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(54) **STACKABLE INTERLOCKING TRAY SYSTEM**

(57) Embodiments of the invention are directed to a stackable interlocking tray system. The stackable interlocking tray system may include a support assembly having a plurality of struts, a lower tray assembly including trays that are operatively coupled to the support assembly and configured to receive a second end of a plurality

of the struts, and an upper tray assembly including trays that are operatively coupled to the support assembly and configured to receive a first end of a plurality of the struts. Each tray may define sidewalls that are configured to engage complementary side walls of adjacent trays.

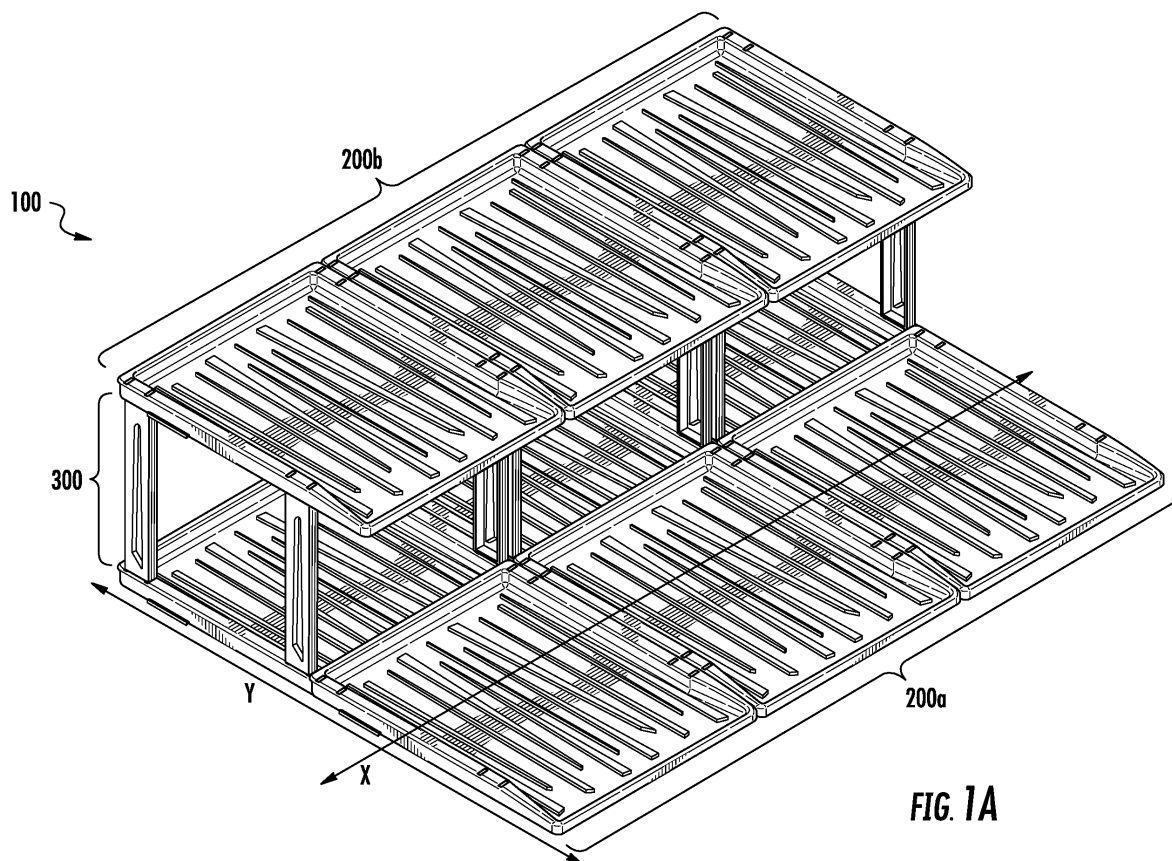


FIG. 1A

Description

CROSS-REFERENCE TO PRIORITY APPLICATION

[0001] This application claims the benefit of U.S. Patent Application Ser. No. 62/108,981 for a "Stackable Interlocking Tray System" (filed January 28, 2015), which is herein incorporated by reference in its entirety.

FIELD OF INVENTION

[0002] This application generally relates to a tray system that allows a plurality of trays to be interlocked with one another and stacked in various configurations.

BACKGROUND

[0003] Traditionally, trays may be utilized as placement of shoes such as work boots. In this way, the tray may form a protective barrier between the floor and objects (e.g., shoes) placed on the trays to reduce the chance of unwanted dirt, water, or debris from such objects contaminating the floor.

BRIEF SUMMARY

[0004] Embodiments of the invention are directed to systems (e.g., apparatuses) and methods for providing stackable interlocking trays, the system includes various configurations of upper and lower tray assemblies that include one or more trays. The tray assemblies may be operatively coupled to one another via a support assembly that includes one or more struts. The present invention is advantageous because the stackable configuration allows for a reduction in space occupied by the trays. Furthermore, the design of the trays reduces the chance of unwanted dirt, water, or debris dripping from a tray onto a lower tray or surface.

[0005] Accordingly, in one aspect, the present invention embraces a stackable interlocking tray system that includes a support assembly having a plurality of struts, wherein each of the plurality of struts define a first end and a second end. The stackable interlocking tray system also includes an upper tray assembly having one or more first trays operatively coupled to the support assembly. Each of the one or more first trays typically has a bottom surface having a plurality of lower attachment locations configured to be coupled with the first end of one of the plurality of struts. In addition, the stackable interlocking tray system includes a lower tray assembly having one or more second trays operatively coupled to the support assembly. Each of the one or more second trays may have a top surface having a plurality of upper attachment locations configured to be coupled with the second end of one of the plurality of struts. Each of the one or more first trays may include a plurality of sidewalls configured to be coupled with a complementary sidewall of an adjacent one of the first trays. Additionally, each of the one

or more second trays may include a plurality of sidewalls configured to be coupled with a complementary sidewall of an adjacent one of the second trays.

[0006] In one particular embodiment, each of the first trays may include a first sidewall, a second sidewall, a third sidewall, and a fourth sidewall, the first sidewall being configured to be coupled with the second sidewall of a first adjacent one of the first trays, the second sidewall being configured to be coupled with the first sidewall of a second adjacent one of the first trays, the third sidewall being configured to be coupled with the fourth sidewall of a third adjacent one of the first trays, the fourth sidewall being configured to be coupled with the third sidewall of a fourth adjacent one of the first trays.

[0007] In another particular embodiment, either alone or in combination with any of the foregoing embodiments, each of the second trays may include a first sidewall, a second sidewall, a third sidewall, and a fourth sidewall, the first sidewall being configured to be coupled with the second sidewall of a first adjacent one of the second trays, the second sidewall being configured to be coupled with the first sidewall of a second adjacent one of the second trays, the third sidewall being configured to be coupled with the fourth sidewall of a third adjacent one of the second trays, the fourth sidewall being configured to be coupled with the third sidewall of a fourth adjacent one of the second trays. The first sidewall may include a first hooking mechanism configured to be coupled with the second sidewall of the first adjacent one of the second trays, and the second sidewall may include a second hooking mechanism configured to be coupled with the first sidewall of the second adjacent one of the second trays. Furthermore, the third sidewall may include a third hooking mechanism configured to be coupled with the fourth sidewall of the third adjacent one of the second trays, and the fourth sidewall may be configured to be coupled with the third hooking mechanism of the third sidewall of the fourth adjacent one of the second trays.

[0008] In another particular embodiment, either alone or in combination with any of the foregoing embodiments, each of the lower attachment locations may include a female receptacle configured for receiving the first end of one of the plurality of struts. The female receptacle of each of the lower attachment locations may define a recess configured for receiving the first end of one of the plurality of struts.

[0009] In another particular embodiment, either alone or in combination with any of the foregoing embodiments, each of the upper attachment locations may include a female receptacle configured for receiving the second end of one of the plurality of struts. The second end of each of the plurality of struts may include a plurality of protrusions, and the female receptacle of each of the upper attachment locations may define a plurality of slots, each slot being configured to receive one of the protrusions of the second end of one of the plurality of struts.

[0010] In another aspect, the present invention embraces stackable interlocking tray that includes (i) a bot-

tom surface, the bottom surface defining a plurality of lower attachment locations, each lower attachment location being configured to be coupled with a first end of a strut, and (ii) a top surface, the top surface defining a plurality of upper attachment locations, each upper attachment location being configured to be coupled with a second end of a strut. The stackable interlocking tray also includes (i) a first sidewall, the first sidewall being configured to be coupled with a second sidewall of a first adjacent tray, (ii) a second sidewall, the second sidewall being configured to be coupled with a first sidewall of a second adjacent tray, (iii) a third sidewall, the third sidewall being configured to be coupled with a fourth sidewall of a third adjacent tray, and (iv) a fourth sidewall, the fourth sidewall being configured to be coupled with a third sidewall of a fourth adjacent tray.

[0011] In one embodiment, the first sidewall may include a first hooking mechanism configured to be coupled with the second sidewall of the first adjacent tray, the first sidewall being configured to be coupled with a second hooking mechanism of the second sidewall of the first adjacent tray, and the second sidewall may include a second hooking mechanism configured to be coupled with the first sidewall of the second adjacent tray, the second sidewall being configured to be coupled with a first hooking mechanism of the first sidewall of the second adjacent tray.

[0012] In another particular embodiment, either alone or in combination with any of the foregoing embodiments, the third sidewall may include a third hooking mechanism configured to be coupled with the fourth sidewall of the third adjacent tray, and the fourth sidewall may be configured to be coupled with a third hooking mechanism of the third sidewall of the fourth adjacent tray.

[0013] In another particular embodiment, either alone or in combination with any of the foregoing embodiments, each of the lower attachment locations may include a female receptacle configured for receiving a first end of a strut. The female receptacle of each of the lower attachment locations may define a recess configured for receiving a first end of a strut.

[0014] In another particular embodiment, either alone or in combination with any of the foregoing embodiments, each of the upper attachment locations may include a female receptacle configured for receiving a second end of a strut. The female receptacle of each of the upper attachment locations may define a plurality of slots, each slot being configured to receive a protrusion defined by a second end of a strut.

[0015] The features, functions, and advantages that have been discussed may be achieved independently in various embodiments of the present invention or may be combined with yet other embodiments, further details of which can be seen with reference to the following description and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] Having thus described embodiments of the invention in general terms, reference will now be made to the accompanying drawings, where:

Figure 1A depicts a perspective illustration of a stackable interlocking tray system in accordance with one embodiment of the invention;

Figure 1B depicts a perspective illustration of the stackable interlocking tray system in accordance with one embodiment of the invention;

Figure 2 depicts a top side perspective view of a portion of the stackable interlocking tray system illustrated in Figure 1A in accordance with one embodiment of the invention;

Figure 3 depicts a bottom side perspective view of a portion of the stackable interlocking tray system illustrated in Figure 1A in accordance with one embodiment of the invention;

Figure 4 depicts a bottom side perspective view of a disassembled portion of the stackable interlocking tray system illustrated in Figure 1A in accordance with one embodiment of the invention;

Figure 5A depicts an inverted rear view of a stackable interlocking tray in accordance with one embodiment of the invention;

Figure 5B depicts a top view of the stackable interlocking tray illustrated in Figure 5A in accordance with one embodiment of the invention;

Figure 5C depicts a front view of the stackable interlocking tray illustrated in Figure 5A in accordance with one embodiment of the invention;

Figure 5D depicts a side view of the stackable interlocking tray illustrated in Figure 5A in accordance with one embodiment of the invention;

Figure 5E depicts a bottom view of the stackable interlocking tray illustrated in Figure 5A in accordance with one embodiment of the invention;

Figure 6 depicts two adjacent interlocking trays in accordance with one embodiment of the invention;

Figures 7A-7B illustrate a strut in accordance with one embodiment of the invention;

Figure 8A depicts a perspective view of two stacked trays in accordance with one embodiment of the invention;

Figure 8B depicts a side view of the two stacked trays illustrated in Figure 8A in accordance with one embodiment of the invention;

Figure 9A depicts an inverted exploded perspective view of the struts and the top tray depicted in Figure 8A in accordance with one embodiment of the invention;

Figure 9B depicts an exploded perspective view of the two stacked trays depicted in Figure 8A in accordance with one embodiment of the invention;

Figure 9C depicts a cross-sectional view a strut coupled to the top tray depicted in Figure 8A in accord-

ance with one embodiment of the invention;
 Figure 9D depicts a cross-sectional view a strut coupled to the bottom tray depicted in Figure 8A in accordance with one embodiment of the invention;
 Figure 10A depicts a top view of a tray in accordance with an alternative embodiment of the present invention;
 Figure 10B depicts a cross-sectional front view of the tray illustrated in Figure 10A in accordance with an alternative embodiment of the present invention;
 Figure 10C depicts a perspective view of the tray illustrated in Figure 10A in accordance with an alternative embodiment of the present invention; and
 Figure 11 depicts interlocking trays in accordance with an alternative embodiment of the present invention.

