PORTABLE LIGHT BACKED PROJECT TABLE

Inventors: Donald D. Dow, Eden Prairie, MN (US); Gary Lee Ferrell, Brooklyn Park, MN (US)

Assignee: Artograph, Inc., Plymouth, MN (US)

Publication Classification
Int. Cl. A47B 37/00 (2006.01)
A45C 15/06 (2006.01)
U.S. Cl. 362/127; 362/156

ABSTRACT
A portable lighted project table having a reflector assembly, a base unit and a bead organizer. The reflector assembly includes a reflector base having an upper peripheral edge defining an interior volume, a light source disposed within the interior volume and a cover plate disposed over the interior volume. The carrying case includes a top portion and a bottom portion, movable between a first closed position and a second open position with the reflector assembly received in the bottom portion of the carrying case. The bead organizer is removably received on the cover plate to allow illumination thereof. To accommodate work with beads, and especially translucent beads, the work tray is also configured with holding binds and elongated forming slots to allow the creation of beaded artwork.
Fig. 3

Fig. 4
Fig. 9

Fig. 10
PORTABLE LIGHT BACKED PROJECT TABLE

BACKGROUND OF THE INVENTION

[0001] Light tables (also sometimes referred to as light boxes) are well known and often used by graphic artists, illustrators and drafters, as well as by hobbyists and even children for tracing patterns or designs. Generally, light tables comprise a housing or frame that contains a fluorescent or incandescent lamp for illuminating or back-lighting a work surface upon which is supported both the source pattern or design desired to be traced and the overlying medium onto which the source pattern or design is to be traced.

[0002] One recent craft area that has gained popularity is “beading,” whereby beads of various types, sizes and configurations are assembled to create jewelry and related accessories. A wide variety of beads are made available for such creations, many including transparent or semitransparent materials which are appealing to one’s eye. Especially when using transparent or semitransparent beads, it would be desirable to utilize a light table to assemble beaded projects, thus allowing the ability to better see the actual appearance of these beads when exposed to light.

[0003] Generally speaking, light tables as discussed above have historically been utilized for tracing and drawing-type projects. As such, these light tables traditionally have flat working surfaces which do not easily accommodate beads or round structures of any type. Based upon their intended use for tracing, the working surfaces are also often slanted or sloped to accommodate drawing applications. As would be anticipated, these sloped or slanted work surfaces are extremely problematic when attempting to work with beads. When the surface is slanted, beads would simply roll off the work surface. Even when the work surface does not include a slope, it is difficult to hold the respective beads in certain positions when attempting to create designs. As such, there is a need for a lighted working surface which could be utilized during the creation of beaded projects.

[0004] When using a light box, various tools and other items are often necessary, such as different papers, pens, pencils, ensemblers, inks, markers, crayons, brushes, stencils, embossing tools, tape, rulers, straight edges, etc. For portable light boxes, particularly those used by hobbyists and children, it is generally desirable to have these “tools” conveniently stored with the light box. U.S. Pat. No. 4,654,762 issued to Lavernack recognizes the advantages of incorporating a tool tray into the light box, but provides no cover or other means for securing the tools to prevent them from spilling and being lost when the light box is being moved from place to place. In another approach, U.S. Pat. No. 6,981,778 issued to Dow et al. describes the incorporation of a tool carrying tray into a portable light box. Accordingly, this provides a light box that is readily portable and includes accommodations for holding and organizing tools while also protecting the working surface.

[0005] The tool carrying trays outlined above provide a solution to the storage and transport needs, they do not meet the needs for creating beaded projects. These trays provide a place to house tools while the light box is in use and during transportation between work areas, and which ensures that the illuminated work surface is protected from damage by the tools during transportation. The tool tray disclosed is interlocked into the cover for storage and transport. When the light table is in use however, these tool trays are removed and either held by the user or placed upon the desktop or table top adjacent the light box. Care is generally taken to insure that these tool trays are removed prior to use. As the tools will be used while the particular project is place upon the work surface, no need exists to cause light to be transmitted through the tray. Simply stated, these trays are not intended to be illuminated.

