July 5, 1955 G. H. KLEINSORGE 2,712,486

LOCKING AND RELEASING MECHANISM FOR FOLDABLE TABLE LEGS

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FIG. 1.

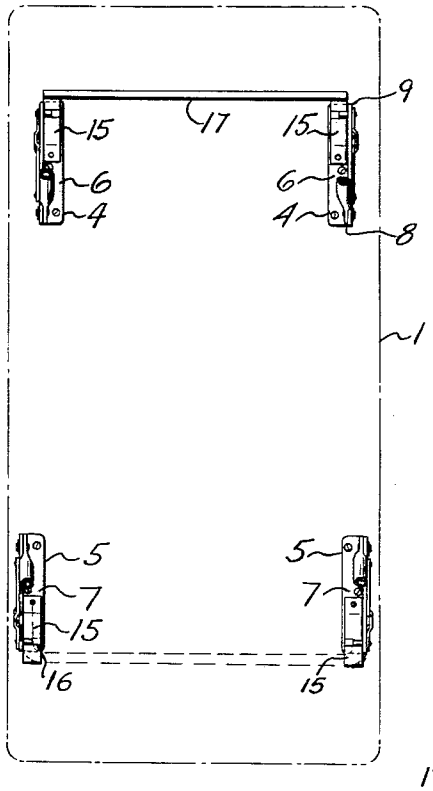


FIG. 2.

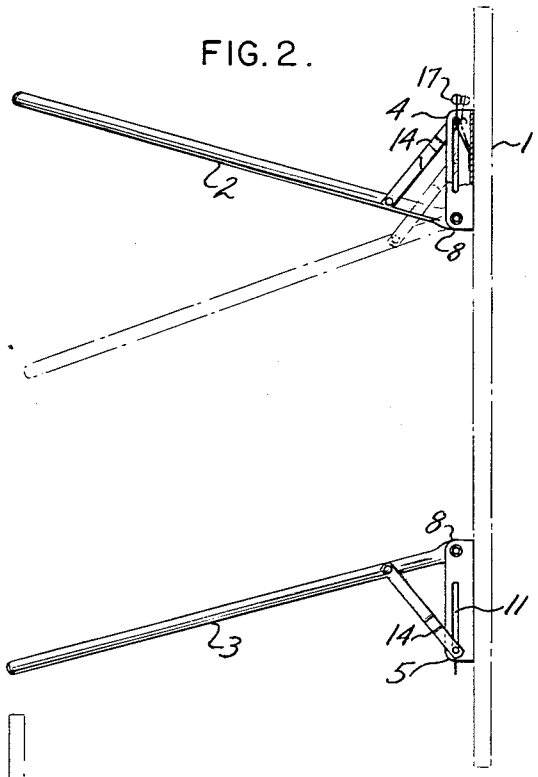


FIG. 3.

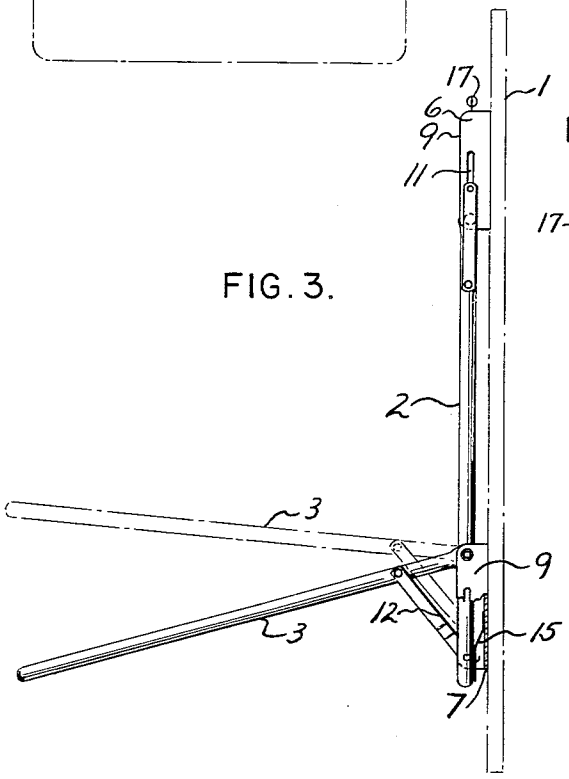


FIG. 4.

