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COLLAPSIBLE SUPPORTING DEVICES FOR DROP LEAVES

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2 Sheets-Sheet 1

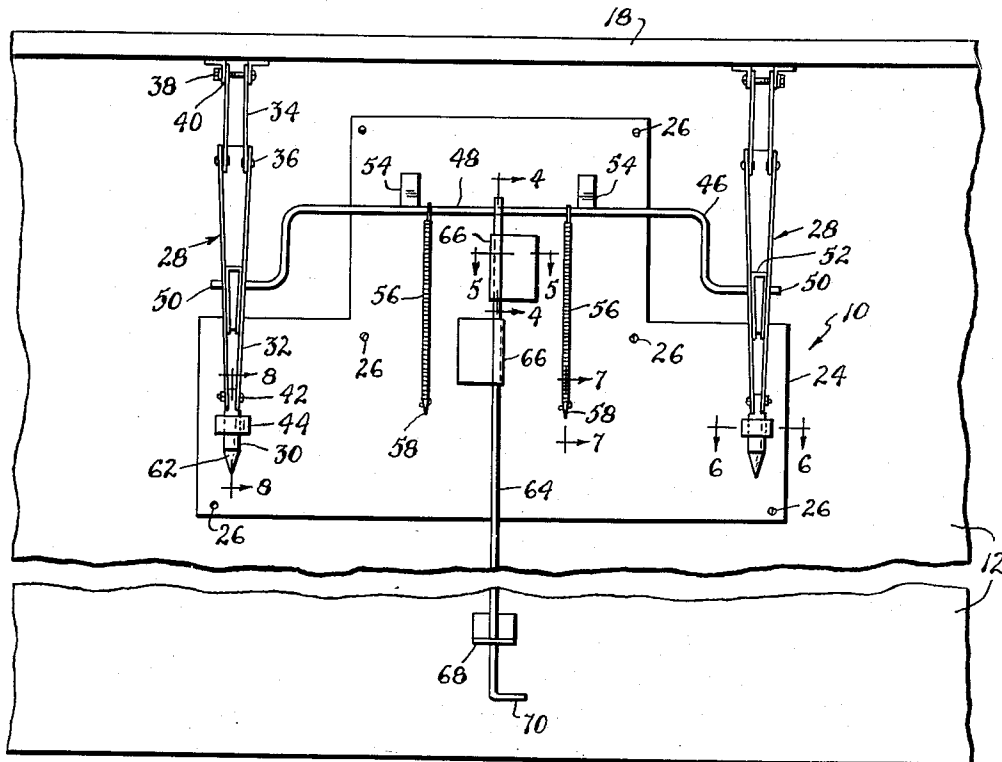


FIG. 1.

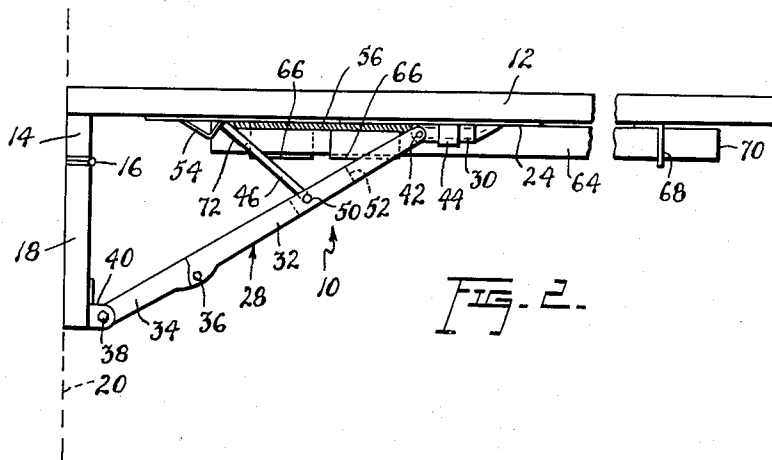


FIG. 2.

