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COLLAPSIBLE SUPPORTING DEVICES FOR DROP LEAVES

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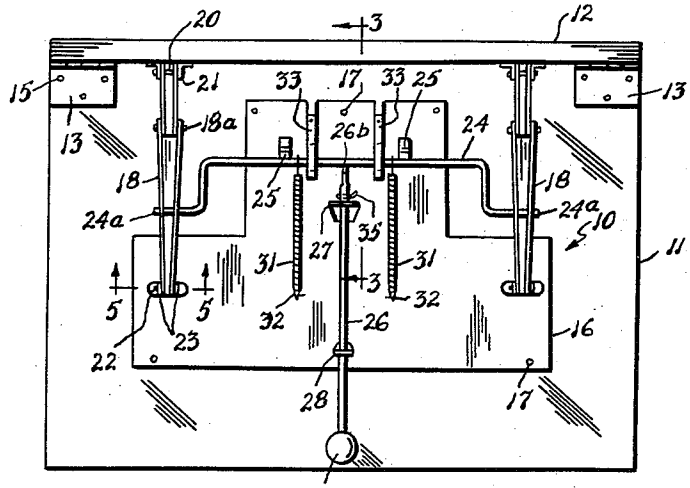

FIG. 1.

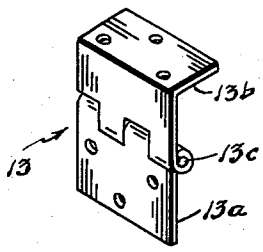

FIG. 4.

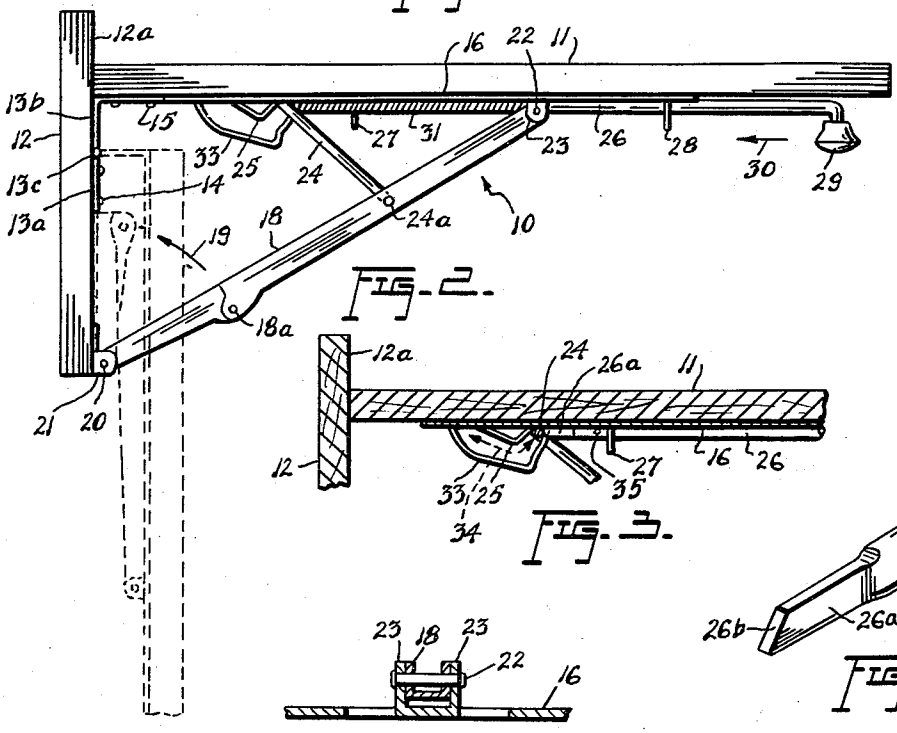

FIG. 2.

FIG. 3.

FIG. 6.

FIG. 5.

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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 in collapsible supporting devices employed for sustaining in an operative, usually horizontal position various forms of drop leaves, such devices being of the general type disclosed in my prior Patent No. 2,743,976, issued May 1, 1956.

The principal object of the present invention is to substantially improve the structural arrangement of devices of this type so that they may be more conveniently and economically manufactured and more easily and quickly installed without requiring the use of special tools or special skill.

