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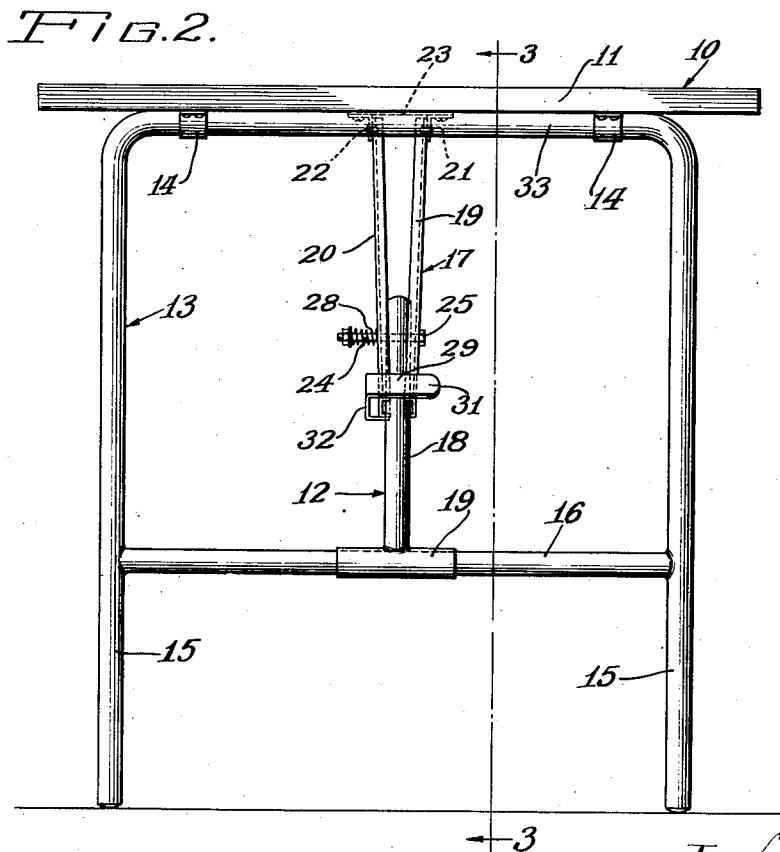
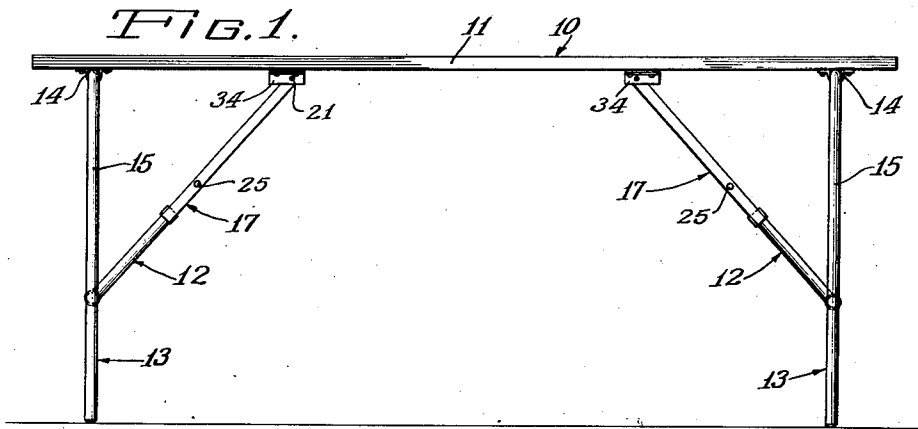
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2,374,670

