April 13, 1943. T. E. McFALL 2,316,447

TRIP MECHANISM FOR TABLE LEAF BRACE

Filed Nov. 3, 1941 2 Sheets-Sheet 1

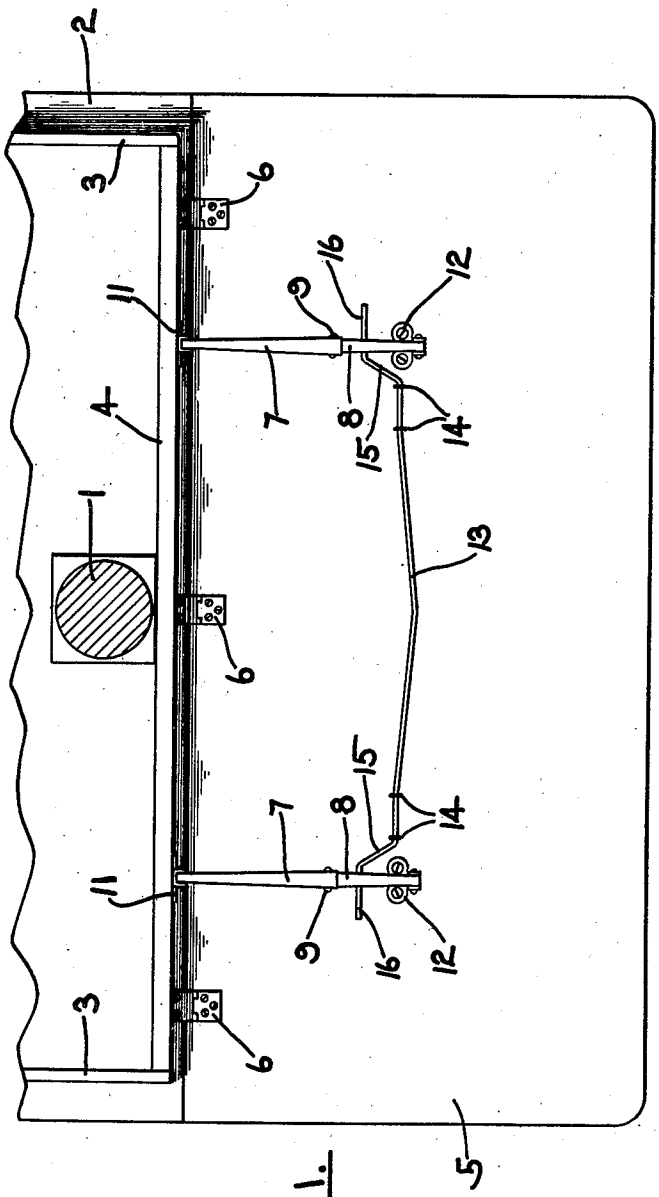

Fig. 1.

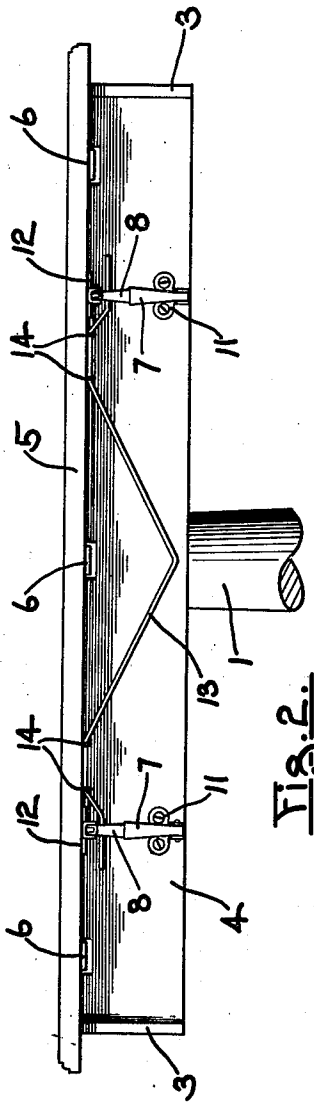

Fig. 2.