SUMMARY OF THE INVENTION

[0006] The present invention is a portable lighted project table that is particularly well adapted to the creation of beaded projects. The portable project table includes a reflector assembly, a base unit, a cover and a bead organizer. The reflector assembly is positioned within the base unit includes a reflector base having an upper peripheral edge and defining an interior volume. Disposed within the interior volume of the base is a light source. In a preferred embodiment, the light source includes an electric lamp, such as a fluorescent or incandescent lamp, electrically connected to an AC power source and/or an alternative internal DC battery source. A cover plate is disposed over the interior volume thus forming a working surface. In a preferred embodiment the upper peripheral edge of the base supports the cover plate at an inclined slope so as to provide more convenient positioning for the working surface.

[0007] The carrying case is made up of a cover and the base unit. The reflector assembly is preferably removable received within the base unit. The cover and base are movable between a first closed position and a second open position. In a preferred embodiment, the cover or top portion is removable hingedly secured to the bottom portion of the carrying case.

[0008] In addition to the features above, the portable project table or light box includes a holding assembly specifically configured to interact with the bead organizer such that the organizer is positioned and held over the working surface of the light box. This holding structure in one embodiment includes registration or mounting pins located on an upper side or edge of the sloped work surface. The bead organizer is then provided with receiving holes to receive the mounting pins and consequently hold the organizer in place.

[0009] The bead organizers themselves are specifically designed for beading projects. As such, they include at least one elongated groove or slot, preferably being positioned on a bottom portion thereof. Additionally, a number of bead holding compartments are included. It is contemplated that the bead holding compartments would contain a supply of beads which could thus be selected by the user for incorporation into the project. The elongated trays, or slots, which are more specifically configured for the creation of bracelets or necklaces, would allow the user to set out and align beads as desired for the particular project. To accommodate this, a plurality of demarcations are included along side the elongated slots to clearly indicate a length involved. In one embodiment, this includes a removable ruler that is attached to the bead organizer at an appropriate location. In another embodiment, the demarcations are printed directly on the organizer.

[0010] Alternative organizers are designed for particular tasks typically undertaken during the creation of projects. For example, one organizer may be configured for sorting as opposed to project formation. Alternatively, one organizer could be configured for the creation of bracelets, thus having a circular ring to lay out appropriate beads. In many cases, it will be beneficial to have multiple organizers to carry out the
various tasks involved in the creative process. Thus, a collection of bead organizers along with the light box structure may be considered to be a system or a kit which will provide convenience from many perspectives.

[0011] The bead organizer itself is fabricated from a translucent or semi-translucent material, thus allowing light from the light box to be transmitted therethrough and further illuminate the beads contained within the various compartments. This specifically allows users to see and fully appreciate the features of various individual beads.

[0012] To accomplish the above objectives, features and advantages, the present invention may be embodied in the forms illustrated in the accompanying drawings, attention being called to the fact, however, that the drawings are illustrative only, and that changes may be made in the specific form illustrated and described without materially departing from the teachings herein.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] The objects and advantages of the present invention will be apparent from reading the following detailed description in conjunction with the drawings, as described below.

[0014] FIG. 1 is an exploded perspective view of a preferred embodiment of the portable lighted table of the present invention.

[0015] FIG. 2 is a top view of one embodiment of the bead organizer of the present invention.

[0016] FIG. 3 is a top view of another embodiment of the bead organizer.

[0017] FIG. 4 is a perspective view of a preferred embodiment of the light table of FIG. 1 with the carrying case in the first closed position.

[0018] FIG. 5 is a cross-sectional view of the light table of FIG. 1 as viewed along lines 5-5 of FIG. 2.

[0019] FIG. 6 is a detailed view of the portion of the light table identified in FIG. 5 by reference number 4.

[0020] FIG. 7 is a detailed view of the portion of the light table identified in FIG. 5 by reference numeral 5.

[0021] FIG. 8 is a rear elevation view of the preferred embodiment of the light table of the present invention with the carrying case in the first closed position.

[0022] FIG. 9 is a cross sectional view of the light table of FIG. 8 as viewed along lines 7-7.

