Abstract: A folding table and chair each have an unobtrusive folding mechanism that cannot be easily seen when unfolded for use. Because the folding mechanism is not readily seen, folding tables and chairs of a number of well-known and popular styles can be provided that are suitable for use as everyday home furniture. Folding furniture may be particularly desirable for apartment and condominium dwellers who have limited living space and need to occasionally store bulky furniture to fully use such space. The folding furniture of the invention is also easier to move than traditional furniture, including the hinge of the table, which can also serve as a carrying handle.
FOLDING TABLE AND CHAIR

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The invention is directed to a folding table and chair. In particular, the table can be easily folded to make it more compact and transported for storage or relocation; and the chair can be folded flat to facilitate storage.

2. Related Art

[0002] Many folding tables that include a handle, or other carrying means, for transportation flat include a separate structure that is visible when the table is unfolded.

[0003] An example of such a table is a typical "suitcase" style folding table. The suitcase table includes a handle mounted to an outer edge of a table leaf. A hinge, or other folding mechanism, is disposed at the center of the table and connects the opposing leafs. The suitcase table's legs have a sliding leg-lock arrangement that is widely used in folding tables. The legs can be folded within the thickness of the skirt surrounding the edge of each leaf. The table can be folded in half such that the skirt of each leaf contacts one another to form an outer planar surface that forms the "suitcase" with the legs folded inside. The skirt may include a latching mechanism so that the leafs can be secured together. The secured, folded table can be transported by means of the separate handle that is not located on the same side of the outer planar surface of the suitcase as the hinge.

[0004] Many of the mechanisms that permit the suitcase table to fold and be transported are visible when the table is in use. Accordingly, these visible mechanisms are unsightly and make the typical folding table undesirable for everyday home use.

[0005] In smaller domiciles, furniture that is easily moved and storable is desired so that occupants can take full advantage of limited living space, which especially important in urban environments.

[0006] Accordingly, there is a need for a foldable table and chair that hides the folding and carrying mechanisms so that the table is sufficiently stylish and decorative for everyday use.
SUMMARY OF THE INVENTION

[0007] The invention meets the foregoing need and by providing a folding mechanism and carrying mechanism, respectively, that is not readily visible when unfolded, which results in a table and chair having appearances more similar to non-folding tables and chairs that are decorative and suitable for everyday use, as well as other advantages apparent from the discussion herein.

[0008] Accordingly, in one aspect of the invention a folding table is provided that includes a table top comprising two opposing leaves connected by a folding mechanism, pivotable legs coupled to one of the opposing legs, a latching mechanism disposed within the table top securing at least one leg in an extended position generally perpendicular to the table top. In the table's folded position, the folding mechanism is configured to serve as a handle for transporting the folding table.

[0009] Additional features, advantages, and embodiments of the invention may be set forth or apparent from consideration of the following detailed description, drawings, and claims. Moreover, it is to be understood that both the foregoing summary of the invention and the following detailed description are exemplary and intended to provide further explanation without limiting the scope of the invention as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The accompanying drawings, which are included to provide a further understanding of the invention, are incorporated in and constitute a part of this specification, illustrate embodiments of the invention and together with the detailed description serve to explain the principles of the invention. No attempt is made to show structural details of the invention in more detail than may be necessary for a fundamental understanding of the invention and the various ways in which it may be practiced. In the drawings:

[0011] Figure 1 shows a perspective view of an exemplary folding table constructed according to the principles of the invention in an unfolded position;

[0012] Figure 1A shows a side elevational view of a folding table constructed according to the principles of the invention in an unfolded position;

[0013] Figure 1B shows an enlarged perspective view of a push button release used in a folding table constructed according to the principles of the invention;
Figure 1C shows a perspective view of the table of Figure 1 in a folded position;

Figure 2 shows a side perspective view of the table of Figure 1 in a folded position;

Figure 2A shows an enlarged view of the folding mechanism of the table of Figure 2;

Figure 3 shows a perspective view of a locking mechanism constructed according to the principles of the invention;

Figure 4 shows a perspective view of an exemplary folding chair constructed according to the principles of the invention in an unfolded position;

Figure 4A shows an enlarged view of a locking mechanism for the chair of Figure 4;

Figure 4B shows a side elevational view of the chair of Figure 4 in a folded position;

Figure 5 shows a perspective view of another exemplary folding table constructed according to the principles of the invention in an unfolded position;

Figure 6 shows a dining set incorporating the table of Figure 5 with chairs constructed in accordance with the principles of the chair illustrated in Figure 4;

Figure 7 shows yet another exemplary folding table constructed according to the principles of the invention having a slat-style design;

Figure 8 shows a perspective view of yet another exemplary folding table constructed according to the principles of the invention having a transitional style;

