

RAZOR PANEL BARRIER

Background of the Disclosure

Field of the Disclosure

[0001] The present disclosure relates generally to access security and, more particularly, to a razor panel enclosure for access security.

Discussion of Related Art

[0002] Many barriers exist for providing a deterrent to ingress into and/or egress from a secured area. One known apparatus is a barbed or razor wire fence comprised of a plurality of strands of spaced wires supported by a plurality of horizontally spaced posts. Another known apparatus is a mesh wire fence, which may also be supported by a plurality of horizontally spaced posts. Each apparatus may also be topped by a plurality of strands of barbed/razor wire inclined at an angle towards the outside of the secured area and, in some instances, a plurality of strands of barbed/razor wire inclined at an angle towards the inside of the secured area. Such angularly oriented strands of barbed/razor wire are provided for preventing a human from climbing the security fence and then climbing upwardly over the top of the security fence. In other known apparatuses, one or more layers of concertina razor wire may be coupled to a fence.

[0003] Furthermore, transportable or movable barriers for defining a confined or protected area, and which can be rapidly deployed, are well known. Typically, such barriers include one or more concertina coils which are stored in a compressed fashion and axially

extended to deploy. The concertina coils may be constructed from a variety of diameters and include a variety of barbed configurations.

Summary of the Disclosure

[0004] In view of the foregoing, there is a need in the art for a deployable enclosure having a plurality of connected razor wire panels.

[0005] In one or more embodiments, an enclosure may include a plurality of frame components rotatably coupled together, and a plurality of panels of razor wire coupled to the plurality of frame components.

[0006] In one or more embodiments, a razor wire barrier may include a first frame component rotatably coupled to a second frame component, and a first panel of razor wire directly coupled to the first frame component and a second panel of razor wire directly coupled to the second frame component.

[0007] In one or more embodiments, a method of operating an enclosure may include providing a plurality of frame components rotatably coupled together, and providing a plurality of panels of razor wire coupled to the plurality of frame components. The method may further include moving the plurality of panels between a first configuration and a second configuration, wherein in the first configuration the plurality of panels is collapsed, and wherein in the second configuration the plurality of panels is expanded.

Brief Description of the Drawings

[0008] The accompanying drawings illustrate exemplary approaches of the disclosure, including the practical application of the principles thereof, and in which:

[0009] **FIG. 1** is a perspective view of a razor wire barrier in a collapsed configuration, according to exemplary approaches of the disclosure;

[0010] **FIG. 2** is a perspective view of the razor wire barrier of **FIG. 1** in a partially expanded configuration, according to exemplary approaches of the disclosure;

[0011] **FIG. 3** is a perspective view of the razor wire barrier of **FIG. 1** in a fully expanded configuration, according to exemplary approaches of the disclosure; and

[0012] **FIG. 4** is a method for operating a barrier according to exemplary approaches of the disclosure.

[0013] The drawings are not necessarily to scale. The drawings are merely representations, not intended to portray specific parameters of the disclosure. Furthermore, the drawings are intended to depict exemplary embodiments of the disclosure, and therefore is not considered as limiting in scope.

[0014] Furthermore, certain elements in some of the figures may be omitted, or illustrated not-to-scale, for illustrative clarity. The cross-sectional views may be in the form of "slices", or "near-sighted" cross-sectional views, omitting certain background lines otherwise visible in a "true" cross-sectional view, for illustrative clarity. Furthermore, for clarity, some reference numbers may be omitted in certain drawings.

Detailed Description

[0015] The present disclosure will now proceed with reference to the accompanying drawings, in which various approaches are shown. It will be appreciated, however, that the disclosed barrier may be embodied in many different forms and should not be construed as limited to the approaches set forth herein. Rather, these approaches are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the disclosure to those skilled in the art. In the drawings, like numbers refer to like elements throughout.