DETAILED DESCRIPTION

[0017] Embodiments of the present invention now may be described more fully hereinafter with reference to the accompanying drawings, in which some, but not all, embodiments of the invention are shown. Indeed, the invention may be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided so that this disclosure may satisfy applicable legal requirements. Like numbers refer to like elements throughout.

[0018] In one aspect, the present invention embraces a stackable interlocking tray system. In this regard, Figures 1-9 illustrate an exemplary stackable interlocking tray system 100, and the various components thereof, in accordance with the present invention. As illustrated in Figures 1A-1B, the stackable interlocking tray system 100 includes, in general, three assemblies: (1) a base or lower tray assembly 200a, (2) an upper tray assembly 200b, and (3) a support assembly 300 that operatively couples the upper tray assembly 200b with the base tray assembly 200a. The various assemblies, and components thereof, of the stackable interlocking tray system 100 of Figure 1 are illustrated in Figures 2-9 and described in further detail throughout this specification. In general, the lower tray assembly 200a is located at the base of the stackable interlocking tray system 100 and is configured to be implemented as the foundation of a plurality of tray configurations. Although, it should be noted, that as used herein, the phrase stackable interlocking tray system 100 may refer to at least one of the lower tray assembly 200a or upper tray assembly 200b. For example, in one embodiment, the stackable interlocking tray system 100 may include only an upper tray assembly 200b that is upheld via the support assembly 300. To this extent, in such an embodiment the support assembly 300 may function as the sole foundation of the upper tray assembly 200b. In another embodiment, the stackable interlocking tray system 100 may include only a lower tray assembly 200a. The components of the stackable interlocking tray system 100 may be formed of poly-

urethane, rubber, plastic, metal, or another suitable material not explicitly mentioned herein.

[0019] The lower tray assembly 200a may include one or more trays 202 positioned at the base of the stackable interlocking tray system 100. The support assembly 300 may include one or more struts 302 that are securely positioned within a top surface of the one or more trays 202 and extend vertically upward, from the lower tray assembly 200a, in an upright orientation. The support assembly 300 (or additional components within) is configured for supporting the general structure of the stackable interlocking tray system 100, and is further configured to operatively couple the lower tray assembly 200a to the upper tray assembly 200b, which may include one or more trays 202 positioned at the top of the stackable interlocking tray system 100. In this way, the one or more struts 302 may extend upward towards the upper tray assembly 200b, and be further securely positioned within a bottom surface of the one or more trays 202 of the upper tray assembly 200b. Furthermore the upper tray assembly 200b may be suspended above the lower tray assembly 200a in a horizontal orientation such that the lower and upper assemblies 200b, 200a are separated by a distance substantially defined by the height of the struts 302 of the support assembly 300. It should be noted that, as used herein, a tray 202 may be utilized in either the lower or upper tray assembly, 200a, 200b, respectively. As such, any tray 202 within the lower tray assembly 200a typically may be interchanged with a tray within the upper tray assembly 200b, and vice versa, and achieve the same functional effect within the stackable interlocking tray system 100.

[0020] Figures 5A-5E illustrate a tray 202 according to various embodiments discussed herein. It should be noted that although in some embodiments the tray 202 is defined by a rectangular shape, the tray 202 may be embodied by other shapes that are not illustrated herein, including but not limited to, squared, circular, trapezoidal, and/or organic or ameba shapes. The tray 202 may generally include a top surface 202a and a bottom surface 202b. The bottom surface 202b may have a plurality of indentations 203 therein. These indentations 203 may provide a rigidity within the planar surface of the tray 202. The indentations 203 typically extend into the bottom surface 202b of the tray 203 such that they cause upward projections within the top surface 202a of the tray that form ridges 209. It should be noted that although in some embodiments the indentations 203 and ridges 209 are defined by a trapezoidal shape, the indentations may be embodied by other shapes that are not illustrated herein, including but not limited to, squared, circular, rectangular, and/or organic or ameba shapes. In other embodiments, the bottom surface 202b may lack indentations 203, but the top surface 202a may nevertheless define ridges 209.

[0021] The tray may further include a left side wall 204a, right side wall 204b, rear side wall 204c, and front side wall 204d that extend upward from the bottom sur-

face of the tray 202b. Furthermore, the front end of the left and right sidewalls 204a, 204b, respectively, may be angled such that the front end of the left and right sidewalls 204a, 204b is slanted downward and outward towards the front wall 204d of the tray 202.

[0022] As shown in Figures 5A and 5E, the tray 202 is typically configured to be coupled to one or more struts 302 for the purpose of stacking the lower and upper tray assemblies 200a, 200b, on top of one another. Accordingly, the top and bottom surfaces of the tray may define a plurality of attachment location each of which is configured to be coupled with a strut. By way of example, the tray 202 may further include an upper receptacle region 205 and lower receptacle region 206 that lie along the top and bottom surfaces, respectively, of the left, right, and rear side walls 204a, 204b, 204c of the tray 202. The upper receptacle region 205 may further include a plurality of upper female receptacles 205a configured to receive a second male end 304b of a strut 302 such that the strut is coupled to the top surface of the tray 202. Each upper female receptacle 205a may be further defined by a plurality of slots 205b (e.g., two slots) within the receptacle region 205 that are positioned such that they are parallel to one another. These slots 205b are typically configured to receive corresponding protrusions on a second male end 304b of a strut 302. As illustrated in Figure 5B, the tray 202 includes a first upper female receptacle 205a located at the front left side of the upper receptacle region 205, a second upper female receptacle 205a located at the rear left side of the upper receptacle region 205, a third upper female receptacle 205a located at the front right side of the upper receptacle region 205, and a fourth top female receptacle 205a located at the rear right side of the upper receptacle region 205. Accordingly, in such an embodiment, the tray 202 may be configured to receive four (4) struts 302 within the first, second, third, and fourth upper female receptacles 205a. The lower receptacle region 206 may further include a plurality of lower female receptacles 206a configured to receive a first male end 304a of a strut 302 such that the strut 302 is coupled to the bottom surface of the tray 202. Each lower female receptacles 206a typically defines a recess for receiving a first male end 304a of a strut 302. As illustrated in Figure 5E, the tray 202 includes a first lower female receptacle 206a located at the front left side of the lower receptacle region 206, a second lower female receptacle 206a located at the rear left side of the lower receptacle region 206, a third lower female receptacle 206a located at the front right side of the lower receptacle region 206, and a fourth lower female receptacle 206a located at the rear right side of the lower receptacle region 206. Accordingly, in such an embodiment, the tray 202 may be configured to receive four (4) struts 302 within the first, second, third, and fourth female receptacles 206a.

[0023] Each tray assembly may be formed from a plurality of adjacent interlocking trays. Accordingly, each of the sidewalls of the trays 202 is typically configured to

be coupled with a complementary sidewall of an adjacent tray 202. In this regard, a tray assembly may include trays 202 that horizontally interlock along axis X illustrated in Figure 1. Accordingly, as shown in Figures 5A-5E, each tray 202 may define lateral side attachment regions 207a, 207b along the exterior edges of the left and right side walls 204a, 204b. Each lateral side attachment region 207a, 207b typically defines at least one hooking and/or clasp mechanism configured to engage a lateral side wall (e.g., a left or right side wall 204a, 204b) of an adjacent tray 202. As illustrated in Figure 5B, the tray 202 includes a first attachment region 207a located at the exterior edge of a rear portion of the left side wall 204a, and a second attachment region 207b located at the exterior edge of a front portion of the right side wall 204b. In such an embodiment, the tray 202 may be configured to interlock with another tray 202 on both its left and right sides, and so the outermost edges 208 of the left and right side wall 204a, 204b may be sized and shaped such that the edges 208 are configured to be coupled to the lateral side attachment regions 207a, 207b to interconnect adjacent trays 202 (e.g., such that the trays 202 are securely attached to one another). By way of further explanation, a lateral side attachment region 207b along a right side wall 204b of a first tray 202 may engage a left side wall 204a of a second tray 202, and a lateral side attachment region 207a along the left side wall 204a of the second tray 202 may engage the right side wall 204b of the first tray 202. In this regard, as shown in Figure 6, at least a portion of the interlocked trays 202 typically overlap one another such that at least a portion of the attachment regions 207a, 207b extend upward into the bottom surface of an adjacent tray.

[0024] Each tray assembly may also include trays 202 that horizontally interlock along axis Y illustrated in Figure 1. Accordingly, as shown in Figures 5A-5E, the front side of each tray 202 may be configured to be coupled to a rear side of an adjacent tray, and the rear side of each tray 202 may be configured to be coupled to a front side of an adjacent tray. The rear side wall 204c of each tray 202 may define a rear attachment region 207c that is configured to be coupled with the front side wall 204d of an adjacent tray 202. In this regard, the rear attachment region 207c typically defines at least one hooking and/or clasp mechanism configured to engage the front side wall 204d of an adjacent tray 202. The rear attachment region 207c may extend along the length of the rear side wall 204c of each tray 202. In such an embodiment, the tray 202 may be configured to interlock with another tray 202 on both its front and rear sides, and so the front side wall 204d of each tray 204 may be sized and shaped to engage the rear attachment region 207c of an adjacent tray 202 (e.g., such that the trays 202 are securely attached to one another). In this regard, the front side wall 204d of a particular tray may engage a hooking mechanism of the rear attachment region 207c of an adjacent tray so that the rear attachment region 207c of the adjacent tray overlaps the front side wall 204d and extends downward

into the top surface of the particular tray.

[0025] Figures 7A-7B illustrates a strut 302 according to various embodiments discussed herein. It should be noted that although in some embodiments the strut 302 is defined by a rectangular shape, the strut 302 may be embodied by other shapes that are not illustrated herein, including but not limited to, squared, cylindrical, trapezoidal, and/or organic or ameba shapes. The strut 302 may generally include an inner surface 302a and an outer surface 302b having an indentation 303 therein. Generally, the struts 302 may be embodied by any individual members that can be coupled with a tray 202 using a fastener and/or another suitable coupling mechanism (e.g. a snap fit, screw, or the like). Typically, the strut 302 includes a first male end 304a that is configured to engage a lower female receptacle 206a of a tray 202 in order to couple the strut 302 to the bottom surface 202b of such tray 202. When engaged, the first male end 304a and a lower female receptacle 206a of a tray 202 may form a snap fit that securely couples the strut 302 to such tray 202. Figure 9C depicts the first male end 304a engaging a lower female receptacle 206a of a tray 202. The strut 302 typically also includes a second male end 304b that is configured to engage an upper female receptacle 205a of a tray 202 in order to couple the strut 302 to the top surface 202a of such tray 202. As depicted in Figure 7A, the second male end 304b may define protrusions 304c (e.g., parallel protrusions) that engage corresponding slots 205b of an upper female receptacle 205a of a tray 202. These protrusions 304c may form a snap with corresponding slots 205b of an upper female receptacle 205a of a tray 202 to securely couple the strut 302 to such tray 202. In this regard, Figure 9D depicts the second male end 304b engaging an upper female receptacle 205a of a tray 202. As shown in Figures 8A-8B and 9A-9B, in this way, the first male end 304a of a strut 302 may be coupled to a bottom surface 202b of a tray 202 of an upper tray assembly 200b, and the second male end 304b of the strut 302 may be coupled to a top surface 202a of a tray 202 of a lower tray assembly 200a. Typically, multiple struts 302 (e.g., four struts) are used couple two trays 202 together as depicted in Figures 8A-8B and 9A-9B.

