer surface, the outer edge of the screen mesh positionable on the lower inner surface, the method further including positioning the outer edge of the screen mesh on the lower inner surface.

The present invention, therefore, provides in at least some embodiments, a method for making a screen assembly, the method including: placing screen mesh within an opening of a screen support, the screen mesh having an outer edge; maintaining the screen mesh within the opening with a maintenance member beneath and supporting the screen mesh in place within the opening; placing an edge panel within the support, the edge panel having an inner part and an outer part, an inner part of the edge panel over the screen mesh's outer edge and the outer part of the edge panel on the screen support; securing the screen mesh to the support; and securing the edge panel to the support.

The present invention, therefore, provides in at least some embodiments, a screen assembly including: a frame, the frame having a ledge, the ledge having a top member with an underside, a support for supporting screen mesh, the support having an outer edge, screen mesh on the support, and the outer edge of the support located

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beneath and connected to the underside of the top member;
and such a screen assembly may include an edge panel on
the frame, a portion of the edge panel covering a portion
of the screen mesh.

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CLAIMS:

1. A shale shaker for separating solids from a solids laden drilling mud, the shale shaker comprising a screen assembly (40) comprising a screen support (42) supporting
5 at least one layer of screening material (48) having an outer periphery (48a) within an outer periphery of said support (42) said outer peripheries binding a peripheral area (46) characterised in that the periphery (48a) of the at least one layer of screening material (48) is
10 planar with or recessed from at least a substantial portion of said peripheral area (46).
2. A shale shaker as claimed in Claim 1, wherein said screen support (42) comprises an edge panel (47) on said at least a substantial part of said peripheral area (46),
15 said edge panel (47) planar with said at least one layer of screening material (48).
3. A shale shaker as claimed in Claim 2, wherein the screen support (42) has a side (42a) and said edge panel (47) extends from said periphery of said at least one
20 layer of screening material (48) over at least a portion of said side (42a).
4. A shale shaker as claimed in Claim 1, 2 or 3, wherein the screen support (42) comprises a frame (20).
5. A shale shaker as claimed in any preceding claim,
25 further comprising filler material (68) between the periphery (46) of the screen support (42) and the periphery of the at least one layer of screening material (48).
6. A shale shaker as claimed in any preceding claim,
30 wherein the at least one layer of screening material (48) comprises a perforate plate (10,48).
7. A shale shaker as claimed in any preceding claim, wherein the at least one layer of screening material (48)

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comprises at least one layer of screening mesh (11,12,13).

8. A shale shaker as claimed in any preceding claim, wherein the at least one layer of screening material (48) comprises a plurality of layers of screening mesh (11,12,13).

9. A shale shaker as claimed in any preceding claim, wherein said screen support (42) comprises a recessed portion (52) for receiving said at least one layer of screening material (54).

10. A shale shaker as claimed in any preceding claim, wherein said peripheral area (46) is formed by a top member, the top member having an underside, and the outer edge of the at least one layer of screening material (48) positioned under the underside of the top member of the top member.

