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(54) **CONVERTIBLE TABLE AND EASEL APPARATUS**

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(57) **ABSTRACT**

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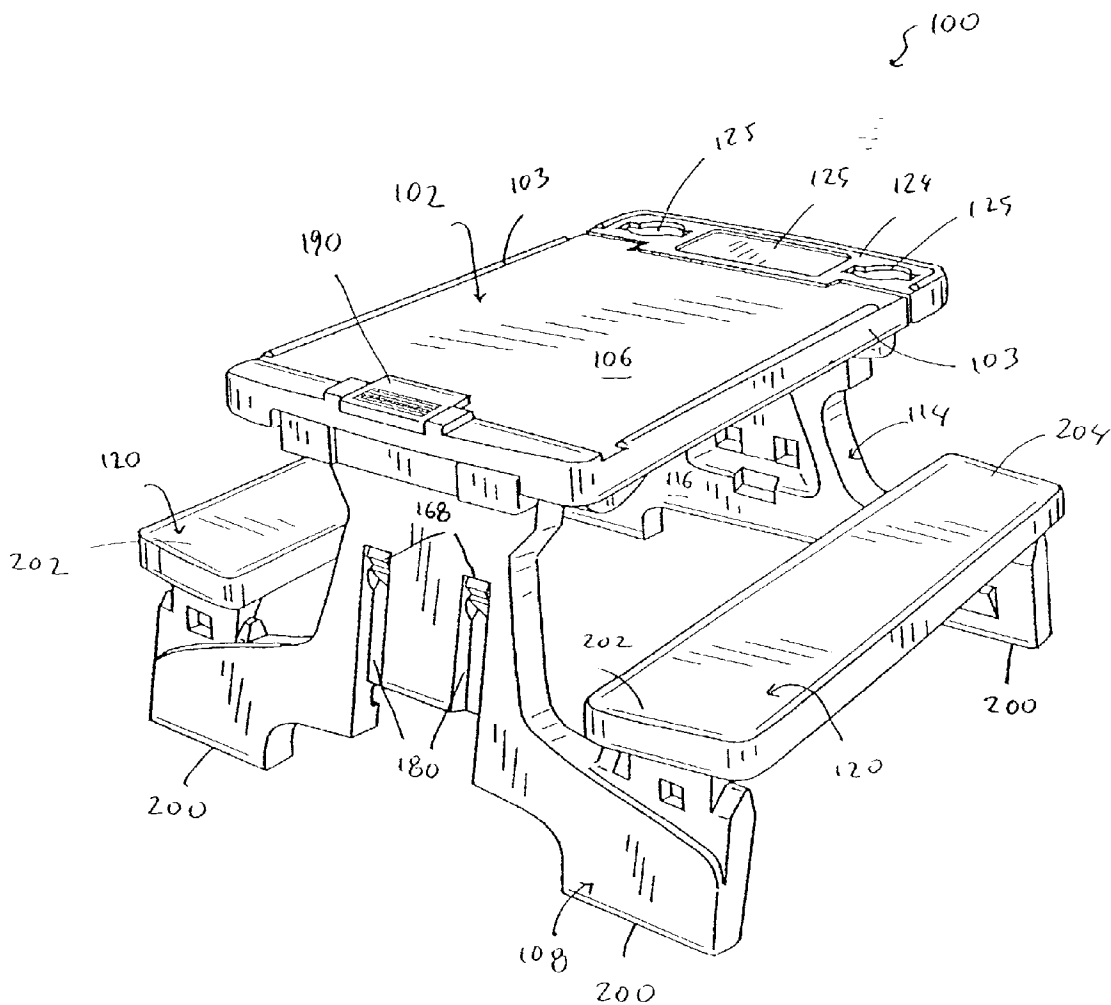
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One embodiment of the invention provides an apparatus selectively convertible from a storage configuration to picnic table and easel configurations. The apparatus may include a top member, first and second supports pivotably connected to the top member, and first and second benches pivotably connected to each of the first and second supports. The apparatus may also include a tray pivotably connected to the top member. The tray may be substantially coplanar with the top member in the picnic table configuration, and at an angle with the top member in the easel configuration. The benches may frame two sides of the top member in the storage and easel configurations.