[0026] An alternative embodiment of the interlocking tray system is depicted in Figures 10A-10C and 11 in which an interlocking tray system 400 includes a single tray assembly 400a. In such an embodiment, each tray 402 typically is configured to be coupled to one or more additional trays for the purpose of horizontally expanding the tray assembly 400a. Typically, each side wall 404a, 404b, 404c, 404d of the tray 402 is configured to engage a complementary side wall of an adjacent tray 402. As shown in Figures 10A and 10B, the right side wall 404b and the front side wall 404d may each define a coupling mechanism 407 (e.g., a hooking and/or clasp mechanism) along their exterior edges. The coupling mechanisms 407 of the right side wall 404b and the front side wall 404d are typically configured to engage, respective-

ly, a left side wall 404a and a rear side wall 404c of adjacent trays 402. In this regard, the coupling mechanisms 407 may be sized and shaped to overlap a complementary side wall (e.g., a left side wall 404a or a rear side wall 404a of an adjacent tray) and extends downward into the top surface of an adjacent tray. The top edges of the left and rear side walls 404a, 404c may be sized and shaped such that the edges of these side walls are configured to be positioned within the coupling mechanisms 407 of the right front side walls 404b, 404d, respectively, to interlock one or more trays 402 such that the trays are securely attached to one another. Accordingly, in such an embodiment, the tray 402 may be configured to interlock with another tray 402 on multiple sides. Figure 11 illustrates the corners of four different trays 402 being connected together. The tray 402 may form ridges similar to those on the trays 202 illustrated in Figures 1-9. In contrast with the trays 202 illustrated in Figures 1-9, the trays 402 might not be configured to be attached to a strut for the purpose of vertically expanding the tray system 400.

[0027] While certain exemplary embodiments have been described and shown in the accompanying drawings, it is to be understood that such embodiments are merely illustrative of and not restrictive on the broad invention, and that this invention not be limited to the specific constructions and arrangements shown and described, since various other changes, combinations, omissions, modifications and substitutions, in addition to those set forth in the above paragraphs, are possible. Those skilled in the art will appreciate that various adaptations, modifications, and combinations of the just described embodiments can be configured without departing from the scope and spirit of the invention. Therefore, it is to be understood that, within the scope of the appended claims, the invention may be practiced other than as specifically described herein.

[0028] Also, it will be understood that, where possible, any of the advantages, features, functions, devices, and/or operational aspects of any of the embodiments of the present invention described and/or contemplated herein may be included in any of the other embodiments of the present invention described and/or contemplated herein, and/or vice versa. In addition, where possible, any terms expressed in the singular form herein are meant to also include the plural form and/or vice versa, unless explicitly stated otherwise. Accordingly, the terms "a" and/or "an" shall mean "one or more," even though the phrase "one or more" is also used herein.

Claims

1. A stackable interlocking tray system, the system comprising:

a support assembly comprising a plurality of struts, wherein each of the plurality of struts de-

- fine a first end and a second end;
 an upper tray assembly comprising one or more first trays operatively coupled to the support assembly, each of the one or more first trays having a bottom surface comprising a plurality of lower attachment locations configured to be coupled with the first end of one of the plurality of struts; and
 a lower tray assembly comprising one or more second trays operatively coupled to the support assembly, each of the one or more second trays having a top surface comprising a plurality of upper attachment locations configured to be coupled with the second end of one of the plurality of struts;
 wherein each of the one or more first trays comprises a plurality of sidewalls configured to be coupled with a complementary sidewall of an adjacent one of the first trays;
 wherein each of the one or more second trays comprises a plurality of sidewalls configured to be coupled with a complementary sidewall of an adjacent one of the second trays.
2. The stackable interlocking tray system of claim 1, wherein each of the first trays comprises a first sidewall, a second sidewall, a third sidewall, and a fourth sidewall, the first sidewall being configured to be coupled with the second sidewall of a first adjacent one of the first trays, the second sidewall being configured to be coupled with the first sidewall of a second adjacent one of the first trays, the third sidewall being configured to be coupled with the fourth sidewall of a third adjacent one of the first trays, the fourth sidewall being configured to be coupled with the third sidewall of a fourth adjacent one of the first trays.
3. The stackable interlocking tray system of claim 1, wherein each of the second trays comprises a first sidewall, a second sidewall, a third sidewall, and a fourth sidewall, the first sidewall being configured to be coupled with the second sidewall of a first adjacent one of the second trays, the second sidewall being configured to be coupled with the first sidewall of a second adjacent one of the second trays, the third sidewall being configured to be coupled with the fourth sidewall of a third adjacent one of the second trays, the fourth sidewall being configured to be coupled with the third sidewall of a fourth adjacent one of the second trays.
4. The stackable interlocking tray system of claim 3, wherein:
 the first sidewall comprises a first hooking mechanism configured to be coupled with the second sidewall of the first adjacent one of the second trays; and
 the second sidewall comprises a second hooking mechanism configured to be coupled with the first sidewall of the second adjacent one of the second trays.
5. The stackable interlocking tray system of claim 3, wherein:
 the third sidewall comprises a third hooking mechanism configured to be coupled with the fourth sidewall of the third adjacent one of the second trays; and
 the fourth sidewall is configured to be coupled with the third hooking mechanism of the third sidewall of the fourth adjacent one of the second trays.
6. The stackable interlocking tray system of claim 1, wherein each of the lower attachment locations comprises a female receptacle configured for receiving the first end of one of the plurality of struts.
7. The stackable interlocking tray system of claim 6, wherein the female receptacle of each of the lower attachment locations defines a recess configured for receiving the first end of one of the plurality of struts.
8. The stackable interlocking tray system of claim 1, wherein each of the upper attachment locations comprises a female receptacle configured for receiving the second end of one of the plurality of struts.
9. The stackable interlocking tray system of claim 8, wherein:
 the second end of each of the plurality of struts comprises a plurality of protrusions; and
 the female receptacle of each of the upper attachment locations defines a plurality of slots, each slot being configured to receive one of the protrusions of the second end of one of the plurality of struts.
10. A stackable interlocking tray, the tray comprising:
 a bottom surface, the bottom surface defining a plurality of lower attachment locations, each lower attachment location being configured to be coupled with a first end of a strut;
 a top surface, the top surface defining a plurality of upper attachment locations, each upper attachment location being configured to be coupled with a second end of a strut;
 a first sidewall, the first sidewall being configured to be coupled with a second sidewall of a first adjacent tray;
 a second sidewall, the second sidewall being configured to be coupled with a first sidewall of

a second adjacent tray;
 a third sidewall, the third sidewall being configured to be coupled with a fourth sidewall of a third adjacent tray; and
 a fourth sidewall, the fourth sidewall being configured to be coupled with a third sidewall of a fourth adjacent tray.

11. The stackable interlocking tray of claim 10, wherein:

the first sidewall comprises a first hooking mechanism configured to be coupled with the second sidewall of the first adjacent tray, the first sidewall being configured to be coupled with a second hooking mechanism of the second sidewall of the first adjacent tray; and
 the second sidewall comprises a second hooking mechanism configured to be coupled with the first sidewall of the second adjacent tray, the second sidewall being configured to be coupled with a first hooking mechanism of the first sidewall of the second adjacent tray.

12. The stackable interlocking tray of claim 10, wherein:

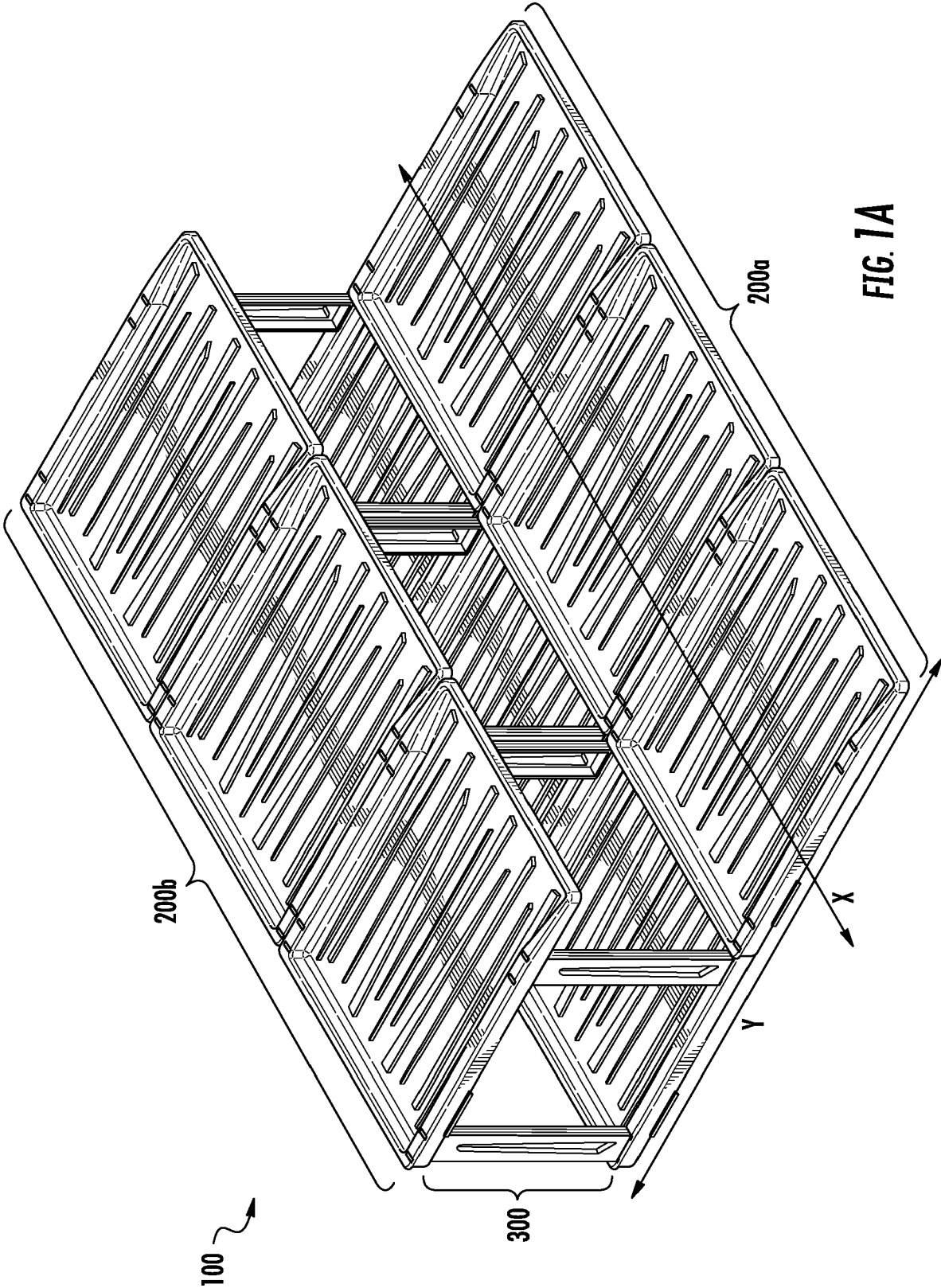
the third sidewall comprises a third hooking mechanism configured to be coupled with the fourth sidewall of the third adjacent tray; and
 the fourth sidewall is configured to be coupled with a third hooking mechanism of the third sidewall of the fourth adjacent tray.