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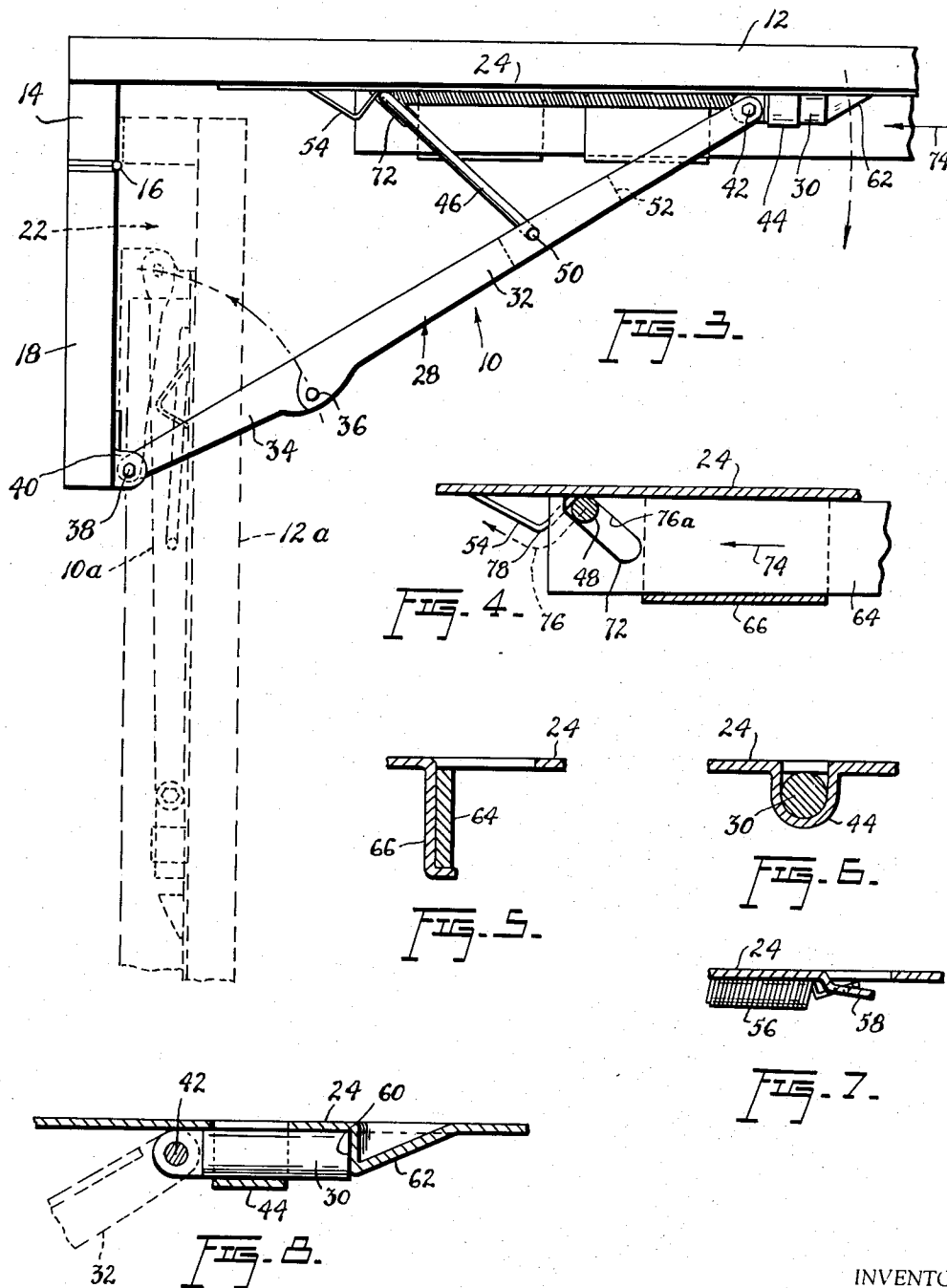
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COLLAPSIBLE SUPPORTING DEVICES FOR DROP LEAVES

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3 Claims. (Cl. 311-19)

This invention relates to new and useful improvements and structural refinements in collapsible supporting devices, particularly devices of this type which are employed for sustaining in an operative, usually horizontal position various forms of drop leaves. The term "drop leaf" as used herein designates generally all types of vertically swinging tables, seats, shelves, platforms, benches, etc., whether they be attached by a side support to a wall, for example, or constitute an extension of another horizontal surface, such as that of a leg-supported table.

The principal object of this invention is to provide a supporting device of this nature which may be quickly and easily placed in its operative position, which will remain firmly and dependably locked in that position, but which may be quickly and easily released and collapsed, when so desired, without any necessity of reaching or getting under the associated drop leaf in order to effect the releasing operation.

