United States Patent Application Publication	20250261770
Kind Code	A1
Publication Date	August 21, 2025
Inventor(s)	Gerard; Alex et al.

GROW TRAY AND STAND ASSEMBLY FOR SUPPORTING GROWING PLANTS

Abstract

A grow tray for supporting one or more plants has a bottom, an upwardly extending peripheral rim, and at least one drain and is defined by a plurality of associable tray segments, such as four, where each tray segment defines a portion of the bottom of the tray and at least one side defining a portion of the upwardly extending peripheral rim, a plurality of supports extending upwardly from the bottom and one or more channels defined between the supports. A stand apparatus for a grow tray has legs which support disconnectable raised beams, and a central support having a central mount which is supported by cross-supports which extend between the central mount and the beams.

Inventors: **Gerard; Alex (Rogers, MN), Howard, JR.; Michael (Las Vegas, NV)**

Applicant: **FOHSE INC.** (Las Vegas, NV)

Family ID: **1000008591914**

Appl. No.: **19/057267**

Filed: **February 19, 2025**

Related U.S. Application Data

us-provisional-application US 63555493 20240220

Publication Classification

Int. Cl.: **A47G7/04** (20060101); **A01G22/00** (20180101)

U.S. Cl.:

CPC **A47G7/041** (20130101); A01G22/705 (20250101)

Background/Summary

RELATED APPLICATION DATA [0001] The present application claims priority to U.S. Provisional Application Ser. No. 63/555,493, entitled “GROW TRAY AND STAND ASSEMBLY FOR SUPPORTING GROWING PLANTS,” filed on Feb. 20, 2024, which is incorporated herein by reference in its entirety.

FIELD OF THE INVENTION
[0002] The present invention relates to plant grow stands.
BACKGROUND OF THE INVENTION
[0003] Support assemblies for plant growing, such as used to assist in growing *cannabis*, are known. Known support assemblies commonly include a stand and a tray coupled to, supported by, and/or provided with the stand, wherein the plants are configured to be located on and grow on the raised tray. In today's art, the plant or grow trays are generally made from a single piece of material, which makes them expensive to manufacture and ship, and difficult to install and/or replace. Similarly, known stands are generally unitary elements which are large and expensive to ship and store, are not repairable, and do not always have a design which is compatible for supporting a selected plant or grow tray.
[0004] It is with respect to these and other considerations that the instant disclosure is concerned.
SUMMARY OF THE INVENTION
[0005] Aspects of the invention comprise a grow tray, such as for supporting one or more plants, and a stand apparatus, such as for supporting a grow tray in a raised position.
[0006] In one embodiment, a grow tray for supporting one or more plants has a bottom, an upwardly extending peripheral rim, and at least one drain. The grow tray is defined by a plurality of associable tray segments, where each tray segment defines a portion of the bottom of the tray and has at least one side defining a portion of the upwardly extending peripheral rim, a plurality of supports extending upwardly from the bottom and one or more channels defined between the supports. In one embodiment, the grow tray has four sides and is constructed from four tray segments, such as each defining a corner segment of the tray.
[0007] A stand apparatus for a grow tray has legs which support disconnectable raised beams, and a central support which comprises a central mount which is supported by cross-supports which extend between the central mount and the beams.
[0008] In combination, the grow tray of the invention may be placed on the central support of the stand apparatus so as to be supported in a raised position. In one configuration, a flange which extends outwardly from the rim of the tray overlaps a top of the raised beams of the stand, and a central drain of the tray is aligned with an opening in the central mount.
[0009] Both the tray and stand apparatus may be disassembled into a configuration of reduced dimension for shipping and storage. In one embodiment, both the tray and stand apparatus can be assembled and disassembled without the use of tools.
[0010] Further objects, features, and advantages of the present invention over the prior art will become apparent from the detailed description of the drawings which follows, when considered with the attached figures.

Description

DESCRIPTION OF THE DRAWINGS
[0011] In order that the advantages of the invention will be readily understood, a more particular description of the invention briefly described above will be rendered by reference to specific embodiments that are illustrated in the appended drawings. Understanding that these drawings

depict only typical embodiments of the invention and are not therefore to be considered to be limiting of its scope, the invention will be described and explained with additional specificity and detail through the use of the accompanying drawings, in which:

[0012] FIGS. **1** and **2** are isometric views of a support assembly for growing plants, with FIG. **2** shown with a portion of a tray removed in order to see hidden structures.