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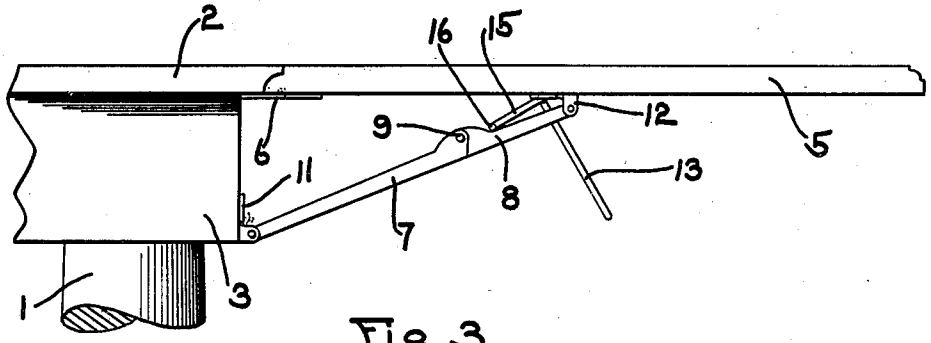

Fig. 3.

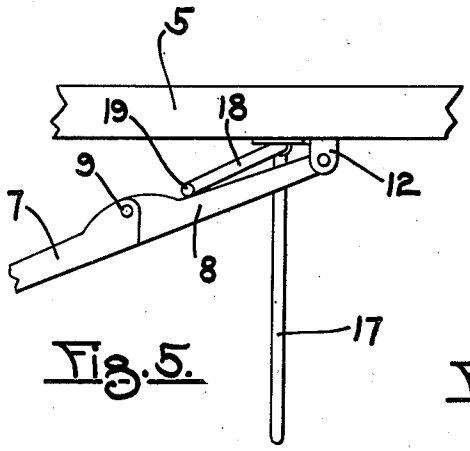

Fig. 5.

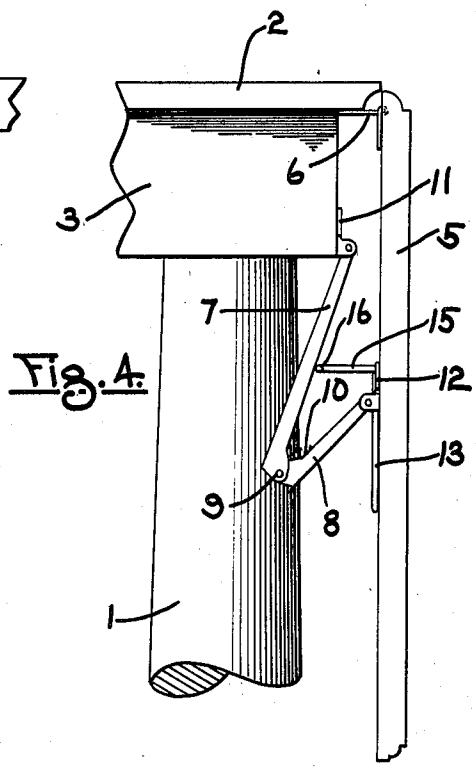

Fig. 4.

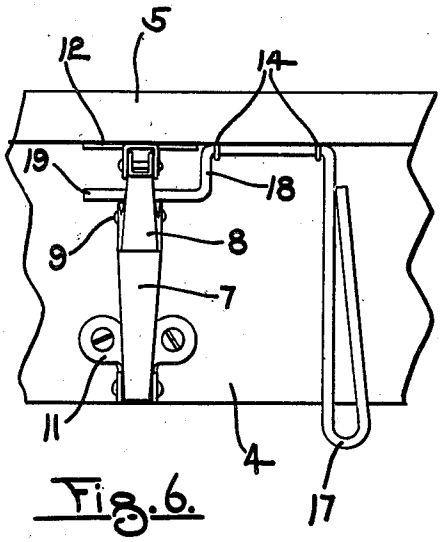

Fig. 6.