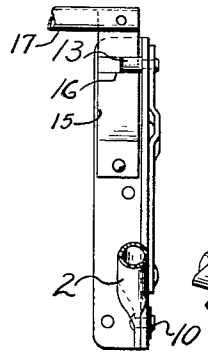
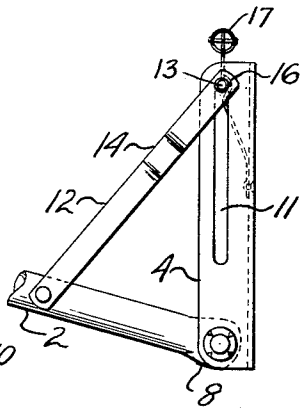


FIG. 5.



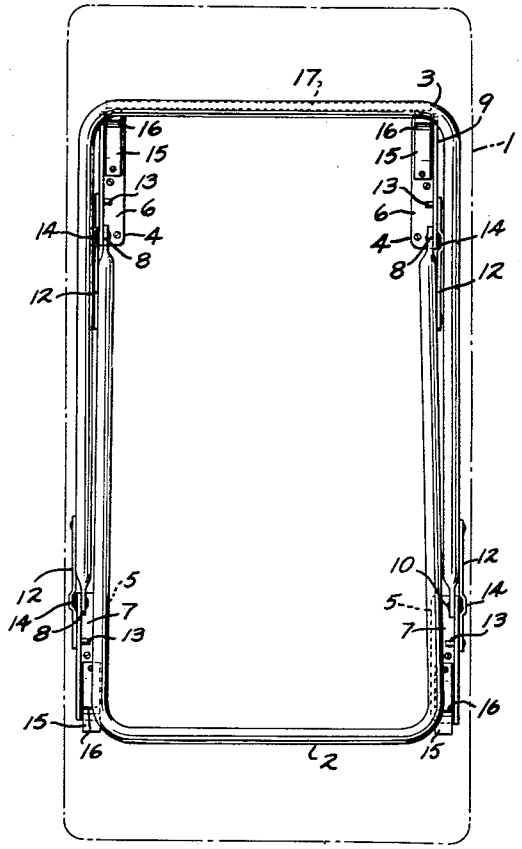
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FIG. 6.



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2,712,486

Patented July 5, 1955

2,712,486

LOCKING AND RELEASING MECHANISM FOR FOLDABLE TABLE LEGS

George H. Kleinsorge, Chicago, Ill.

Application April 17, 1953, Serial No. 349,416

2 Claims. (Cl. 311—87)

This invention relates to foldable or collapsible tables and more specifically to the locking and releasing assembly of the supporting members of such tables.

Heretofore it has been customary to provide foldable tables with suitable means for locking the supporting members in a relatively firm and rigid operative position to prevent the collapse of the table when in use. Associated with the locking means, was a means for effecting the unlocking of the supporting members to fold them and permit convenient storage of the table when not in use. The construction commonly adopted, however, usually required placement of the table into different positions, or required awkward manipulation by the operator to gain access to the locking and releasing assembly. It is, therefore, an object of the invention to provide a new and improved folding table having pairs of legs defined by U-shaped members providing for simultaneous opening, locking and unlocking of each pair of legs.

It is a further object of the invention to provide a folding table, the legs of which can be collapsed while the table is supported on one edge without it being necessary to lift the table and place it in different positions.

Other objects will appear hereinafter as the description of the invention proceeds.

The novel features of the invention and how the objects are attained will appear from this specification and the accompanying drawing forming a part of this application.

