March 12, 1957 H. HOWE 2,785,033

SECTIONAL TOP FOLDING TABLE

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Fig. 1.

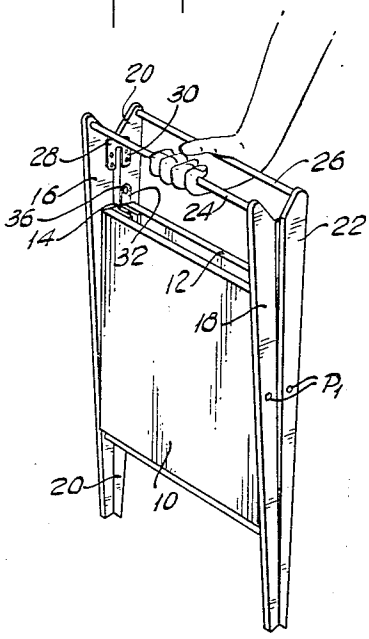


Fig. 2.

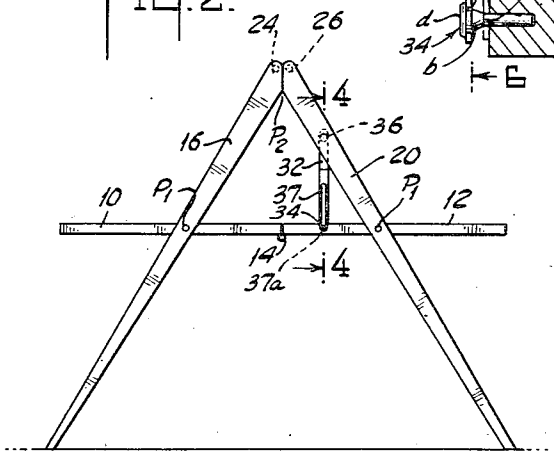


Fig. 3.

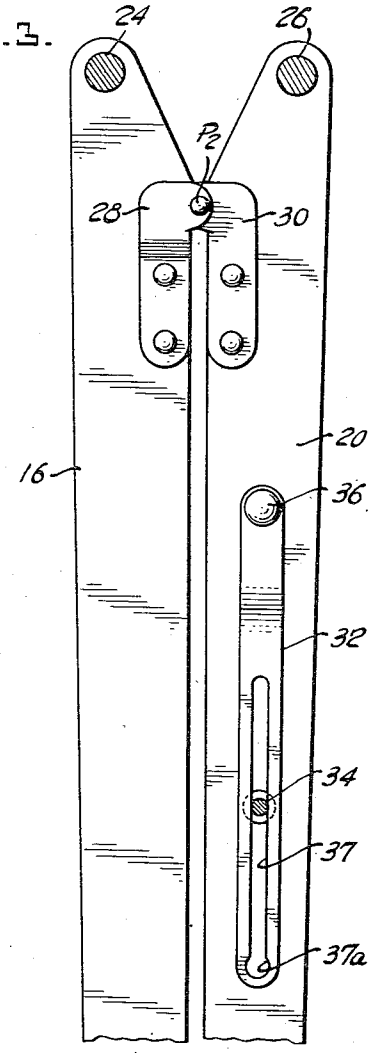


Fig. 4.

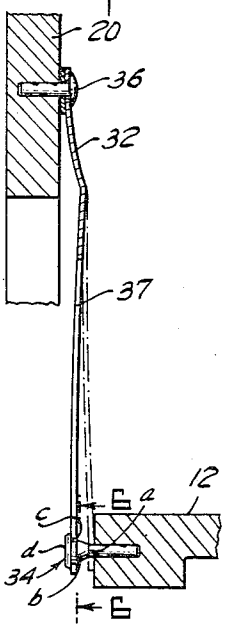


Fig. 5.

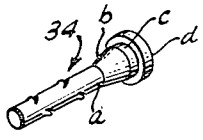
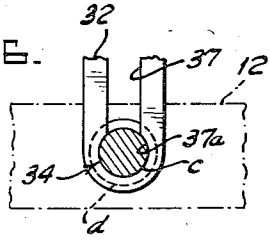


Fig. 6.



INVENTOR:
HAROLD HOWE

BY

Hoag, Kilburn & Carlson
ATTORNEYS.

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SECTIONAL TOP FOLDING TABLE

Harold Howe, Rowayton, Conn., assignor to Howe Folding Furniture Corporation, New York, N. Y., a corporation of New York

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11 Claims. (Cl. 311—89)

This invention relates to a folding table.

An object of the invention is to provide a table which may be readily carried when folded or unfolded.

Another object of the invention is to provide such a table which may be transformed from folded to unfolded position quickly and easily by a squeeze of the hand.

Another object of the invention is to provide such a table with novel means for locking it in unfolded position.

Another object of the invention is to provide a simple and steady table of the above described kind which may be easily and quickly folded and unfolded.

The invention will best be understood if the following description is read in connection with the drawings in which:

Figure 1 is a perspective view of a table embodying the invention, in folded position, about to be unfolded by a squeeze of the user's hand as indicated.