FOLDING TABLE

Filed April 3, 1945

2 Sheets-Sheet 1



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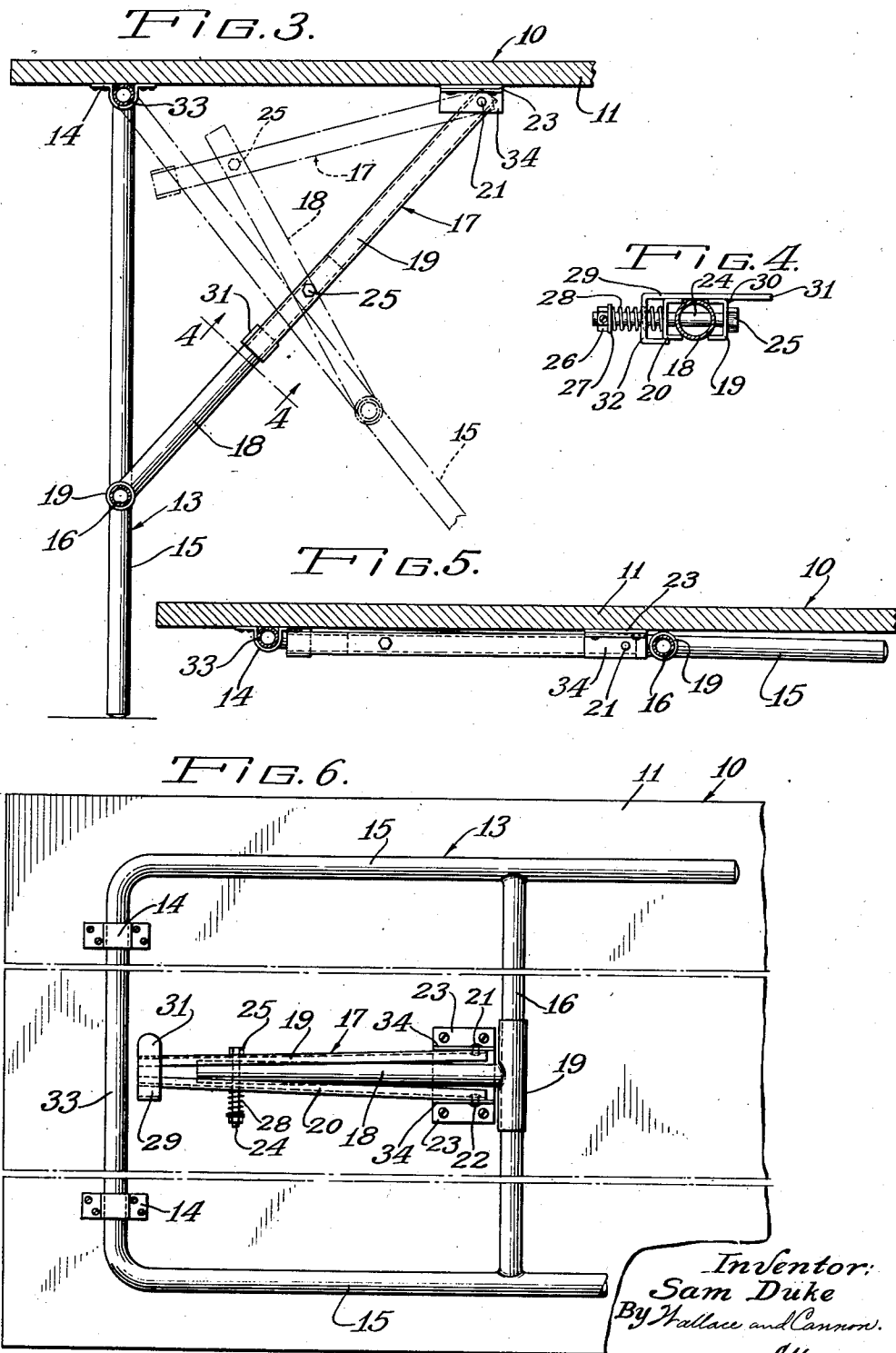
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UNITED STATES PATENT OFFICE

2,374,670

FOLDING TABLE

Sam Duke, Chicago, Ill.