[0013] FIG. **3** is an isometric bottom view of the tray for the support assembly of FIGS. **1** and **2**.

[0014] FIG. **4** is an isometric top view of the tray illustrated in FIG. **3** with a segment thereof removed.

[0015] FIGS. **5**A and **5**B are top and bottom isometric views of a segment of the tray of FIGS. **3** and **4**.

[0016] FIGS. **6** and **7** are different exploded isometric views of portions of a stand apparatus for the support assembly of FIGS. **1** and **2**.

DETAILED DESCRIPTION OF THE INVENTION

[0017] In the following description, numerous specific details are set forth in order to provide a more thorough description of the present invention. It will be apparent, however, to one skilled in the art, that the present invention may be practiced without these specific details. In other instances, well-known features have not been described in detail so as not to obscure the invention.

[0018] As employed herein, the term “coupled” shall mean connected together either directly or via one or more intermediate parts or components.

[0019] As employed herein, the term “number” shall mean one or an integer greater than one (i.e., a plurality).

[0020] FIG. **1** shows an isometric view of a plant support assembly **2**. As shown, the support assembly **2** includes a grow tray **10** and a stand apparatus **110** configured for supporting the tray **10** in a raised position. It will be appreciated that the tray **10** may be configured to support plants (such as in soil in the tray or in soil in a pot or other container located on the tray), such as *cannabis*, during growing, and the stand apparatus **110** may be configured to support the tray **10** at an elevation above the ground or another support surface.

[0021] FIG. **2** shows another isometric view of the plant support assembly **2** and is shown with a portion of the tray **10** removed. FIG. **3** shows a bottom view of the tray **10** as assembled, FIG. **4** shows a top view of the tray **10** with a segment thereof removed, and FIGS. **5**A and **5**B are top and bottom views of one of the tray segments.

[0022] In general, when assembled, the tray **10** has a bottom **12** and a periphery which is generally defined by an upwardly extending rim **14** (the rim thus positioned at an elevation above the bottom). The rim **14** may extend generally perpendicular to the bottom **12** of the tray **10**, including sloping slightly beyond vertical (whereby the peripheral dimension of the rim **14** exceeds that of the bottom **12**). The size and shape of the tray **10** may vary, such as being generally square, rectangular, circular, or even other shapes. In one preferred embodiment, the tray **10** is generally square in overall peripheral shape.

[0023] In one embodiment, the tray **10** comprises a plurality of dis-associable portions, such as a plurality of segments. In one embodiment, each segment preferably defines a portion of the bottom **12** and rim **14** of the tray **10**, so that when associated with one another, the segments form the entire tray **10**.

[0024] In an embodiment where the tray **10** is square, the tray **10** may be comprised of four segments **16**A, **16**B, **16**C and **16**D. The segments **16**A-D may be associated with one another to form the tray **10**, or be disassociated from one another (such as illustrated in FIG. **4**), thus allowing the tray **10** to be broken down into a smaller configuration, such as for shipping and storage. Further, this allows individual portions of the tray **10** to be removed and replaced, such as in the event of damage. This is distinct from known support assemblies (not shown), which are typically constructed as unitary and/or single components.

[0025] In the illustrated configuration, each tray segment **16**A-D may comprise a quarter of the

tray. In the illustrated configuration, each tray segment **16**A-D encompasses one corner of the tray and a portion of the bottom **12** thereof. However, the tray **10** could comprise other numbers of segments, such as 6 or 8, including where segments define just portions of the sides and cooperate with others that define the corners, etc., or where portions are “pie” shaped, such as for cooperating to define a circular tray. A particular advantage of the embodiment illustrated in FIG. **4** is that, while comprising multiple segments **16**A-D, the number and shape of the segments facilitate easy assembly by a user (as compared, for example, to configurations where greater numbers of segments might be used and the segments might be arranged in more than one potential configuration, thus requiring that the user ensure that the locations of the segments are correct before assembling them).

[0026] Details of the tray segments will be described with reference to FIGS. **5**A and **5**B, which illustrates one of the tray segments **16**D, it being understood that in the preferred configuration, the other segments **16**A-C are identical. As illustrated, the tray segment **16**D defines a portion of the bottom **12** of the tray **10**, and has a first side **20**, a second side **22**, a third side **24** and a fourth side **26**. The third and fourth sides **24**,**26** preferably include a portion of the rim **14** of the tray **10**, where the third and fourth sides **24**,**26** intersect to form one corner (an outer corner) of the tray **10**.