Figure 2 is a side elevation of the table in unfolded position.

Figure 3 is a detail view on an enlarged scale looking at the inside of the upper portion of the support means on one side of the table top and showing a slotted spring arm mounted on the inside of one of the support means.

Figure 4 is a view partly in cross section taken on the line 4—4 of Figure 2.

Figure 5 is a perspective view showing the construction of the pin comprised in a pin and slotted spring arm combination employed in locking the table in unfolded position.

Figure 6 is a detail view taken on the line 6—6 of Figure 4. As shown herein the table comprises a two part top each part being mounted for rotation on pivot means carried by support means for the table top parts respectively, the table top parts being hinged together and the support means being mounted for rotation around pivot means disposed between the tops of the support means and said hinge means, whereby pressing the support means together at the top causes the lower portion of the said support means to move apart thus moving the table top parts into unfolded position in which they are disposed in abutting relation in a single plane. Automatically operating lock means is provided for holding the table in unfolded position and preventing the backlash of the opening movement from initiating folding movement.

The top parts 10 and 12 are joined together by hinge means 14. Each top part is mounted by pivots P1 to support means. The support means for top part 10 comprises legs 16 and 18 and the support means for top part 12 comprises the legs 20 and 22. Legs 16 and 18 are interconnected at the extreme top by the crossbar 24 and legs 20 and 22 are interconnected at the extreme top by crossbar 26. Said crossbars constitute handles which when squeezed together cause the table to be easily and quickly moved from folded to unfolded position as will be explained.

When the table is in folded position the legs 16 and 18, which support top part 10, are directly opposed to the legs 20 and 22 respectively, which support table top part

12. Legs 16 and 20, and legs 18 and 22, are respectively joined together by the pivots P2 which are located in a plane which is between the pairs of opposed legs when the table is folded and in the interface between the tops of said legs when the table is unfolded. Connected to leg 16 is the bracket or hinge leaf 28. Connected to leg 20 is the bracket or hinge leaf 30. Both members 28 and 30 are extended inwardly towards one another, and passing through the overlapping inwardly extended portions of said members is a pivot P2. Connected to legs 18 and 22 are similar brackets or hinge leaves, 28*a* and 30*a* respectively, through the inwardly projecting overlapped portions of which passes another pivot means P2. The pivot means for legs 18 and 22 will of course be horizontally aligned with the pivot means for legs 16 and 20 and it will be noted that these pivots are not only located in the plane between the opposed pairs of legs but are also disposed between the tops of the legs and the hinge means 14 interconnecting the table top parts 10 and 12. Thus when the portions of the opposed legs which are above said pivot points P2 are moved together the portions of said legs which are below said pivot points P2 are moved apart and, since the pivot points P1 are below the hinges 14 the outward movement of the lower portions of said legs transmits opening force to the top parts 10 and 12 and snaps the table to fully open position in which it is automatically locked by the slotted spring arm 32 in coaction with the tapered pin 34.

Spring arm 32 interconnects the table top and the support means. As shown herein it is pivotally mounted at its upper end on the inside of leg 20 by pivot 36 and it is connected at its lower end to the edge of top part 12 by the pin 34 which extends through the slot 37 in spring arm 36. Pin 34 is best seen in Figures 4 and 5. The portion of pin 34 projecting from the side of the table top part 12 comprises a portion *a* of a diameter adapted to travel in slot 37, a portion *c* which is of a diameter too large to travel in the main portion of slot 37 but adapted to enter the enlarged portion 37*a* at the extremity of the slot adjacent said pin, and the intermediate portion *b* which is tapered outwardly from portion *a* to portion *c*.

Spring arm 32 is bent or otherwise biased to cause its end which is engaged by pin 34 to move axially of said pin from portion *a* of less diameter to portion *c* of greater diameter. The spring arm 32 can move in this manner only when the table is fully unfolded at which time the enlarged end portion 37*a* of the slot will register with the pin and the spring will snap axially of pin 34, from the position shown in Figure 4 in dotted lines to the position shown in full lines. Since in this latter position the enlarged portion *c* of pin 34 is within the enlarged portion 37*a* of slot 37, the pin cannot travel back through slot 37 and the table remains locked, in fully unfolded position until spring arm 32 is pressed to move axially along pin 34 from the enlarged portion *c* thereof to the narrower portion *a* which is adapted to enter and travel in slot 37.

The support means or legs are preferably, but not necessarily, tapered from top to bottom and the inner surfaces of said legs above the pivot means P2 are beveled so that they incline outwardly from the pivot means P2 to the top. In the folded position of the table the opposed legs 16, 20 and 18, 22 have their inner edges substantially parallel below the pivot means P2, while their inner edges above the pivot means P2 define a V-shaped space. The inclination of the inner edges of the legs above the pivot means P2 is preferably such that when the legs have been pivoted around pivot means P2 sufficiently to spread the opposed legs to bring the table top parts 10 and 12 into abutting relation the inner edge of the portions of said opposed legs which are above the pivot means P2

will be in substantially abutting relation and their interface will lie in a substantially vertical plane.