[0023] FIG. 10 is an electrical schematic showing the preferred electrical circuit for the preferred light table of the present invention.

[0024] FIGS. 11-15 are perspective views of alternative embodiments of the bead organizers.

DETAILED DESCRIPTION OF THE INVENTION

[0025] Drawing FIGS. 1-15 illustrate various embodiments of the portable lighted project table 10 of the present invention wherein like reference numerals designate corresponding parts throughout the several views of the drawings. An exploded perspective view of a preferred embodiment of the project table 10 is illustrated in FIG. 1 showing the individual components, including the preferred carrying case 12, the preferred reflector assembly 14, and one embodiment of a bead assembly organizer or bead organizer 16. In some cases, project table 10 may also be referred to as a light box 10, due to the various capabilities provided. These terms are intended to be interchangeable throughout the following description.

[0026] The reflector assembly 14 includes a base 18 having an upper peripheral edge 20 defining an interior volume 22. The interior volume 22 of the base 18 preferably has a smooth white glossy finish to reflect the light from the light source 24 (discussed below). The base 18 is preferably formed using an injection molding process using high impact polystyrene (HIPS), although other fabrication methods and materials may be equally suitable.

[0027]Disposed within the interior volume 22 is a light source 24, such as a fluorescent bulb or lamp removable and receivable within sockets 26 (best viewed in FIG. 5). It should be appreciated that although the preferred light source 24 is a fluorescent lamp, the light box 10 may also utilize one or more incandescent lamps, or any other suitable electric lamp as a light source 24. The light source 24 is, of course, powered by an electrical power source 28 (FIG. 10). The electrical power source 28 may be provided by either internal DC batteries or by external AC power. In the preferred embodiment, external AC power is supplied by a power cord 29 (FIG. 8) for connecting to a typical AC outlet. The preferred embodiment also provides for internal nine volt DC battery power. Storage for the batteries is provided in cavity 25 FIG. 5 in the reflector assembly base 18, accessible through a door 30 (FIG. 1) in the bottom portion 42 of the carrying case 12. An on/off switch 31 (FIG. 8) is preferably provided to control power to the light source 24. Those skilled in the art will readily appreciate the electrical circuitry required to provide the preferred dual power source for powering the light source 24. An electrical schematic of the preferred electrical circuit is shown in FIG. 8. The components comprising the electrical circuitry are preferably disposed adjacent the batteries in the cavity 25 (FIG. 5) located in the reflector assembly base 18 disposed in the bottom portion 42 of the carrying case 12.

[0028] A cover plate 32 is disposed over the interior volume 22 of the base and is preferably supported around its exterior periphery by the upper peripheral edge 20 of the reflector assembly base 18. Alternatively, cover plate 32 could also be supported by bottom portion 42. In the preferred embodiment, both the upper peripheral edge 20 and the cover plate 32 supported thereby are sloped at an incline from front to rear so as to provide a convenient working surface. The cover plate 32 is preferably translucent so as to more evenly diffuse the light from the light source 24. Additionally, the cover plate 32 is preferably rigid, smooth and sufficiently hard so as to provide a working surface that will support the force exerted by the user when using the light box in the manner previously described and which is not easily marred or scratched molded from HIPS. Other suitable material such as glass, plexiglass, or any other fairly hard, rigid and smooth material may also be used. Furthermore, although the preferred cover plate is translucent for purposes of better light diffusion, opaque or transparent materials may be equally suitable for the cover plate, depending on the needs of the project or preferences of the user. The outer periphery of the cover plate 32 preferably includes a plurality of indentations 34 which are matingly received by tabs 36 surrounding the upper periphery 20 of the base which removably secures the cover plate 32 in place over the interior volume 22 of the base 18. Additionally, cover plate 32 has a pair of mounting posts or registration posts 38 extending upwardly at the rear upper corners thereof.