[0016] A barrier including a plurality of panels of razor wire is disclosed herein. In some embodiments, an enclosure includes a plurality of frame components rotatably coupled together, and a plurality of panels of razor wire coupled to the plurality of frame components. The plurality of panels of razor wire and the plurality of frame components may be deployed in an expanding accordion-type manner. The enclosure may also be collapsed such that the plurality of panels of razor wire are stacked parallel to one another.

[0017] Each frame will be connected to each other and will allow the entire unit to be pulled out, unfolding each section and creating a straight wall when fully unfolded. Razor panels may have barbed tape on no sides, one side, or both sides. There can be as many razor panels sections as required.

[0018] Referring now to **FIGs. 1-3**, a razor wire barrier (hereinafter “barrier”) 100 will be described in greater detail. As shown, the barrier 100 may include a plurality of frame components 102 rotatably coupled together. In some embodiments, each of the plurality of frame components 102 may be rigid and substantially straight. As shown, the frame components

102 may be rectangularly shaped. However, the frame components 102 may take on any variety of shapes. In exemplary embodiments, each of the plurality of frame components 102 has substantially the same dimensions.

[0019] As further shown, the barrier 100 includes a plurality of panels of razor wire 105 coupled to each of the frame components 102. “Razor wire” may also be known as razor ribbon, ribbon tape, or barbed tape. In non-limiting embodiments, a single panel of razor wire 105 is directly coupled to two parallelly arranged frame components 102. In other embodiments, two panels of razor wire 105 are coupled to a same frame component 102. For example, each component 102 may have a first side or surface 106 and a second side or surface 108. One razor wire panel 105 may be coupled to the first surface 106, and a second razor wire panel 105 may be coupled to the second surface 108. The razor wire panels 105 may be joined to the frame components 102 by any means. As shown, each of the razor panels 105 are generally rectangular in shape. However, the razor wire panels 105 may take on any variety of shapes. In exemplary embodiments, each razor wire panel 105 has substantially the same dimensions.

[0020] In some embodiments, one or more of the razor wire panels 105 includes one or more reinforcing members, which may be difficult to penetrate or break. Thus to ensure an optimum deterrent effect, the spacing between pairs of adjacent members, in a horizontal direction and/or in a vertical direction, should be such that even if the mesh material is cut, and removed, the resulting gap or gaps in the razor wire panel 105 are so small that an assailant would not easily be able to pass through a gap.

[0021] Each of the frame components 102 is rotatably coupled to an adjacent frame component 102. In some embodiments, a hinge 110 may join frame components 102 together. Although non-limiting, the hinge 110 may include plate 112 and first and second pins 114, 116 coupled to the plate 112. As shown, the first pin 114 may be coupled to one frame component 102, while the second pin 116 may be coupled another frame component 102. As a result, the barrier 100 is collapsible into the configuration shown in **FIG. 1**, and expandable to the configurations shown in **FIGs. 2-3**. As shown in **FIG. 1**, each of the razor wire panels 105 are stacked or oriented parallel to one another. That is, an x-y plane of each razor wire panels 105 is oriented parallel, or substantially parallel, to one another. In some embodiments, the perimeter of each razor wire panel 105 is aligned with and shares a same footprint, e.g., projected in the z-direction, with all other razor wire panels 105.

[0022] In some embodiments, each razor wire panel 105 may be arranged as a mesh in which a first plurality of wire strands is positioned across a second plurality of wire strands. In some embodiments, the first and second plurality of wire strands and may be interwoven. In other embodiments, the first plurality of wire strands may not be interwoven with the second plurality of wire strands and, instead, may be positioned directly adjacent one another. In yet other embodiments, the first and second plurality of wire strands and are integrally formed. Although shown in a crisscross diamond configuration, it'll be appreciated that the first and second plurality of wire strands and may also be oriented perpendicular to one another in other embodiments.

