

Aug. 9, 1955

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2,714,743

HINGE DEVICE

Filed April 14, 1952

2 Sheets-Sheet 1

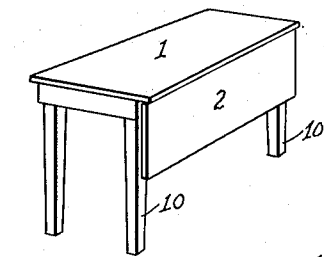


Fig.-1

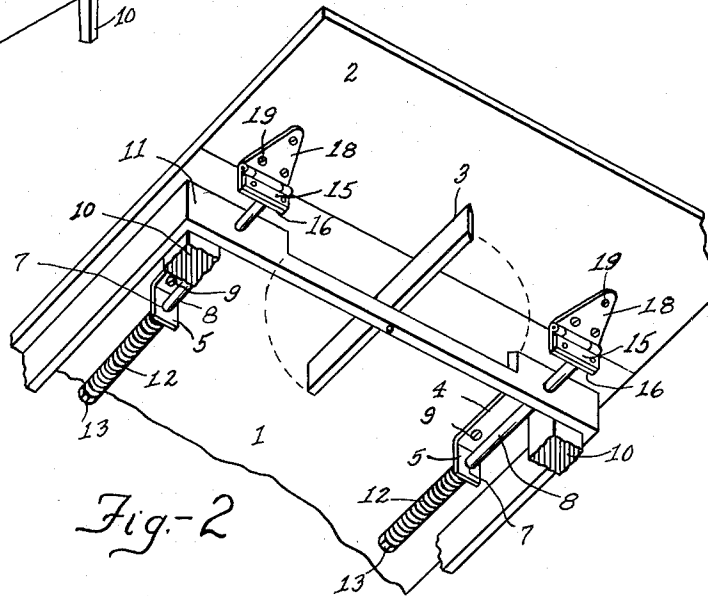


Fig.-2

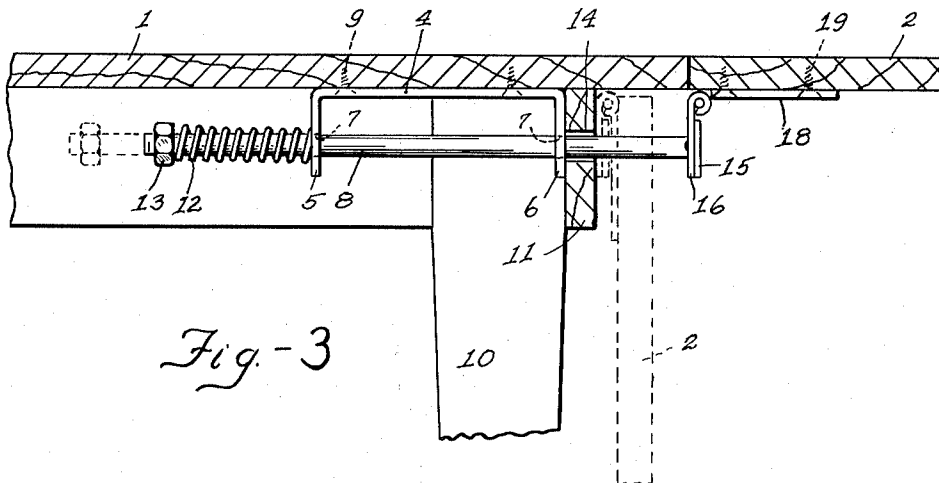


Fig.-3

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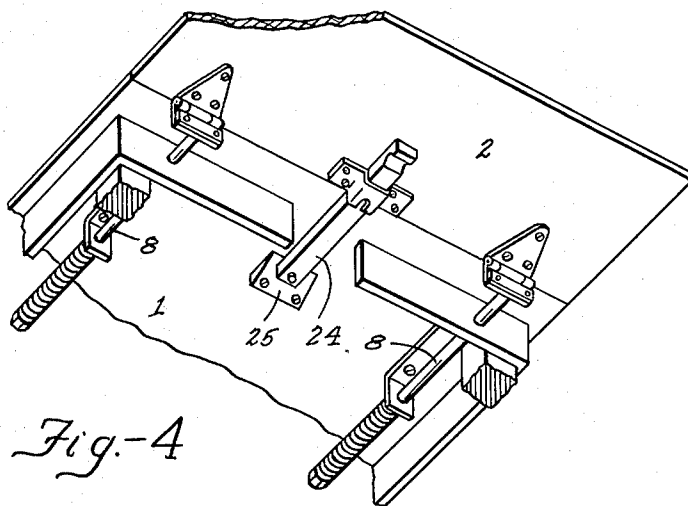
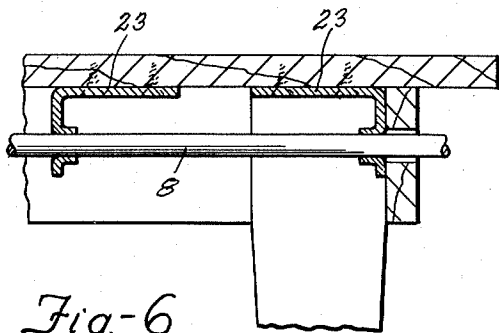
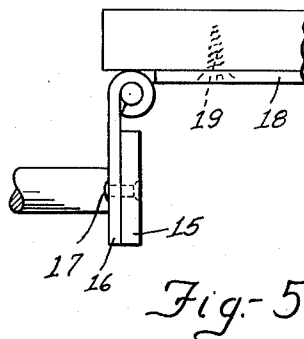
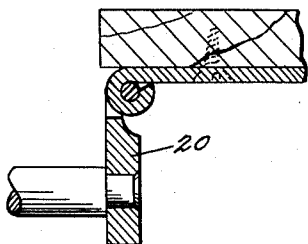
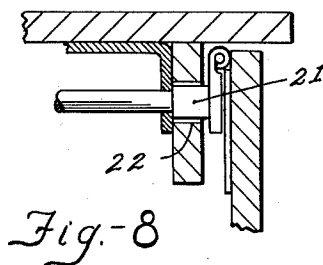
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HINGE DEVICE

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3 Claims. (Cl. 16-179)

This invention relates generally to hinges and more particularly is directed to a device for operatively connecting the top sections of a table.

In tables having a drop leaf or top section conventional hinges are employed to pivotally connect this section with a normally fixed top section. The majority of hinges used for this purpose are of the strap or butt type. When hinges of this character are utilized the drop section, when swung to a depending or lowered position, is offset outwardly from the fixed top section to which it is connected. This offsetting relationship between the sections forms an unsightly gap or space defined by the adjacent edges of the sections. Also, in such an arrangement the upper edge of the drop section is fully exposed and offers a rest for the accumulation of dust, food and other foreign matter. Furthermore, such hinges are usually visible through the gap between the sections.

With the foregoing in mind, one of the important objects of the invention is to provide a device embodying improved principles of design and construction whereby all of the above disadvantages are overcome.