Application April 3, 1943, Serial No. 481,751

4 Claims. (Cl. 311—87)

This invention relates to a folding table.

More particularly, this invention relates to a folding table and to a collapsible leg and brace structure for effecting ready and easy collapsing and unfolding of the table legs.

An object of the invention is to provide, in a folding table, a novel collapsible combination leg and brace construction for effecting ready collapse and unfolding of the table legs.

Another object of the invention is to provide a novel collapsible brace construction for bracing the legs of a folding table in extended or vertical supporting position and for effecting easy and ready movement of the table legs into collapsed position below and parallel to the table top.

Other and further objects of the present invention will be apparent from the following description and claims and will be understood by reference to the accompanying drawings which, by way of illustration, show preferred embodiments and the principles thereof and what I now consider to be the best mode in which I have contemplated applying those principles. Other embodiments of the invention embodying the same or equivalent principles may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention and the purview of the appended claims.

In the drawings,

Fig. 1 is a side elevational view of a typical folding table embodying the present invention and showing the table legs in extended or vertical position;

Fig. 2 is an end elevational view of the folding table shown in Fig. 1 and also showing the legs in extended or vertical position;

Fig. 3 is a view, on line 3—3 in Fig. 2, partly in vertical section and partly in side elevation and showing, in dotted lines, different positions occupied by the combination leg and bracing units during the folding and unfolding operations;

Fig. 4 is a detail view, on line 4—4 in Fig. 3, partly in section, showing the elements of the brace construction in effective or bracing position;

Fig. 5 is a fragmentary edge elevational view of the new folding table, partly in section, showing one of the combination table leg and brace units in collapsed or folded position; and

Fig. 6 is a fragmentary bottom plan view of the new folding table showing one of the new combination leg and brace units in collapsed or folded position.

A typical embodiment of the present invention

is shown in the drawings and comprises a folding table which is generally indicated at 10 and includes a table top 11, and which may be of any desired size, shape or configuration in which may be desired to make a folding table such, for example, as a table for use as a dining table in lodge and church halls, and the like, where it is desired to fold the table and store it when not in use.

The new folding table 10 includes a pair of identical combination table leg and leg-bracing units, each of which is generally indicated at 12, and each of which includes a substantially U-shaped leg structure 13. Each of the U-shaped leg structures 13 includes a pair of spaced parallel legs 15 and a transversely extending bight or hinge portion 33 which extends between and interconnects the legs 33. Each of these bight or hinge portions 33 is pivotally or hingedly mounted upon the table top 11, upon the side thereof, by means of U-shaped brackets 14 which are attached to the table top 11 on the underside thereof.

Each of the substantially U-shaped leg structures 13 also includes a cross brace 16, which extends between and interconnects the legs 15, and as shown in the drawings, each of the leg structures 13 is adapted to be disposed in either vertically extending or effective table-supporting position, as in Figs. 1, 2 and 3, or in folded or collapsed and ineffective position, as in Figs. 5 and 6, this being accomplished in a manner and by means which will now be described.

Each of the combination leg and brace structures 13 includes a bracing unit, which is generally indicated at 17, and inasmuch as the bracing units 17 are identical in construction and operation, the construction and operation of only one of the same will now be described in detail.

Each of the new bracing units 17 includes a tubular brace member 18 and each of the tubular brace members 18 is provided at its axially outer end with a tubular sleeve portion 19 which is preferably formed integrally with the body of the tubular member 18. Each of these tubular sleeves 19 is swivelly mounted on the cross brace 16 of one of the table leg units 13, as shown in the drawings.

Each of the bracing units or structures 17 also includes a pair of substantially channel-shaped bracing members 19 and 20 and these substantially channel-shaped bracing members 19 and 20 are pivotally mounted, at their axially outer ends, as at 21 and 22, respectively, upon similar brackets 23 which are mounted upon the table top 11 upon the under side thereof, as shown in Figs. 2 and 6.