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UNITED STATES PATENT OFFICE

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TRIP MECHANISM FOR TABLE LEAF BRACE

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Application November 3, 1941, Serial No. 417,611

4 Claims. (Cl. 311—64)

This invention relates to a trip mechanism adapted to be applied to a drop leaf table wherein toggle braces are used to maintain the leaf in a horizontal position.

My invention may be applied to any drop leaf table of the usual construction and is intended to be utilized where the well known toggle braces connect the drop leaf with the table and act to rigidly support the leaf when it is raised to horizontal position. In braces of this nature it is a well known fact that before the toggle can be broken and the leaf lowered a force must be applied to one of the arms of the brace to break the toggle and move it past dead center whereupon the leaf may be lowered to its vertical position.

The trip mechanism of my invention is designed to facilitate the breaking of the toggle while the drop leaf is in horizontal position in order that it may be lowered, thereby obviating any necessity for reaching beneath the table with one or both hands and attempting to break the toggle manually in this manner. When the leaf is lowered in this latter manner it is necessary to grasp the leaf with one hand and attempt to break the toggles with the other, which is usually a difficult operation since, if there are two braces, their toggle arrangements should be broken simultaneously. The device of my invention, therefore, is adapted to enable the operator to break the toggle of one or more of these braces merely by the use of one hand, while the leaf may be grasped with the other hand and lowered to its vertical position.

Another advantage arising from my invention is the fact that it is associated with the other parts of the table in such a way that when the leaf is dropped it may not pass beyond a vertical position, such as would be the case if no such stopping means were provided.

The foregoing are some of the more general objects and purposes of the invention and others of a more specific nature will be disclosed as the description proceeds.

To the accomplishment of the foregoing and related ends said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawings and following description set forth in detail certain means for carrying out my invention, said means constituting, however, several of various ways in which the principle of the invention may be employed.

In said annexed drawings wherein like reference numerals refer to like parts throughout the various views:

Fig. 1 is a fragmentary under plan view of a drop leaf table showing the leaf in extended or horizontal position.

Fig. 2 is an end view of the structure shown in Fig. 1.

Fig. 3 is a fragmentary side elevation of the structure shown in Figs. 1 and 2.

Fig. 4 is a view similar to Fig. 3 but shows the leaf in its lowered vertical position and the toggle braces substantially collapsed.

Fig. 5 is a somewhat enlarged fragmentary view similar to Fig. 3 but showing a modified form of trip particularly adapted for use with a single brace, and

Fig. 6 is a fragmentary end elevation of the structure shown in Fig. 5.

My invention is adapted to be used with the conventional drop leaf table which may include one or more supporting pedestals 1 having a permanent top 2 secured to the upper end thereof. The usual side aprons 3 extend downwardly from beneath the top 2 and are connected between their ends by another apron 4 which extends across one end of the top portion 2. The drop leaf 5 is hingedly connected to one edge of the top portion 2 by means of several spaced apart hinges 6 in the usual manner.

The common toggle brace is used with my invention, the details of which need not be specified here since they are well known. It will be sufficient to identify the brace as having a comparatively long arm 7 and a short arm 8 which are pivoted together by means of the pivot pin 9. A spring 10 is connected at one end to the arm 7 and at its other end to the arm 8 closely adjacent their connected pivotal point so that the spring will hold the arms in locked position when they are extended as shown in Fig. 3, or will urge them to collapsed or folded position when dead center has been passed and the toggle broken as shown in Fig. 4. The other end of the arm 7 has a bracket 11 pivotally mounted thereon and which is secured to the apron 4, while the arm 8 at its outer end has pivotally connected thereto a bracket 12 which in turn is secured to the under side of the leaf 5. Thus far the disclosure is of a common and well known nature. One form of my invention is particularly adapted for use where two or more of the toggle braces are utilized in supporting the drop leaf such as shown in Figs. 1 to 4. The other, a modified form of the invention, may be used where a single toggle brace is used such as shown in Figs. 5 and 6.