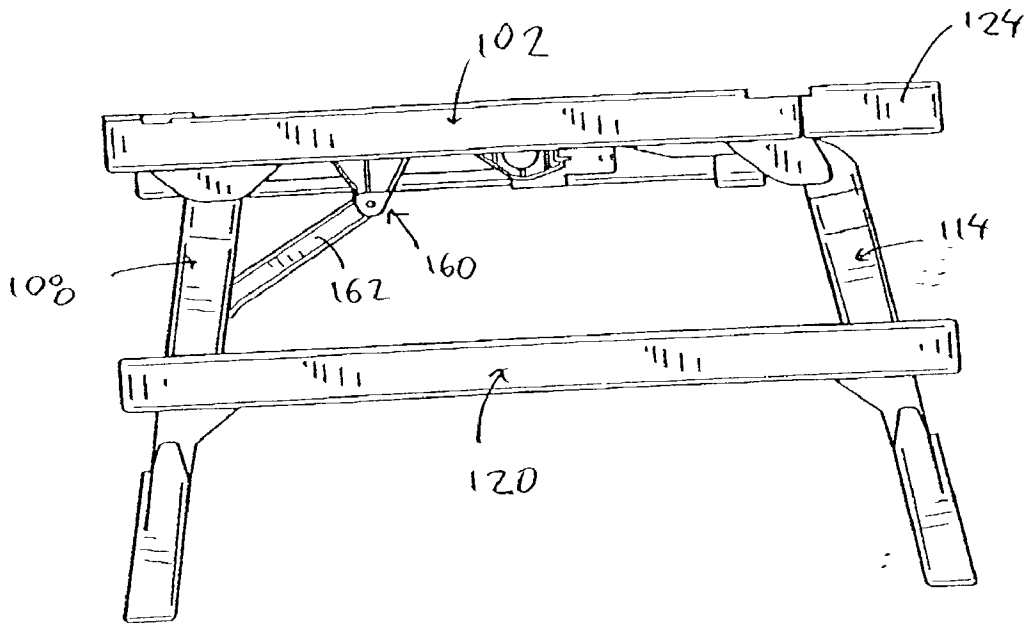


FIG. 2

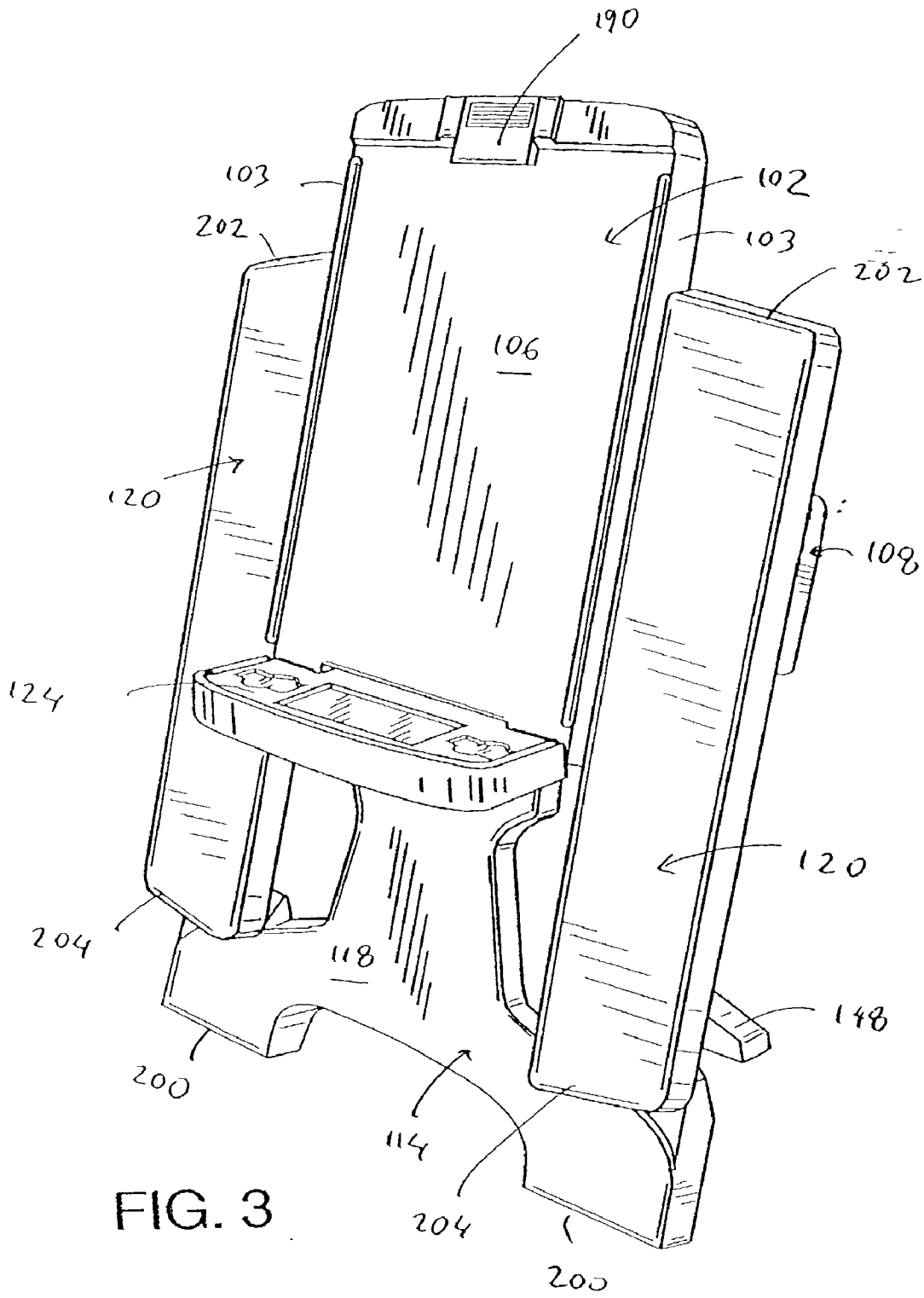
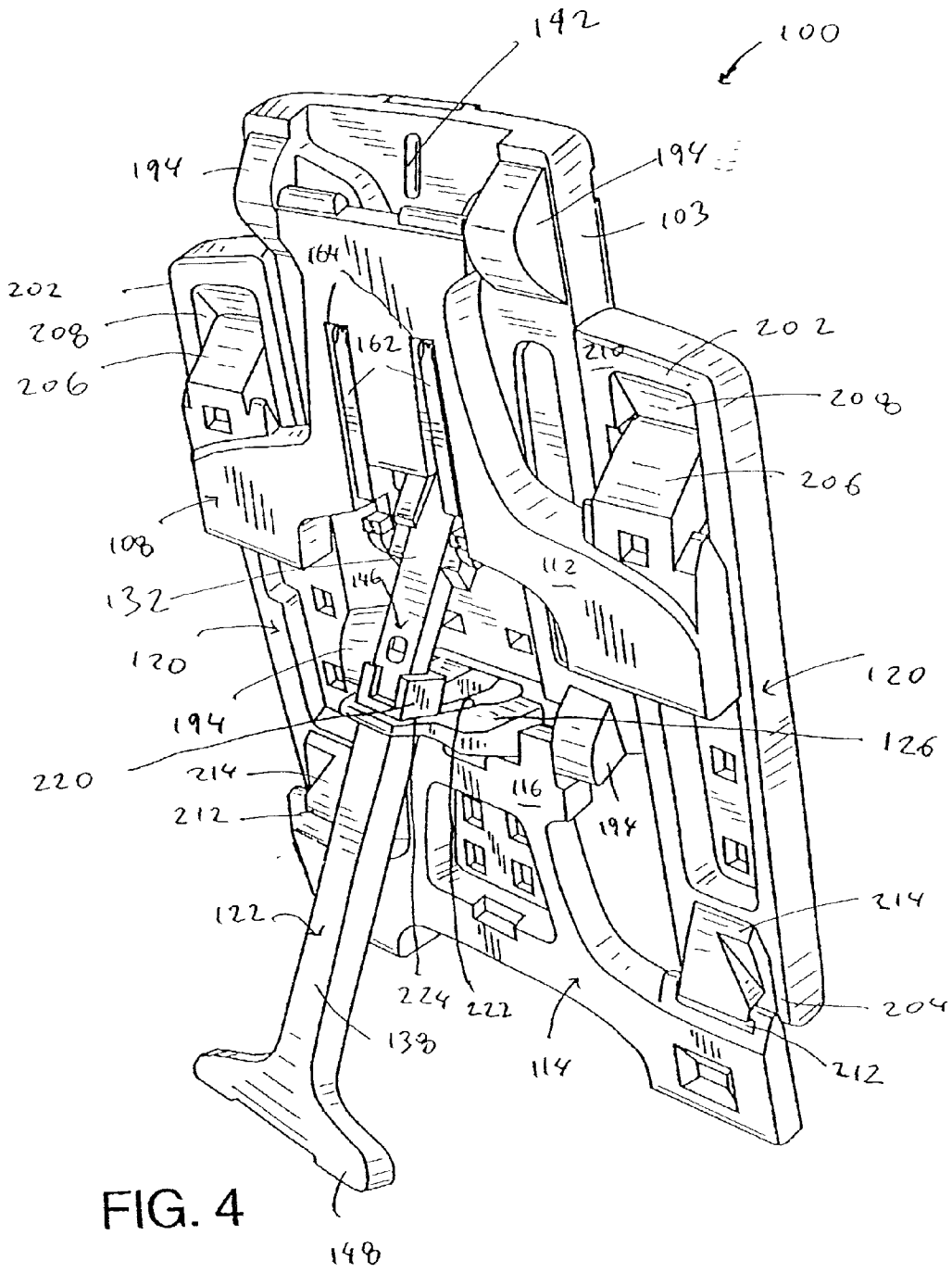