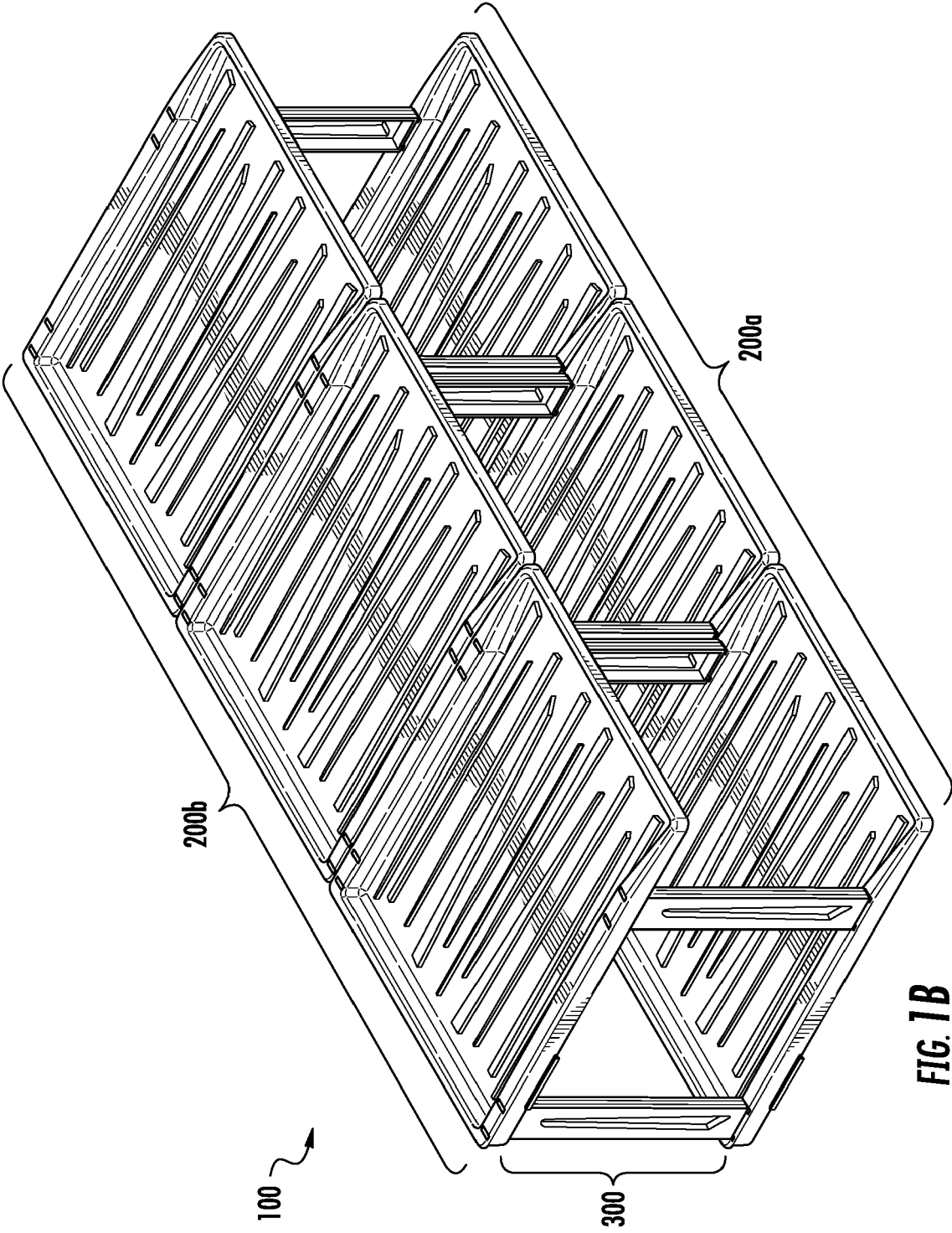
13. The stackable interlocking tray of claim 10, wherein each of the lower attachment locations comprises a female receptacle configured for receiving a first end of a strut.

14. The stackable interlocking tray of claim 13, wherein the female receptacle of each of the lower attachment locations defines a recess configured for receiving a first end of a strut.

15. The stackable interlocking tray of claim 10, wherein each of the upper attachment locations comprises a female receptacle configured for receiving a second end of a strut.

16. The stackable interlocking tray of claim 16, wherein the female receptacle of each of the upper attachment locations defines a plurality of slots, each slot being configured to receive a protrusion defined by a second end of a strut.