[0027] In one embodiment, the first and second sides **20**,**22** extend outwardly to the third and fourth sides **24**,**26** and do not define portions of the rim **14**. In one embodiment, the first and second sides **20**,**22** meet at and extend from an inner corner, at which is located an inset **28**, which inset **28** may cooperate with the insets **28** in the other tray segments **16**A-C to form an opening, such as a drain **30** (see FIGS. **3** and **4**). In one embodiment, a lip **29** may extend downwardly below the bottom **12** of the tray segment **16**D at the sides that define the inset **28**.

[0028] In one embodiment, the rim **14** of the tray **10** may include an outwardly extending flange **32**. The flange **32** may extend outwardly from the top of the rim **14**, such as generally horizontally (e.g. generally parallel to the bottom **12** of the tray **14**). As illustrated in FIGS. **5**A and **5**B, the sides of the tray segment **16**D which define the rim **14** may also define corresponding portions of the flange **32**.

[0029] In one embodiment, the tray segment **16**D may define one or more supports **34** which extend upwardly from the bottom **12**. Preferably, channels or troughs **36** extend or are located between the supports **34**, which channels or troughs **36** are recessed relative to a top of the supports **34**. In one embodiment, a grid of channels or troughs **36** may be provided, such as extending longitudinally and laterally. In one embodiment, at least one diagonal trough may extend from a corner of the tray segment **16**D to the inset **28**, with the lateral and longitudinal troughs leading to the diagonal trough. At least the diagonal trough may be sloped towards the inset **28**, for reasons noted below.

[0030] In one embodiment, the tray segments **16**A-D may be molded, including to define the rim **14**, the supports **34** and the channels or troughs **36**. In other embodiments, the channels or troughs **36** might be formed by removing material around the supports **34**. The molding configuration has the advantage that it essentially creates a series of ribs on the bottom **12** of the tray, as best illustrated in FIG. **2**. This aids in creating rigidity and strength to the tray.

[0031] As indicated above, the tray segments **16**A-D may be associated with one another to define the tray **10**. In one embodiment, the tray segments **16**A-D may define an outwardly extending flange **38** along one side **20** (one of the sides without the rim **14**) and a raised stop **40** along the adjacent side **40**. The flange **38** is designed to slide under the raised stop **40** of an adjacent tray segment. In this configuration, the edges of the tray segments **16**A-D effectively overlap one other.

[0032] In other embodiments, the tray segments **16**A-D might simply be placed side-by-side or in adjacent positions. In yet other embodiments, the tray segments **16**A-D might include means for releasably connecting them to one another, such as via mating locking tabs, interlocking channels, or even fasteners. An advantage of the preferred design is the simplicity of the tray segment **16**A-D design for purposes of manufacturing, assembly and disassembly.