FIG. 3



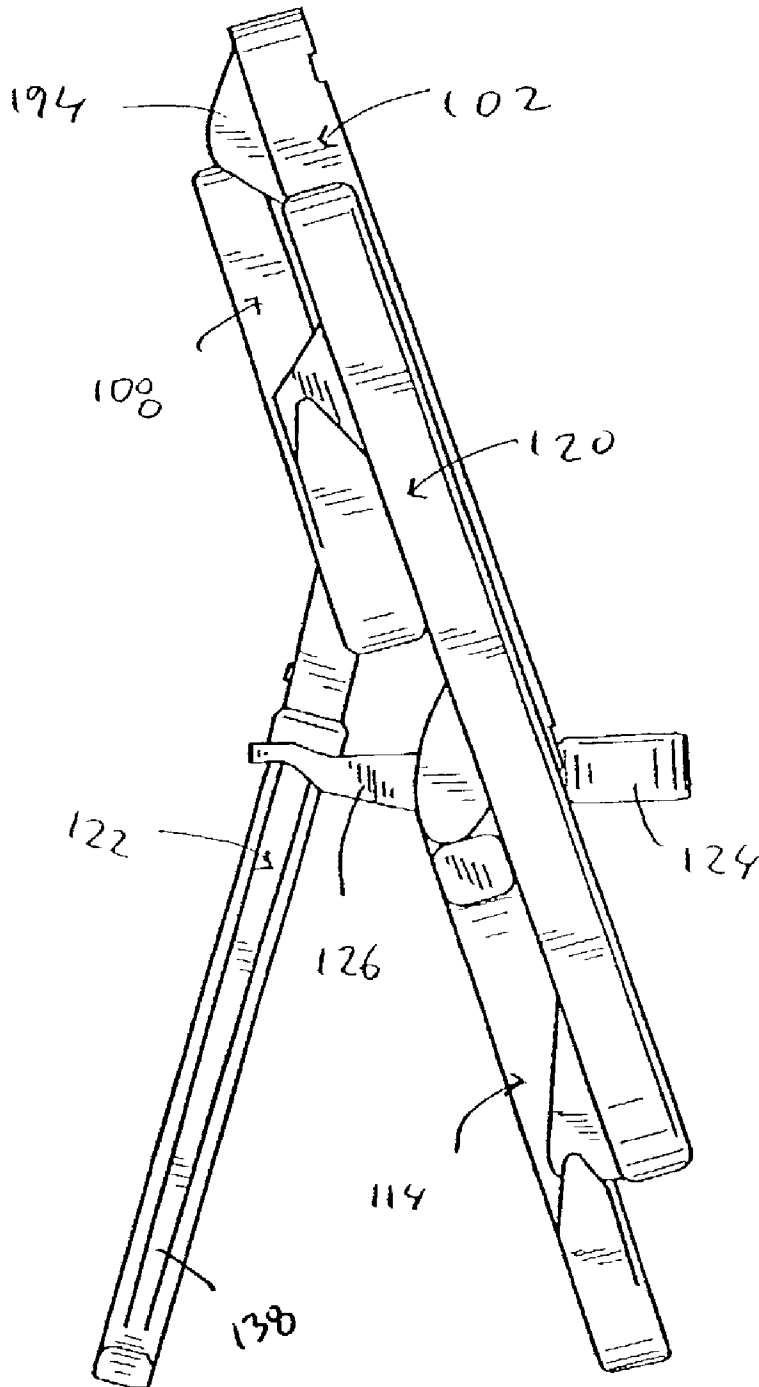
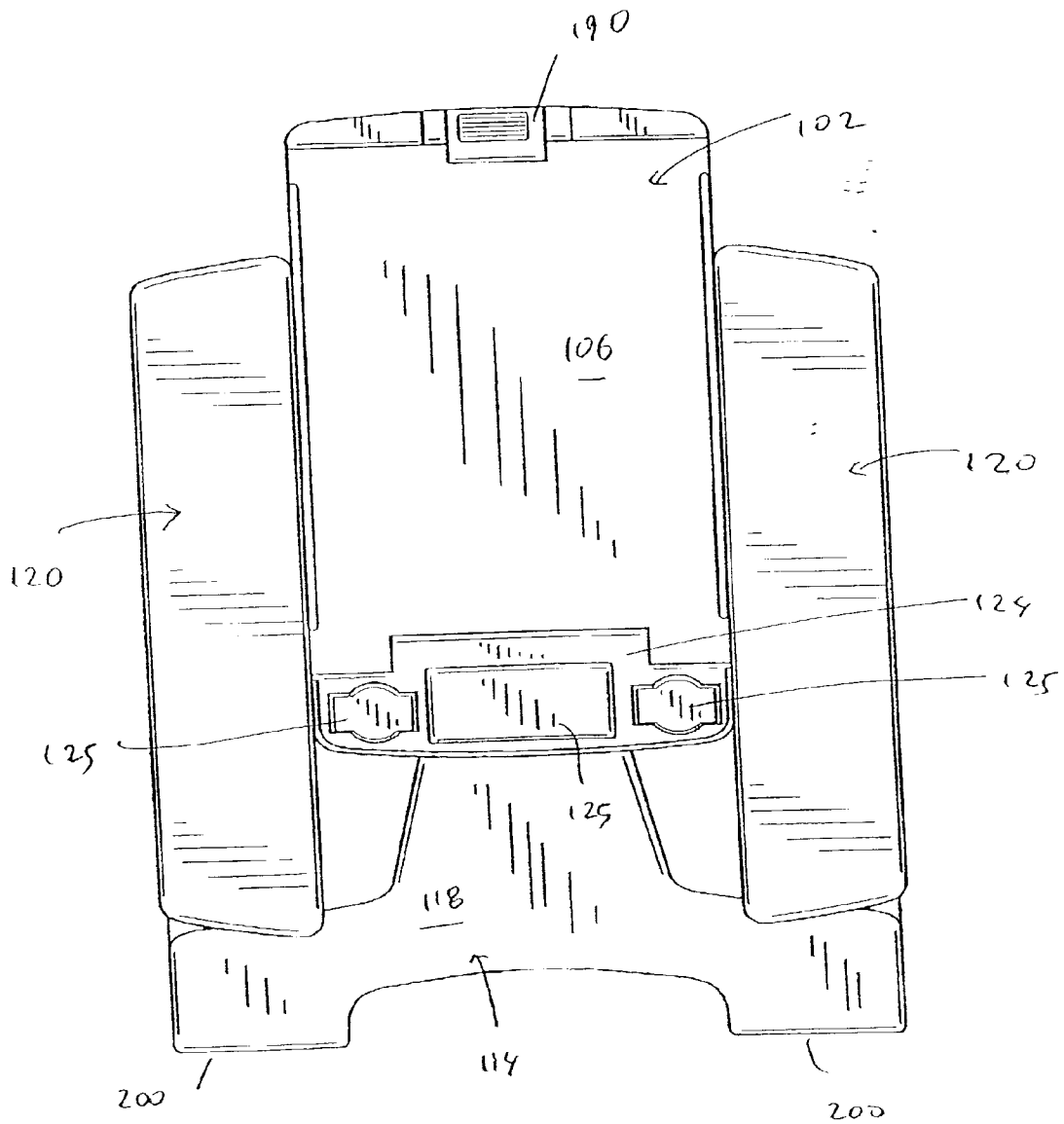