[0023] In a non-limiting embodiment, a height of each of the razor wire panel 105 is preferably substantially in excess of the height of an average human. Furthermore, in the

expanded configuration of the barrier 100 shown in **FIG. 3**, the frame components 102 and/or the razor wire panels 105 may be attached to additional structures (not shown) to prevent the barrier 100 from tipping over. This may include attaching to an existing fence, or utilizing concrete blocks at the bottom to prevent the barrier from tipping or being moved.

[0024] Turning now to **FIG. 4**, a method 200 for operating the barrier 100 of **FIGs. 1-3** according to embodiments of the disclosure will be described in greater detail. At block 201, the method may include providing a plurality of frame components rotatably coupled together. In some embodiments, the frame components are coupled together with one or more hinges. At block 203, the method 200 may include providing a plurality of panels of razor wire coupled to the plurality of frame components. In some embodiments, each of the plurality of panels of razor wire is a razor ribbon mesh extending between top and bottom frame components. At block 205, the method 200 may include moving the plurality of panels between a first configuration and a second configuration. In the first configuration the plurality of panels is collapsed together, and in a second configuration the plurality of panels is expanded as the barrier is deployed. In the first configuration, each of the plurality of panels of razor wire are oriented parallel to one another along different planes. In some embodiments, the plurality of panels of razor wire are deployed in an accordion-type manner when the barrier is expanded.

[0025] The foregoing discussion has been presented for purposes of illustration and description and is not intended to limit the disclosure to the form or forms disclosed herein. For example, various features of the disclosure are grouped together in one or more aspects, embodiments, or configurations for the purpose of streamlining the disclosure. However, it should be understood that various features of the certain aspects, embodiments, or configurations

of the disclosure may be combined in alternate aspects, embodiments, or configurations.

Moreover, the following claims are hereby incorporated into this Detailed Description by this reference, with each claim standing on its own as a separate embodiment of the present disclosure.

[0026] As used herein, an element or step recited in the singular and proceeded with the word “a” or “an” should be understood as not excluding plural elements or steps, unless such exclusion is explicitly recited. Furthermore, references to “one embodiment” of the present disclosure are not intended to be interpreted as excluding the existence of additional embodiments that also incorporate the recited features.

[0027] The phrases “at least one”, “one or more”, and “and/or”, as used herein, are open-ended expressions that are both conjunctive and disjunctive in operation. The terms “a” (or “an”), “one or more” and “at least one” can be used interchangeably herein. All directional references (e.g., proximal, distal, upper, lower, upward, downward, left, right, lateral, longitudinal, front, back, top, bottom, above, below, vertical, horizontal, radial, axial, clockwise, and counterclockwise) are only used for identification purposes to aid the reader’s understanding of the present disclosure, and do not create limitations, particularly as to the position, orientation, or use of this disclosure. Connection references (e.g., engaged, attached, coupled, connected, and joined) are to be construed broadly and may include intermediate members between a collection of elements and relative to movement between elements unless otherwise indicated. As such, connection references do not necessarily infer that two elements are directly connected and in fixed relation to each other. Identification references (e.g., primary, secondary, first,

second, third, fourth, etc.) are not intended to connote importance or priority, but are used to distinguish one feature from another.

Claims

What is claimed is

1. An enclosure comprising:
a plurality of panel sections rotatably coupled together, each of the plurality of panel sections comprising an upper frame component extending parallel to a bottom frame component;
and
a panel of razor wire mesh extending between the upper frame component and the bottom frame component, wherein the panel of razor wire mesh includes a first plurality of razor wire strands arranged across a second plurality of razor wire strands.
2. The enclosure of claim 1, further comprising a hinge coupling together a set of adjacent upper frame components of the plurality of panel sections.
3. The enclosure of claim 1, the panel of razor wire mesh having a generally rectangular configuration.
4. The enclosure of claim 1, wherein the plurality of panel sections are collapsed in a first configuration and expanded in a second configuration.
5. The enclosure of claim 4, wherein each of the plurality of panel sections extends parallel to one another along different planes in the first configuration.
6. The enclosure of claim 4, wherein each of the plurality of panel sections extends parallel to one another along a same plane in the second configuration.
7. The enclosure of claim 4, wherein each of the plurality of panel sections extends parallel to one another in a side-by-side arrangement when the plurality of panels of razor wire are collapsed in the first configuration.