More particularly, a principal object of the invention is to provide a unique device for pivotally and slidably connecting a drop section to a fixed table top section in a manner whereby the drop section can be shifted to an inset depending or lowered position so that the adjacent edge of the fixed section will overhang the drop section. With a setup of this kind the unsightly gap above referred to is eliminated and the upper edge of the drop leaf section is concealed. The hinge devices constituting the subject invention are so positioned that they too are substantially concealed from view.

Insetting the drop section of the table top also has the advantage of providing additional space in front of the section. This additional space is desirable, particularly in those locations where the table is situated in a small room or narrow passageway.

A significant object of the invention is to provide a novel device which has operatively associated therewith resilient means which serves to swing the drop leaf section downwardly and inwardly to the inset depending position above referred to when the section is manually released from its locked horizontal position.

Another object of the invention is to provide the improved device with means whereby the tension of the resilient means may be adjusted to meet different installation requirements. For example, when the device is used to support a relatively heavy drop leaf, the tension will be increased and when the drop leaf is of a lighter weight, the tension will be reduced.

A further object of the invention is to provide a novel

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device that may be readily adjusted for attachment to practically any form or type of drop leaf table now in use.

Additional objects of the invention reside in its simplicity of design and construction, ease in manipulation, efficiency in operation, and durability.

Other objects and advantages of the invention will become apparent after the description hereinafter set forth is considered in conjunction with the drawing annexed hereto.