Referring now more particularly to Figs. 1 to 4, inclusive, my invention comprises an elongated

rod 13 which extends between the toggle braces, and near each end thereof and adjacent the braces is pivotally or rotatably mounted to the under side of the drop leaf by any desired means such as the staples shown at 14. Each end of the rod beyond the staples, or their pivotal connection to the top, is offset downwardly and outwardly as shown in Fig. 2 as at 15 and then is again bent outwardly as at 16 in a horizontal plane at the extreme ends. The ends 16 are adapted to bear against the arm 8 of each brace so that a rotative movement of the rod in a counter-clockwise direction as viewed in Fig. 3 will exert a force downwardly against the arm 8 tending to break the toggle and move it past dead center whereupon the spring 10 will urge the two arms of the brace together and will continue to move the leaf downwardly to its position as shown in Fig. 4. While it is to be observed that any desired means may be utilized to create a leverage between the rod and the point at which manual force is exerted, for the sake of economy I have preferred to bend the rod centrally of its ends downwardly away from the leaf as shown in Fig. 2. This downwardly bent portion then may be grasped by the operator with one hand and moved toward him thus breaking both toggles with a single operation as above explained and leaving the other hand free to guide the leaf downwardly.

It is a well known fact in drop leaf tables, and especially those provided with braces of the character described here, that when the leaf is moved downwardly it will have a tendency to move past its vertical position if there is nothing present to limit its movement. The very nature of the trip mechanism of my invention and its association with other parts of the table permit it to act as such a stop means which will prevent the leaf from moving beyond its vertical position. The manner in which this operates is clearly shown in Fig. 4 where it will be seen that the leaf 5 has been lowered to vertical position at which time the outwardly extending ends 16 of the rod 13 will have moved to a position against the arms 7 of the braces. When the ends 16 contact the arms 17 they cooperate to act as a stop means to prevent the leaf from being moved past its vertical position. It will therefore be seen that the trip mechanism is not only advantageous in breaking the toggle braces to lower the leaf, but it serves a dual purpose in that it also limits the leaf from being moved past its vertical position.

In Figs. 5 and 6 a modified form of the invention has been shown which is particularly adapted for use with but a single brace. In this form the rod is indicated at 17 and is bent downwardly at one end thereof and then upwardly again to form a handle portion. It is pivotally mounted to the under side of the leaf 5 by means of the staples 14 as before described, and the end beyond the staples is offset for a short distance as at 18 and then extends outwardly in a horizontal plane as at 19. In this case the end 19 bears against the arm 8 of the brace and when a pull is exerted on the handle 17 toward the operator to rotate the rod in a counter-clockwise direction as viewed in Fig. 5, the end 19 will force the arm 18 downwardly thereby breaking the toggle and forcing it past dead center. The operation is similar to the operation of the device as disclosed in Figs. 1 to 4, but is adapted to be used only in connection with a single brace.

From the foregoing disclosure it will be evident that the trip mechanism not only enables the operator to break one or more of the toggle braces by the use of only one hand, but it will also be evident that the construction and handles provided thereon will be within easy reach of the operator who would otherwise have to actually contact the brace itself with his hand.

I, therefore, particularly point out and distinctly claim as my invention:

1. In a drop leaf table, the combination with two spaced apart toggle braces connecting the leaf with the table to support said leaf in a horizontal position, of a trip to break the toggles to lower the leaf to vertical position comprising, an elongated rod rockably mounted at the under side of the leaf to turn about a horizontal axis and provided with a handle portion between its ends offset from the rod to extend downwardly and outwardly from the leaf when it is in horizontal position, said rod at each end being provided with an offset arm located in a plane substantially at right angles to the plane of said handle portion and disposed between the link of the toggle brace connected to the leaf and the inner side of said leaf, said arms on outward pull of the handle breaking the toggle braces in a downward and outward direction, and said arms swinging upwardly and away from the links of the toggle braces with which they are engaged in breaking said toggle braces to thereby occupy a substantially horizontal position with the handle portion of the rod lying in a substantially vertical position at the inner side of the lowered leaf.