FIG. 5



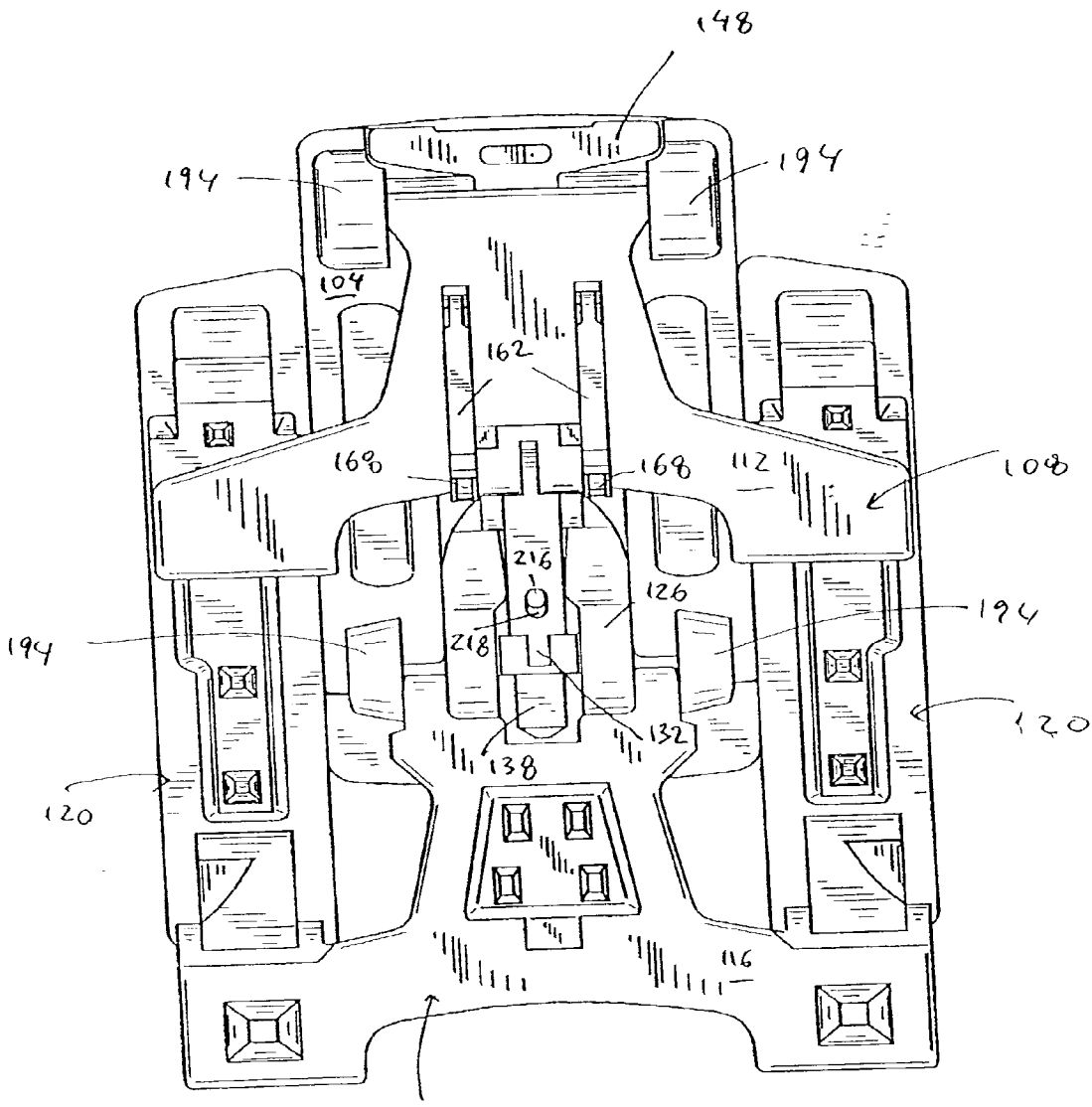


FIG. 7

114

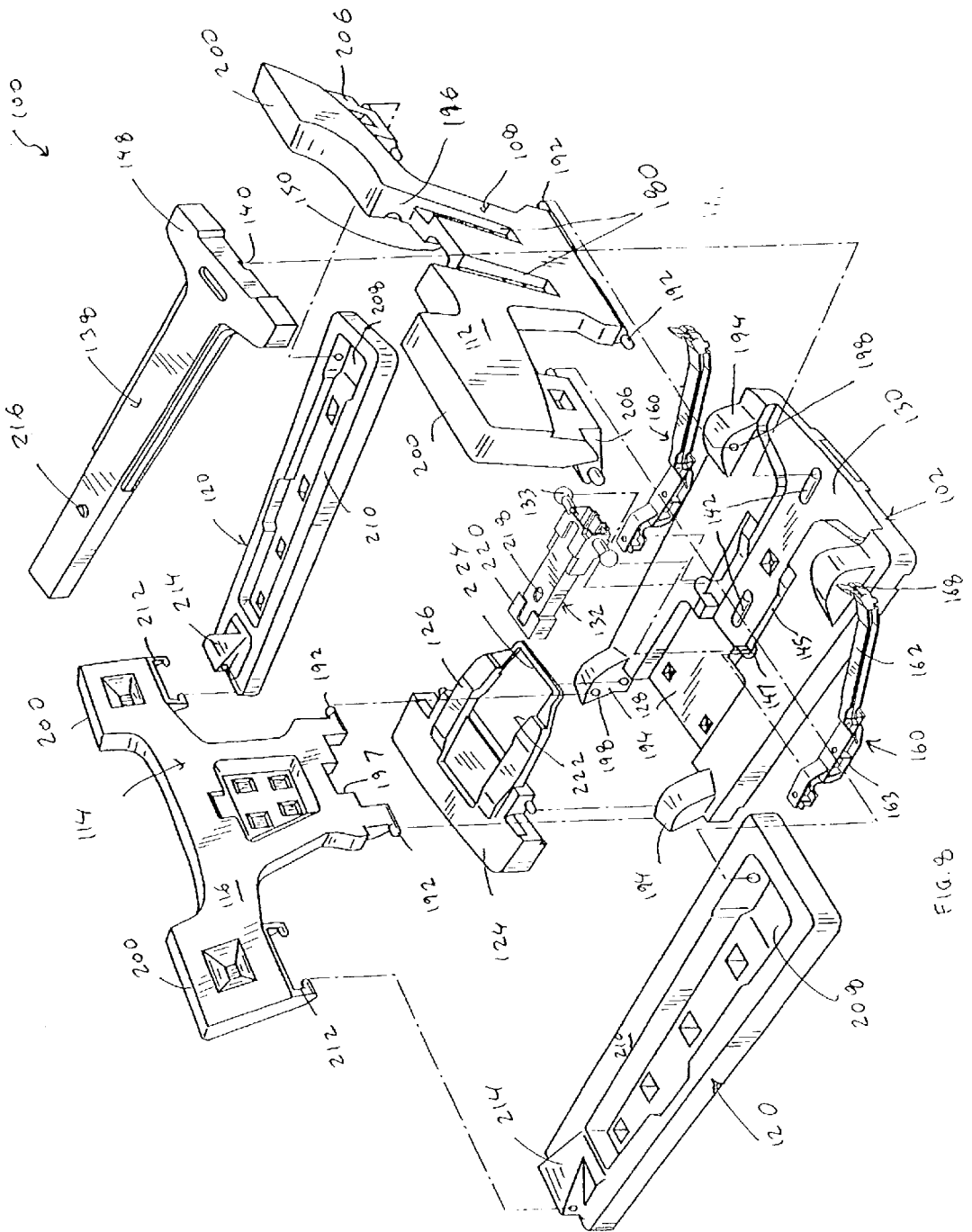


FIG. 8

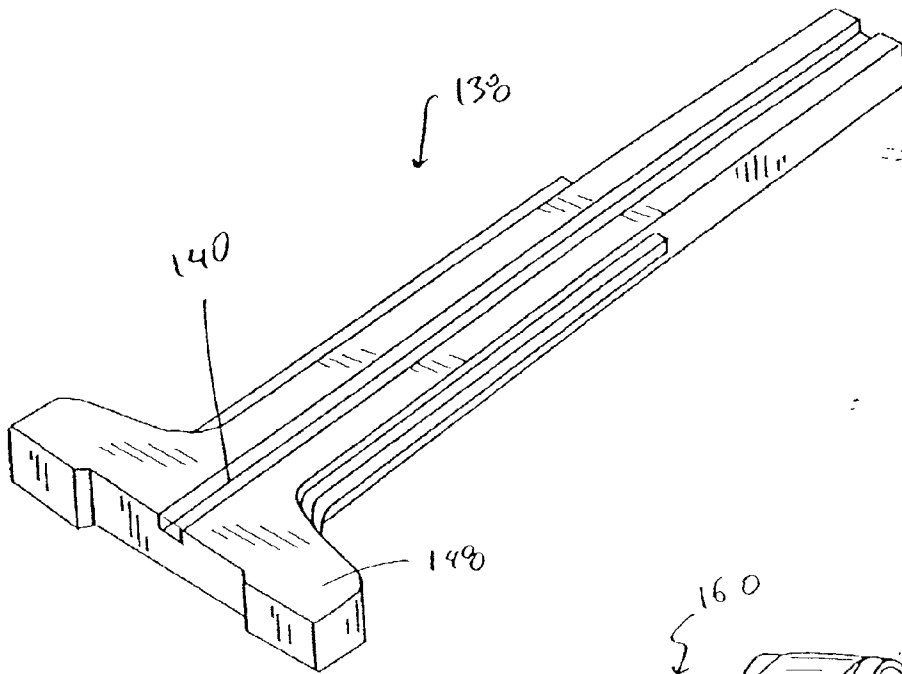


FIG. 11