Figure 9 shows a perspective view of another exemplary folding chair constructed according to the principles of the invention in an unfolded position;

Figures 9A, 9B, 9C show the chair of Figure 9 in various stages of folding;

Figure 10 shows a dining set incorporating the table of Figure 8 with chairs constructed in accordance with the principles of the chair illustrated in Figure 9;

Figure 11 shows a perspective view of yet another exemplary folding table constructed according to the principles of the invention having a traditional style;

Figure 12 shows a perspective view of yet another exemplary folding chair constructed according to the principles of the invention in an unfolded position;
Figure 12A shows an enlarged perspective view of a push button release implemented in the chair of Figure 12 that is similar to the push button release illustrated by Figure 1B;

Figure 13 shows a dining set incorporating the table of Figure 11 with chairs constructed in accordance with the principles of the chair illustrated in Figure 12;

Figure 14 shows a perspective view of yet another exemplary folding table constructed according to the principles of the invention having a mission style;

Figure 15 shows a perspective view of yet another exemplary folding chair constructed according to the principles of the invention in an unfolded position;

Figure 16 shows a dining set incorporating the table of Figure 14 with chairs constructed in accordance with the principles of the chair illustrated in Figure 15.

DETAILED DESCRIPTION OF THE INVENTION

The embodiments of the invention and the various features and advantageous details thereof are explained more fully with reference to the non-limiting embodiments and examples that are described and/or illustrated in the accompanying drawings and detailed in the following description. It should be noted that the features illustrated in the drawings are not necessarily drawn to scale, and features of one embodiment may be employed with other embodiments as the skilled artisan would recognize, even if not explicitly stated herein. Descriptions of well-known components and processing techniques may be omitted so as to not unnecessarily obscure the embodiments of the invention. The examples used herein are intended merely to facilitate an understanding of ways in which the invention may be practiced and to further enable those of skill in the art to practice the embodiments of the invention. Accordingly, the examples and embodiments herein should not be construed as limiting the scope of the invention, which is defined solely by the appended claims and applicable law. Moreover, it is noted that like reference numerals represent similar parts throughout the several views of the drawings.

Figure 1 shows a folding table 100 constructed in accordance with the principles of the invention. The table may include two leaves 122, 123 that make up a table top 120. Each table leg 110 may be pivotably connected to one of the
leaves 122, 123 that can be unlocked to fold via a push button release 105. Figure 1A is a side view of the unfolded table 100 that shows two leaves 122, 123 joined together by a hinge 124.

[0037] Figure 1B is an enlarged view of the push button release 105. The button 105 may be disposed in a recess 125 of the table top 120. Here, the button 105 is pushed down to unlock the leg 110 so that it may fold, but the button may be any suitable mechanism for disengaging a lock or latch that holds the leg 110 in place when the table 100 is unfolded for use.

[0038] Figure 1C illustrates table 100 in a folded position. In a folded position, the leaves 122, 123 are spaced apart, primarily by the thickness of the legs 110. This space may expose the hinge 124 so that it can be used as a handle for carrying the table 100 in the folded position for transportation or storage.

[0039] Figure 2 is a side view of table 100 that illustrates that it may rest flat on the ground or other surface in a folded position, supported by an edge of the leaves 122, 123 opposite the hinge 124. Figure 2A is a close-up view of the hinge 124. The hinge 124 may include a handle 201 that is held in place by collars 203, which are coupled to the leaves 122, 123 by flanges 205. The handle can be fixedly coupled to the collars of one leaf while being pivotably connected to the collars of the other leaf. Alternatively, the handle can be pivotably connected to all of the collars and held in place by end caps 207 disposed on the outer collars to prevent longitudinal movement of the handle. Preferably, most of the handle 201 is disposed above the edges of the leaves 122, 123 in the folded position to facilitate carrying of the table 100.

[0040] Figure 3 shows a latching mechanism 300 that may engage push button 105 to releasingly lock leg 110 in relation to table top 120. The latching mechanism 300 may be coupled to table top 120 using support plate 303. The leg may be coupled to the latching mechanism 300 using hinge plate 305 that is rotatably connected the support plate 303 at pin 315. A latch 301, which may be biased towards the push button release 105 by a mechanism such as a spring (not shown), can be provided to fix the hinge plate 305 in relation to both the support plate 303 and table top 120. The latch 301 may include a lever 309 that is adapted to engage push button release 105 within recess 125 of Figure 1B. The latch may also include a clasp 311 that holds an upper planar surface of the hinge.
plate 305 to a lower planar surface of the support plate to "lock" the leg 110 in an unfolded position that is generally perpendicular to the table top 120.

