

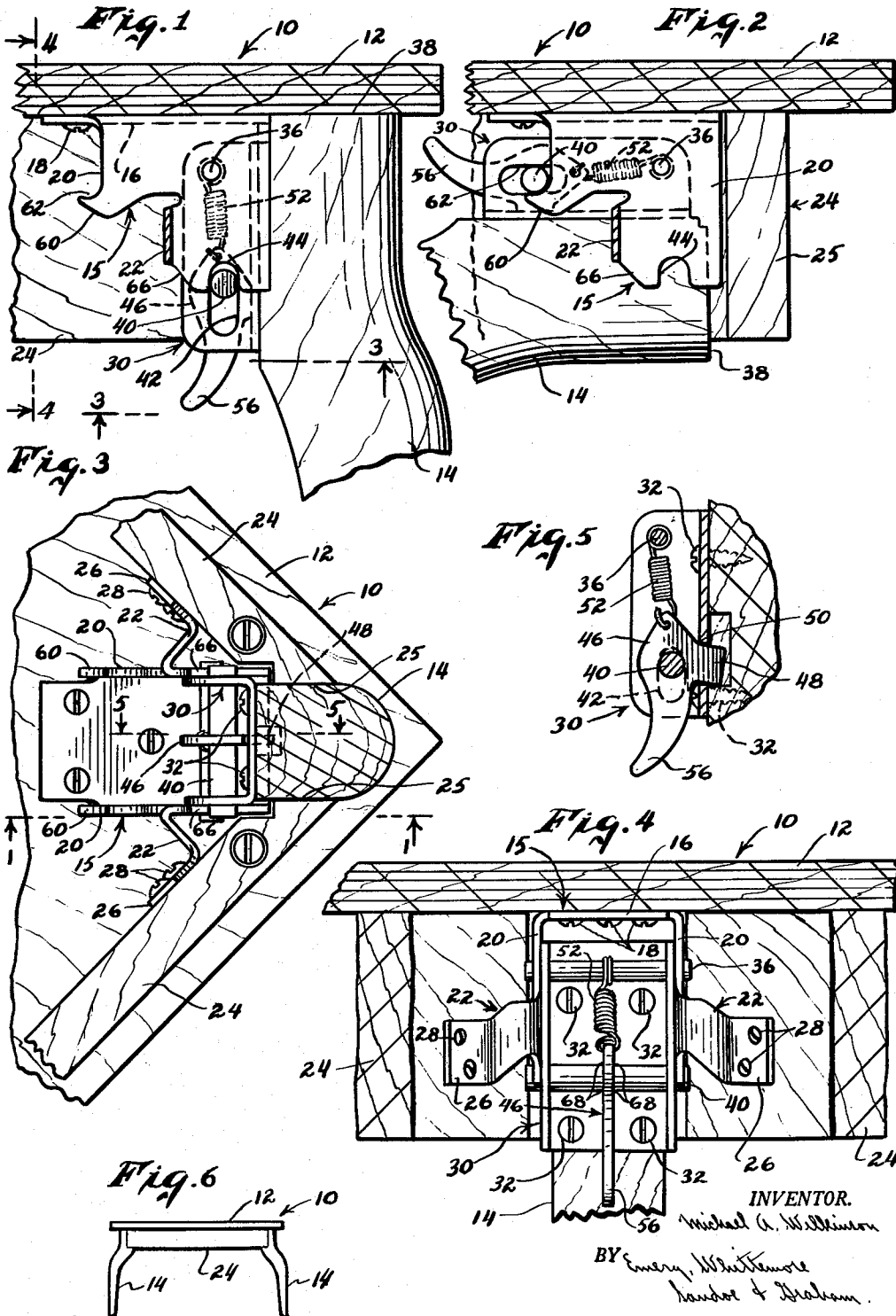
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CONSTRUCTION FOR FOLDING TABLE LEG

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CONSTRUCTION FOR FOLDING TABLE LEG
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This invention relates to folding furniture and more particularly to table construction having folding legs.

It is an object of the invention to provide an improved construction for attaching a folding leg to a table. It is another object to provide a table with folding legs which are much more rigid, when in set-up position, than constructions of the prior art, and that retain their rigidity in spite of extensive use.

One feature of the invention relates to locking means by which the leg is held in set-up position; and these locking means include a pin which moves along a cam surface to wedge the locking means in position to hold the leg against any play.