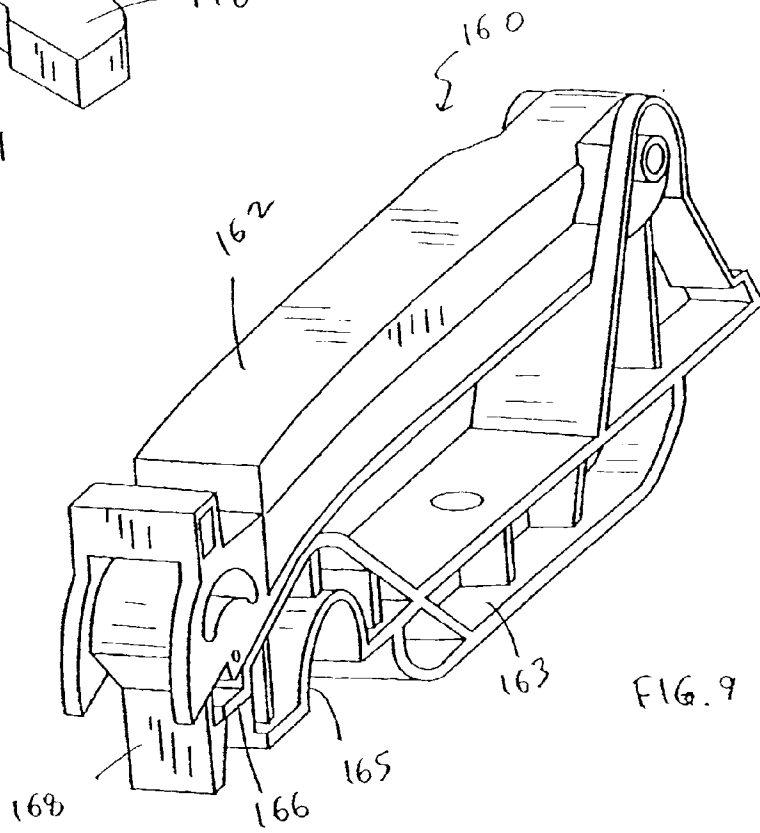
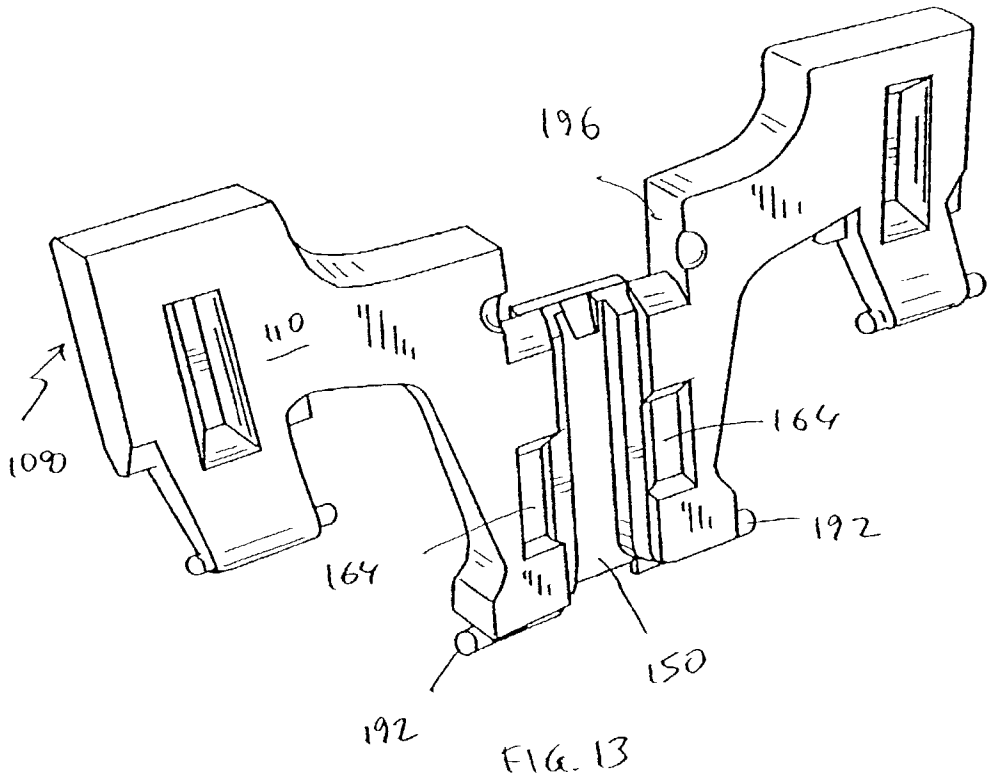
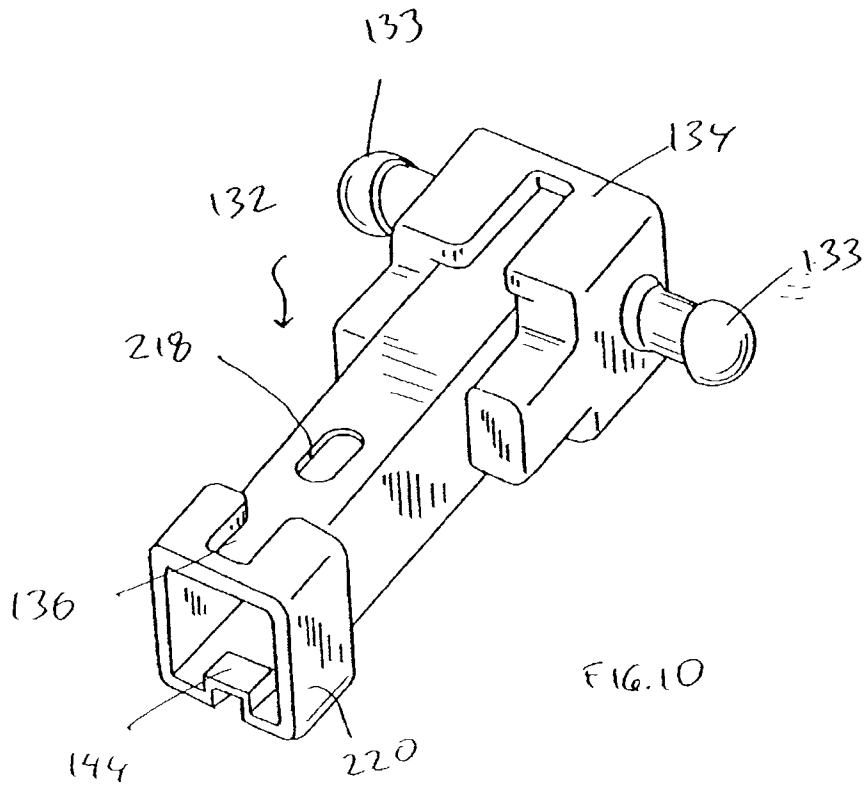
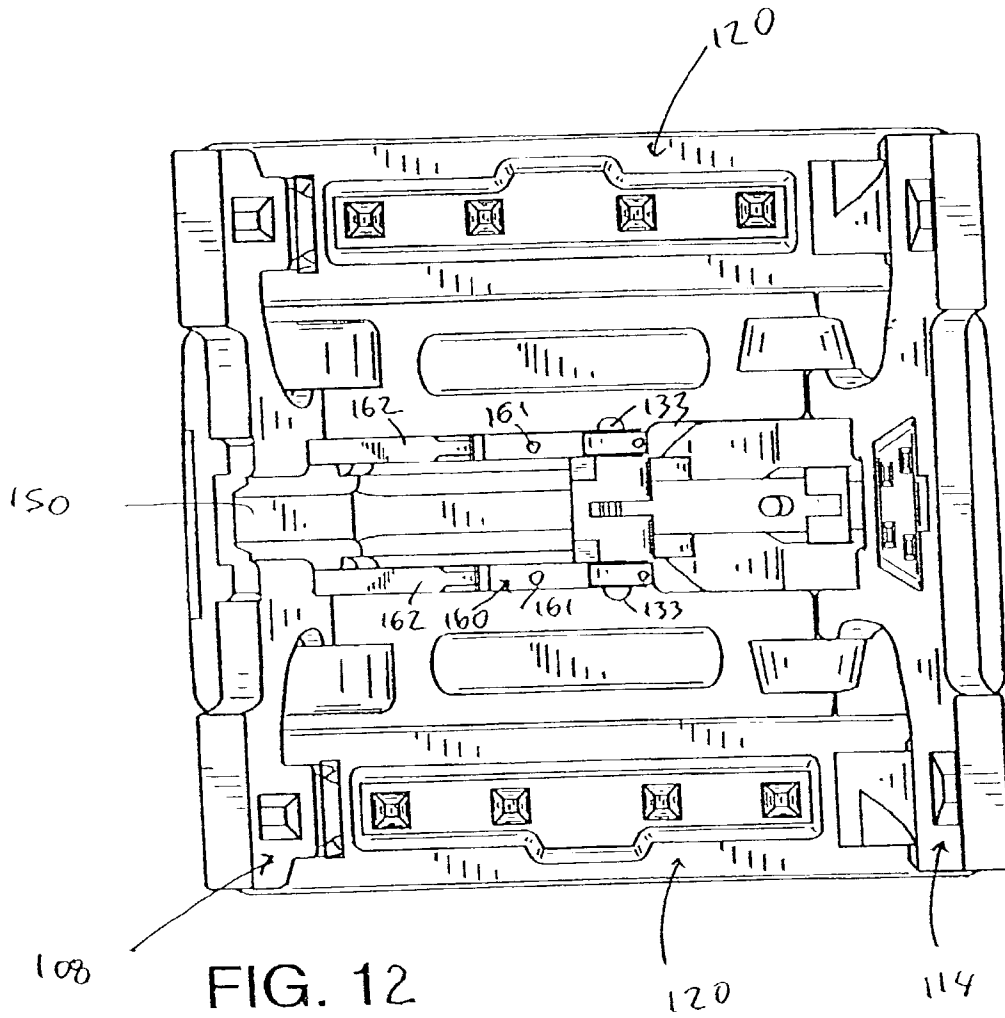