[0029] FIGS. 3 and 4 illustrate two different embodiments for bead organizer 16. As further outlined below, many other variations of bead organizer 16 are possible depending on the specific task being contemplated. Referring to FIG. 3, a first
organizer 116 is illustrated. As shown, this is a top view thus illustrating the various compartments included as part of the structure. As illustrated, first bead organizer 116 includes a number of bead holding bins 118 positioned on an upper side thereof. Further, a ruler 120 is centrally located to provide measurement perspectives. Lastly, three project creation slots or project forming slots 122 are configured along the bottom portion of bead organizer 116. In use project forming slots 122 are easily usable to select and lay out collections of beads for incorporation into necklaces, bracelets, etc. Further, bins 118 are conveniently located to house various beads which also may ultimately be incorporated into the project. As all of these structures will be positioned over the top of cover plate 32, all of the bins and slots are illuminated, thus allowing the user to more easily see and visualize colors, and the overall arrangements that the bead groupings may take.

[0030] Also illustrated in FIG. 3 is a pair of holes or openings 130 positioned near upper edges of bead organizer 116. As mentioned above, cover plate 32 includes a pair of registration posts 38 extending upwardly from a surface thereof. Openings 130 are specifically positioned and configured to cooperate with mounting posts 38, thereby holding bead organizer 116 in position. Further, as cover plate 32 is slanted at an angle to provide a more convenient work surface, mounting posts 38 and openings 130 cooperate to hold bead organizer 116 in place. While posts 38 and related openings 130 are utilized to hold organizer 116 in place, it will be understood that other holding structures could also be used. As shown in FIGS. 11-15, the respective organizer may simply include a recess designed to receive the post. Alternatively, clipping mechanisms or hooks of different types may be possible.

[0031] Referring now to FIG. 4, a second bead organizer 216 is illustrated. As can be seen, second bead organizer 216 includes openings 130 to similarly interact with registration posts 38. In addition, second bead organizer 216 also includes a number of bead supply bins 218 which are all configured to house a working supply of beads. Similarly, ruler 120 is also included in second bead organizer 216, along with a single project forming slot 222. In this particular embodiment, more supply bins 218 are provided, thus allowing for a longer visible collection of beads to be available to the user.

[0032] Both FIGS. 3 and 4 include a ruler 120 taking up part of the organizer. It should be noted that ruler 120 could be formed from markings placed directly on bead organizer 116. Alternatively, a separate removable component could be used which would be repositionable in other organizers. For example, bead organizer 116 may be formed with an indentation and related holding tabs to thereby receive ruler 120. Alternatively, a separate slot could be formed in bead organizer 116 to receive ruler 120. Naturally, ruler 120 could include the demarcations of different sizes and configurations depending upon the desired units of measure and the desired sizes being contemplated.

[0033] As should be apparent from FIGS. 3 and 4, the layout of bead organizer 116 or 216 provides an effective working layout for the artist creating their desired project. As these projects typically require considerable creativity, many bead artists greatly appreciate the ability to have bead components be illuminated and presented in the manner shown. Naturally, other variations are possible for the various compartments and slots, while still providing these advantages.

[0034] To provide convenience, the carrying case 12 is preferably fabricated from a lightweight, durable material such as polypropylene using an injection molding process. It should be appreciated that other fabrication methods and materials, including other polymers, metal, wood, etc., may be used depending on manufacturing requirements or limitations, or depending on qualities and features of the carrying case desired by a user. The preferred carrying case 12 includes a top portion 40 and a bottom portion 42. The reflector assembly 14 is preferably removably secured within the bottom portion 42 of the carrying case, such as by screws, snap fittings, or other means recognized by those skilled in the art. [0035] The top and bottom portions 40, 42 are preferably moveable with respect to each other between a first closed position as illustrated in FIGS. 5-7 and a second open position as illustrated in FIGS. 1 and 9. As best illustrated in FIGS. 5, 8 and 9, the top portion 40 is preferably removably, hingedly attached to the bottom portion 42 at the rear of the carrying case. In the preferred embodiment, the top portion 40 includes two pliable male hinge strips 44, each having a protruding lip 46 that is removable received by a corresponding female hinge portion 48 matingly disposed on the bottom portion 42 of the carrying case 12.