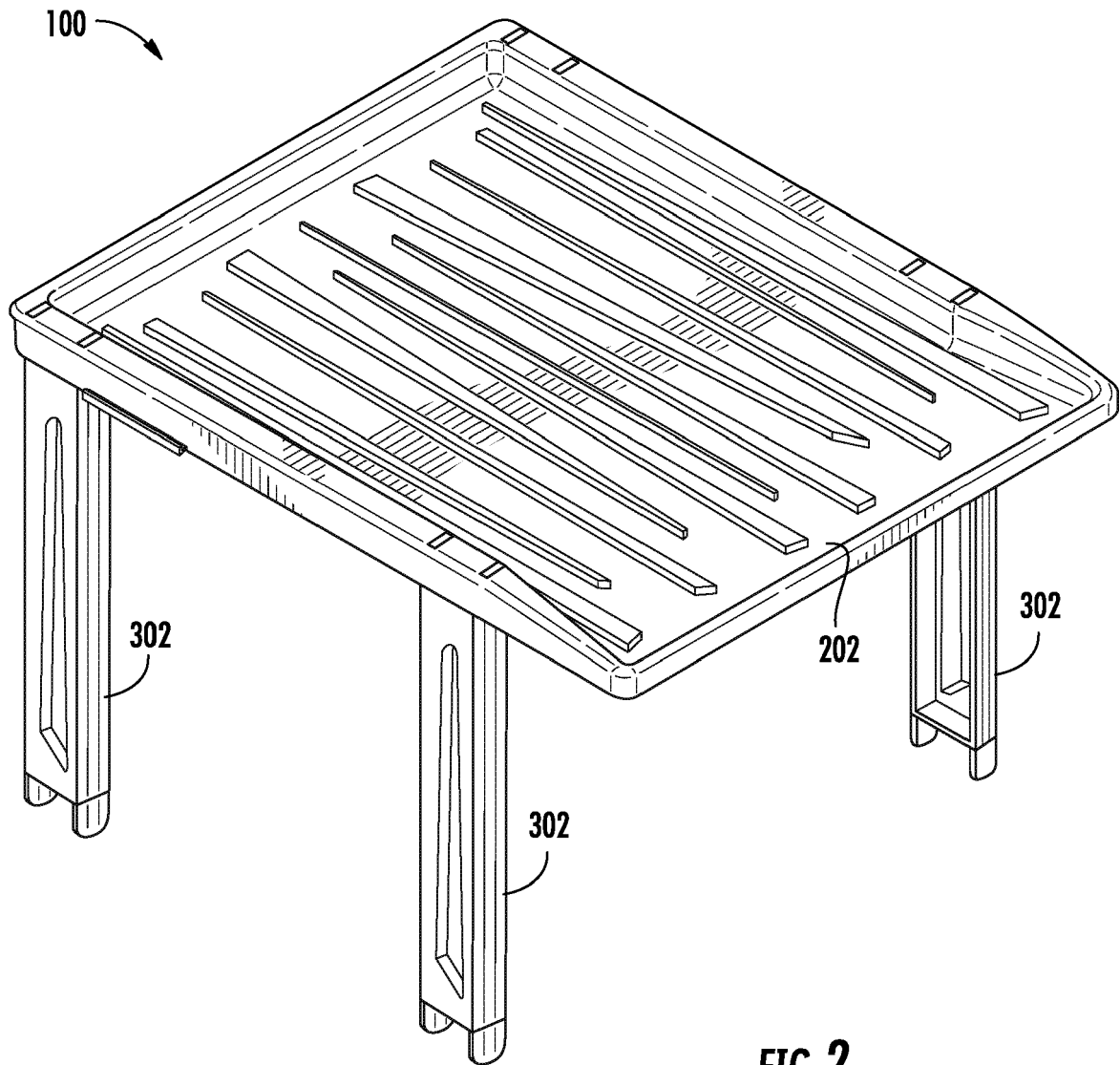


FIG. 2

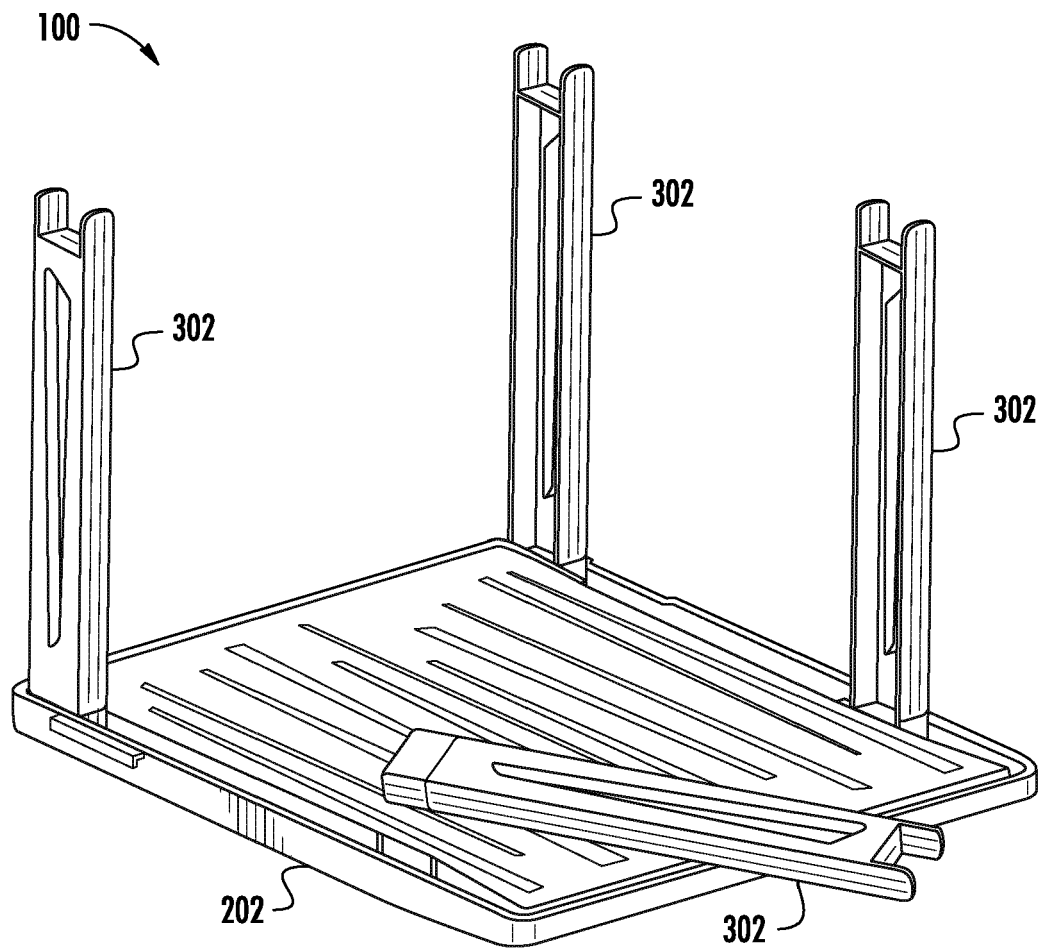


FIG. 3

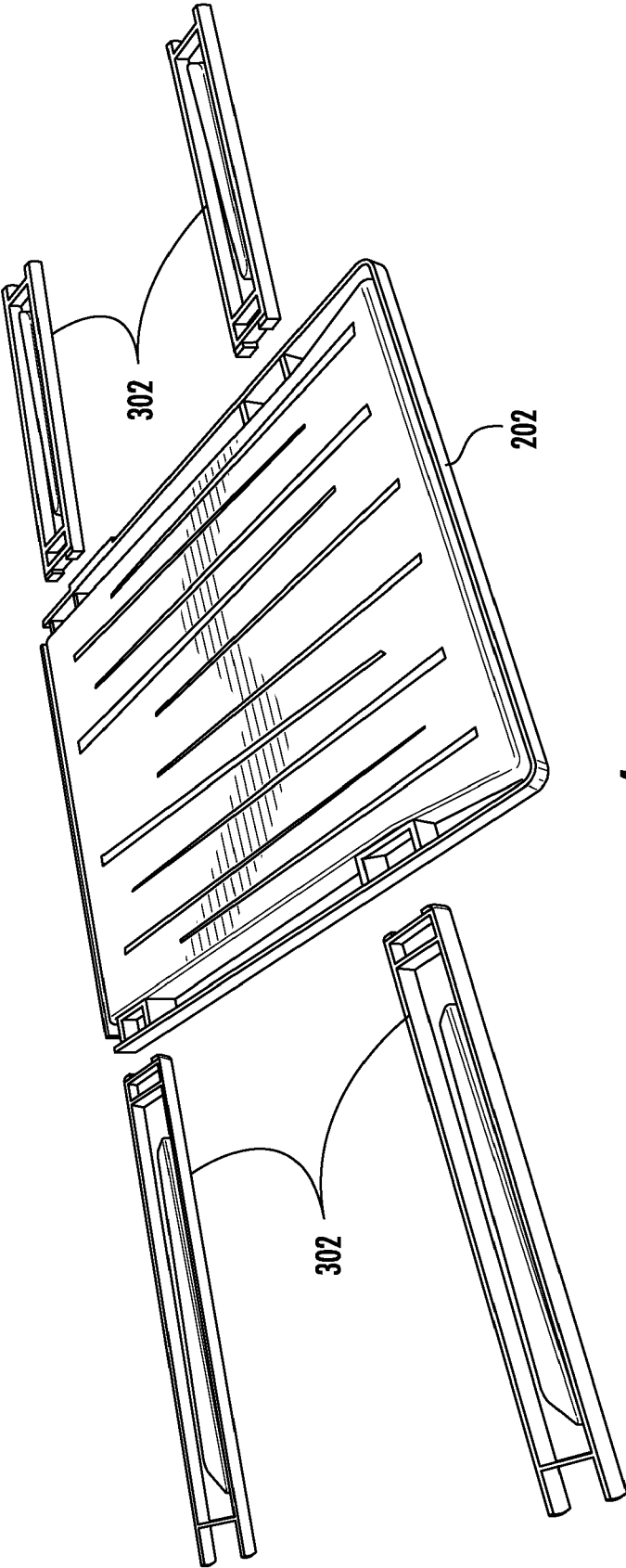


FIG. 4

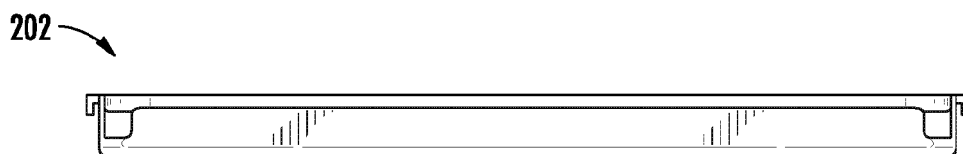


FIG. 5A

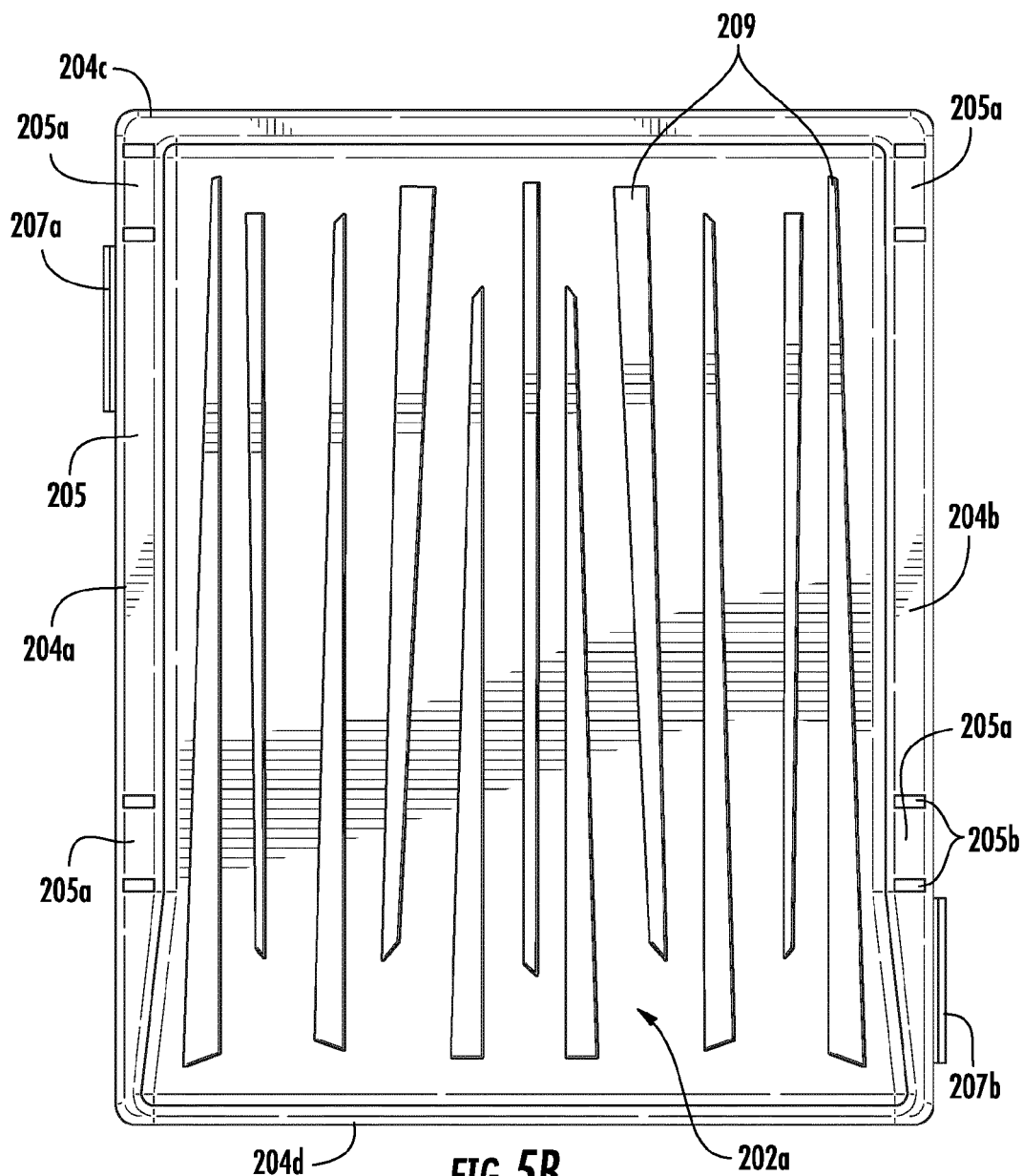
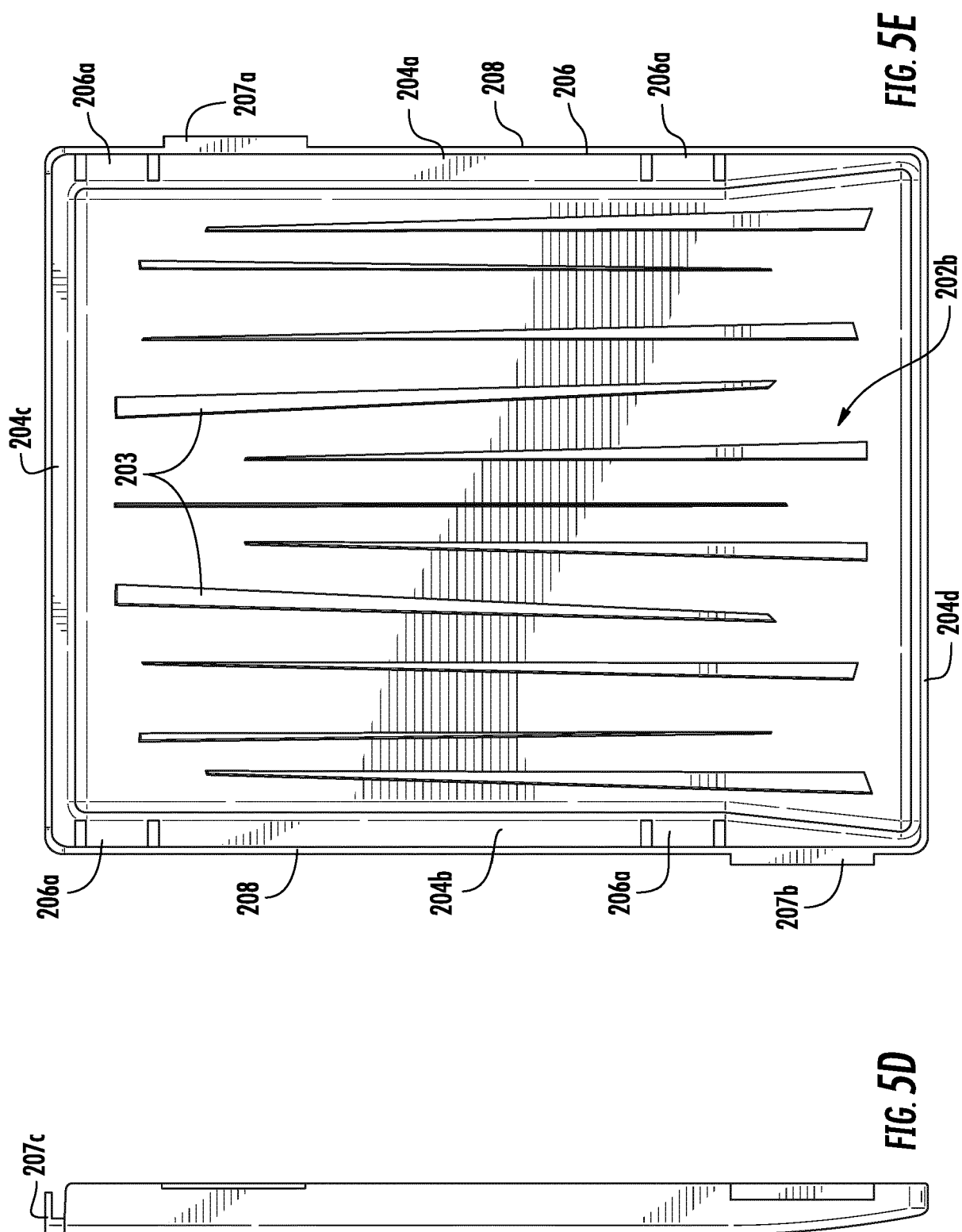
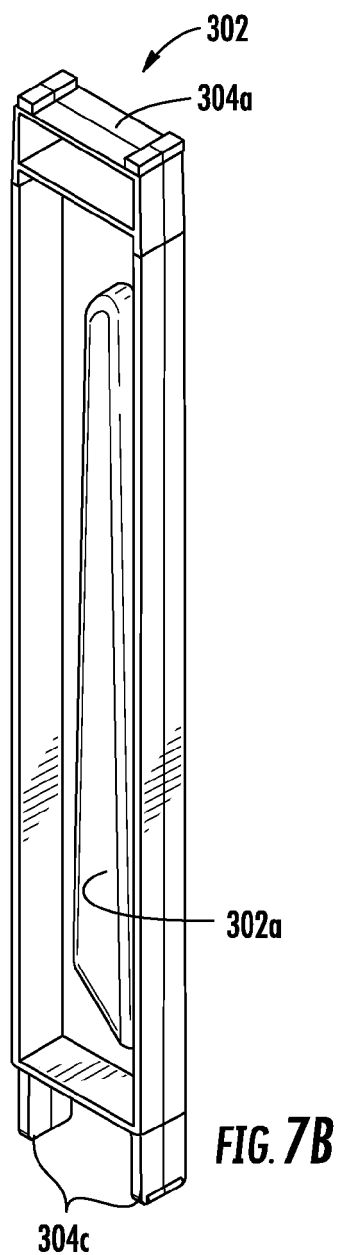
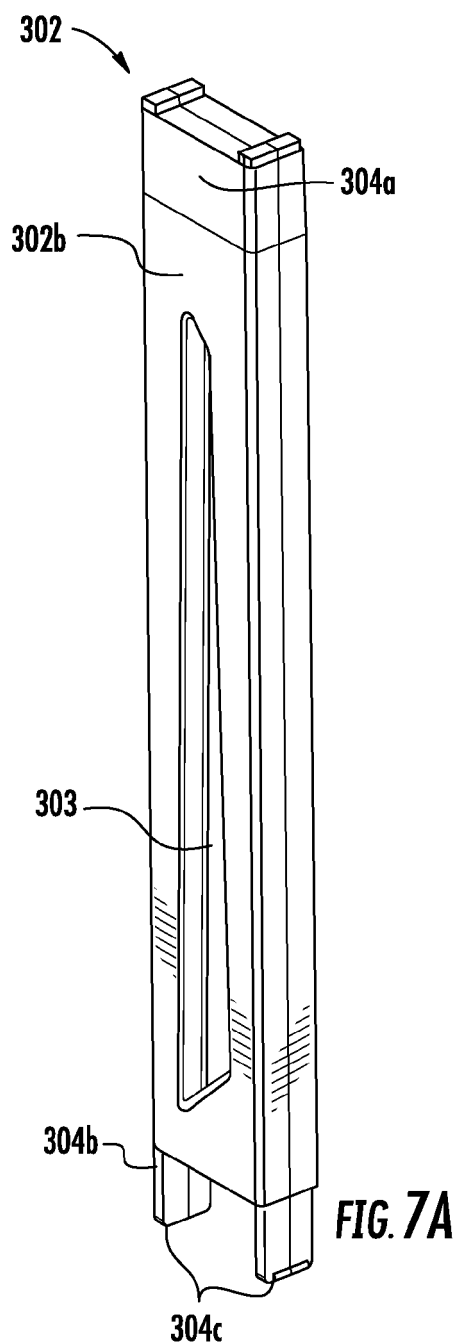
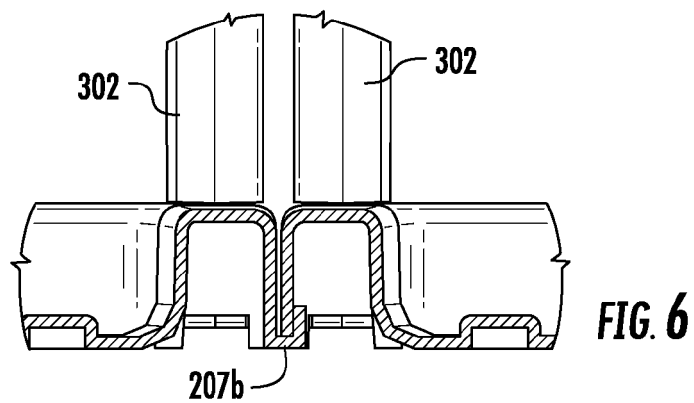