8. The enclosure of claim 2, wherein the hinge comprises:
a plate; and
a first pin and a second pin coupled to the plate, wherein the first pin is directly coupled to a first upper frame component of the plurality of panel sections, and wherein the second pin is directly coupled to a second upper frame component of the plurality of panel sections.
9. A razor wire barrier comprising:
a first upper frame component rotatably coupled to a second upper frame component;
a first bottom frame component extending parallel to the first upper frame component and a second bottom frame component extending parallel to the second upper frame component;
a first panel of razor wire mesh directly coupled to and extending between the first upper frame component and the first bottom frame component; and
a second panel of razor wire mesh directly coupled to and extending between the second upper frame component and the second bottom frame component, wherein each of the first and second panels of razor wire mesh includes a first plurality of razor wire strands arranged across a second plurality of razor wire strands.
10. The razor wire barrier of claim 9, further comprising a hinge coupling the first upper frame component to the second upper frame component.
11. The razor wire barrier of claim 10, the hinge comprising:
a plate; and
a first pin and a second pin coupled to the plate, wherein the first pin is directly coupled to the first upper frame component, and wherein the second pin is directly coupled to the second upper frame component.
12. The razor wire barrier of claim 10, wherein the hinge permits the first panel of razor wire mesh and the second panel of razor wire mesh to move between a collapsed configuration and an expanded configuration.

13. The razor wire barrier of claim 12, wherein the first panel of razor wire mesh and the second panel of razor wire mesh extend parallel to one another along different planes in the collapsed configuration.

14. The razor wire barrier of claim 12, wherein the first panel of razor wire mesh and the second panel of razor wire mesh form a substantially accordion shape in the expanded configuration.

15. A method of operating a barrier comprising:
providing a plurality of panel sections rotatably coupled together, each of the plurality of panel sections comprising an upper frame component extending parallel to a bottom frame component;
providing a panel of razor wire mesh coupled to and extending between the upper and bottom frame components of each of the plurality of panel sections; and
moving the plurality of panel sections between a first configuration and a second configuration, wherein in the first configuration the plurality of panel sections are collapsed, and wherein in the second configuration the plurality of panel sections are expanded.

16. The method of claim 15, further comprising coupling together the upper frame component of a first panel section of the plurality of panel sections to an adjacent upper frame component of a second panel section of the plurality of panel sections using a hinge.

17. The method of claim 15, further comprising orienting each of the plurality of panel sections parallel to one another along different planes when the plurality of panel sections are in the first configuration.