A slight amount of play is preferably provided in the pivotal mountings 21 and 22 of the substantially channel-shaped members 19 and 20, respectively, upon the brackets 23, for a reason which will be pointed out hereinafter. Likewise, each of the brackets 23 has a depending flange portion 34 the purpose of which will be described hereinafter.

A hinge bolt 24 is extended transversely through suitable aligned openings provided therefor in the substantially channel-shaped members 19 and 20 of each of the bracing units 17, and through another and aligned opening formed in the tubular bracing member 18. The head 25 of the hinge bolt 24 bears against the outer wall or side of the substantially channel-shaped member 19, as best shown in Fig. 4. A nut 26 is threaded onto the opposite and threaded end portion of the hinge bolt 24, and a washer 27 is arranged upon the hinge bolt 24 immediately inwardly of the nut 26. A coil spring 28 is arranged upon the hinge bolt 24 and one end convolution of this coil spring bears against the washer 27 while the other end convolution of the coil spring 28 bears against the outer side of the substantially channel-shaped member 20 and urges the latter into clamping engagement with the tubular bracing member 18.

A substantially L-shaped operating member 29 is secured to the substantially channel-shaped bracing member 19 in any suitable manner, as by welding, or soldering 30, as shown in Fig. 4. This operating member 29 has a foot or kick portion 31 which projects laterally from the body of the operating member 29 at one side of the channel-shaped member 19, as shown in Figs. 2, 4 and 6. The operating member 29 also includes a channel-shaped portion 32 which is adapted to bear against and to slidably embrace a portion of the correspondingly shaped but smaller channel-shaped member 20 at one side thereof, as shown in Figs. 2 and 4, and for a reason to be pointed out hereinafter.

The use and operation of the new folding table are as follows: When the table leg units 13 are in effective or vertically extending and table-supporting position, as in Figs. 1, 2 and 3, the channel-shaped bracing members 19 and 20 are disposed in embracing and clamping engagement with the peripheral edge portion of the tubular bracing member 18, said channel-shaped bracing members 19 and 20 being urged into clamping and embracing engagement with the tubular bracing member 18 by means of the coil spring 28 upon the hinge bolt 24. As shown in Figs. 1, 2 and 3, when the parts are in this position, the substantially channel-shaped bracing members 19 and 20 throughout a portion of their extent embrace a corresponding portion of the tubular bracing member 18 and all three of the bracing members 18—19—20 lie in the same general plane and form, in effect, a rigid bracing unit. In this manner the combination leg and bracing structures 13 are maintained in effective and table-supporting position.

However, when it is desired to collapse the table 10 and the combination leg and bracing units 12, this may be readily accomplished by turning the table upside down and another pressing downwardly by hand or kicking downwardly (upwardly as seen in Fig. 4) upon the laterally projecting portion 31 of the operating member 29.

Pressure thus applied upon the operating member 29—31 acts, directly upon the channel-shaped member 19, and through the channel-shaped por-

tion 32 of the operating member 29, to cam the inner edge portions of the two spaced or outer substantially channel-shaped bracing members 19 and 20 around the swell of the peripheral edge portion or surface of the intermediate tubular bracing member 18 (upwardly as seen in Figs. 2 and 4). This movement of the two substantially channel-shaped bracing members 19 and 20 spreads the said members 19 and 20, in a manner which will be described more fully presently, and moves the axially outer end portions of the said channel-shaped bracing members 19 and 20 out of clamping and rigid brace forming engagement with the intermediate and tubular-shaped bracing member 18.