In the drawings:

Fig. 1 is a plan view of the bottom side of the table in its fully unfolded condition; with portions of its supporting members broken away to clarify the construction;

Fig. 2 is a side elevation of the table according to Fig. 1 showing in dot and dash lines one of the supporting members in a state of being folded with the front brace partly broken away;

Fig. 3 is a side elevation of the table with one of the supporting members in folded condition indicating in dot and dash lines the partly folded condition of the other supporting member;

Fig. 4 shows the locking mechanism on a larger scale, and

Fig. 5 is a side view of Fig. 4;

Fig. 6 is a plan view of the table in its folded condition showing the narrower leg structure adjacent the springs for locking in place the wider leg structure.

The collapsible table illustrated generally comprises a flat table top 1 of wood, metal or any other suitable material, supporting members 2, 3, adapted to firmly support the flat top 1 in operative condition, and locking devices 4, 5, constructed and arranged in a novel cooperative manner with the supporting members 2, 3, to permit locking and releasing thereof.

In accordance with the invention a collapsible table comprises a flat top, first and second U-shaped supporting members foldable toward each other, each including at least one bracing member and a locking device including a spring and a slotted bracket secured to said flat top, said supporting members being pivotally supported on said slotted brackets relative to said flat top and said locking devices, each of said bracing members extending substantially parallel to the associated slotted bracket and having a pin at one end in sliding engagement with the associated slotted bracket and having pivotal engagement at the other end with the associated supporting member, each said spring having a transverse groove and being biased towards the pin in the associated slotted member, said first supporting member being of less width than said second supporting member and one of said springs associated with the bracing member of said second supporting member being aligned with a leg of said first supporting member when in folded condition for displacement thereby to release the pin in the slotted bracket of said second supporting member.

The supporting members 2, 3, comprise a pair of leg frames which may be tubular U-shaped structures as shown. The supporting member 2 is shown as a first U-shaped leg frame having a predetermined transverse width, and the supporting member 3 is shown as a second U-shaped leg frame having a greater transverse width for reasons hereinafter explained. The locking device 4 is associated with the supporting member 2, and the locking device 5 is associated with the supporting member 3.

Each locking device includes at least one slotted member such as elongated angular brackets 6, 7, rigidly secured to the underside of the flat top 1 by any suitable means. The brackets 6, 7, are associated with their supporting members 2, 3, in such manner that they are longitudinally parallel to each other and transversely aligned. The brackets are mounted so that the surfaces, secured to the flat top 1 extend inwardly or toward each other. The vertical portions 9 of the brackets have secured thereto the terminal ends 8 of the supporting members 2, 3, which are pivotally joined to the inner surfaces thereof by studs 10. The vertical portions 9 are provided with longitudinally extended slots 11.

Each supporting member 2, 3, includes a pair of bracing members shown here as links 12. The links 12 are provided at one end with pins 13 usually of circular cross section which extend transversely to the links and slidably engage the slots 11 of the associated brackets. The opposite ends of the links 12 are pivotally secured to the supporting members 2, 3, to form jack knife joints therewith and with the brackets. Substantially midway between the ends of the links 12 is an offset portion 14 provided to clear the studs 10, when the supporting members 2, 3, are folded toward each other.

As shown in the drawing, a spring 15 usually of the leaf type is included in each locking device. One end of the springs is fastened approximately centrally of the brackets. The free ends of the springs extend beyond the ends of the brackets and they are provided with grooves 16 as may best be seen in Fig. 5. The biasing action of the springs is outward from the flat top 1 or toward the pins. One pair of leaf springs are here shown as interconnected by a rod 17 in any desired manner, so that pressure applied to the rod in the direction of the flat top 1 disengages pins 13 from the grooves 16, thereby releasing legs 2 for folding action.

The brackets associated with U-shaped supporting member 3 are more widely spaced than the brackets associated with U-shaped supporting member 2, in such a manner that when the U-shaped supporting member 2 is folded its U-shaped leg frame will readily pass between the legs defined by U-shaped member 3 and contact the springs associated with brackets 7.