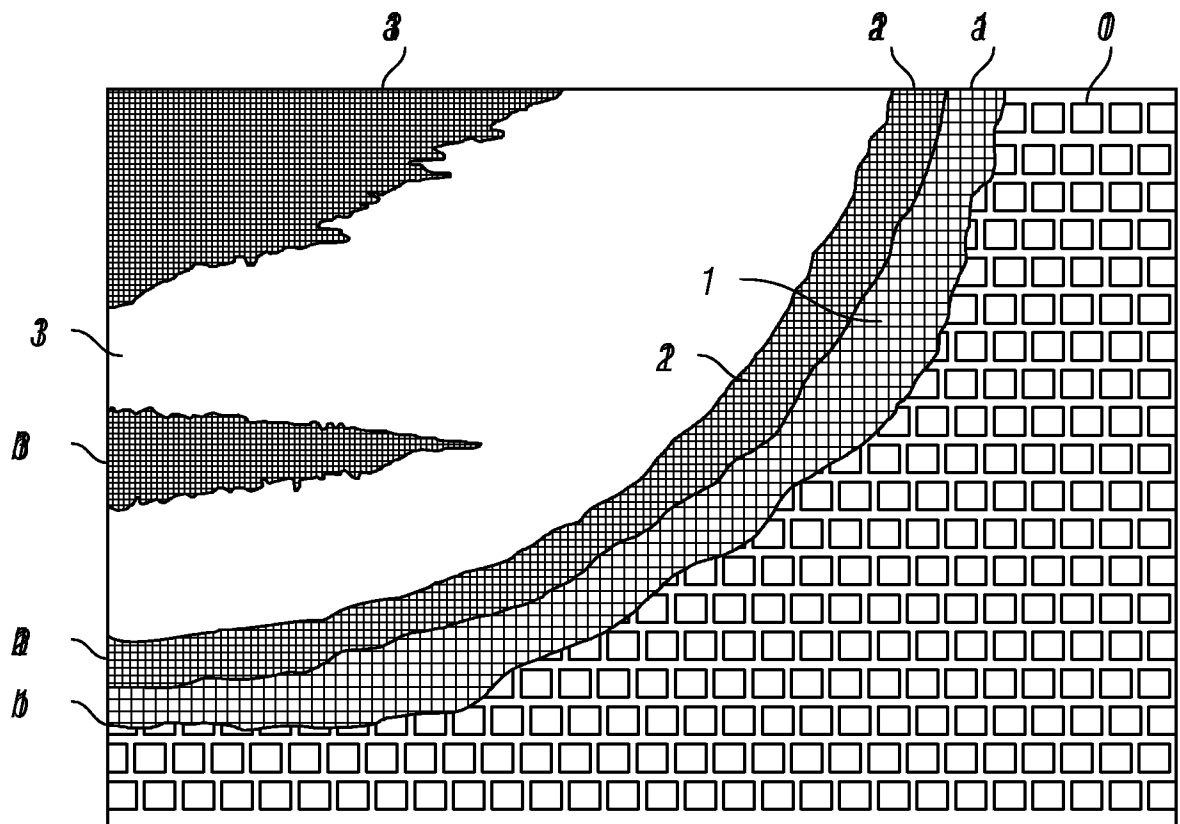
11. A shale shaker as claimed in Claim 10, wherein the at least one layer of screening material (48) has a bend so that a top surface of the at least one layer of screening material (48) is planar with said at least a substantial portion of said peripheral area (46).

12. A screen assembly of the shale shaker as claimed in any preceding claim.

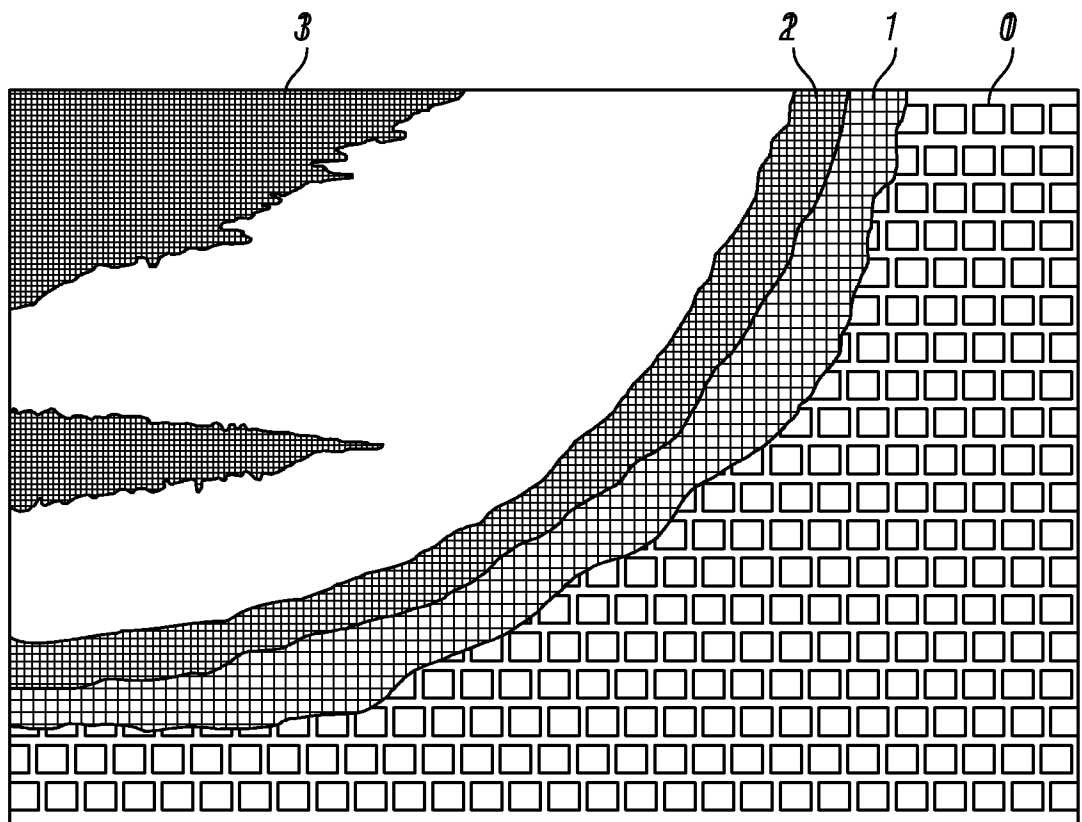
13. A method for making a screen assembly for a shale shaker, the screen assembly comprising a support (42) supporting at least one layer of screening material (48) having an outer periphery (48a) within an outer periphery of said support (42) said outer peripheries binding a peripheral area (46) characterised in that the method comprises the step of ensuring the periphery (48a) of the at least one layer of screening material (48) is planar with or recessed from at least a substantial portion of said peripheral area (46).