In operation the table is unfolded by grasping the two parallel cross bars or handles 24 and 26 and squeezing them to move together the top portions of the opposed support members. Because the opposed support members are slanted upwardly and outwardly from one another above the pivot means P2 the portions of the opposed support means which are above pivot means P2 may be rotated toward one another through a sufficient angle to spread the lower end of the support means far enough apart to raise the two table top parts into abutting relation in the same plane. Preferably, when the top parts are fully unfolded the beveled inner surfaces of the portions of the support means above pivot means P2 will be in substantially abutting relation, and pivot means P2 will lie in a plane passing substantially through the interface between the said opposed beveled portions of the said support means. When the table top parts are completely aligned the spring arm 32 will snap outwardly on pin 34 since the narrower portion *a* of the pin will have traveled to the bottom of the slot 37 and reached the enlarged portion 37*a* at the lower end of the slot which is of a diameter large enough to move over the conical portion *b* of pin 34 until the enlarged portion *c* of the pin is within the portion 37*a* of the slot and the spring arm is held from further lateral movement by the head *d* of the pin.

The table may be readily unlocked by simply pressing the lower end of the spring inwardly along pin 34, and folding action of the table may be initiated simultaneously by pressing upwardly on the bottom of either table top parts between the hinge 14 and the pivot points P1.

There has thus been disclosed a folding table in which the above mentioned objects are embodied together with many practical advantages.

What I claim is:

1. A folding table comprising a two part top, a pair of legs supporting each top part, first pivot means for mounting each top part for rotation between its pair of legs, hinge means joining the top parts for movement from abutting relation in a single plane into parallel relation, second pivot means disposed between said pair of legs and between the top of said legs and said hinge means joining the said top parts, and means for pivotally mounting each of said pair of legs for rotation around said second pivot means.

2. The table claimed in claim 1 in which the inner edge of each of said legs is beveled upwardly and outwardly from said second pivot means.

3. The table claimed in claim 1 in which each of said legs is beveled along its inner edge adjacent its top, from the second pivot means interconnecting opposed legs to the top of said legs respectively whereby, when the table is folded, the portions of said opposed legs below said second pivot means are substantially in edge to edge contact with the inner edges of the portions of said legs above said second pivot means defining a V-shaped space having its apex at said second pivot means, and when the table is unfolded the opposed portions of said legs which are above said pivot means are substantially in edge to edge contact, and the portions of said legs below said second pivot means are spread apart.

4. The table claimed in claim 1 including cross rods extending between the upper ends of each pair of legs respectively.

5. A folding table comprising a two part table top, hinge means joining the top parts for movement from abutting relation in the same plane when unfolded into parallel relation when folded, support means for said top parts respectively, first pivot means carried by the support means for each of said top parts for rotatably mounting each of said top parts, second pivot means, members projecting inwardly from each of said support means for mounting said support means respectively for rotation around said second pivot means, said second pivot means being above the hinge means joining said table top parts and below the tops of said support means.

6. The combination claimed in claim 5 including parallel handle means carried by each of said support means.

7. The table claimed in claim 5 including means extending between one table top part and its support means for locking the table in fully unfolded position.

8. The combination claimed in claim 5 including a spring arm extending between and interconnecting one of said top parts and its support means, said arm being slotted with an elongated slot having an enlarged portion at one end, means pivotally mounting one end of said spring arm on one of said support means which is interconnected by said spring arm, and a pin extending from one top part through said slot and adapted to register with the said enlarged portion of the slot when the table is fully unfolded, said pin having a portion of less diameter adapted to travel in said slot and a portion of greater diameter too large to travel in said slot but adapted to enter the said enlarged portion of said slot, said spring arm being biased to cause the end portion thereof having therein the enlarged portion of said slot to move axially of said pin to bring the portion thereof which is of greater diameter into the enlarged portion of said slot when the table is fully unfolded.

9. The table claimed in claim 5 including a slotted spring arm pivoted on one member of a combination of top part and support means therefor, and a conical pin extending through the slot in said spring arm and fixed to the other member of said combination, the slot in said spring arm having an enlarged portion, said pin having a first cross section adapted to travel in said slot and a second cross section too large to travel in said slot but of less diameter than the enlarged portion of said slot, and said spring arm being biased to move axially of said pin in a direction to engage the said second cross section of said pin within the enlarged portion of said slot.

10. The table claimed in claim 5 including a slotted spring arm pivoted to one member of a combination of top part and support means therefor, and a pin extending through the slot in said spring arm and fixed to the other member of said combination, the slot in said spring arm having an enlarged portion, said pin having a first portion of a diameter permitting it to travel in said slot, a third portion of a diameter too large to travel in said slot, and a second portion which interconnects said first and third portions and is tapered and increases in diameter from said first portion to said third portion, said spring arm being biased to move over the second portion of said pin from the first portion of said pin to the third portion of said pin.

11. The structure claimed in claim 10 including stop means for limiting the movement of said spring arm along said pin when the pin is within the said enlarged portion of said slot.

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