[0033] As illustrated in FIG. **1**, when the tray segments **16**A-D are associated with one another and form the complete tray **10**, the tray defines a raised support surface comprised of the raised supports **34**. Water may drain from the tray **10** through the channels or troughs **36** which lead to the drain **30** at the center of the tray **10**.
[0034] Of course, the tray **10** might have other configurations. For example, each tray segment **16**A-D might define its own drain.
[0035] The tray **10** may be used independently of the stand apparatus **110** which is described and illustrated herein. For example, the tray **10** could be placed on the floor, on a table or other structure. However, the tray **10** is advantageously used with the stand apparatus **110**.
[0036] Reference will now be made to FIGS. **6** and **7**, which illustrate the stand apparatus **110** in detail. As shown, the stand apparatus **110** preferably includes a plurality of legs **112**A, **112**B, **112**C and **112**D, a plurality of beams **114**A, **114**B, **114**C and **114**D, and a central support **116**.
[0037] In one embodiment, the legs **112**A-D each have a top and a bottom (such as for resting on a supporting surface, such as a floor), and are generally "C"-shaped in cross-section, having a first flange and a second flange which join perpendicular to one another. The beams **114**A-D are configured to connected to and extend between pairs of the legs **112**A-D.
[0038] In one embodiment, the beams **114**A-D may comprise one or more longitudinal members which are connected to a mounting bracket **112** at each end, such as two members which are arranged vertically to create a lower or bottom member and a top or upper member.
[0039] In one embodiment, means are provided for releasably connecting the beams **114**A-D to the legs **112**A-D. In one embodiment, the legs **112**A-D define outwardly extending tabs **120** on the flanges thereof, such as spaced from one another near the top of each leg. The tabs **120** may extend from both sides of each of the flanges. A mounting bracket **122** may be located at each end of each beam **114**A-D. The mounting bracket **122** may be C-shaped, having a first leg **124**A which is spaced from a second leg **124**B. Slots **130** may be defined or provided in the first and second legs **124**A, **124**B, corresponding to the tabs **120** on the legs. The slots **130** may define an opening which extends transversely into the first or second legs **124**A, **124**B of the mounting bracket **122**, to an upwardly extending slot. In use, the user may slide the mounting bracket **122** of one of the beams over the tabs **120** on each side of one of the legs (wherein the flange of the leg **112**A-D is accepted between the first and second legs **124**A, **124**B of the bracket **122**), through the aligned opening of the slots **130**, and then lower the beam so that the tabs **120** are located at the top of the slots **130**. In this configuration, gravity and weight of items placed on the beams **114**A-D acts to press the beams downwardly, maintaining them in position on the legs **112**A-D. Other means for releasably connecting might be used, such as where slots are formed in the legs **112**A-D for accepting tabs **120** which are located on the beams **114**A-D.
[0040] The legs **112**A-D may be of various heights, such as depending upon the desired height of the stand apparatus **110**. In some embodiments, the legs could be telescopic, such as to change the length thereof. In one embodiment, the tabs **120** are located so that when the beams **114**A-D are connected thereto, a top of each beam **114**A-D is located at the top of the legs **112**A-D.
[0041] In one embodiment, the central support **116** comprises a central mount **132** and a plurality of cross-supports **134**A, **134**B, **134**C and **134**D. The central mount **132** may be generally square and define an opening **136** which aligns with the drain **30** of a tray **10** which is positioned thereon, where the downwardly extending lips **29** extend into the opening **136** of the central mount **132**.
[0042] In one embodiment, the central mount **132** is four sided, and one cross-support **134**A-D extends from each side of the central mount **132** to the beam **114**A-D which is located adjacent thereto. The cross-supports **134**A-D may be connected to the central mount **132** and the beams **114**A-D in various manners, such as by using fasteners, mounting elements, or the like. In one embodiment, two of the cross-supports **134**A and **134**B are permanently affixed to the central mount **132** and extend in opposing directions therefrom. These cross-supports **134**A and **134**B may define an inverted C or U-shaped flange **140** at the opposing end thereof for location over a portion

of the associated beam **114**A-D, such as the lower support of each of the beams. The other cross-supports **134**C and **134**D may each have such a flange **140** at both ends, one for connection to the central mount **132** and one for connection to the corresponding beam **114**C, and **114**D.
[0043] So configured, the stand apparatus **110** can be assembled by a user without tools, simply by interconnecting the elements thereof. Further, a user can disassemble the stand apparatus **110** without a tool. In addition, the user can replace individual elements of the stand apparatus **110**, such as in the event of damage.
[0044] In addition, when the stand apparatus **110** is disassembled, all of the elements thereof can be aligned parallel to one another, wherein the widest dimension of the elements are the beams **114**A-D and the cross-beams **134**A-D. This allows the stand apparatus **110** to be broken down for shipment and storage in a small package, reducing the associated cost thereof, particularly in relation to stands which can't be disassembled.
[0045] As best illustrated in FIGS. **1** and **2**, when the tray **10** is placed on the stand apparatus **110**, the bottom of the tray **10** is supported by the central support **116**. In a preferred embodiment, the stand apparatus **110** is configured to that the distance between the central support **116** and the top of the beams **114**A-D (and thus the distance between the lower member and upper member of each beam) is slightly less than the height of the tray **10**, whereby when the tray **10** is supported on the stand, the flange **32** which extends outwardly from the rim **14** of the tray **10** extends over the tops of the beams **114**A-D (such as the upper elongate members), so as to be supported thereby.
[0046] In the illustrated embodiment, the stand apparatus **110** (when assembled) has a peripheral shape which is generally the same as the tray **10** and is thus generally square. However, the stand apparatus **110** might have other shapes, such as rectangular, to support a corresponding rectangularly-shaped tray **10**. In such a configuration, the stand apparatus **110** might include more than four legs and might include additional beams extending between the additional legs.
[0047] Also, while in one embodiment the beams **114**A-D are mounted at the tops of the legs **112**A-D, the beams might be configured to be mounted at different heights along the legs. In one embodiment, the outer corners of the tray segments **16**A-D might be notched so as to permit the legs **112**A-D of the stand apparatus **110** to extend upwardly beyond the tray **10**.
[0048] It will be understood that the above-described arrangements of apparatus and the method there from are merely illustrative of applications of the principles of this invention and many other embodiments and modifications may be made without departing from the spirit and scope of the invention as defined in the claims.