FIG. 9





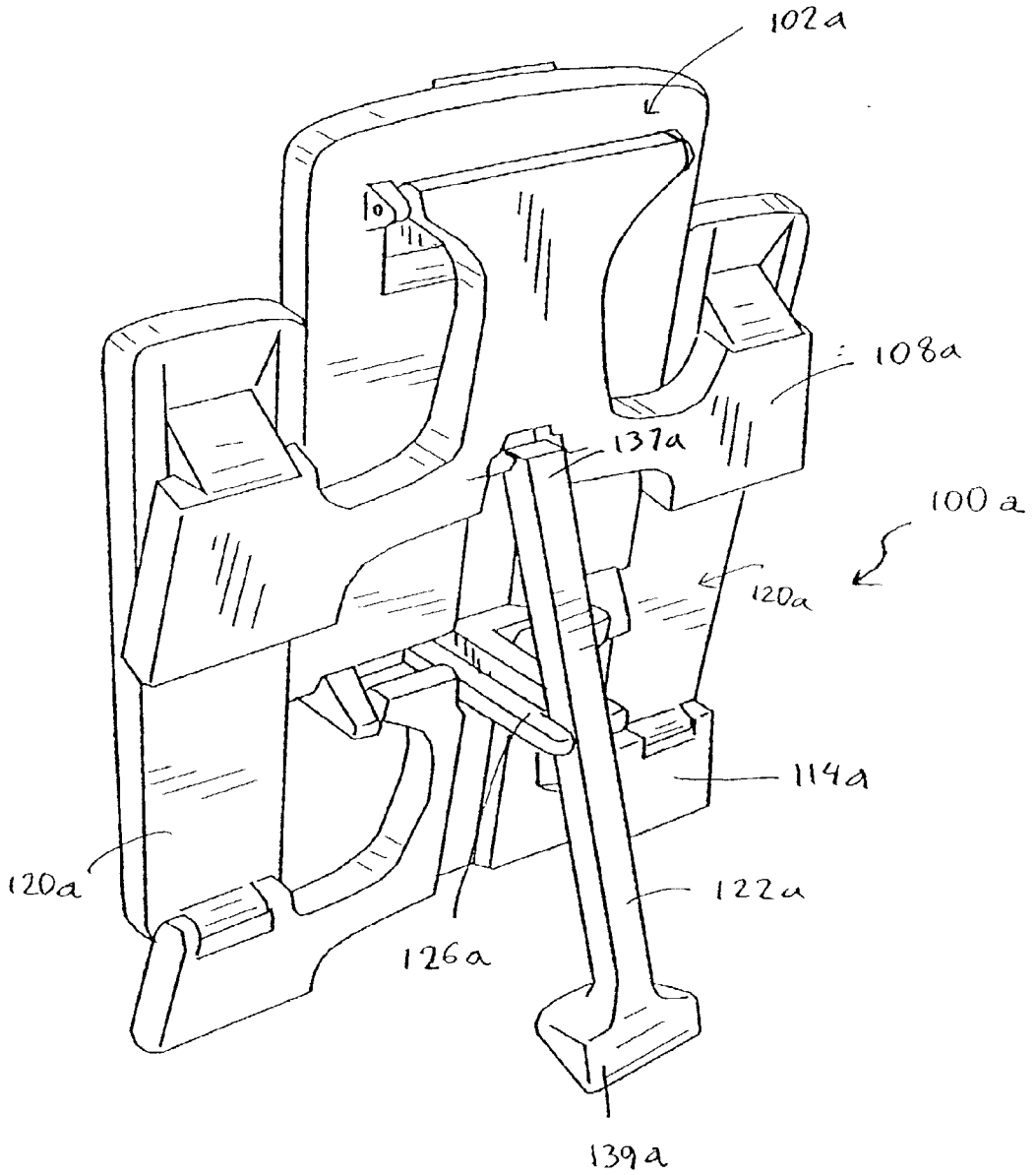


FIG. 14

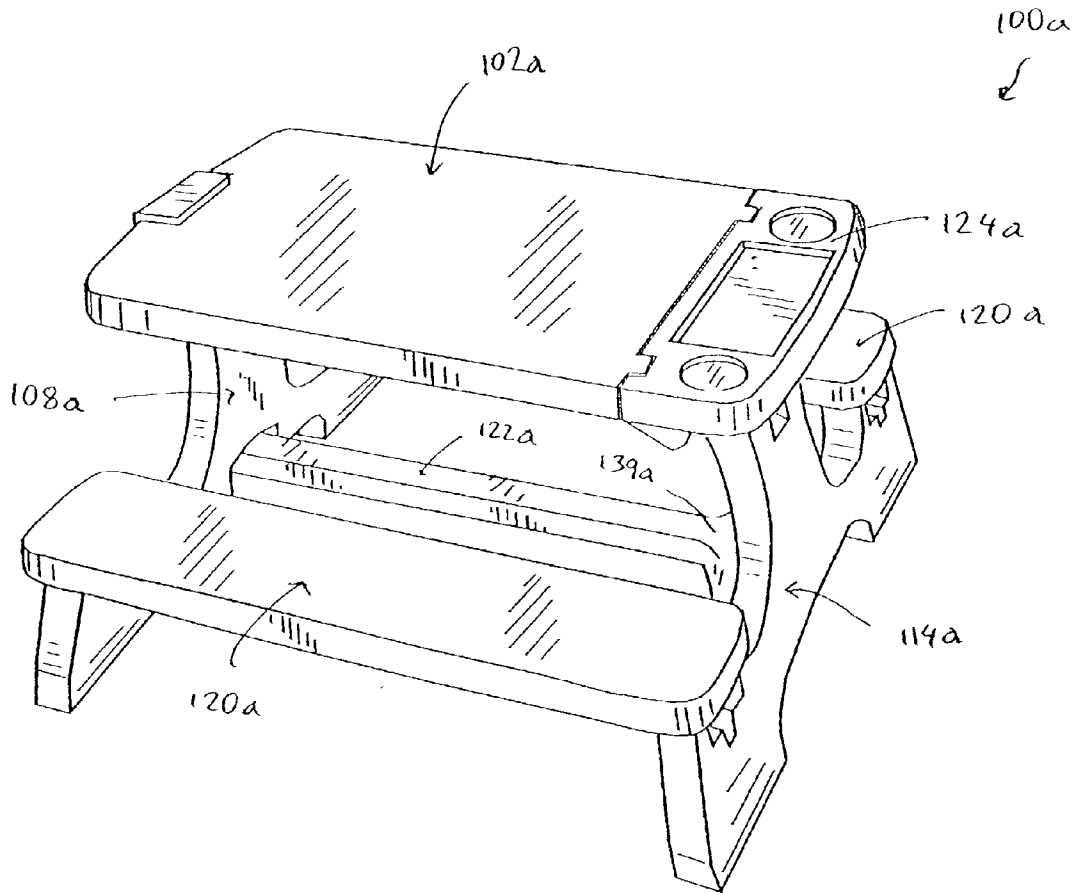


FIG. 15

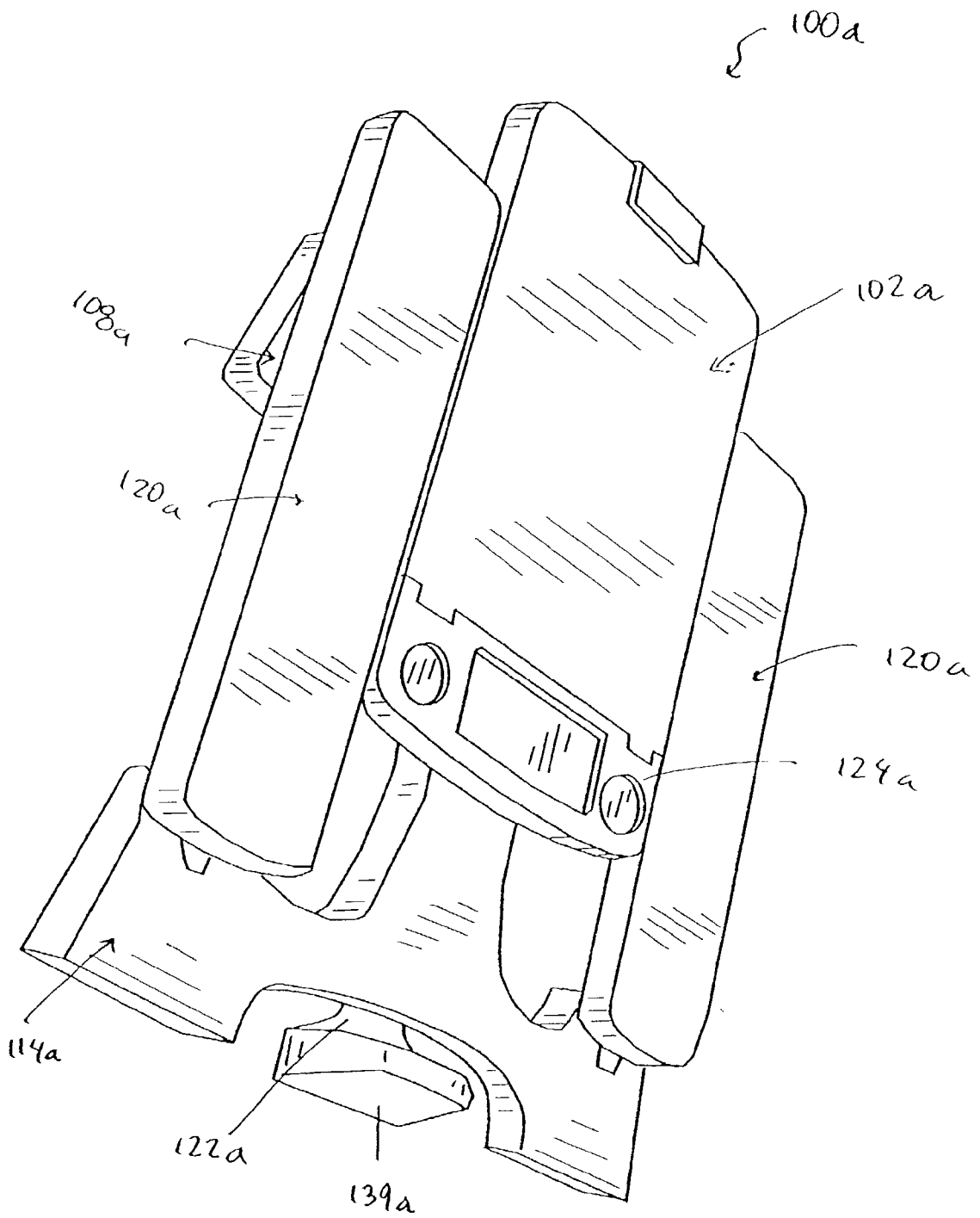


FIG. 16

CONVERTIBLE TABLE AND EASEL APPARATUS

BACKGROUND OF THE INVENTION

[0001] Products made for children often combine a toy or activity function with a utility function. Similarly, demands for space often require that home or office products, for children or adults, be multi-purpose structures that may fold or collapse for storage.

[0002] For example, U.S. Pat. No. 6,042,179 to Wallace discloses a foldable table and bench assembly. U.S. Pat. No. 5,794,540 to Dombrowski et al. discloses an article of furniture that is convertible between table and easel configurations. U.S. Pat. No. 4,482,185 to Zoellner discloses a portable chair and easel-like apparatus. U.S. Pat. No. 4,404,914 to Taylor discloses a collapsible drawing table which can be used as an easel. U.S. Pat. No. 5,330,248 to Smylie discloses a foldable and adjustable drawing desk. U.S. Pat. No. 2,800,952 to McPhilomy discloses a knock-down picnic table. U.S. Pat. No. 4,060,275 to Hansen discloses a collapsible two-bench table. U.S. Pat. No. 4,572,574 to Fischhaber discloses a collapsible table structure with interconnected bench seats.

[0003] There is still a need for a cost-effective, lightweight, safe and durable product that is multi-functional, compact, easy to store and portable.