18. The method of claim 15, further comprising expanding the plurality of panel sections in an accordion motion.

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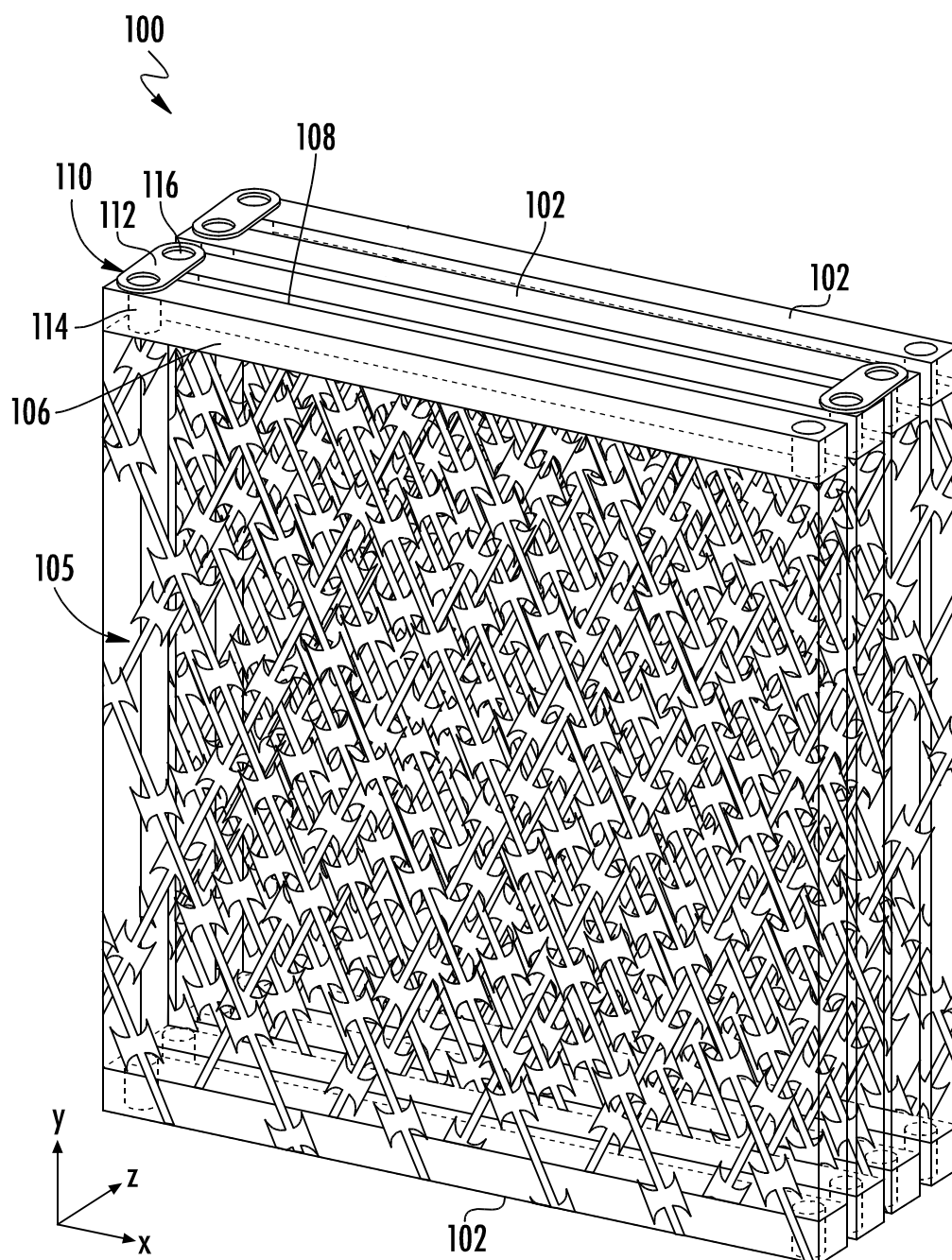