In the drawing, wherein like components or elements are identified by the same numerals:

Figure 1 is a perspective view of a table embodying the invention;

Figure 2 is a perspective view of the underside of a portion of the table showing the unique hinge devices applied thereto, including a swingable member for holding the drop leaf section in an elevated or horizontal position;

Figure 3 is a longitudinal section taken through portions of the table and shows certain details of construction embodied in each hinge device;

Figure 4 is a perspective view similar to Figure 2 illustrating a longitudinal slidable member for holding a drop leaf in a horizontal position;

Figure 5 is a view showing one way of securing a component of the hinge device to a conventional strap hinge;

Figure 6 is a sectional view depicting a modified form of a hinge device;

Figure 7 is a sectional view showing how different components of the device can be connected; and

Figure 8 is a partial view of an assembly showing how one end of a support constitutes an abutment or stop for a hinge carried by a drop leaf section.

Referring to the drawings, Figure 1 illustrates a table having a fixed horizontal planar section 1 and a drop leaf section 2 which is supported on the fixed section by the hinge devices embodying the invention. This figure exemplifies the utility of the invention and shows the drop leaf section disposed in a lowered or depending inset position so that a longitudinal edge portion of the fixed section will overlap the upper longitudinal edge portion of the drop section. Figure 2 shows the drop section held in a horizontal or level position by a manually operable locking member 3.

In the majority of the installations a pair of the devices embodying the invention will be used to support a drop section of a table but where the length of the drop section is considerable one or more additional hinge devices may be utilized in order to afford sufficient support for the drop section.

The devices are preferably constructed for installation in different operative positions. For example, the devices can be attached to the sections so that the drop section, when swung downwardly, will assume an outset position in accordance with conventional hinge installations; in a flush position with respect to the edge of the fixed section; or in any one of an infinite number of inset positions with respect to the edge of the fixed section.

As clearly shown in Figures 2 and 3, the devices are identical in design and construction. More particularly, each device includes an elongated support having a flat base 4 and corresponding offset or downturned ends or bearings 5 and 6 provided with round openings 7 for slidably receiving and guiding an elongated cylindrical

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rod or shaft 8. Each support is preferably secured to the underside of the fixed section by screws 9 extending into the section through holes provided therefor in the base.

Some tables are constructed to include side or end rails which serve to reinforce the table structure. In a table of this character, which is exemplified in the drawings, the supports and other components of the devices are concealed from view. As shown in Figure 3 the supports are located between and adjacent the legs 10 of the table with the ends 6 of the supports abutting a rail 11.

Each of the slidable or reciprocable rods is preferably of a length so that its inner extremity will carry an elongated helical spring 12, one end of which bears against the support or bearing 5 and its other end against a nut 13 threadedly engaging the end of the rod. By manipulating the nut the tension of the spring can be increased or decreased as desired for the purpose alluded to above. It is to be understood that various means other than the nut 13 can be utilized to vary the tension of the spring.

The forward extremity of each rod extends through a clearance hole 14 provided in the cross-rail 11 and is connected to a fitting 15 in any suitable manner. Each fitting is preferably made in the form of a plate which is preferably secured to the outer side of a leaf 16 of a conventional hinge by rivets 17 which extend through aligned apertures in the fitting and leaf and are upset as clearly depicted in Figure 5. The fittings are preferably made substantially the same size as the leaves 16. Each of the conventional hinges also includes a leaf 18 which is secured by screws 19 to the underside of the drop section adjacent its inner longitudinal edge. With this setup the rods lend themselves for connection to any of various forms of types of standard conventional hinges. If found desirable, the plates may be omitted, in which event each rod is directly connected to a leaf 20 of a hinge as illustrated in Figure 7.

It is, of course, obvious that any means suitable for the purpose can be used to secure the outer ends of the rods to the hinges and if found desirable, provision may be made for making them detachable.

As illustrated in Figure 3, the cross-rail 11 serves as a stop for the fittings and locates the section in a predetermined inset position with respect to the edge of the fixed section. The same inset position could, of course, be obtained by omitting the cross-rail 11, in which case the supports would be moved outwardly so that the bearing ends 6 of the supports would constitute abutments or stops for the leaves 16, or if found desirable, a member 21 carried by a leaf, as shown in Figure 8, may move through a clearance opening 22 in a cross-rail to engage a bearing end 6. As indicated above, the devices can be secured in any one of a number of infinite positions to locate the upper edge of the drop section in any desirable position with respect to the longitudinal edge of the fixed section.