SUMMARY

[0004] One embodiment of the invention provides an apparatus selectively convertible from a storage configuration to picnic table and easel configurations. The apparatus may include a top member, first and second supports pivotably connected to the top member, and first and second benches pivotably connected to each of the first and second supports. The apparatus may also include a tray pivotably connected to the top member. The tray may be substantially coplanar with the top member in the picnic table configuration, and at an angle with the top member in the easel configuration. The benches may frame two sides of the top member in the storage and easel configurations.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] In the accompanying Figures, there are shown present embodiments of the invention wherein like reference numerals are employed to designate like parts and wherein:

[0006] **FIG. 1** is a front and right side perspective view of an embodiment of the apparatus according to the present invention, shown in a table configuration;

[0007] **FIG. 2** is a right side view of the apparatus of **FIG. 1** in the table configuration;

[0008] **FIG. 3** is a front and right side perspective view of the apparatus of **FIG. 1** shown in an easel configuration;

[0009] **FIG. 4** is a rear and left side perspective view of the apparatus of **FIG. 3** shown in the easel configuration;

[0010] **FIG. 5** is a left side view of the apparatus of **FIG. 3** shown in an easel configuration;

[0011] **FIG. 6** is a top view of the apparatus of **FIG. 1** shown in a storage configuration;

[0012] **FIG. 7** is bottom view of the apparatus of **FIG. 6** shown in the storage configuration;

[0013] **FIG. 8** is an exploded isometric view of the apparatus of **FIG. 1**, shown in the table configuration;

[0014] **FIG. 9** is a perspective view of an embodiment of a bracket for the apparatus of **FIG. 1**;

[0015] **FIG. 10** is a perspective view of an embodiment of a connecting portion of a third support for the apparatus of **FIG. 1**;

[0016] **FIG. 11** is a perspective view of an embodiment of a removable leg portion of a third support for the apparatus of **FIG. 1**;

[0017] **FIG. 12** is a bottom view of the apparatus of **FIG. 1** shown in the table configuration;

[0018] **FIG. 13** is a perspective view of an embodiment of a first support for the apparatus of **FIG. 1**;

[0019] **FIG. 14** is rear and right side perspective view of an embodiment of the apparatus according to the present invention, shown in an easel configuration;

[0020] **FIG. 15** is a rear and right side perspective view of the apparatus of **FIG. 14** shown in a table configuration; and

[0021] **FIG. 16** is a top and left side perspective view of the apparatus of **FIG. 15** shown in a storage configuration.

DETAILED DESCRIPTION OF THE INVENTION

[0022] Referring now to the drawings for the purpose of illustrating the invention and not for the purpose of limiting the same, it is to be understood that standard components or features that are within the purview of an artisan of ordinary skill and do not contribute to the understanding of the various embodiments of the invention are omitted from the drawings to enhance clarity. In addition, it will be appreciated that the characterizations of various components and orientations described herein as being "vertical" or "horizontal", "right" or "left", "up", "down", "above", "below", "outer", "inner", "top" or "bottom", are relative characterizations only based upon the particular position or orientation of a given component for a particular application.

[0023] **FIGS. 1-16** depict embodiments of a multifunctional apparatus **100** that is selectively convertible to table, easel and storage configurations. The apparatus **100** may be constructed for use by children or adults by choosing the materials, the weight-bearing capacity and strength, the colors and other visual and tactile features and enhancements appropriately for the particular group of users.

[0024] The apparatus **100** may include a top member **102** that has an inner surface **104** and an outer surface **106**. The top member **102** may define a table top in the table configuration, as shown in **FIGS. 1 and 2**, and an easel board in the easel configuration, as shown in **FIGS. 3-5**. The apparatus **100** may also include a first support **108** that has an inner surface **110** and an outer surface **112**, and a second support **114** that has an inner surface **116** and an outer surface **118**.

[0025] The first and second supports **108, 114** may be pivotably connected to the top member **102**. In one embodiment, each of the first and second supports **108, 114** may

include hinges, bosses, pins or other fasteners 192 that are received in corresponding openings 198 in corresponding mounts 194 attached to or formed on the inner surface 104 of the top member 102. The pins 192 may be separately attached to or integrally formed on the first and second supports 108, 114. The first and second supports 108, 114 provide support for the top member 102 in the table configuration and may include pairs of feet 200 separately attached to or otherwise integrally formed at the bottom of the first and second supports 108, 114. In the easel and storage configurations, the first support 108 may pivot to fold down and onto the inner surface 104 of the top member 102, and the second support 114 may pivot away from the inner surface 104 of the top member 102 to a position extending parallel to the top member 102. The second support 114 also provides support for the top member 102 in the easel configuration.

[0026] The apparatus 100 may also include first and second side members 120 having first and second ends 202, 204 pivotably connected to the first and second supports 108, 114 respectively. The side members 120 may be spaced outward and at a distance below the inner surface 104 of the top member 102 in the table configuration, and may serve as seats or benches of the apparatus 100 in the table configuration, such as, for example, in a picnic table with benches. In the easel and storage configurations, the side members 120 follow the pivoting motion of the first and second supports 108, 114 to move alongside and frame two sides 103 the top member 102. See FIGS. 3-7.

[0027] The first support 108 may include protrusions 206 pivotably received in corresponding recesses 208 formed on the inner surface 210 of the side members 120 at the first ends 202. See FIG. 8. The second support 114 may include receptacles or recesses 212 pivotably receiving protrusions 214 attached to or integrally formed on the inner surface 210 of the side members 120 at the second ends 204. Separately attached or integrally formed hinges, pins, bosses or other suitable fasteners may be used to pivotably connect the side members 120 with the first and second supports 108, 114.

[0028] The apparatus 100 may also include a third support 122 that may be pivotably connected to the inner surface 104 of the top member 102 and support the top member 102 in the easel configuration. See FIGS. 3-5, 10 and 11. The third support 122 may include a connector portion 132 having a first end 134 and a second end 136, and a removable leg portion 138. The removable leg portion 138 may be connected to the second end 136 of the connector portion 132 and extend at an angle from the top member 102 in the easel configuration. See FIGS. 4, 8, and 10. In one embodiment, the connector portion 132 may be tubular or hollow. The removable leg portion 138 may be inserted into the connector portion 132 through the first end 134 in the table and storage configurations, and through the second end 136 in the easel configuration. See FIGS. 2, 4 and 7. The removable leg portion 138 may be engaged with the connector portion 132 by using a latch 146, which may include, for example a push button 216 on the removable leg portion 138 and a corresponding opening or receptacle 218 in the connector portion 132.

[0029] In one embodiment, the third support 122 may include a supporting base 148. The supporting base 148 may be attached to the third support 122 such that the third support 122 is T-shaped. The inner surface 110 of the first support 108 may include an inner depression 150 that accommodates a part of the removable leg portion 138 in the

storage and table configurations. See FIG. 13. The first and second supports 108, 114 may also include cutouts 196, 197 to accommodate a part of the removable leg portion 138 in the storage and table configurations. See FIG. 8.

[0030] The apparatus 100 may also include a tray 124 pivotably connected to the top member 102 such that the tray 124 is substantially coplanar with the top member 102 in the table and storage configurations. See FIGS. 1 and 6. The tray 124 may be at an angle with the top member 102 in the easel configuration and may include recesses or receptacles 125 for holding drinks, writing/paint supplies, etc. An easel clamp 190 may be attached to the top member 102 to hold paper or cardboard, for example, when the top member 102 is used as an easel board in the easel configuration.

[0031] In one embodiment, the apparatus 100 may include a brace 126 extending from the tray 124 and engaging the third support 122. See FIG. 4. The brace 126 may be fixedly attached to or integrally formed with the tray 124. The brace 126 may include an opening 222 having a portion 224 mating with a collar 220 at the second end 136 of the connector portion 132 to keep the third support 122 extended at an angle from the top member 102 in the easel configuration.

[0032] In one embodiment, the apparatus 100 may also include at least one bracket 160 attached to the inner surface 104 of the top member 102 with fasteners, such as, for example, screws or bolts, and selectively engaging the first support 108 in the table configuration. The bracket 160 may include a base 163 and an arm 162 that is pivotably attached to the base 163. See FIGS. 8-9. The arm 162 may selectively engage the first support 108 in the table configuration. See FIG. 2. The first support 108 may include an opening 164 through which the arm 162 may extend from the inner surface 110 to the outer surface 112 of the first support 108 in the easel and storage configurations. See FIGS. 4 and 7. The first support 108 may include an outer groove 180 accommodating the arm 162 in the storage and easel configurations. See FIG. 8.

[0033] The arm 162 of the bracket 160 may also include an end clip 168 that engages a tab 166 attached to the bracket 160. See FIG. 9. The bracket 160 may secure the first support 108 against the inner surface 104 of the top member 102 in the easel and storage configurations. See FIGS. 4 and 7. The end clip 168 may engage the first support 108 in the table configuration and it may be spring-loaded to bias the first and second supports 108, 114 apart, increasing stability for the table configuration. See FIG. 1.

[0034] The base 163 of the bracket 160 may include a recess 165 to accommodate a boss or pin 133 attached to the connector portion 132 of the third support 122, thereby pivotably connecting the connector portion 132 to the inner surface 104 of the top member 102. See FIGS. 9, 10, and 12.

[0035] In one embodiment, the inner surface 104 of the top member 102 may include a brace depression 128 for receiving the brace 126 in the table and storage configurations, and a depression 130 for accommodating a part of the third support 122 in the table and storage configurations. See FIG. 8. The inner surface 104 of the top member 102 may also include one or more ridges 142 mating with a groove or keyway 140 on the surface of the removable leg portion 138 in the storage and table configurations to guide and properly orient the third support 122 in these configurations. See FIGS. 8 and 11. The groove 140 of the removable leg portion 138 may also mate with an inner ridge 144 in the

connector portion 132 of the third support 122 in the easel configuration. See FIG. 10. The inner surface 104 of the top member 102 may also include depressions 145, 147 accommodating respectively the support base 163 of the bracket 160 and the boss 133 of the connector portion 132. See FIG. 8.