[0041] Pressing the lever 309 downwardly releases the hinge plate 305 so that it may be rotated about pin 315 to allow the leg 110 to rotate into a folded position that is generally parallel to the table top 120. To unfold the leg 110, it can be rotated so that an edge of hinge plate 303 will push the clasp 311 against biasing force provided by the latch 301 so that leg 110 can fully rotate. When the upper planar surface of hinge plate 305 abuts the lower planar surface of the support plate 303, the clasp 311 will spring back due to the biasing force of latch 301 to lock the leg 110 in place. The clasp 311 may have a tapered surface 313 adapted to engage a leading edge of hinge plate 305 to facilitate unfolding of the leg 110. This kind of arrangement is advantageous for the easy concealment of the mechanism used to lock/unlock the legs of a folding table.

[0042] Figure 4 shows a folding chair 400 constructed in accordance with the principles of the invention. The chair 400 includes a back 403 and a seat 405 having a cushion 406. The back may be supported by rear legs 407 that extend from the surface the chair 400 is resting on to the top of back 403. The seat 405 can be pivotably coupled to rear legs 407. The front of seat 405 may be supported by front legs 409 that are substantially shorter in length than rear legs 407. Extra lateral support may be provided by support 415 that is connected to front legs 409 on a front end and pivotably connected to a cross-support 416 at a back end. The support 415 primarily provides lateral support in a front-to-back direction, and the cross-support 416 primarily provides lateral support in a side-to-side direction. Here, seat 405, legs 407, 409, support 415, and cross-support 416 include a frame 411 preferably made of lightweight cast aluminum. But other materials that are known to be suitable for constructing folding chairs can be used in accordance with the principles of the invention.

[0043] Each of the front legs 409 may include a slot and keyhole arrangement for locking the chair 400 in an unfolded position. Figure 4A shows the front leg 409 having a slot 422 and a keyhole 423 within the leg that both engage a tab 417 of support 415. When the tab 417 is seated in the slot 422, the support 415 is locked relative to the cross-support 416 and the front leg 409, thereby preventing the seat 405 from pivoting and "locks" the chair 400 in the unfolded position. Moving the tab 417 to the keyhole 423 "unlocks" the chair 400 and allows the tab to move in a
manner that permits the support 415 to rotate relative to the front leg 409, which,
in turn, permits a pivotal motion of the seat 405 to allow folding of the chair 400.
Figure 4B illustrates chair 400 in a folded position.

[0044] Figure 5 shows a modern style dining table 500 constructed in
accordance with the principles of the invention. Each leaf 522, 523 may
comprises two wooden slabs 526, 528, 530, 532 that conceal the seam where the
table 500 is folded. The table 500 also may include the previously described push
button release 105 for locking/unlocking legs 510. Here, the push button release
105 is shown as an aluminum button to accent the wooden slabs 526, 528, 530,
532. A skilled artisan would recognize that a variety of materials can be used with
the table of the invention, including the material for the push button release,
depending on the aesthetic look desired. Figure 6 shows a dining set including
table 500 with chairs 400.

[0045] Figure 7 shows a slat style dining table 600 constructed in accordance
with the principles of the invention. The table leafs 622, 623 can be made up of
slats 630. The push button release 105 can be made of a wood or other material,
contrasting to the slats 630 for adding a stylish appeal.

[0046] Figure 8 shows a transitional table 650 constructed in accordance with the
principles of the invention. The table 650 may include tapered legs 660 and a
beaded skirt 665 for an elegant look. The push button release can be covered by
a veneer 656 to match the table top 670 made up of leafs 672, 673.

[0047] Figure 9 illustrates a transitional folding chair 700 using an alternative
folding mechanism. The chair 700 includes a back 703, a seat 705 having a
cushion 706, rear legs 707, front legs 709, support 715, and cross-support 716.
Here, the chair 700 also includes a front cross-support 717 that provides side to
side lateral support in a similar manner to the cross-support 716. The support 715
may be joined to the front cross-support 717 at the front end, and pivotably
connected to the cross-support 716 at the rear end. The front cross-support 717 is
pivotally connected to the front legs 709.

[0048] Figures 9A, 9B, and 9C illustrates the various steps of folding the chair
700. Figure 9 and 9A show the chair 700 in an unfolded position suitable for use.
Figure 9B shows that the seat 705 may be rotated off of pegs 720, which permits
the support 715 and front legs 709 to pivot upwardly to fold the chair 700. The
chair in a folded position is illustrated by Figure 9C. Figure 10 shows the dining set including table 650 with chairs 700.