The device disclosed in my aforementioned prior patent embodies a mounting plate secured to the underside of a drop leaf which has a depending member or rail at one edge thereof hinged to a side support; a plurality of foldable struts extending from the mounting plate to the side support for sustaining the drop leaf in a horizontal position; and means carried by the mounting plate for unlocking the struts so that they may be folded to facilitate lowering of the drop leaf to a vertical, inoperative position adjacent the side support.

An important feature of the present invention resides in the provision of novel hinge means for connecting the drop leaf to the side support without the use of the aforementioned depending member or rail, which hinge means also permit the side support to be extended above the level of the drop leaf, if so desired, thus providing a back panel or rail for the drop leaf. As such, the hinge means are also adapted for use with drop leaves and side supports of various sizes and may be easily applied thereto without involving special fitting.

Another important feature of the present invention resides in the provision of materially simplified means for connecting the aforementioned struts to the mounting plate, while another important feature involves the provision of improved means for unlocking the struts.

Some of the advantages of the invention reside in its simplicity and in its efficient and dependable operation.

With the foregoing more important objects and features in view and such other objects and features as may become apparent as this specification proceeds, the invention will be understood from the following description taken in conjunction with the accompanying drawings, wherein like characters of reference are used to designate like parts, and wherein:

Figure 1 is an underside plan view of the present invention shown in association with a drop leaf and side support;

Figure 2 is a side elevational view of the same on an enlarged scale and illustrating the collapsed position by dotted lines;

Figure 3 is a fragmentary sectional view on an enlarged scale, taken substantially in the plane of the line 3—3 in Figure 1;

Figure 4 is a perspective view of one of the hinges;

Figure 5 is a fragmentary sectional detail, taken substantially in the plane of the line 5—5 in Figure 1, also on an enlarged scale; and

Figure 6 is a fragmentary perspective view, on an enlarged scale, showing one end portion of the unlocking bar or rod.

Referring now to the accompanying drawings in detail, the collapsible supporting device is designated generally by the reference numeral **10** and is used for sustaining a drop leaf **11** in an operative, horizontal position relative to a wall mounted side support panel **12**.

The drop leaf **11** is connected at one edge thereof to the side support **12** by a pair of hinges **13**, each of which includes, as is best shown in Figure 4, a flat leaf **13***a* and an L-shaped leaf **13***b* joined by a hinge pin **13***c*. The flat leaves **13***a* of the hinges are secured to the side support **12** by suitable screws **14**, while the angulated portions of the L-shaped leaves **13***b* are secured to the underside of the drop leaf **11** by the screws **15**. Thus, the L-shaped hinge leaves **13***b* serve to space the hinge pins **13***c* from the underside of the drop leaf and when the latter is lowered or swung downwardly from its horizontal, operative position, it assumes a vertical position adjacent but spaced from the side support **12**, as shown by the dotted lines in Figure 2. This spacing of the lowered drop leaf from the side support facilitates accommodation of the device **10** therebetween when the drop leaf is lowered.

The upper edge of the side support **12** may terminate at the level of the drop leaf when the latter is horizontal, or the side support may project upwardly beyond that level, so as to form a back panel or rail for the drop leaf, as indicated at **12***a*, the presence or absence of this back panel or rail being determined by the positioning of the hinges **13** on the side support.

The supporting device **10** embodies in its construction a mounting plate **16** which is secured by suitable screws **17** to the underside of the drop leaf **11**, while a plurality of foldable struts **18** extend obliquely from the plate to the side support **12**. The struts **18** are of conventional construction, each consisting of two sections having a pivot joint **18***a* which is self-locking in that it retains the strut sections extended when they are longitudinally aligned, but permits the sections to fold when the strut is buckled at the joint under application of force acting generally in the direction of the arrow **19**. The lower ends of the struts **18** are connected by pivot pins **20** to mounting brackets **21** which are secured by suitable screws to the side support **12** at or adjacent the lower edge of the latter, while the upper ends of the struts are connected by pivot pins **22** to pairs of apertured ears **23** which are struck out from the plate **16**, as is best shown in Figure 5. The several pivot pins **18***a*, **20**, **22** are located in coordination with the hinge pins **13***a* in such manner as to permit the struts **18** to fold and unfold during lowering and raising of the drop leaf **11**.