[0036] The storage configuration of the apparatus is depicted in FIGS. 6 and 7. To convert the apparatus from the storage configuration to the easel configuration, the leg portion 138 is first removed from the connector portion 132 of the third support 122 by pushing the button 216 of the leg portion 138. Next, the connector portion 132 is rotated away from the top member 102, and the brace 126 is lifted causing the tray 124 to rotate to a position at an angle with the top member 102. The leg portion 138 is then inserted through the brace opening 222 into the second end 136 of the connector portion 132 until the button 216 pops through the opening 218 of the connector portion 132, thereby engaging the leg portion 138 to the connector portion 132 and completing the easel configuration. These steps may be reversed to convert the apparatus 100 from the easel to the storage configuration.

[0037] To convert the apparatus 100 from the storage configuration to the table configuration, the arms 162 of the brackets 160 are first unlocked by depressing the end clips 163 of the brackets 160, and the first and second supports 108, 114 are rotated away from the top member 102. The arms 162 are pushed against the first support 108 until the end clips 168 of the arms 162 snap into the first support 108 completing the table configuration. These steps may be reversed to convert the apparatus 100 from the table to the storage configuration after unlocking the arms 162 by depressing the end clips 168.

[0038] FIGS. 14-16 depict alternative embodiments 100a of the apparatus 100, wherein like parts are designated with like reference numbers having a suffix "a". In one embodiment, the third support 122a may be made as one piece. The brace 126a may have an open U-shape to engage with the third support 122a in the easel configuration. In one embodiment, one end 137a of the third support 122a may be pivotably connected with the first support 108a, and the other end 139a may be selectively connected to the second support 114a in the table configuration to provide stability for the table and serve as a footrest. See FIG. 15. In the storage configuration, the third support 122a may be folded against the top member 102a and second support 114a, being accommodated in corresponding recesses on the inner surfaces of the top member 102a and second support 114a. See FIG. 16. The third support 122a may also lock in the storage position by a snap fit or latch or other fastener provided on the inner surface of the second support 114a.

[0039] In one embodiment, all or some of the large components of the apparatus 100, such as the top member 102, the side members 120, the first and second supports 108, 114, and the third support 122, may be fabricated, for example, from high-density polyethylene by processes such as blow molding. In other embodiments, injection or roto molding may also be used. These parts may also be fabricated from wood, metal, and plastic materials. The brackets 160 and the easel clamp 190 may be, for example, injection molded of propylene with steel hinge pins and springs.

[0040] The apparatus 100, 100a is a cost-effective multi-function product, which is suitable for child or adult use. The apparatus 100, 100a may be easily folded for storage to

conserve space and for portability. The apparatus 100, 100a may be constructed from durable and lightweight materials that enhance its portability, safety, functionality and visual appeal.

[0041] Whereas particular embodiments of the invention have been described herein for the purpose of illustrating the invention and not for the purpose of limiting the same, it will be appreciated by those of ordinary skill in the art that numerous variations of the details, materials and arrangement of parts may be made within the principle and scope of the invention without departing from the spirit of the invention. The preceding description, therefore, is not meant to limit the scope of the invention. Rather the scope of the invention is to be determined only by the appended claims and their equivalents.

What is claimed is:

1. An apparatus comprising:

a top member;

first and second supports pivotably connected to the top member;

first and second benches pivotably connected to each of the first and second supports; and

a tray pivotably connected to the top member, wherein the apparatus is selectively convertible from a storage configuration to picnic table and easel configurations, wherein the tray is substantially coplanar with the top member in the picnic table configuration, and wherein the tray is at an angle with the top member in the easel configuration and wherein the benches frame two sides of the top member in the storage and easel configurations.

2. The apparatus of claim 1, further including a third support pivotably connected at one end to the top member, wherein the third support folds down in the storage and table configurations and extends at an angle from the top member in the easel configuration.

3. The apparatus of claim 2 further comprising a brace connected to the tray and engaging the third support in the easel configuration.

4. The apparatus of claim 2 further comprising a bracket connected to the top member, wherein the bracket selectively engages the first support to secure correspondingly the table configuration and the storage and easel configurations.

5. An apparatus selectively convertible to table configuration, easel configuration and storage configurations, the apparatus comprising:

a top member defining a table top in the table configuration and an easel board in the easel configuration;

first and second supports pivotably connected to the top member, wherein the first and second supports support the top member in the table configuration and fold down behind the top member in the easel and storage configurations, and wherein the second support supports the top member in the easel configuration;

first and second side members, wherein each side member is pivotably connected to the first and second supports, and wherein the first and second side members define corresponding seats in the table configuration; and

a third support pivotably connected at one end to the top member and extending at an angle from the top member to support the top member in the easel configuration.

6. The apparatus of claim 5, further comprising a tray pivotably connected to the top member, wherein the tray is substantially coplanar with the top member in the table configuration and at an angle with the top member in the easel configuration.

7. The apparatus of claim 6, further comprising a brace extending from the tray and engaging the third support in the easel configuration.

8. The apparatus of claim 7, wherein the brace is received in a brace depression of the top member in the table and storage configurations.

9. The apparatus of claim 7, wherein the third support is received in a third support depression of the top member in the storage and table configurations.

10. The apparatus of claim 9, wherein the third support includes a connector portion having first and second ends and a removable leg portion, wherein the removable leg portion is selectively connected to the second end of the connector portion in the easel configuration and to the first end of the connector portion in the storage and table configurations.

11. The apparatus of claim 10, wherein the removable leg portion includes a groove mating with a ridge on the top member in the storage and table configurations.

12. The apparatus of claim 11, wherein the groove of the removable leg portion mates with an inner ridge in the connector portion of the third support in the easel configuration.

13. The apparatus of claim 10, wherein the third support includes a latch securing the removable leg portion to the connector portion.

14. The apparatus of claim 5, wherein the third support includes a supporting base.

15. The apparatus of claim 14, wherein the third support is T-shaped.

16. The apparatus of claim 10, wherein the first support includes an inner depression accommodating the part of the removable leg portion in the storage configuration.

17. The apparatus of claim 10, wherein the connector portion of the third support folds over the brace in the storage and table configurations locking the tray into position.

18. The apparatus of claim 5, further comprising a first bracket attached to the top member and selectively engaging the first support in the table configuration.

19. The apparatus of claim 18, wherein the first bracket includes a first arm pivotably attached to the first bracket and selectively engaging the first support in the table configuration.

20. The apparatus of claim 19, wherein the first arm extends through a first opening in the first support member, folds against the first support and engages a portion of the first bracket that is attached to the top member in the storage and easel configurations.

21. The apparatus of claim 20, wherein the first support includes an outer groove accommodating the first arm in the storage and easel configurations.

22. The apparatus of claim 19, wherein the first arm includes an end clip engaging the portion of the first bracket that is attached to the top member in the storage and easel configurations.

23. The apparatus of claim 22, wherein the end clip engages the first support in the table configuration.

24. The apparatus of claim 22, wherein the end clip includes a biaser.

25. The apparatus of claim 18, further including a second bracket connected to the top member and engaging the first support member in the table configuration.

26. The apparatus of claim 17, wherein the first support member includes a cutout accommodating at least part of the third support member in the storage and table configurations.

27. The apparatus of claim 17, wherein the second support member includes a cutout accommodating part of the third support member in the storage and table configurations.

28. An apparatus selectively convertible to table, easel and storage configurations, the apparatus comprising:

a top member defining a table top in the table configuration and an easel board in the easel configuration;

first and second supports pivotably connected to the top member, wherein the first and second supports support the top member in the table configuration and fold down behind the top member in the easel and storage configurations;

first and second side members, wherein each side member is pivotably connected to the first and second supports, wherein the first and second members define corresponding seats in the table configuration; and

a third support pivotably connected to the first support, wherein the third support is selectively movable to engage the second support in the table configuration, to extend at an angle from the top member to support the top member in the easel configuration, and to fold down on the second support in the storage configuration.

29. The apparatus of claim 28 further comprising a brace connected to the tray and engaging the third support in the easel configuration.

30. An apparatus comprising:

a top member;

a tray pivotably connected to the top member,

first and second supports pivotable connected to the top member; and

first and second benches pivotably connected to each of the first and second supports, wherein the apparatus is selectively convertible from a storage configuration to table and easel configurations, wherein the tray is substantially coplanar with the top member in the picnic table configuration, and wherein the tray is at an angle with the top member in the easel configuration and wherein the benches frame two sides of the top member in the storage and easel configurations.

31. The apparatus of claim 30, further including a third support pivotably connected at one end to the top member, wherein the third support folds down in the storage configuration, engages the second support in the table configuration and extends at an angle from the top member in the easel configuration.

32. The apparatus of claim 31 further comprising a brace connected to the tray and engaging the third support in the easel configuration.

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