During this movement the channel-shaped bracing member 19 bears against the nut 25 on the hinge bolt 24 and moves the hinge bolt 24 a short distance (left to right as seen in Fig. 4) and this movement of the hinge bolt 24 causes the washer 27 carried thereby to bear against the outer end convolution of the coil spring 28, thereby compressing the latter. At the same time the aforesaid downward pressure upon the operating member 29—31—32 and resulting movement of the inner edge portions of the channel-shaped bracing member 20 around the swell or peripheral edge of the tubular bracing member 18 slides the channel-shaped bracing member 20 upon the hinge bolt 24 (right to left as seen in Fig. 4) and during this movement the channel-shaped member 20 slides in the channel-shaped portion 32 of the operating member 29 and the outer surface or wall of the channel-shaped member 20 engages the inner end convolution of the coil spring 28, thereby further compressing the latter.

The cross braces 16 may then be manually grasped and pressure exerted thereon to complete the movement of the combination leg and bracing units 12 into folded or collapsed position parallel to and below the table top 11, as shown in Figs. 5 and 6, and as the parts move into this position the spring 28 then coacts with the hinge bolt 24 and nut 25 to urge the channel-shaped bracing members 19 and 20 back into clamping engagement with the tubular bracing member 18, thereby holding the leg structures 13—15—16—33 and the bracing units 18—19—20 and associated parts in collapsed position below the table top 11, as shown in Figs. 5 and 6. During this movement the leg structures 13 pivot or hinge upon their supporting brackets 14 and the substantially channel-shaped bracing members 19 and 20 pivot, at 21 and 22, upon the depending flange portions 34 of their supporting brackets 23, and, together with the tubular bracing member 18, pivot about the hinge connection 24 between the three bracing members 18—19—20.

It will be noted that when the combination leg and bracing structures or units 12 are disposed in collapsed or folded position, as shown in Figs. 5 and 6, the tubular bracing member 18 is disposed, throughout substantially its entire axial extent, between the two substantially channel-shaped bracing elements 19 and 20 but, as shown in Fig. 6, the two channel-shaped members 19 and 20 embrace or engage the tubular bracing member 18 throughout only the axially inner end portion of the tubular bracing member 18 and to this end the two substantially channel-shaped bracing members 19 and 20 extend in or lie in a generally U-shaped or triangular formation, being spaced further apart in the axially outer end portions thereof, that is, in those portions thereof which lie nearest their pivotal mountings 21 and 22 upon

the brackets 23 than they are in their axially inner end portions which clampingly engage or embrace the tubular bracing member 18. It will also be noted that during the operation of collapsing the combination leg and bracing units 12, as described above, the sleeve portion 19 of the tubular bracing element 18 swivels upon the horizontally extending cross brace 16 of the corresponding leg unit 12 and the substantially channel-shaped bracing members 19 and 20 pivot at 21 and 22, respectively, upon their supporting bracket 23; and that the three bracing members 18, 19 and 20 move, relative to each other, upon their hinge connection 24.

It will be further noted, in this connection, that the distance which the substantially channel-shaped bracing members 19 and 20 are required to move slidably with and upon (respectively) the hinge bolt 24, and against the action of the spring 28, is rather slight, and that such amount of movement is permitted by providing a certain amount of play in the pivotal mountings 21 and 22 of the substantially channel-shaped members 19 and 20 upon their supporting brackets 23.

As shown in the drawings, each of the supporting brackets 23 has a depending flange portion 34, to which the channel-shaped bracing members 19 and 20 are pivotally connected, and these depending flange portions 34 also serve to brace the substantially channel-shaped bracing members 19 and 20 during the operations of spreading the said members 19 and 20 upon their pivotal mountings 21 and 22, and upon their hinge connection 24 with the tubular bracing member 18, into and out of clamping engagement with the tubular bracing member 18.