Claims

1. A grow tray for supporting one or more plants, the tray having a bottom, an upwardly extending peripheral rim, and at least one drain through said bottom, comprising: a plurality of associable tray segments, each tray segment defining a portion of said bottom of said tray and having at least one side defining a portion of said upwardly extending peripheral rim, a plurality of supports extending upwardly from said bottom, and one or more channels defined between said supports.
2. The grow tray in accordance with claim 1, wherein said tray comprises four tray segments, each having four sides, wherein first and second sides define portions of said upwardly extending peripheral rim of said tray, and each tray segment defining an inset which cooperates with the insets of the other trays to define said drain.
3. The grow tray in accordance with claim 2, wherein each tray segment defines at least a portion of a downwardly extending flange of said drain.
4. The grow tray in accordance with claim 1, wherein said one or more channels comprise at least one first channel, at least one second channel extending orthogonal to the at least one first channel, and at least one third channel extending diagonally to said at least one first and at least one second channel.

5. The grow tray in accordance with claim 4, wherein said least one third channel extends to said at least one drain.
6. The grow tray in accordance with claim 2, wherein a third side of each tray defines an outwardly extending flange and a fourth side of each tray defines a stop, said third side of one tray configured to be positioned against the fourth side of an adjacent tray.
7. The grow tray in accordance with claim 1, wherein a flange extending outwardly from a top of said rim.
8. The grow tray in accordance with claim 1 wherein said four tray segments are identical.
9. A stand assembly for supporting a grow tray comprising: a plurality of legs, each leg having a top and a bottom; a plurality of beams, each beam configured to be detachably mounted to pairs of the plurality of legs; and a central support, said central support comprising a central mount and one or more cross-supports extending between the central mount and an adjacent beam for supporting the central mount in a raised position above the bottoms of the legs.
10. The stand assembly in accordance with claim 9, wherein a top of each beam is located in the same plane as the top of each of said plurality of legs when connected thereto.
11. The stand assembly in accordance with claim 9, comprising four legs and four beams.
12. The stand assembly in accordance with claim 9, wherein each of said plurality of beams has a first end and a second end and a middle, said cross-supports extending inwardly from the middle of each beam.
13. The stand assembly in accordance with claim 9, wherein said central mount has a central opening therein for alignment with a drain of said grow tray.
14. In combination, a grow tray and a grow tray stand, comprising: said grow tray stand comprising: a plurality of legs, each leg having a top and a bottom; a plurality of beams, each beam configured to be detachably mounted to pairs of the plurality of legs; and a central support, said central support comprising a central mount and one or more cross-supports extending between the central mount and an adjacent beam for supporting the central mount in a raised position above the bottoms of the legs; and said grow tray having a bottom, an upwardly extending peripheral rim, and at least one drain through said bottom and comprising a plurality of associable tray segments, each tray segment defining a portion of said bottom of said tray and having at least one side defining a portion of said upwardly extending peripheral rim, a plurality of supports extending upwardly from said bottom, and one or more channels defined between said supports.
15. The combination in accordance with claim 14, wherein said at least one drain is assigned with an opening through said central support when said grow tray is located on said grow tray stand.
16. The combination in accordance with claim 14, wherein said grow tray further comprises a flange extending outwardly from at least a portion of said peripheral rim, said flange positioned on a top of said plurality of legs and/or plurality of beams when said grow tray is located on said grow tray stand.
17. The combination in accordance with claim 14, wherein said grow tray stand is quadrilateral shaped when assembled, comprising four legs and four beams, and wherein said grow tray is quadrilateral shaped and comprises four segments.
18. The combination in accordance with claim 17, wherein each of said four legs, each of said four beams and each of said four grow tray segments are identical.