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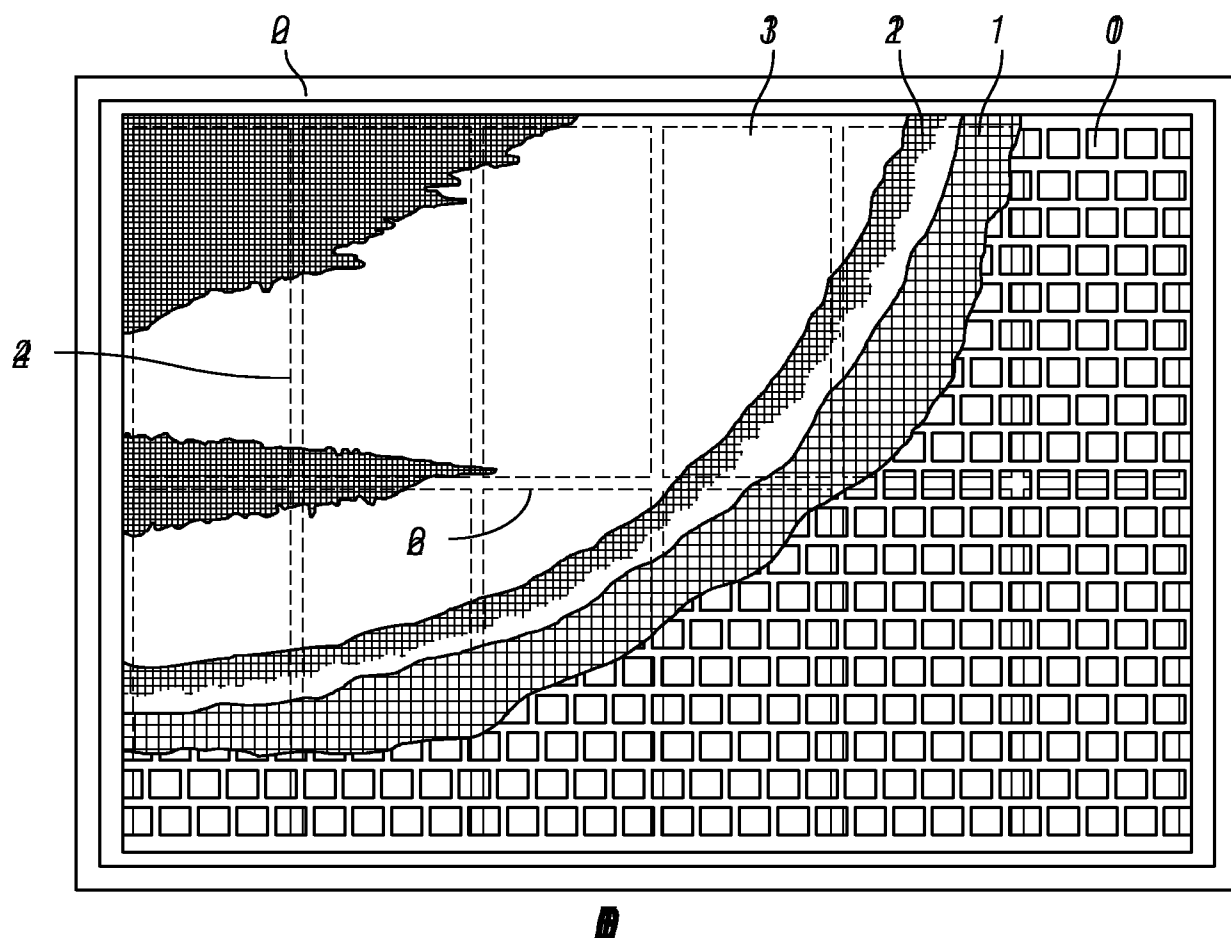
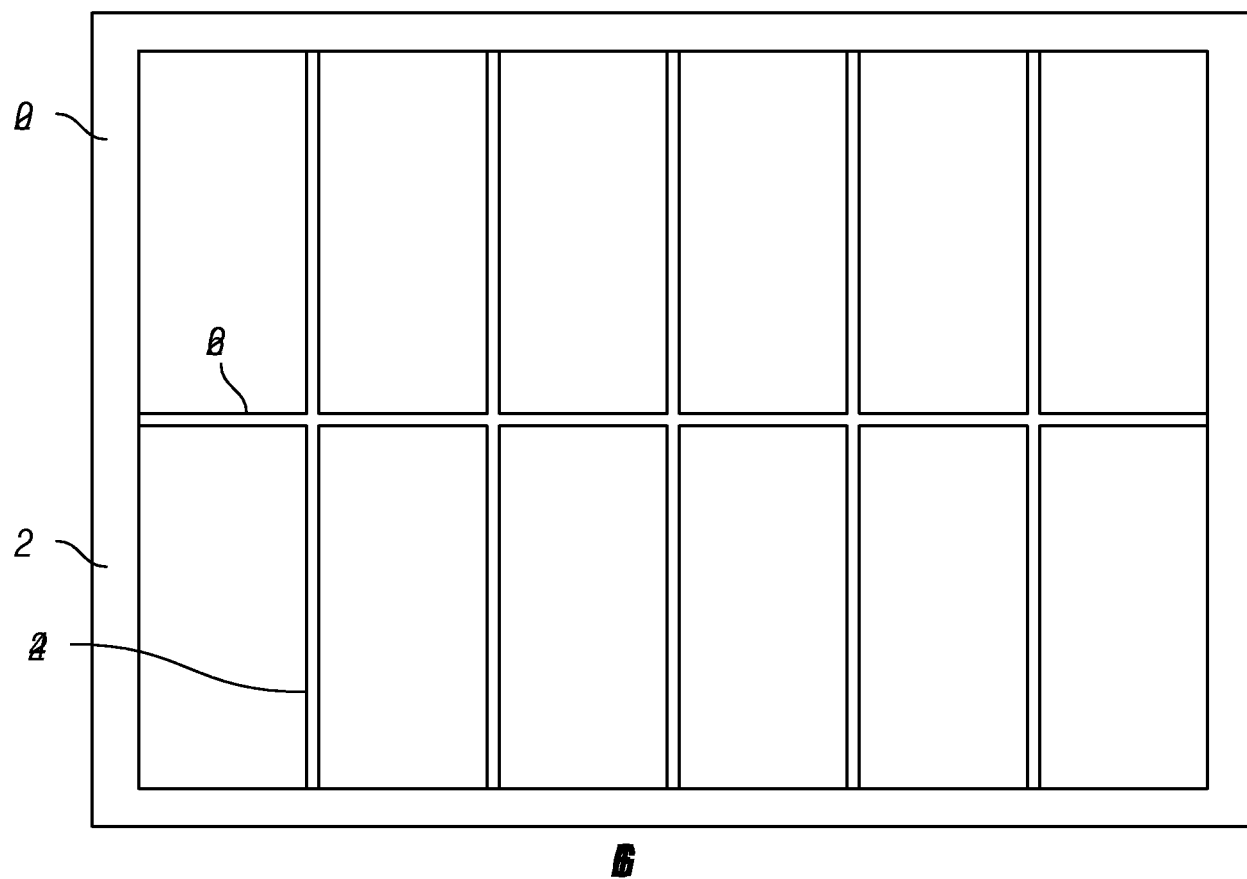
14. A method in accordance with Claim 13, wherein the method further comprises the steps of placing an edge panel (47) on said at least a substantial part of said peripheral area (46), said edge panel (47) planar with
5 said at least one layer of screening material (48).
15. A method in accordance with Claim 13 or 14, wherein the method further comprises the steps of forming a recessed portion (52) in said support (42) for receiving said at least one layer of screening material (54).
- 10 16. A method in accordance with Claim 13, 14 or 15 wherein the method further comprises the steps of bending said at least one layer of screening material (54) to be planar with or recessed from at least a substantial portion of said peripheral area (46).
- 15 17. A method in accordance with Claim 13, 14, 15 or 16 wherein the method further comprises the steps of providing a peripheral panel (74) and securing said peripheral panel (74) to said at least one layer of screening material (54) and said screen support (71) to
20 allow said at least one layer of screening material (54) to be planar with or recessed from at least a substantial portion of said peripheral area (46).
- 25 18. A method in accordance with Claim 13, 14, 15 or 16 wherein the method further comprises the steps of providing a perforate panel (S) and securing said perforate panel (S) to said at least one layer of screening material (54) and said screen support (71) to
allow said at least one layer of screening material (54) to be planar with or recessed from at least a substantial
30 portion of said peripheral area (46).