[0049] Figure 11 shows a traditional style table 750 constructed in accordance with the principles of the invention. The table 750 may include engraved details 776 in the leafs 772, 773. The legs 760 can have the appearance of classic lathe turned legs that end in boxed shoulders 775 integrated into the skirt 765. The push button release, which may covered by a veneer 756 to match the table, operates to lock/unlock the legs 760.

[0050] Figure 12 illustrates a traditional folding chair 800 using yet another folding mechanism. As can be seen in Figure 12A, the front legs 809 may be folded by pressing a push button release 815 disposed within a recess 825 of the seat 805 that functions similar to the previously described release for a folding table. Pressing the push button release 805 unlatches the front legs 809 so that the seat 805 may be rotated and the chair 800 will lay substantially flat for storage. Figure 13 shows a dining set including table 750 with chairs 800.

[0051] Figure 14 shows a perspective view of yet another exemplary folding table constructed according to the principles of the invention having a mission style. In particular, Figure 14 shows a mission style table 850 constructed in accordance with the principles of the invention. The leafs 872, 873 may include ceramic or stone tiles 876 for creating the mission look. The legs 860 may be straight and sturdy to provide a hand made look consistent with the mission style. The push button release 105 may be made to match either the tiles or wood of table.

[0052] Figure 15 shows a perspective view of yet another exemplary folding chair constructed according to the principles of the invention in an unfolded position. In particular, Figure 15 shows a mission chair 900 that may preferably include the alternative folding mechanism shown in Figure 9, but other folding mechanisms that are consistent with the principles of the invention may also be used.

[0053] Figure 16 shows a dining set incorporating the table of Figure 14 with chairs constructed in accordance with the principles of the chair illustrated in Figure 15. In particular, Figure 16 shows a dining set including table 850 with chairs 900.

[0054] The invention provides unobtrusive folding mechanisms for both a table and chair that provides a folding table and chair, both of which may be constructed
in a number of styles, that are sufficiently decorative for regular, everyday home use.

[0055] While the invention has been described in terms of exemplary embodiments, those skilled in the art will recognize that the invention can be practiced with modifications in the spirit and scope of the appended claims. These examples given above are merely illustrative and are not meant to be an exhaustive list of all possible designs, embodiments, applications or modifications of the invention.
WHAT IS CLAIMED:
1. A folding table, comprising:
   a first leaf;
   a second leaf;
   a folding mechanism comprising a hinge pivotably connecting said first leaf to said second leaf;
   a leg pivotably coupled to each said leaf;
   a locking mechanism having a portion disposed within a recess in said leaf, said locking mechanism locks said leg in a position substantially perpendicular to an upper surface of each said leaf when the table is in an unfolded position; and
   a release mechanism having a portion disposed within said recess and an upper surface that is substantially planar with the upper surface of each said leaf, said release mechanism configured to engage said locking mechanism to release said first leg to permit said leg to be folded in a position substantially parallel to the upper surface of each said leaf,
   wherein said hinge serves as a carrying handle to transport said table in a folded position.

2. The folding table according to claim 1 wherein said hinge comprises flanges and collars.

3. The folding table according to claim 1 wherein said flanges connect said leafs to said collars.

4. The folding table according to claim 1 wherein locking mechanism comprises a lever arranged at the end of a clasp.

5. The folding table according to claim 1 wherein said folding mechanism comprises a support plate pivoted to a hinge plate.

6. A folding chair, comprising:
   a back including a plurality of rear legs;
   a seat pivotably coupled to said back;
a plurality of front legs having a length shorter than said back legs, said front legs pivotably connected to said seat;
and a means for locking that locks said front legs in a portion generally perpendicular to said seat when said chair is in an unfolded position.

7. The folding chair according to claim 6 wherein at least one the plurality of legs are pivotally coupled to said seat.

8. The folding chair according to claim 6 wherein at least one the plurality of legs are pivotally coupled to a support.
FIGURE 5

MODERN STYLE DINING TABLE

ALUMINUM BUTTONS ADD SUBTLE AESTHETIC DETAIL

TABLE SURFACE IS DIVIDED INTO FOUR THICK SOLID WOOD SLABS THAT CONCEAL SEATS

CASE LEGS FEATURE SUBTLE CURVE THAT LENDS APPEAL TO ANY CHARACTER.
SLAT-STYLE MODERN TABLE

FIGURE 7
FIGURE 8

TRANSITIONAL STYLE DINING TABLE
TRANSITIONAL CHAIR

FIGURE 9

FIGURE 9A, 9B, 9C
FIGURE 12 A

FIGURE 12
MISSION CHAIR

CLASSIC MISSION STYLING

W/ HAND-CRAFTED LOOK

& DISTRESSED FINISH

COMFORTABLE PAD

MATCHES COLOR OF

TILE ON TABLE

FIGURE 15