Another object is to provide a table with a folding leg construction in which the side of the open sections butt against the sides of the legs; and in which the legs and apron sections are in effect a unit in the set up table. This is an important feature of the invention because it permits variation in the style or period of the furniture made in accordance with this invention, and the table looks like a stationary table.

Other objects, features and advantages of the invention will appear or to be pointed out as the description proceeds.

In the drawing, forming a part hereof, in which like reference characters indicate corresponding parts in all the views:

FIGURE 1 is a side elevation of the folding leg construction of this invention with one side of the fixed bracket shown in section, the section being taken on the line 1—1 of FIGURE 3;

FIGURE 2 is a view similar to FIGURE 1 but showing the leg in folded position;

FIGURE 3 is a sectional view taken on the line 3—3 of FIGURE 1;

FIGURE 4 is a front view of the construction shown in the other figures, the view being taken on the line 4—4 of FIGURE 1;

FIGURE 5 is a fragmentary sectional view taken on the line 5—5 of FIGURE 3; and

FIGURE 6 is a reduced-scale elevation, showing a complete table of the invention when in set up condition.

The construction shown in FIGURE 1 includes a table 10 having a top 12 and legs 14. Only one leg is shown in FIGURE 1 but it will be understood that the construction is used on tables having a leg at each corner.

The leg is attached to the table by a fixed bracket 15. This bracket 15 has a top portion 16 which is flat and which contacts with the under side of the table top 12. The flat portion 16 is secured to the table top by fastening means, preferably screws 18.

The fixed bracket 15 has downwardly extending side portions 20 which are parallel with one another and at right angles to the top portion 16. In order to increase the rigidity of the fixed bracket 15, without requiring that it be made of heavy stock, there are extensions 22 bent outwardly from the side portions 20 and secured to an apron or skirt portion 24 extending downwardly from the table top 12 and of unitary construction with the table top.

The leg 14 has parallel faces on its opposite sides confronting parallel end faces 25 of the apron or skirt portions 24. There is a running clearance between the sides of the leg and end faces 25 of the apron or skirt portions 24; and when the table is set up (as shown in

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FIGURE 6) the legs and apron or skirt portions 24 appear to be a unitary structure. Depending upon the style of the furniture, the surface of the leg that is exposed to view in the set-up table may have any desired shape and correlation with the outside surface of the apron.

Each of the extensions 22 has a flat end portion 26 which bears against the inside surface of the skirt portion 24; and these extensions are secured to the skirt portion by rigid fastening means such as screws 28. The top portion 16, the downwardly-extending side portions 20, the extensions 22 and the end portions 26 are preferably of one-piece construction and made from a single metal stamping.

The leg 14 has a bracket 30 which is of U-shaped cross section, best shown in FIGURE 3. The mid portion of the bracket 30 is flat and contacts with the inside surface of the leg 14. There are screws 32 securing the bracket 30 to the leg 14. In the construction illustrated, there are four screws 32, as shown in FIGURE 4, and these screws are spaced far enough apart so as to provide a strong and rigid connection between the bracket 30 and the leg 14.

The leg 14, and its bracket 30, are attached to the table by a pin 36. This pin extends through both sides of the bracket 30 and through the downwardly-extending portions 20 of the fixed bracket 15. The pin 36 fits into the downwardly-extending portions of the fixed bracket 15 with a press fit; and it has a running fit in the sides of the leg bracket 30. This permits the leg bracket to swing freely on the pin as the leg moves between its set-up position, shown in FIGURE 1, and its folded position, shown in FIGURE 2. If desired, this construction can be reversed and the pin 36 can be made to fit with a press fit in the bracket 30 and a running fit in the downwardly-extending portions 20 of the fixed bracket 15.

The thickness of the brackets is sufficient to provide the necessary bearing surface for the pin 36 and the opening in the bracket which provides the bearing surface in contact with the pin is preferably made with sufficient running clearance for free swinging, but not enough clearance to make a loose joint. In order to further increase the rigidity of the construction, when in set-up condition, the outside surfaces of the bracket 30, which confront the downwardly-extending portions 20 of the fixed bracket 15, have running clearance for free-swinging movement but contact with one another so as to prevent axial movement of the leg bracket 30 along the axis of the pin 36.

When the leg 14 is in set-up condition, as shown in FIGURE 1, a top surface 38 of the leg bears against the bottom surface of the table top 12. This contact is preferably distributed across the entire top surface of the leg. The leg 14 is locked in this position by a latch pin 40 which extends through a slot 42 in the leg bracket 30 and which wedges into a slot 44 in the fixed bracket 15.