Another important object of the invention is to arrange the drop leaf and its associated side support in such manner that when the leaf is dropped, it is spaced laterally from the side support and the space so afforded is utilized for efficient and unobtrusive storage of the supporting device in its collapsed position.

With the above more important objects and features in view and such other objects and features such as may become apparent as this specification proceeds, the invention resides in the details of construction and arrangement of parts substantially as shown in the accompanying drawings wherein like characters of reference are employed to designate like parts and wherein

Figure 1 is an underside plan view of the invention associated with a drop leaf and its side support;

Figure 2 is a side elevational view thereof;

Figure 3 is a side elevational view of the same on an enlarged scale and illustrating the collapsed position of the various parts by dotted lines;

Figure 4 is a sectional view, on an enlarged scale, taken substantially in the plane of the line 4-4 in Figure 1;

Figure 5 is a sectional view, on an enlarged scale, taken substantially in the plane of the line 5-5 in Figure 1;

Figure 6 is a sectional view, on an enlarged scale, taken substantially in the plane of the line 6-6 in Figure 1;

Figure 7 is a sectional view, on an enlarged scale, taken substantially in the plane of the line 7-7 in Figure 1; and

Figure 8 is a sectional view, on an enlarged scale, taken substantially in the plane of the line 8-8 in Figure 1.

Referring now to the accompanying drawings in detail, the collapsible supporting device is designated generally by the reference numeral 10 and is shown in association with any suitable drop leaf 12. The latter is provided at one edge thereof with a depending member or rail 14 which, in turn, is connected by hinges 16 to a side support 18. The support 18 may be in the form of a plate or panel secured to a wall 20 if the drop leaf is wall-mounted, or alternatively, the support may form

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a part of a table structure if the drop leaf constitutes an extension of the table top.

In any event, it is to be noted that when the leaf 12 is dropped as shown by the dotted lines 12a in Figure 3, a space 22 exists between the leaf and the side support 18, which space corresponds substantially to the thickness or width of the member or rail 14. The space 22 is utilized to efficiently and unobtrusively receive the supporting device 10 in its collapsed position, as indicated at 10a in Figure 3.

The supporting device 10 embodies in its construction a mounting plate 24 which is secured by suitable screws 26 to the underside of the drop leaf 12, while a plurality of articulated, foldable struts 28 extend in mutually spaced relation obliquely from the plate 24 to the side support 18. Each of the struts 28 consists of a substantially cylindrical upper section 30, a channel-shaped intermediate section 32 and a similar lower section 34. The intermediate and lower sections 32, 34 are pivotally connected together by rivets 36 and are interfitted in such manner that they cannot buckle downwardly but may be folded upwardly, as viewed in Figure 2.

The lower ends of the sections 34 are pivoted by suitable screws 38 to brackets 40 which, in turn, are secured to the side support 18. The upper ends of the intermediate sections 32 are pivotally connected by screws 40 to the upper sections 30 and the latter are longitudinally slidable in substantially tubular guides 44 which are struck out from the mounting plate 24, as is best shown in Figure 6. It will be apparent from the foregoing that by virtue of the slidable disposition of the strut sections 30 in the guides 44 the struts are free to assume their folded position as shown by the dotted lines in Figure 3, regardless of the position of the pivots 36, 38 with respect to the hinge 16.

It will be also observed that when the struts 28 are in their operative, supporting position, the pivots 36 are offset downwardly from the centerline of the pivots 38, 42, whereby to coact with the aforementioned interfitting of the sections 32, 34 in preventing the struts from downward buckling.

Means are provided for positively locking the struts in their operative position, these means comprising a locking rod 46 which has a U-shaped intermediate portion 48 and coaxial end portions 50. The latter are pivotally mounted in the intermediate sections 32 of the struts and, if desired, these intermediate sections may be equipped with suitable reinforcing inserts 52 to function as bearing members for the rod portions 50.

The rod 46 extends between and connects together the struts 28 and the U-shaped portion 48 of the rod is lockably engageable with a pair of mutually spaced stops 54 which are struck out from the plate 24. A pair of tension springs 56 are attached at one end thereof to the intermediate portion 48 of the rod 46, while the other ends of the springs are anchored to suitable lugs 58, also struck out from the plate 24, as is best shown in Figure 7. The springs 56 urge the intermediate portion 48 of the rod 46 against the plate 24 and in engagement with the stops 54, whereby to lock the struts 28 in their operative position and firmly support the drop leaf 12 in a horizontal plane.