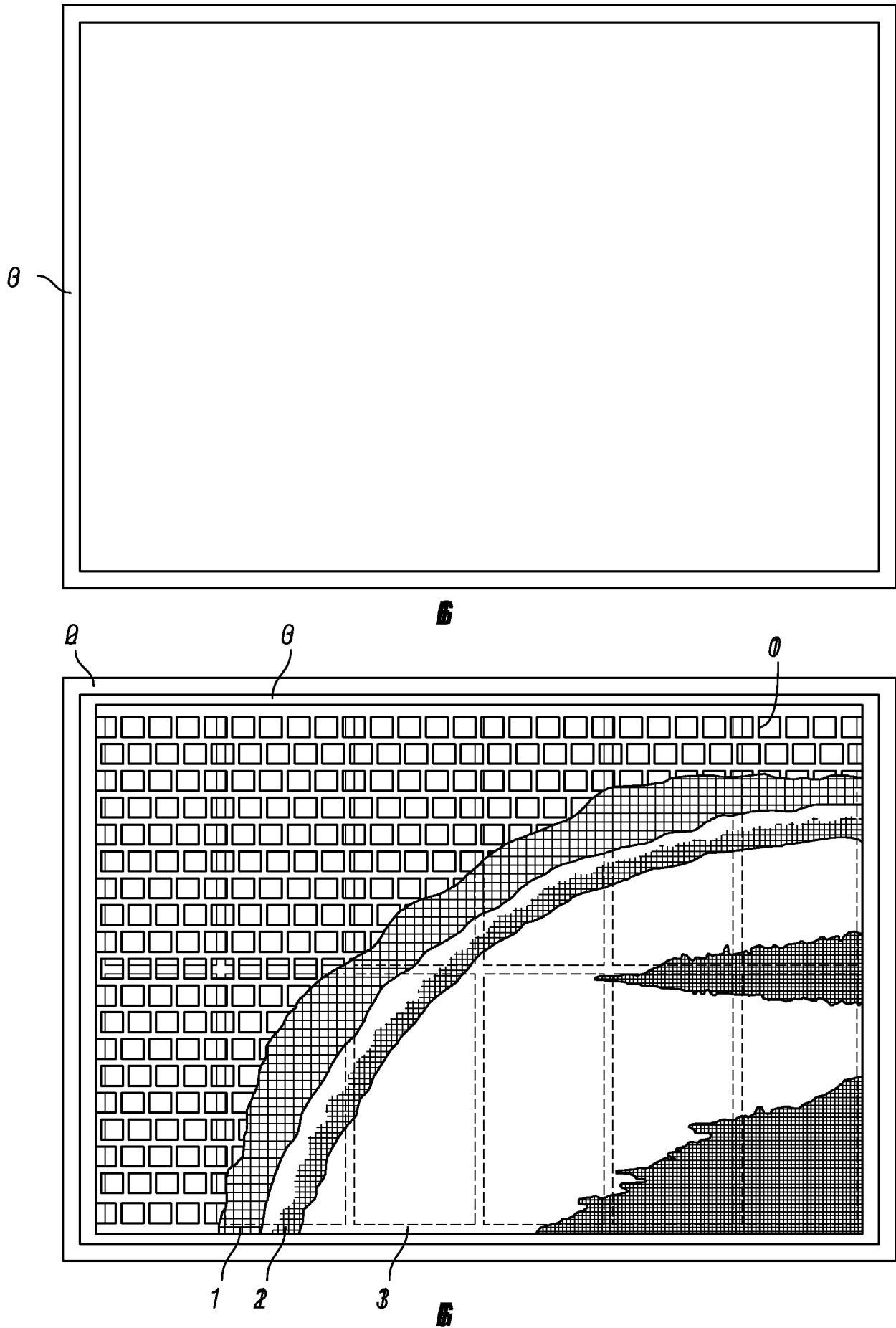


A



B





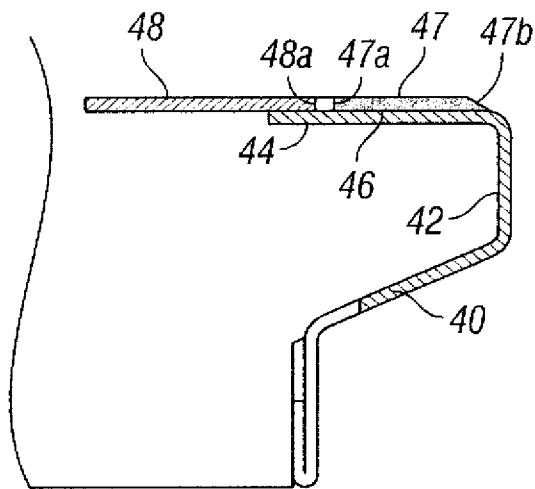


FIG. 2A