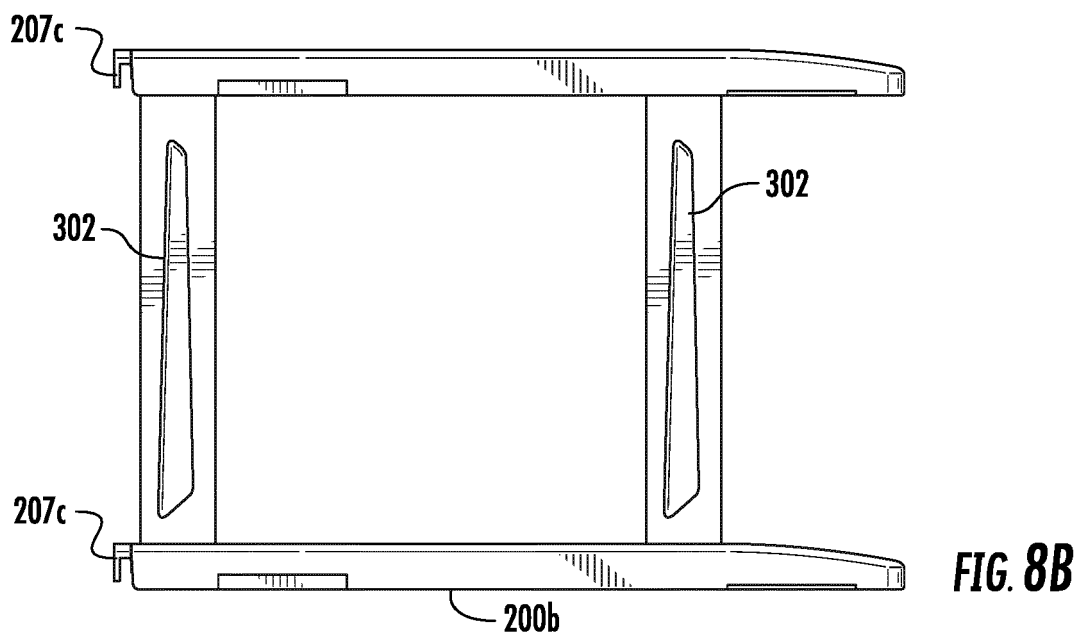
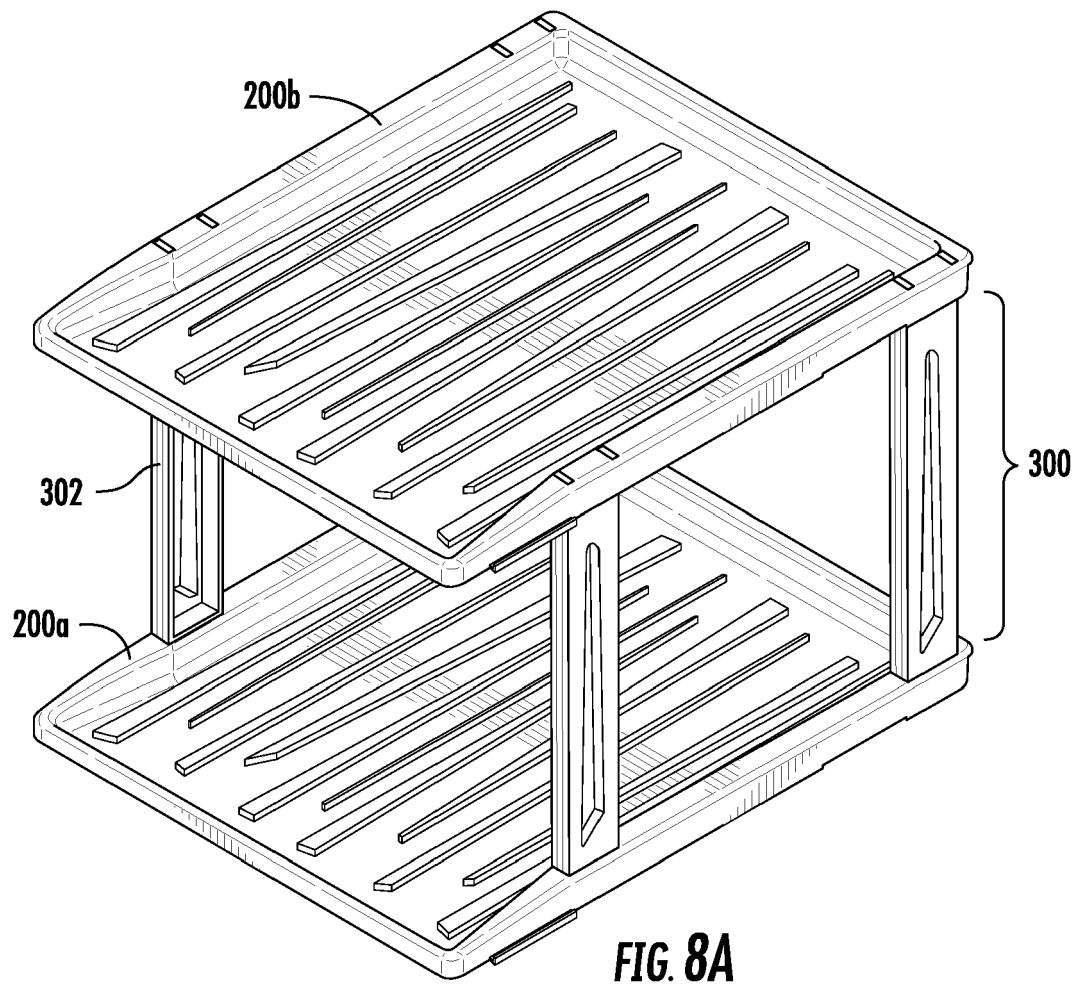
FIG. 5B