[0036] Referring now to FIGS. 5 and 6, as shown at the front of the carrying case 12, the top portion 40 is preferably removably secured to the bottom portion 42 by the cooperation of an elongated protruding lip 50 in the bottom portion 42 that is received into a mating elongated opening 52 in the top portion 40. In the preferred embodiment, to open the carrying case 12, an upward and outward force is exerted on the handle 54 which causes the elongated protruding lip 50 to be released from the elongated opening 52.

[0037] The bead organizer 16 is preferably fabricated from HIPS using an injection molding process. It should be appreciated, however, that the bead organizer 16 may be formed using any other fabrication method and combinations of materials, including other polymers, metal, wood, etc., depending on manufacturing requirements or limitations, or depending on qualities and features of bead organizer 16 desired by a user. It should be appreciated, therefore, that the illustration of the bead organizer 16 shown in FIG. 2 is provided merely as an example for illustration purposes only.

[0038] Referring now to FIGS. 5, 6 and 7, the bead organizer 16 is preferably removably received and supported by work surface 32. Bead organizer 16 will extend into top portion 40 of the carrying case 12 when the case 12 is closed and may be contained therein if desired. One embodiment a support groove (not shown) may exist in the cover 40 to allow a loose snap fit of the bead organizer 16. Further, a pair of registration posts 38 extend upwardly from cover plate 32 in order to provide additional holding support for bead organizer 16. The use of registration posts 38 allows for the easy positioning of bead organizer 16 when placed over the work surface. This also allows for easy changing and integration of alternative bead organizer designs.

[0039] As suggested above, the use of multiple bead organizers may be advantageous. As examples, several alternative organizer designs are illustrated in FIGS. 11-15. Each of these alternatives are configured to accommodate different purposes, or particular desires of the user. For example, the organizers of FIGS. 12, 14 and 15 may be better suited to sorting of beads. Similarly, organizer 316 of FIG. 11 may be better accommodate the creation of a single project by using a single formation slot 322 and four bead holding bins 318. Organizer 516 of FIG. 13 may be well adapted for the organization of several related projects by providing several
project formation slots 522 all arranged parallel to one another. Likewise, organizer 616 of FIG. 14 accommodates the creation of horizontally oriented projects using slots 622. These could easily be wider or more substantial in size, thus slots 622 have a wider working space. Lastly, FIG. 15 shows organizer 716 having a single “slot” 722. More generally, this organizer 716 provides a large work surface, generally for sorting or displaying of completed projects, while also having edges which will hold or retain beads. These variations illustrate that slots or holding bins can also have varying involved dimensions, as the projects may vary. Each of these will have benefits of their own, and it will likely be advantageous to have multiple organizers.

Although only certain exemplary embodiments of the invention have been described in detail above, those skilled in the art will readily appreciate that many modifications are possible without materially departing from the novel teachings and advantages of this invention. Accordingly, all such modifications are intended to be within the scope of the appended claims.

1. A portable project creation box for use in configuring and designing beaded projects, comprising:
   a carrying case having a top portion and a bottom portion wherein the top and bottom portions are movable between a first closed position and a second open position;
   a reflector assembly contained within the bottom portion of the carrying case, the reflector assembly having a base with an upper peripheral edge defining an interior volume, a light source disposed within the interior volume: a cover plate disposed over the interior volume and attached to the an upper peripheral edge of the carrying case bottom portion, the cover plate having a substantially flat work surface on an upper side thereof and at least one registration structure extending upwardly from the work surface at a predefined location; and
   a translucent bead organizer for accommodating beads and facilitating the creation of the beaded projects, the bead organizer positioned on the work surface and having at least one registration element cooperating with the at least one registration structure to align and hold the bead organizer at a desired position, the bead organizer having a plurality of bead supply bins along with an elongated project creation slot, the project creation slot configured and aligned to allow for the arrangement of the beaded project prior to final formation while also being illuminated by the light source.

2. The portable project creation box of claim 1 wherein the top portion of the carrying case is removably secured to the bottom portion of the carrying case.