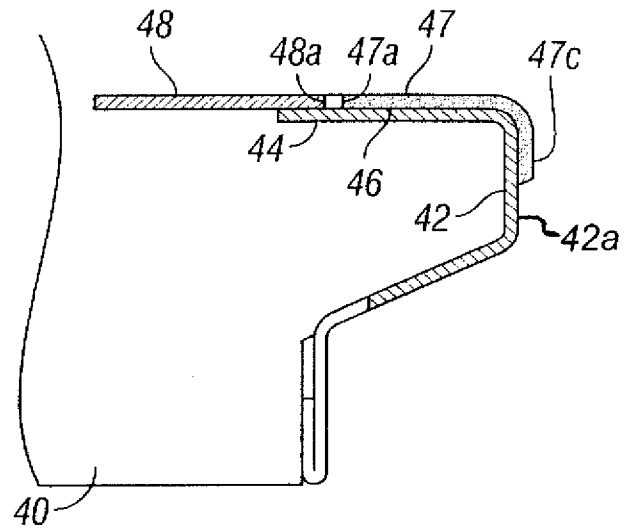


FIG. 2B

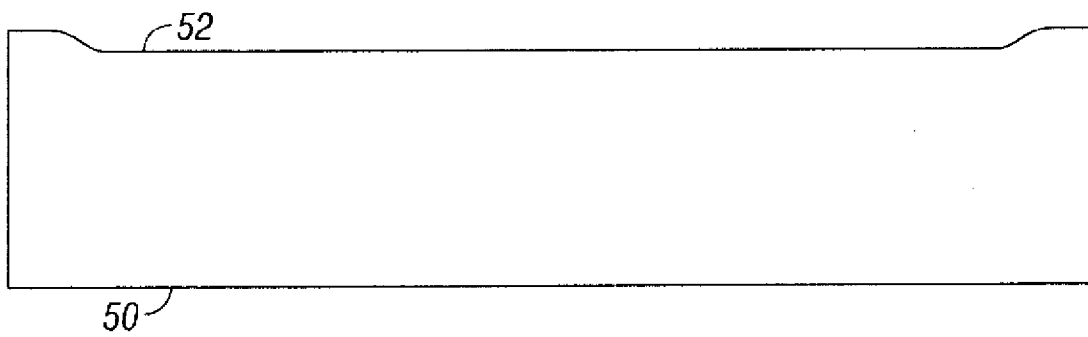


FIG. 3A