In this supporting position the upper sections 30 of the struts 28 are in abutment with perpendicular faces 60 of abutment members 62 which are struck out from the plate 24 as is best shown in Figure 8. Thus, any weight or downward force applied to the drop leaf is transmitted by the struts to those abutment members and to the brackets 40, with the result that the drop leaf is firmly supported. It is to be noted that the supporting of the drop leaf is effected primarily by the struts 28, while the principal purpose of the locking rod 46 is to

prevent the struts from being accidentally or unintentionally folded.

Means are provided for releasing the locking action of the rod 46 and struts 28, these means consisting of a bar 64 which is slidably mounted in suitable guides 66 struck out from the plate 24 and is disposed at right angles to the axis of the rod portions 50. The bar 64 has an outer end portion slidable in a bearing bracket 68 secured to the underside of the drop leaf 12 and is provided with an angulated extremity affording a finger-piece 70.

The inner end portion of the bar 64 is formed with a cam slot 72 which has the intermediate portion 48 of the rod 46 extending therethrough, as is best shown in Figure 4. Consequently, when the bar 64 is slid in the direction of the arrow 74, the cam surface 76a of the slot 72 will cause the rod portion 48 to move away from the plate 24 against the resiliency of the springs 56 and ride under the stops 54 as indicated by the arrow 76. As soon as the rod portion 48 has cleared the crest 78 of the stops 54, the drop leaf under the influence of gravity will automatically collapse the supporting device and will assume its lowered or dropped position as shown at 12a.

On the other hand, when the drop leaf is raised to its horizontal position, the rod portion 48 will ride under the stops 54 to its initial position, thereby again locking the struts 28 and supporting the drop leaf.

It will be understood, of course, that although for convenience of manufacture the various parts 44, 54, 58, 62 and 66 have been described as being struck out from the plate 24, such parts may be formed separately and secured to the plate, if so preferred.

While in the foregoing there has been described and shown the preferred embodiment of the invention, various modifications may become apparent to those skilled in the art to which the invention relates. Accordingly, it is not desired to limit the invention to this disclosure and various modifications and changes may be resorted to, such as may lie within the spirit and scope of the appended claims.

What is claimed as new is:

1. The combination of a side support, a drop leaf hingedly attached to said side support, and collapsible means for sustaining said drop leaf in an operative position, said means comprising a mounting plate secured to the underside of said drop leaf, a plurality of articulated foldable struts extending obliquely from the side support to the mounting plate in mutually spaced relation, each

strut having a lower end pivoted to the side support and an upper end operatively connected to the mounting plate, means connecting said struts together and engageable with the mounting plate for locking the struts against folding, said last mentioned means comprising a locking rod having a U-shaped intermediate portion and coaxial end portions pivotally connected to the struts, and a stop provided on the mounting plate and engageable by the intermediate portion of said rod, and means carried by the mounting plate for releasing the locking means, whereby the struts may be folded and the drop leaf swung downwardly relative to said side support.

2. A collapsible supporting device comprising a mounting plate adapted to be attached to the underside of a drop leaf and the like, a plurality of articulated foldable struts disposed in mutually spaced relation and each including an upper section slidably connected to said mounting plate, an intermediate section pivoted to the upper section, and a lower section pivoted to the intermediate section and adapted for pivotal attachment to a side support, means connecting said struts together and engageable with the mounting plate for locking the struts against folding, said last mentioned means comprising a locking rod having a U-shaped intermediate portion and coaxial end portions pivotally connected to the struts, and a stop provided on the mounting plate and engageable by the intermediate portion of said rod, and means carried by the mounting plate for releasing the locking means, whereby the struts may be folded.

3. The device as defined in claim 2 together with guides provided on said mounting plate and having the upper sections of said struts slidable therein, and abutment members provided on the mounting plate adjacent said guides, the upper sections of said struts engaging said abutment members when the device is in its supporting position.

References Cited in the file of this patent

UNITED STATES PATENTS

184,636	Liljeholm	Nov. 21, 1876
199,150	Flather et al.	Jan. 15, 1878
245,926	Ahrens	Aug. 23, 1881
1,224,129	Bohn	May 1, 1917
2,284,003	Luppert	May 26, 1942
2,314,144	Hicks	Mar. 16, 1943
2,316,447	McFall	Apr. 13, 1943
2,329,293	Predit	Sept. 14, 1943
2,602,716	Muth	July 8, 1952