2. In a drop leaf table, the combination with two spaced apart toggle braces connecting the leaf with the table to support it in a horizontal position, of a trip means to break the toggles for lowering the leaf to vertical position comprising, a rod located underneath the leaf in a horizontal position and rockably mounted thereon, the central portion of said rod being bent to occupy an outwardly and downwardly extending position when the leaf is raised to horizontal position, said rod at its end portions being offset for a distance in a plane substantially at right angles to the plane occupied by said central portion of the rod and then extended horizontally to bear against the inner side of the links of the toggle braces connected to the leaf, whereby an upward pull on the central portion of the rod will break the toggle braces in a downward and outward direction, permitting lowering of the leaf and swinging of said rod on lowering the leaf to bring the central portion thereof in a vertical plane against the inner side of the leaf, and said offset portions swinging upwardly to occupy substantially a horizontal plane, said offset portions being of a length that the end portions of the rod when the leaf has reached vertical position strike against the outer side of the other links of the toggle braces and prevent the leaf from swinging inwardly beyond vertical position.

3. In a table having a top, a drop leaf hinged at an edge thereof, an end depending apron adjacent an end of the top and a toggle brace comprising two arms pivotally connected together at one end, one arm having a pivotal connection at its other end to the under side of the drop leaf and the other arm having a pivotal connection at its other end to the adjacent end apron, whereby said leaf may be located in horizontal position flush with the top or upon breaking the toggle downwardly and outwardly may be swung to a depending vertical position, of a trip to break the toggle brace comprising, a rod,

having a horizontal section located beneath the leaf and pivotally mounted thereon to turn about the axis of said horizontal section, a handle for manually turning the rod, said handle extending in a downward direction when the leaf is in horizontal position, said rod at an end thereof having an offset portion located in a plane at an angle to the handle and terminating in a horizontal extension parallel to the rod, said extension lying against the inner side of the toggle arm connected with the leaf whereby on upward pull on the handle the toggle link is broken downwardly and outwardly and the leaf permitted to move to vertical depending position with the handle lying against the inner side of the leaf, said offset portion being of a length such that the horizontal extension thereon engages against the inner side of the toggle arm connected with said apron when the drop leaf is in substantially vertical position and provides a stop against the drop leaf swinging inwardly underneath the table top away from said vertical position.

4. In a table having a horizontal top, a drop leaf hinged thereto, a depending apron below and adjacent the edge of the top to which the leaf is hinged and a toggle brace comprising two arms pivotally connected together at one end, the opposite end of one of the arms having a pivotal connection to the under side of the drop leaf and the opposite end of the other arm pivotally connected to said apron, said arms of the toggle link being adapted to be brought into substantial alinement to hold the drop leaf in horizontal position or be broken in a downward and outward direction to lower the leaf to a vertical position, of a trip to break the toggle brace comprising, a rod having a horizontal section located against the under side of the leaf, means for pivotally mounting said horizontal section of the rod on said leaf for rocking movement about the longitudinal axis of said section, said rod at an end thereof adjacent the toggle link having an offset portion extending downwardly and inwardly when the drop leaf is in horizontal position and terminating in a horizontal section to lie against the inner side of the toggle arm connected with the leaf, means for manually rocking the rod to swing said offset portion and terminal horizontal extension against the toggle link to break it downwardly and outwardly to thereby lower the drop leaf to depending vertical position, the length of said offset portion being such that upon the drop leaf reaching vertical position, said horizontal extension thereon comes against the arm of the toggle link connected with said apron and provides a stop against swinging movement inwardly of the drop leaf past its depending substantially vertical position.

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