This pin 40 is carried by a plate 46 located centrally between the opposite sides of the brackets 15 and 30. The plate 46 has a tab 48 extending into a slot 50 in the back of the leg bracket 30. The sides of this slot 50 limit axial movement of the plate 46. The ends of the slot 50 provide fulcrum surfaces on which the plate 46 can move within the limits permitted by the slot 42. The tab 48 is free to slide in the slot 50 so as to accommodate itself to the movement of the pin 40 lengthwise in the slot 42. A spring 52 has its lower end hooked through an opening in the plate 46, and has its upper end hooked over the pivot pin 36. This spring 52 is a helical tension spring and pulls the plate 46 upwardly so as to give the pin 40 a bias toward the top of the slot 42.

There is a trigger 56 at the lower end of the plate 46. Pressure against this trigger 56, toward the left in FIGURE 5, causes the plate 46 to rock about an end face

of the slot 50 and to move the pin 40 downwardly in the slot 42 against the pull of the spring 52.

Thus when the leg 14 is in set-up condition as shown in FIGURE 1, the spring 52 exerts a pressure to pull the pin 40 upwardly in the slot 44. However, the slot 44, or at least the left-hand edge of the slot, slopes toward the left as it extends upwardly and is, therefore, out of line with the slot 42, which is vertical.

This locates different parts of the pin 40 between converging slot faces and causes it to wedge, and to be held in wedged position by the spring 52. This wedging action locks the bracket 30 against any swinging movement with respect to the pin 36 and the fixed bracket 15. The leg 14 is thus held with its top surface 38 pressed firmly against the bottom surface of the table top 12, and the bracket 30 is securely locked against any swinging movement.

It will be understood that this locking movement can also be obtained by having the edge of the slot 44 vertical and the edge of the slot 42 at a slight angle. The essential construction is that the opening through the adjacent slots 44 and 42, for passage of the pin 40, must in effect, become narrower to obtain this wedging action.

When the trigger 56 is shifted toward the right in FIGURE 1, the pin 40 is brought down low enough to pass under the left-hand edge of the slot 44, so that the leg 14 and leg bracket 30 can swing clockwise into the folded condition shown in FIGURE 2.

There is a cam surface 60 on each of the downwardly-extending portions 20 of the fixed bracket 15 and against which the pin 40 strikes as the bracket 30 swings toward folded condition. At the upper end of the cam surface 60 there is a notch 62 into which the pin 40 is pulled by the spring 52 and this latches the leg in its folded condition.

There is a similar cam surface 66 on the edge of the downwardly-extending portions 20 of the fixed bracket 15 in position to push the pin 40 downwardly to make it enter the slot 44 when the leg 44 is swung counter-clockwise to bring it into its set-up position.

The pin 40 operates with somewhat less friction if it is free to rotate so that it can roll along the side edges of the slots 42 and 44. Such a rolling action is obtained by having the pin 40 fit through the plate 46 with a running fit and then prevent axial movement of the pin 40 by having upset areas 68 on the circumferential surface of the pin 40 at both sides of the plate 46.

The preferred construction has been illustrated and described, but changes and modifications can be made and some features can be used in different combinations without departing from the invention as defined in the claims.

What is claimed is:

1. A folding table including a table top structure having a rigid portion with a substantially horizontal bottom face, a plurality of legs, a separate connection by which each leg is attached to the table top structure for movement between a set-up position and a folded position, the leg having a surface that abuts against said bottom face when the leg is in set up position, each connection including a fixed bracket secured to the table top structure, a movable bracket secured to a leg of the table and pivotally connected to the fixed bracket, locking means for holding the movable bracket against pivotal movement with respect to the fixed bracket including a pin extending through a slot in the movable bracket and movable transversely into a second slot that opens through a bottom edge of the fixed bracket, the slots in the different brackets having edges at opposite sides thereof that converge as the slots extend upwardly and that wedge the locking pin when the leg is in set-up position and abutting said bottom face of the table top structure.

2. The folding table described in claim 1, and in which there is a spring urging the locking pin upwardly in the slots and there is a release lever connected with the pin and movable manually to shift the pin downwardly in the

slots and beyond the open end of the slot in the fixed bracket to release the movable bracket when the leg is to be moved into folded position.