FIG. 5C







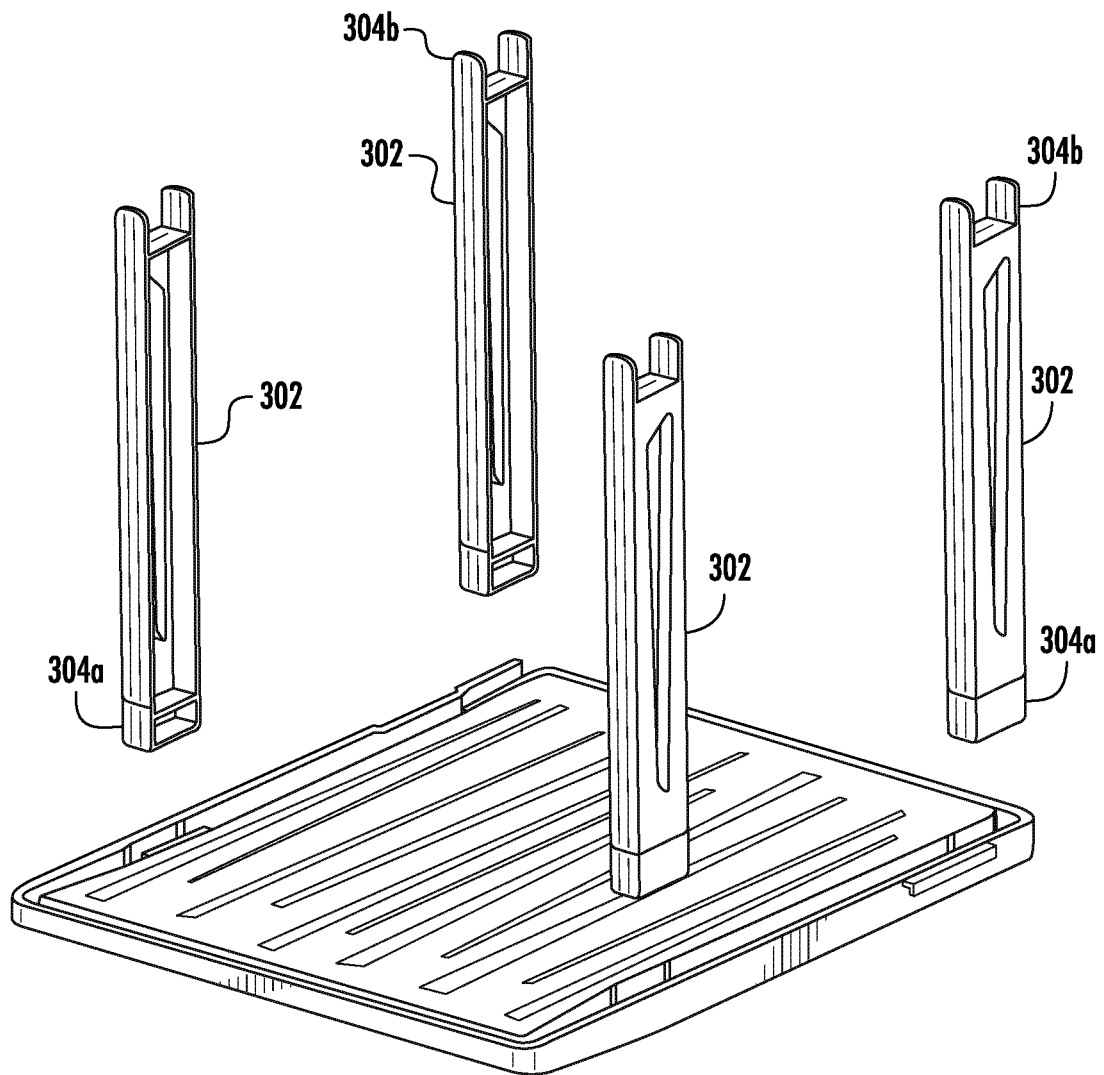


FIG. 9A

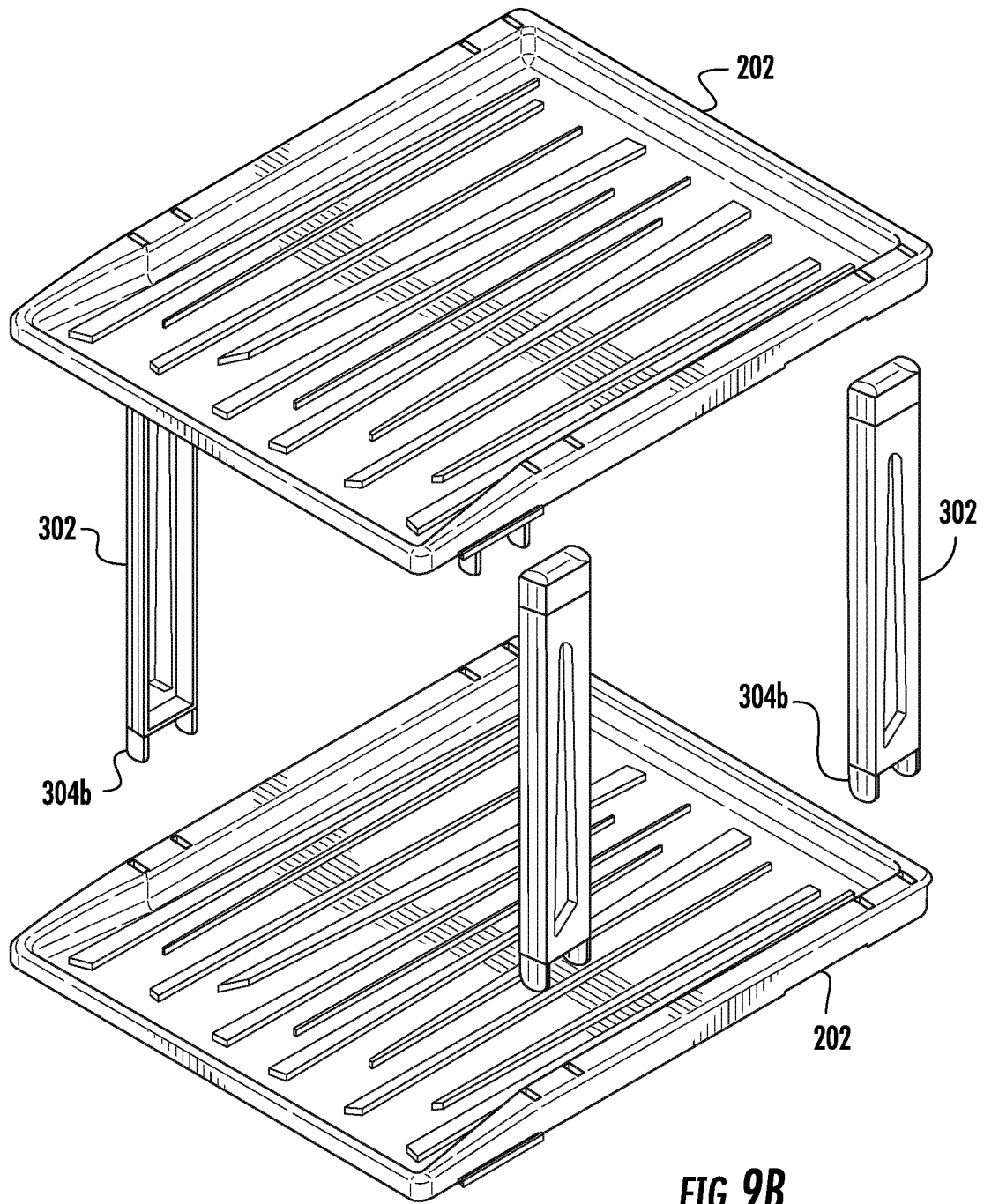
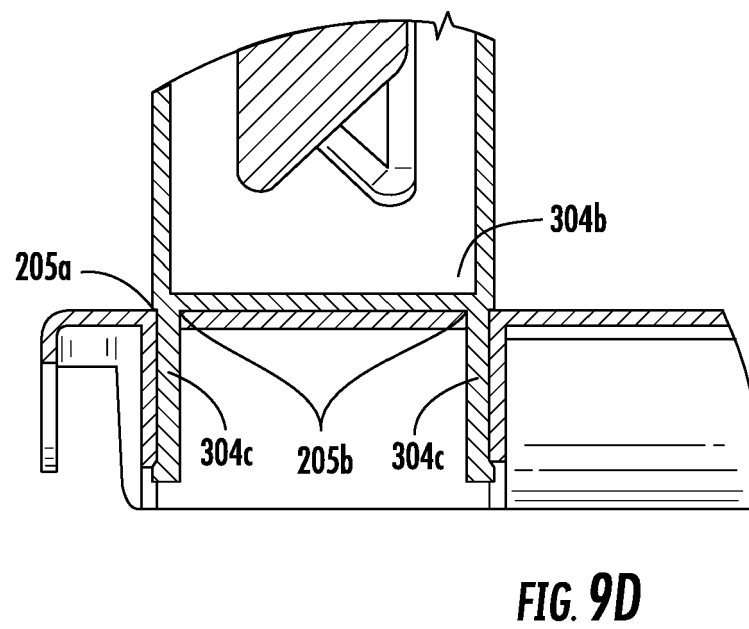
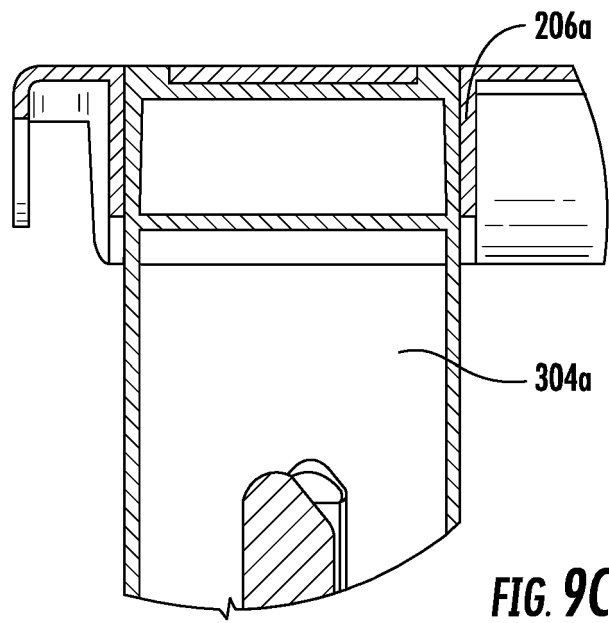