FIG. 1

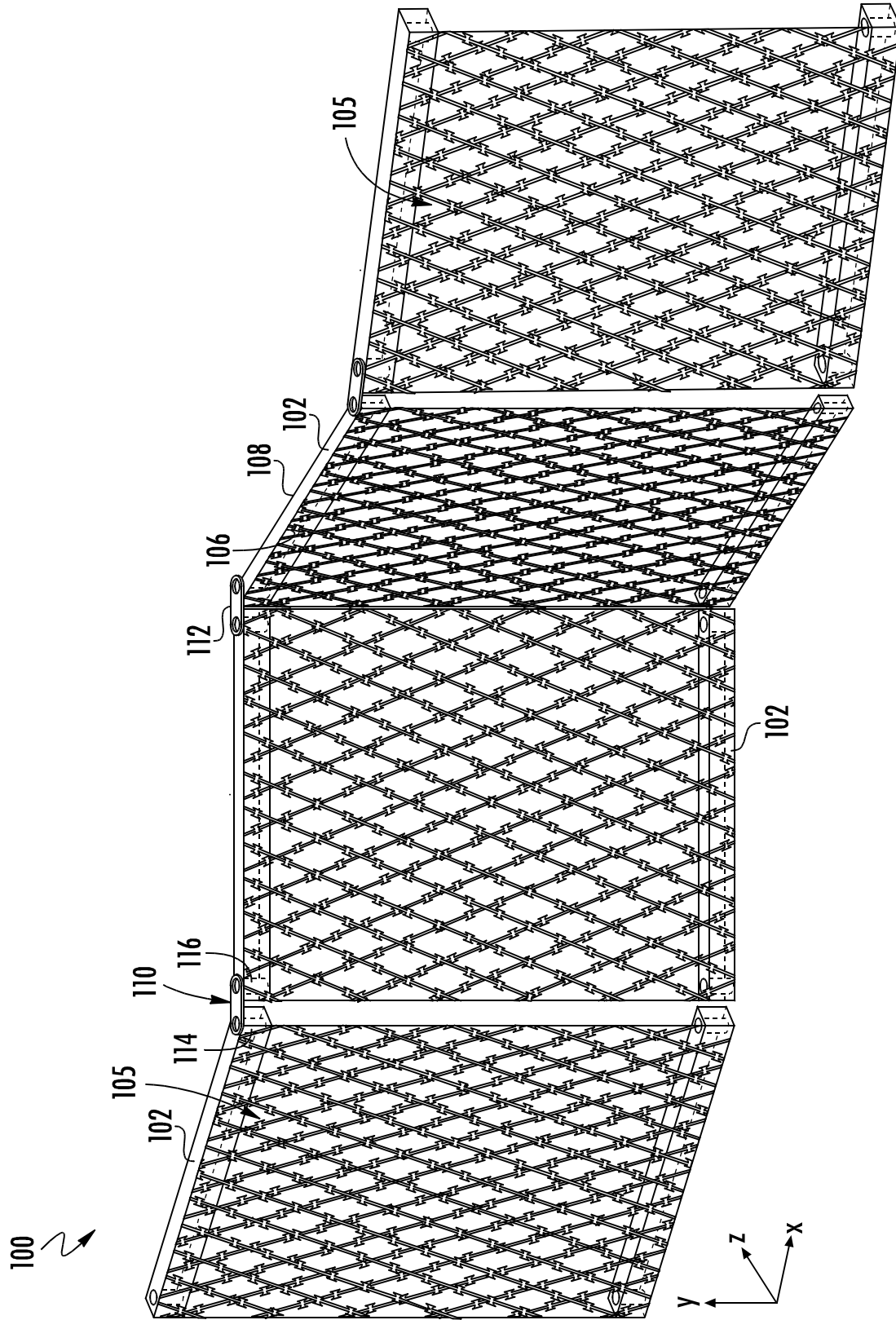


FIG. 2

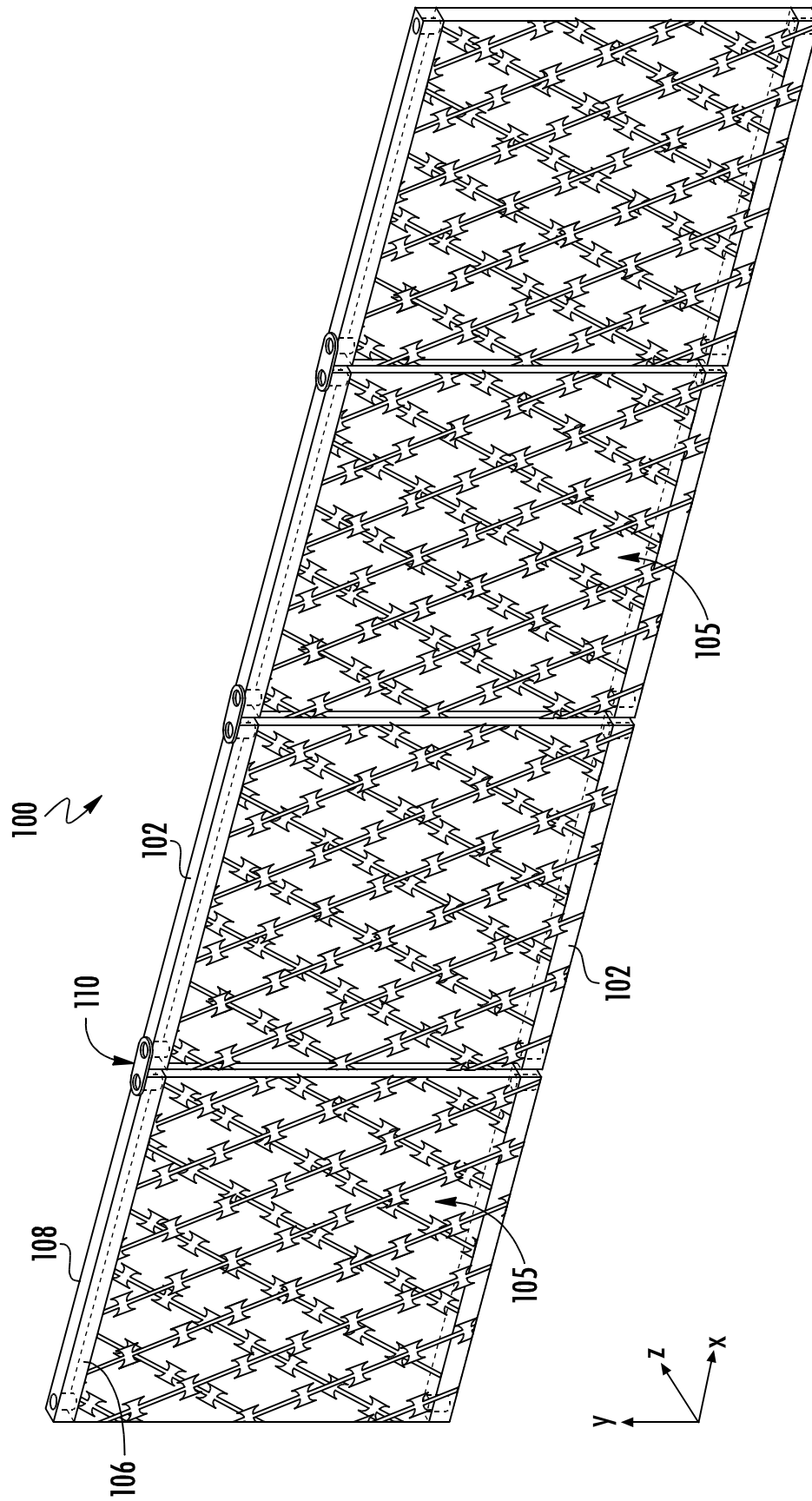


FIG. 3

200



PROVIDE A PLURALITY OF PANEL SECTIONS ROTATABLY COUPLED TOGETHER, AT LEAST ONE PANEL SECTION OF THE PLURALITY OF PANEL SECTIONS INCLUDING A FIRST FRAME COMPONENT DIRECTLY COUPLED TO A SECOND FRAME COMPONENT OF AN ADJACENT PANEL SECTION

201



PROVIDE A RAZOR WIRE PANEL EXTENDING ACROSS EACH OF THE PLURALITY OF PANEL SECTIONS

203



PERMIT MOVEMENT OF THE PLURALITY OF PANEL SECTIONS BETWEEN A FIRST CONFIGURATION AND A SECOND CONFIGURATION, WHEREIN IN THE FIRST CONFIGURATION TWO OR MORE PANEL SECTIONS OF THE PLURALITY OF PANEL SECTIONS ARE COLLAPSED TOGETHER, AND WHEREIN IN THE SECOND CONFIGURATION THE TWO OR MORE PANEL SECTIONS OF THE PLURALITY OF PANEL SECTIONS ARE EXPANDED APART

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FIG. 4