3. The folding table described in claim 2, and in which there is a plate by which the locking pin is carried and the pin extends from opposite sides of the plate, and the plate is loosely mounted on a fulcrum on the movable bracket, and the release lever is a trigger connected with the plate and extending downwardly therefrom below the brackets.

4. The folding table described in claim 2, and in which each of the brackets is of a generally U-shaped section with downwardly extending sides, and the sides of one of the brackets are enclosed within the sides of the other bracket so that the fixed bracket prevents transverse shifting of the other bracket, and there are slots in both of the downwardly extending sides of both of the brackets, and the pin extends through all of the slots when the leg is in its setup position.

5. The folding table described in claim 4, and in which it is the movable bracket that is located inside of the fixed bracket, and the pivot connection of the brackets with one another is a pivot pin extending through the downwardly extending sides of both of the brackets, and the plate is located in a position between the sides of the movable bracket and has a tab extending into that portion of the movable bracket that extends between the sides of the bracket.

6. The folding table described in claim 1, and in which there is a cam surface along the bottom edge of the fixed bracket for displacing the locking pin downwardly as the movable bracket moves into the position that it occupies when the leg is in setup position and as the pin approaches transversely into position to snap into the open end of the slot in the fixed bracket.

7. The folding table described in claim 6, and in which the fixed bracket has a ledge on which the pin rests to hold the movable bracket and the leg in folded position, and there is a cam surface along an edge of a fixed bracket for displacing the pin outwardly into position to snap it on top of said ledge as a movable bracket approaches its folded position.

8. A piece of furniture having a top element with an apron extending downwardly therefrom and rigidly secured thereto, the apron having portions that approach one another at corners of the top element but that are spaced from one another at said corners with end faces of the apron portions parallel to and confronting one another across the space between said faces, and legs attached to the top element at its corners and movable with respect to said top element between folded and setup positions, each of the legs having an upper part that fills the space between said end faces, the upper part of each leg being exposed across said space and having an exposed surface that forms, in effect, a continuation of the outside surface of the apron at its particular corner of the table, when the table is in set-up condition, a separate connection by which each leg is connected to said top element, each connection including a fixed bracket having a flat mid portion in contact with a bottom surface of the top element and having downwardly extending sides and extensions of the sides secured to the different portions of the apron on opposite sides of said space, a second bracket secured to the leg and having side portions that extend parallel to said side portions of the fixed brackets and adjacent thereto, and a pivot connection between the brackets, said brackets being above the lower end of the apron and hidden thereby.

9. The piece of furniture described in claim 8, and in which each of the brackets is of one piece construction and made of metal stamping stock, and the sides of the fixed bracket hold the second bracket against movement longitudinally of the axis of the pivot connection.

10. A piece of furniture having a top element with an apron extending downwardly therefrom and rigidly se-

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cured thereto, the apron having portions that approach one another at corners of the top element but that are spaced from one another at said corners with end faces of the apron portions confronting one another across the space between said faces, and legs attached to the top element at its corners and movable with respect to said top element between folded and setup positions, each of the legs having an upper part that fills the space between said end faces, the upper part of each leg being exposed across said space and having an exposed surface that forms, in effect, a continuation of the outside surface of the apron at its particular corner of the table, when the table is in setup condition, a separate connection by which each leg is connected to said top element, each connection including brackets connected to the legs and apron and movable relatively to one another to fold the legs, and means for locking the brackets against relative movement, said brackets being above the lower limit of the apron and concealed from view by the apron and legs when the table is in set up position.

11. The piece of furniture described in claim 10, and in which each leg when in set-up position extends below confronting end faces of the apron portion and extends beyond the outside surfaces of said apron portion.

12. The piece of furniture described in claim 10, and in which the front faces of the apron portions are parallel to one another and each leg has parallel sides that move with running clearance between the confronting faces of the apron portions.

13. A piece of furniture having a top element with an apron extending downwardly therefrom and rigidly se-

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cured thereto, the apron having portions that approach one another at corners of the top element but with some clearance between said portions at the corners, legs attached to the top element at its corners and movable with respect to the top element between folded and set-up positions, a separate connection by which each leg is connected to said top element, each connection including brackets oriented to fold the legs diagonally across the space within the apron whereby the legs can be of greater length, said brackets being connected to the legs and with the top element and being movable relatively to one another to shift the legs between folded and set-up positions the brackets being in alignment with the clearance between the portions of the apron and close to the corners whereby the legs move into said clearance when in set-up position, and means for locking the brackets against relative movement, said brackets being above the lower limit of the apron and being concealed from view.

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