Manipulating the drop section to a horizontal position from the depending position shown by the dotted lines in Figure 3 is a relatively simple procedure. It is accomplished by grasping the upper end portions of the drop section and pulling the section horizontally outwardly against the tension of the springs 12 until the section more or less clears the edge of the fixed section. The drop section is then swung upwardly and as the section approaches the horizontal position the springs automatically pull the drop section against the fixed section. When the drop section is in the horizontal position as shown in Figure 2, the locking member 3 is pivoted to place it in a longitudinal position so that one end will support the drop section. The constant pressure exerted by the springs maintains the inner longitudinal edge of the drop section in continuous contact with the opposed longitudinal edge of the fixed section, and thereby eliminates what would otherwise be a gap in a conventional

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construction. With this arrangement, the rods 8 and the locking member 3 jointly support the drop section in a horizontal position and that when the drop section is in a depending position it is supported by the rods. It will be noted that the springs 12 are always under tension irrespective of the position of the drop section.

To locate the drop section in the depending position, as shown by the dotted lines in Figure 3, the drop section is held up with one hand while the locking member 3 is swung by the other hand to an inoperative position. The drop section is then manually lowered and as its swings clear of the edge of the fixed section the springs will pull the drop section inwardly in a horizontal direction until the leaves 16 abut the cross-rail 11. It will be noted that the drop section moves in a horizontal outward direction before it can be swung upwardly and in a horizontal inward direction after it is swung downwardly.

In some applications of the invention the drop leaf section of a table may be of considerable width or length, and in such event, it might be desirable to increase the distance between the bearings for the rods. With this objective in mind, a pair of separate supports 23 are provided for each of the rods as shown in Figure 6. With a setup of this kind, the supports 23 can be located where they will offer the most support to secure stabilization of the structure.

As illustrated in Figure 4, a longitudinally slidable locking member 24 may be utilized in lieu of member 3. When a slidable member such as 24 is employed, its inner end is preferably adapted to engage an inclined surface 25 provided on a part secured to the fixed section so as to prevent downward tilting of the drop section.

While the foregoing description has been given in detail, it is not the intention to thereby restrict the scope of the invention beyond that defined by the appended claims, since the inventive principles thereof are capable of assuming other physical embodiments than those hereinbefore described.

I claim:

1. A hinge device comprising supporting means having base means for attachment to a fixed mounting, said supporting means also having a pair of spaced parallel bearings offset from the base means and provided with aligned openings, a rod slidably mounted in the openings in spaced relation to the base means and having extremities projecting outwardly from the bearings, a plate firmly secured to one extremity of the rod, means pivotally connected to the plate for attachment to a movable component, a member carried by the rod, and a helical spring surrounding said rod between one of said bearings and said member for urging the rod in one direction when the device is applied to the mounting and component.

2. A hinge device comprising supporting means having base means provided with apertures through which fasteners can be extended for securing the supporting means to a fixed mounting, said supporting means also having a pair of spaced substantially parallel bearings offset from the base means and provided with aligned openings, a rod slidably mounted in the openings and having extremities projecting outwardly from the bearings, a fitting attached to one extremity of the rod, a hinge having one of its leaves firmly secured to the fitting and its other leaf free for attachment to a movable component, a member carried by the rod, and a helical spring surrounding said rod between one of said bearings and said member for urging the rod in one direction when the device is applied to the mounting and component.

3. A hinge device comprising supporting means having base means provided with apertures through which fasteners can be extended for securing the supporting means to a fixed mounting, said supporting means also having a pair of spaced parallel bearings offset from the base

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means and provided with aligned openings, a rod slidably mounted in the openings and having extremities projecting outwardly from the bearings, a plate firmly secured to one extremity of the rod, means pivotally connected to the plate for attachment to a movable component, a member carried by the other extremity of the rod, and a helical spring surrounding said other extremity between one of said bearings and said member for urging the rod in one direction when the device is applied to the mounting and component.

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