The manipulation of the table to the folded condition can best be described by reference to Figs. 2 and 3.

Here it is seen that the table is placed in a vertical position to rest upon one end. The operator then depresses the rod **17** with one hand until grooves **16** of the leaf springs **15** disengage from the pins **13**. Since the table is in balanced vertical position the operator's other hand is free to swing the narrow U-shaped leg frame **2** downwardly as shown by the dot dash lines in Fig. 2. In Fig. 3 the narrow U-shaped leg frame **2** is shown completely folded, at which time the legs of this frame are in engagement with the springs **15** associated with the wider U-shaped leg frame **3**.

Now in order to make it unnecessary for the operator to turn the table around with its other end upward for the purpose of depressing the springs **15** associated with the locks of leg frame **3** it is possible in accordance with the invention to rely on the proximity of the lower ends of legs **2** to the springs **15** associated with the locks of leg frame **3**. In Fig. 3 the leg frame **2** is shown to be pressed inwardly against springs **15** to unlock locking devices **5**, thereby releasing frame **3** for folding it upwardly, over and around leg frame **3**.

The action of pressing the frame **2** inwardly to fold frame **3** may be effected with the operator's foot. The operator holds the upper end of the table with the right hand, pressing frame **2** with the left foot inwardly against springs **15** thereby releasing the pressure against pins **13**. Now if the top of the table is tilted to the left, the end of leg frame **3** touches the floor and further tilting motion moves it upwardly. Frame **3** may then be seized with the left hand and brought into folded position substantially parallel to the flat top.

To unfold the leg frame it is necessary to first unfold the wider frame **3** and then the narrower frame **2**. If the narrower frame **2** were first brought to opened position the wider frame **3** could not be unfolded because its transverse end could not be brought past the open end of frame **2**.

From the foregoing it will be apparent to those skilled in the art that the illustrated embodiment of the invention provides a new and improved locking and releasing assembly for collapsible tables. On the other hand, it will also be obvious to those skilled in the art that the illustrated embodiment of the invention may be modified, or features thereof may be singly or collectively embodied in other combinations than that illustrated, without departing from the spirit of the invention. For example, one of the springs **15** could be omitted from locks **7**. Accordingly the disclosure herein is illustrative only and the invention is not limited th[illegible]to.

Having now described fully the invention what I claim is:

1. A collapsible table comprising a flat top, first and second U-shaped supporting members foldable toward each other, each including at least one bracing member and a locking device including a spring and a slotted bracket secured to said flat top, said supporting members being pivotally supported on said slotted brackets relative to said flat top and said locking devices, each of said bracing members extending substantially parallel to the slotted bracket and having a pin at one end in sliding engagement with the slotted bracket and having pivotal engagement at the other end with the supporting member, each said spring having a transverse groove and being biased towards the pin in the slotted member, said first supporting member being of less width than said second supporting member and said spring of said at least one bracing member of said second supporting member being aligned with a leg of said first supporting member when in folded condition for displacement thereby to release the pin in the slotted bracket of said second supporting member.

2. A collapsible table comprising a top, first and second U-shaped leg structures foldable toward each other and including each at least one bracing member and a locking device for holding the legs in unfolded position, said locking devices including a spring and a slotted bracket secured to said top, said leg structures being pivotally supported on said slotted brackets relative to said top, each of said bracing members extending substantially parallel to its said slotted bracket and having a pin at one end in sliding engagement with said slotted bracket and having at the other end pivotal engagement with the leg structure, each said spring having a transverse groove for engagement by said pin and being biased towards said pin, the width of said first leg structure being less than the width of said second leg structure and said spring of said at least one bracing member of said second leg structure being aligned with one leg of said first leg structure when said first leg structure is in folded condition for displacement thereby in a manner to effect release of the pin in the slotted bracket of said second leg structure.

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