3. The portable project creation box of claim 1 wherein the cover plate is translucent.

4. The portable project creation box of claim 1 further comprising at least one demarcation indicator positioned on the bead organizer adjacent to the elongated project creation slot to indicate a relative size of the project as it is being developed.

5. The portable project creation box of claim 4 wherein the demarcation indicator is a removable ruler attachable to the bead organizer.

6. The portable project creation box of claim 4 wherein the demarcation indicator comprises a set of markings placed directly on the bead organizer.

7. The portable project creation box of claim 1 wherein the registration structure comprises at least one holding post extending upwardly from the work surface at the desired location, and the corresponding registration element comprises at least one opening at a defined location of the bead organizer configured to receive the at least one holding post thereby holding the bead organizer in the desired position above the lighted work surface.

8. The portable project creation box of claim 1 wherein the at least one registration structure comprises two holding posts positioned at corners of the cover plate and the at least one registration element comprises two openings in the bead organizer positioned at upper corners thereof positioned and configured to receive the two holding posts.

9. The portable project creation box of claim 1 wherein the light source includes at least one electric lamp electrically connected to an electric power source.

10. The portable project creation box of claim 9 wherein the electric power source includes a DC battery source.

11. The portable project creation box of claim 9 wherein the electric power source includes an AC power source.

12. The portable project creation box of claim 9 wherein the electric power source includes a DC battery source and an AC power source.

13. The portable project creation box of claim 1 wherein the bottom portion of the carrying case has a front side and a back side, is configured to hold the cover plate at an angle with respect to a bottom surface of the carrying case bottom portion, the angle being sloped downwardly from the back side to front side thereby creating a sloped work surface which is sloped toward a user when they are positioned adjacent the front side.

14. The portable project creation box of claim 13 wherein registration structures comprises two holding posts positioned at corners of the cover plate adjacent the back side and the at least one registration element comprises two openings in the bead organizer positioned at corners thereof positioned and configured to receive the two holding posts.

15. The portable project creation box of claim 14 wherein the bead organizer comprises a plurality of bead supply bins along a side thereof adjacent the two openings and a plurality of elongated project creation slots substantially extending along the width of thereof on a side opposite the two openings.

16. The portable project creation box of claim 1 wherein the project creation slot is curved.

17. A portable lighted project creation table for effectively presenting and organizing beads during the configuration and design of beaded projects, the portable lighted project creation table comprising:
   a portable base unit having a bottom, front wall, back wall and two side walls thereby forming an interior space, with the two sidewalls having upper edges which are sloped to form an upper peripheral edge which creates a sloped plane with respect to the bottom;
   a reflector assembly contained within the interior space to provide illumination, the reflector assembly having a reflector base with an upper peripheral edge defining an interior volume, a light source disposed within the interior volume and the upper peripheral edge coupled to the base unit and positioned adjacent to an upper edge of the front wall, back wall, and side walls;
   a translucent cover plate positioned on the base unit peripheral edge covering over the interior space and the reflec-
tor assembly, the cover plate having a substantially flat upper surface forming a table work surface and a pair of registration posts extending upwardly from the work surface at a location near the back wall; and a translucent bead organizer having a plurality of bead holding bins, at least one elongate bead project creation slot and length demarcations for indicating the relative size of the project, the bead organizer further having a pair of registration openings positioned along a back edge thereof to receive the pair of registration posts, the plurality of bead holding bins being positioned along a portion of the organizer adjacent the back edge thereby also being adjacent the back wall of the base unit, the elongated bead project creation slot extending substantially across the width of the bead organizer near the front wall of the base unit, and wherein the length demarcations are positioned adjacent the elongated project creation slot.

18. The portable lighted project creation table of claim 17 further comprising a cover attachable to the base unit to cover and protect the work surface during transportation.

19. The portable lighted project creation table of claim 17 wherein the length demarcations are part of a removable ruler attachable to the bead organizer.

20. The portable lighted project creation table of claim 17 wherein the length demarcations comprise a set of markings placed directly on the bead organizer.

21. The portable lighted project creation table of claim 17 wherein the bead organizer comprises a plurality of elongated project creation slots located adjacent the front wall and parallel with one another.

* * * * *