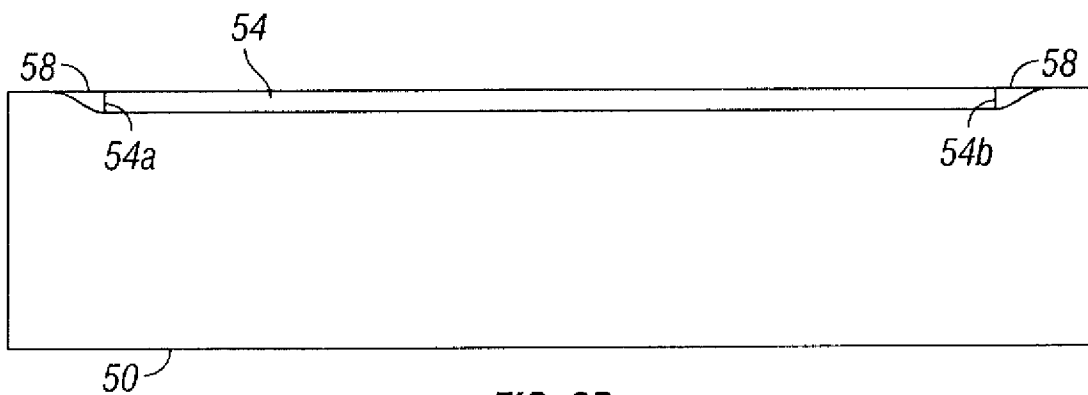
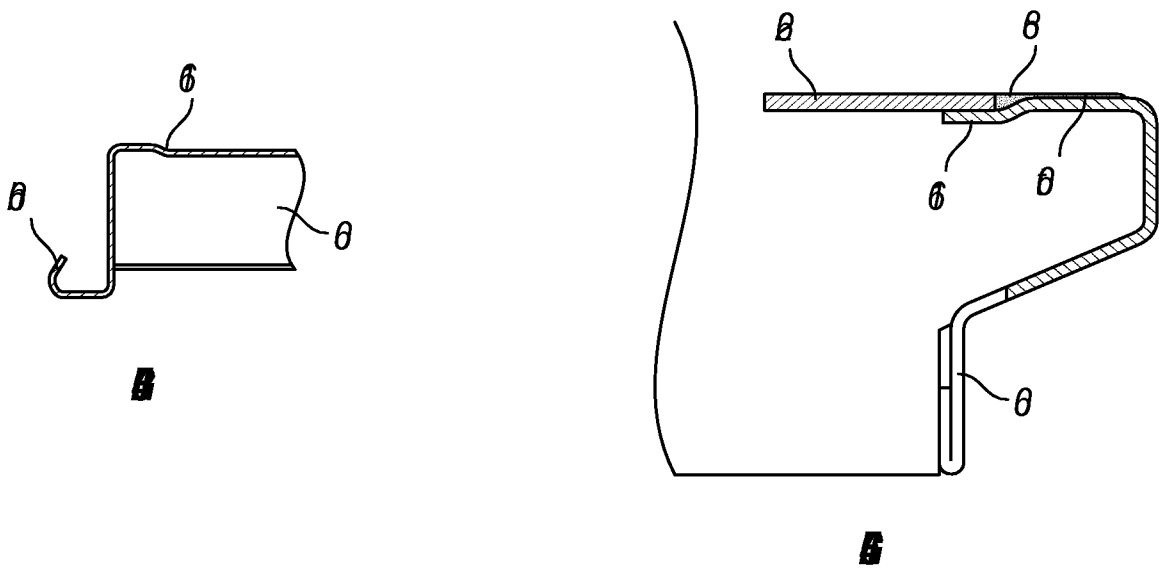
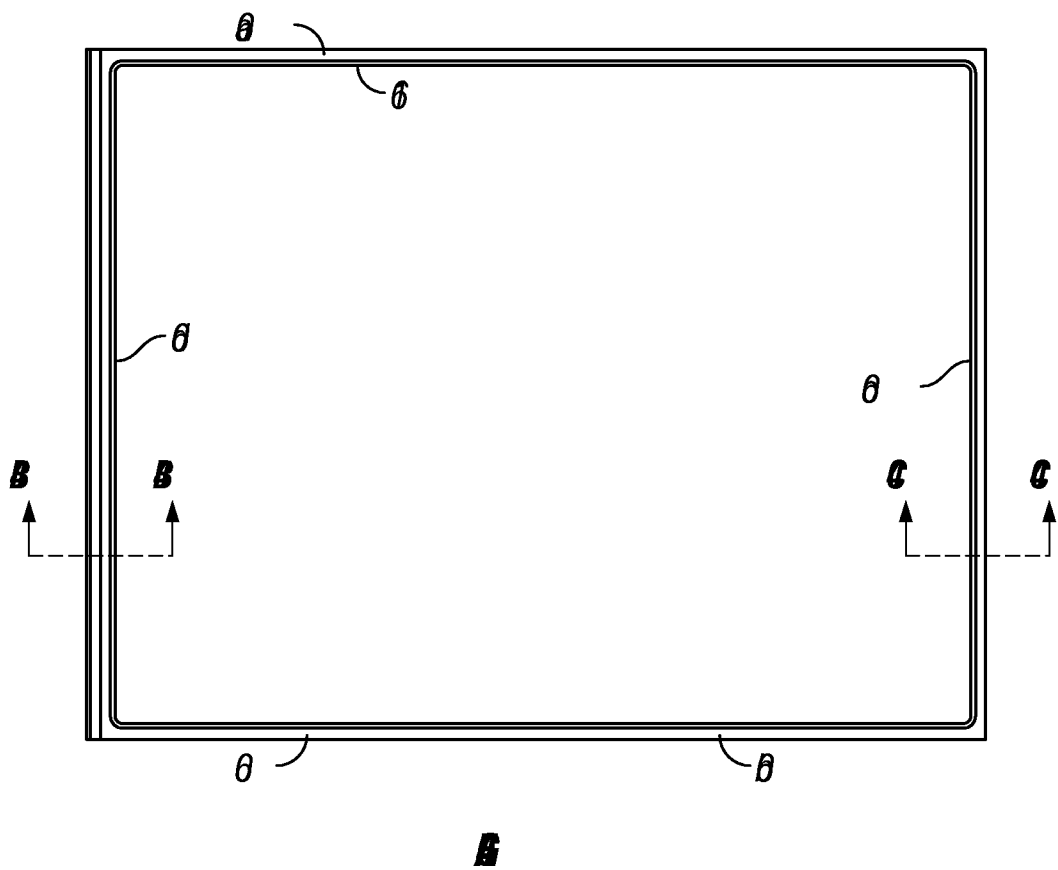