FIG. 9B



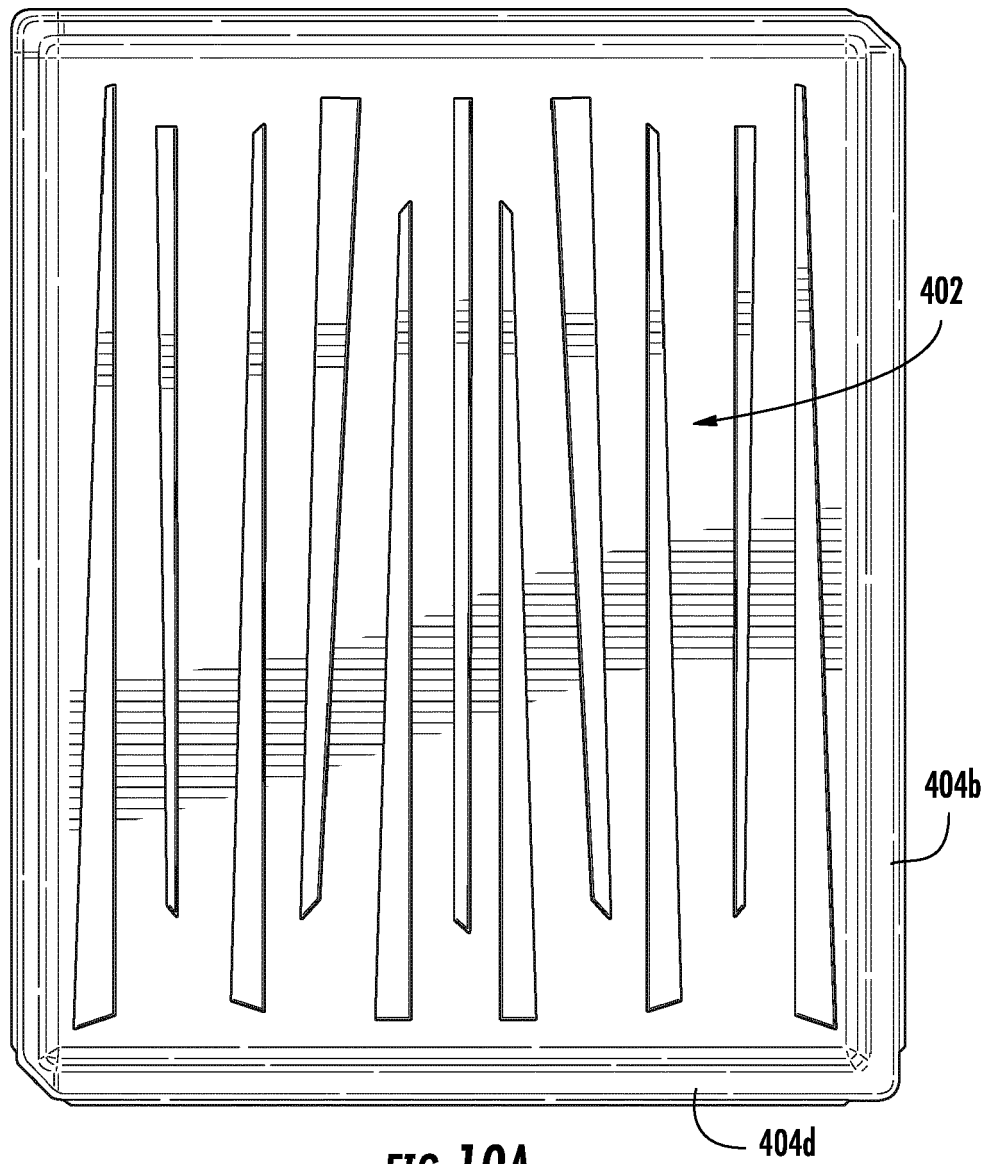


FIG. 10A

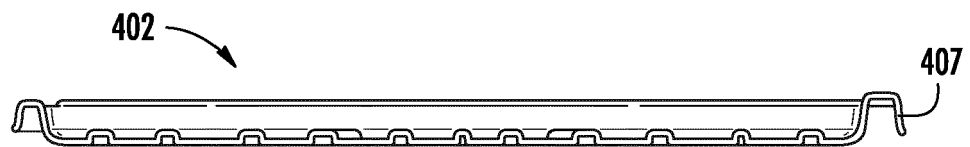


FIG. 10B

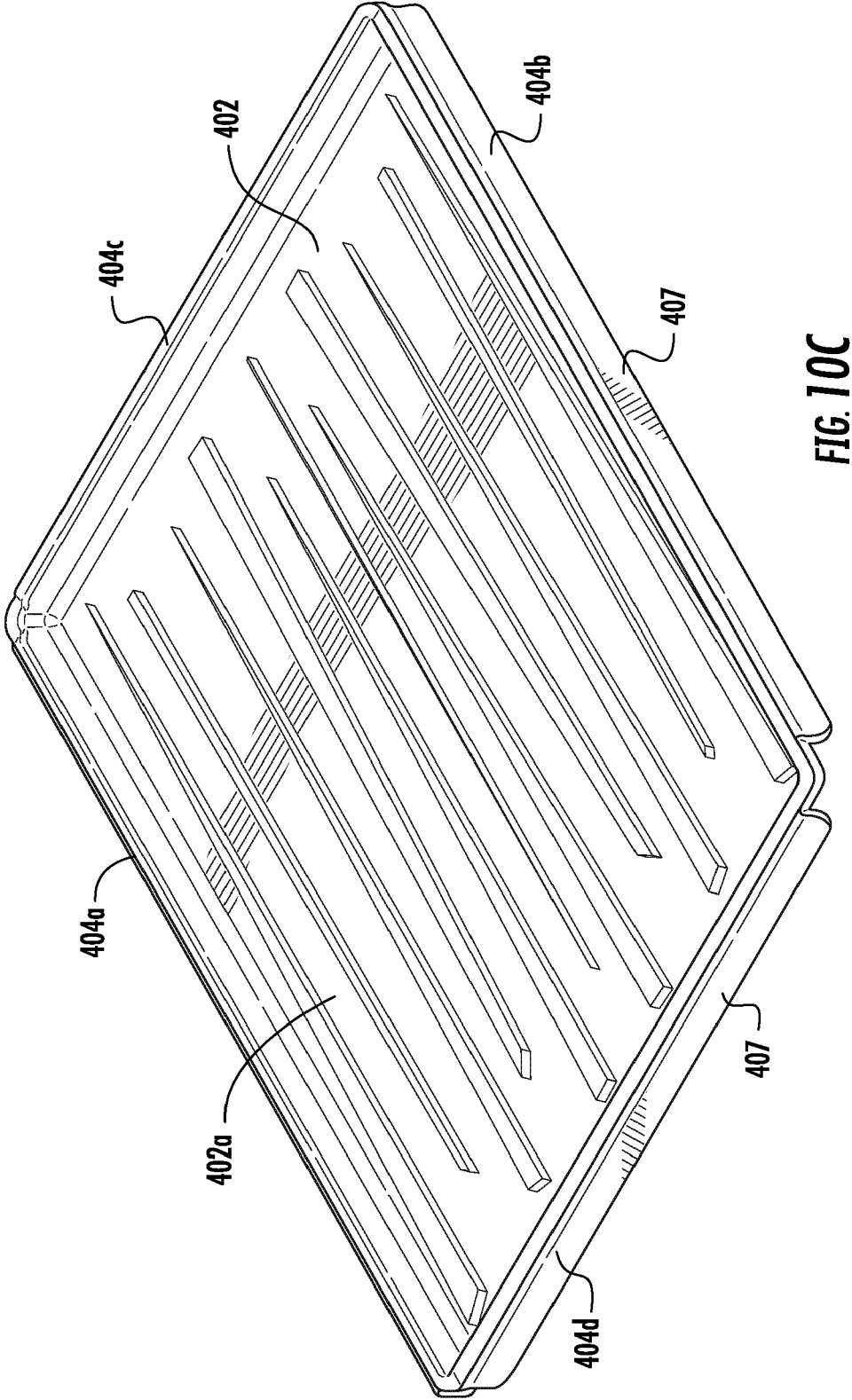


FIG. 10C

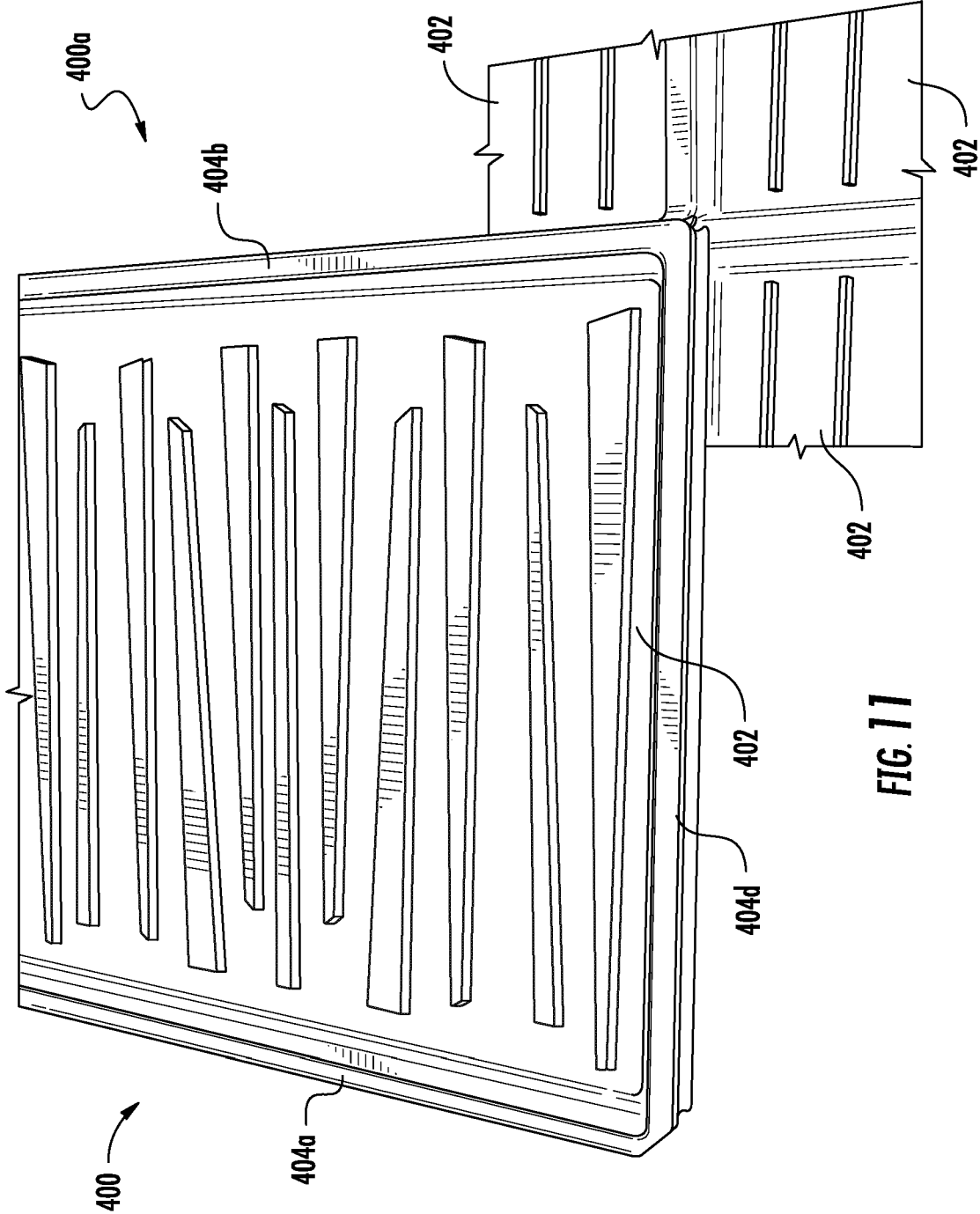


FIG. 11

**PARTIAL EUROPEAN SEARCH REPORT**

Application Number

under Rule 62a and/or 63 of the European Patent Convention.
This report shall be considered, for the purposes of
subsequent proceedings, as the European search report

EP 16 15 2918

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2008/053940 A1 (WHALEN JOHN) 6 March 2008 (2008-03-06)	1-5,8	INV. A47B47/04
Y	* figure 1 *	6,7	A47B87/02
A	* paragraph [0024] * * paragraph [0032] *	9	B65D21/02
Y	US 6 079 339 A (DAVID A. HOUK) 27 June 2000 (2000-06-27)	6,7	
A	* figures 1,3a *	1,8	
A	US 2009/242501 A1 (YANKELLO JOSEPH J [US] ET AL) 1 October 2009 (2009-10-01) * figures 1,5 *	1,6-8	
			TECHNICAL FIELDS SEARCHED (IPC)
			A47B B65D

INCOMPLETE SEARCH

The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R.62a, 63) has been carried out.

Claims searched completely :

Claims searched incompletely :

Claims not searched :

Reason for the limitation of the search:

see sheet C

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Place of search	Date of completion of the search	Examiner
The Hague	5 August 2016	de Cornulier, P
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document		

EPO FORM 1503 03/82 (P04E07)



INCOMPLETE SEARCH SHEET C

Application Number

EP 16 15 2918

Claim(s) completely searchable:

1-9

Claim(s) not searched:

10-16

Reason for the limitation of the search:

In his letter of 26 July 2016 the applicant argued that "the stackable interlocking tray system of claim 1 and the stackable inter-locking tray of claim 10 constitute different objects that work together analogous to systems, sub-systems and sub-units of such systems in agreement with the Guidelines for Examination, Part F ? Chapter IV-4, 3.2(i)."

However, this argumentation cannot be followed because:

For the stackable interlocking tray of claim 10 to be a sub-system of the stackable interlocking tray system of claim 1 (Rule 43(2)(a) EPC), the stackable interlocking tray (i.e. all features) of claim 10 should be included in claim 1, rendering claim 1 dependent on claim 10 as per Rule 43(4) EPC. This is in the present application not the case, as the following feature of claim 10 are not included in claim 1:

- a first sidewall, the first sidewall being configured to be coupled with a second sidewall of a first adjacent tray;
- a second sidewall, the second sidewall being configured to be coupled with a first sidewall of a second adjacent tray;
- a third sidewall, the third sidewall being configured to be coupled with a fourth sidewall of a third adjacent tray; and
- a fourth sidewall, the fourth sidewall being configured to be coupled with a third sidewall of a fourth adjacent tray.

Claims 1 & 10 are thus two independent claims from the same category and do not fall under the exception of Rule 43(2)(a) EPC.

Thus, the search report has been drawn up on the basis of the first independent claim (Rule 62a(1) EPC): Claim 1.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 16 15 2918

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

05-08-2016

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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 62108981 A [0001]