The means for bucking or "breaking" the struts to facilitate their folding consists of a rod **24** which has a U-shaped intermediate portion and a pair of coaxial end portions **24***a*, the latter being pivotally mounted in suitable apertures formed in the struts **18**, as shown. The rod **24** extends between and connects together the struts and the U-shaped intermediate portion of the rod is engageable with a pair of transversely spaced, V-shaped detents **25** which are struck out from the plate **16**. A rod-shaped unlocking bar **26** is slidably disposed in apertured lugs **27**, **28** struck out from the plate **16**, the bar **26** being located centrally between and in parallel with the struts **18** and being provided at its outer end with a downturned portion carrying a hand knob **29**. The inner end portion of the bar is flattened as indicated at **26***a* and terminates in a bevelled end **26***b* which

operatively engages the mid-portion of the aforementioned rod **24**, as shown in Figures 1 and 3. Thus, when the hand knob **29** is pushed in the direction of the arrow **30**, the sliding of the bar **26** in the same direction will cause the U-shaped intermediate portion of the rod **24** to move past the detents **25** and the end portions **24***a* of the rod **24** will cause the struts **18** to buckle at the pivots **18***a*, thereby facilitating lowering of the drop leaf **11**. On the other hand, when the drop leaf is raised by hand to its horizontal position, the intermediate portion of the rod **24** will resume its abutment with the detents **25** when the struts become locked in their extended position, thus sustaining the drop leaf **11** in the horizontal plane.

The intermediate portion of the rod **24** is urged into abutment with the detents **25** by a pair of tension springs **31** which are connected to the rod at one end thereof and are anchored at their other end to keepers **32** struck out from the plate **16**, the springs **31** tending to pull the intermediate portion of the rod **24** in the direction of the strut pivots **22**, as will be clearly apparent. A pair of transversely spaced, strap-like keeper members **33** are struck out from the plate **16** adjacent the detents **25** and are angulated substantially as shown. The intermediate portion of the rod **24** extends through the space between the detents **25** and the keeper members **33**, so that the intermediate portion of the rod is prevented by the members **33** from dropping downwardly or away from the plate **16**, while it moves past the detents **25** during folding and unfolding of the struts, as indicated at **34** in Figure 3. The inner end portion of the unlocking bar **26** is provided with a transverse keeper pin **35** which is engageable with the lug **27** and prevents the bar from being withdrawn from the lugs **27**, **28**.

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 may be resorted to, such as may lie within the spirit and scope of the appended claims.

What is claimed as new is:

1. A collapsible supporting device for drop leaves, comprising a mounting plate adapted to be secured to the underside of a drop leaf, a plurality of foldable struts disposed in mutually spaced relation transversely of said mounting plate and extending obliquely therefrom to a side support, means pivotally connecting upper ends of said struts to the mounting plate, means provided at the lower ends of the struts for pivotally connecting the same to a side support, said struts being automatically lockable in their drop leaf supporting position, and means for unlocking the struts to facilitate folding thereof and lowering of the drop leaf, said last mentioned means comprising a substantially U-shaped rod, a pair of coaxial end portions provided on said rod and pivotally connected to said struts, a detent provided on said mounting plate and engageable by the bight portion of said rod when the drop leaf is raised, said bight portion of the rod being movable beyond said detent to effect folding of said struts, an unlocking bar slidably attached to said mounting plate and engaging the bight portion of said rod for moving the same beyond the detent, and a keeper strap provided on the mounting plate adjacent but spaced from said detent, the bight portion of said rod extending through the space between the detent and said keeper strap and being sustained in engagement wtih the former by the latter.

2. The device as defined in claim 1 wherein said means pivotally connecting said struts to said mounting plate comprise a pair of spaced apertured ears provided on said mounting plate at oposite sides of the upper end of each of said struts, and pivot pins connecting the upper ends of the struts to said ears.

3. The device as defined in claim 1 wherein said detent and said keeper strap are formed integrally with and struck out from said mounting plate.

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