FIG. 3B



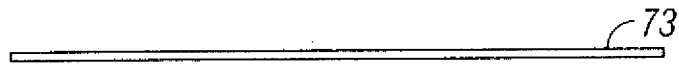


FIG. 5A

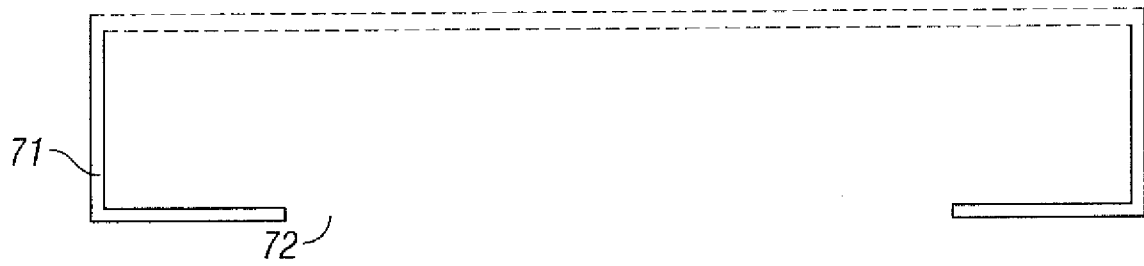


FIG. 5B

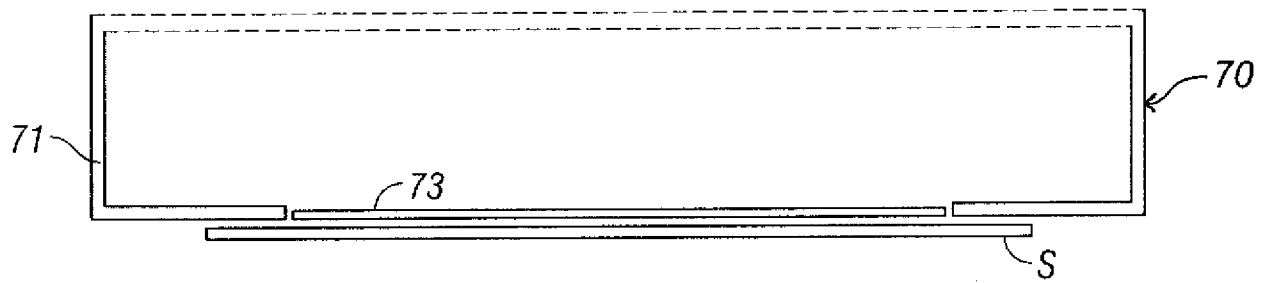


FIG. 5C

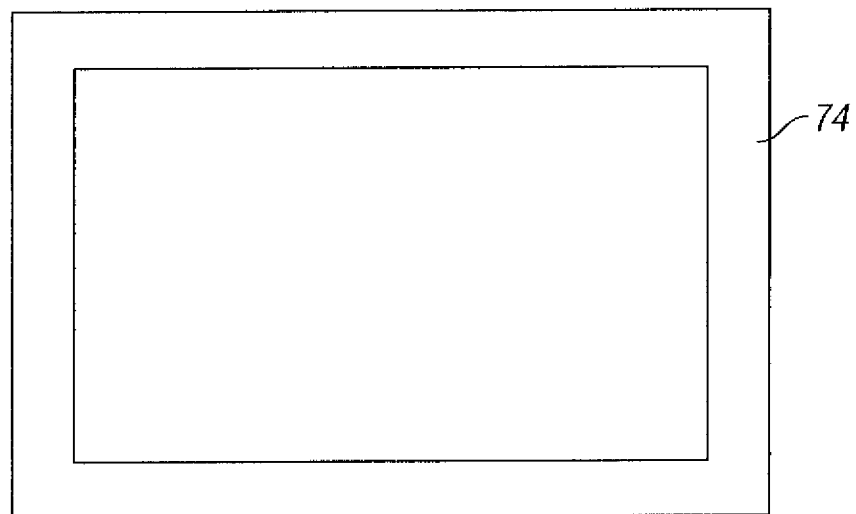


FIG. 5D