When it is desired to extend or unfold the new folding table, to move the combination leg and bracing units 13 into extended and table-supporting position, this may be readily accomplished by manually grasping the cross braces 16 and pulling downwardly or outwardly upon each of the supporting leg units 13. This action moves the substantially channel-shaped bracing members 19 and 20 with and upon (respectively) the hinge bolt 24 against the action of the coil spring 28, in the manner described hereinbefore, thus spreading the channel-shaped members 20 and 19 so as to provide sufficient space therebetween to allow the tubular bracing element or member 18 to pass out of the position which it occupies between the two channel-shaped members 19 and 20, when the parts are in folded position, as shown in Fig. 6, and into the position which the said tubular member 18 occupies between the said channel-shaped bracing members 19 and 20 when the parts are in unfolded or effective and table-supporting position, as shown in Figs. 1 and 2.

As shown in the drawings, as the tubular bracing member 18 passes into effective or bracing position between the two channel-shaped bracing members 19 and 20, the coil spring 28 urges the said channel-shaped bracing members 19 and 20 into clamping and embracing engagement with the tubular bracing member 18 so as to hold the bracing unit 17-18-19-20 and the leg structure 13 braced thereby in rigid and effective or table-supporting position.

It will thus be seen from the foregoing description, considered in conjunction with the accompanying drawings, that the present invention provides a novel folding table, and a novel combination supporting leg and bracing unit therefor, and thus accomplishes its intended objects and

purposes, including those hereinbefore specifically pointed out and others inherent in the invention.

I claim:

1. A bracing unit for a collapsible table or like article of furniture comprising a pair of spaced channel-shaped bracing members each including an end portion adapted to be pivotally mounted on a table top or the like at the underside thereof, an intermediate bracing member arranged between said channel-shaped bracing members and including an end portion adapted to be operatively connected to a table leg supporting structure, means yieldably urging the said channel-shaped bracing members into clamping engagement with the said intermediate bracing member, each of the said three bracing members having an opening formed therein and said openings being disposed in alignment with each other, a hinge bolt extending through the said aligned openings in the said three bracing members and hingedly connecting the said channel-shaped bracing members and the said tubular bracing member together, the said means for yieldably urging the said channel-shaped bracing members into clamping engagement with the said intermediate bracing member including a coil spring mounted on the said hinge bolt, and the said coil spring having an end portion bearing against one of the said channel-shaped bracing members and cooperating with the said hinge bolt to urge the said channel-shaped bracing members into yieldable clamping engagement with the said intermediate bracing member.

2. A bracing unit for a collapsible table or like article of furniture comprising a pair of spaced channel-shaped bracing members each including an end portion adapted to be pivotally mounted on a table top or the like at the underside thereof, an intermediate bracing member arranged between said channel-shaped bracing members and including an end portion adapted to be operatively connected to a table leg supporting structure, means yieldably urging the said channel-shaped bracing members into clamping engagement with the said intermediate bracing member, means for hingedly connecting the said three bracing members together comprising a hinge bolt extending through aligned openings provided in the said three bracing members, the said means yieldably urging the said two channel-shaped spaced bracing members toward each other and into yieldable clamping engagement with the said intermediate bracing member comprising a coil spring carried by the said hinge bolt and including an inner end convolution bearing against the outer side of one of the said two channel-shaped bracing members, and the said hinge bolt including a head portion bearing against the outer side of the other one of the said two channel-shaped bracing members.

3. A bracing unit for a collapsible table or like article of furniture comprising a pair of spaced channel-shaped bracing members each including an end portion adapted to be pivotally mounted on a table top or the like at the underside thereof, an intermediate bracing member arranged between said channel-shaped bracing members and including an end portion adapted to be operatively connected to a table leg supporting structure, means yieldably urging the said channel-shaped bracing members into clamping engagement with the said intermediate bracing member, means for hingedly connecting the said three bracing members together com-

prising a hinge bolt extending through aligned openings provided in the said three bracing members, the said means yieldably urging the said two channel-shaped spaced bracing members toward each other and into yieldable clamping engagement with the said intermediate bracing member comprising a coil spring carried by the said hinge bolt and including an inner end convolution bearing against the outer side of one of the said two channel-shaped bracing members, the said hinge bolt including a head portion bearing against the outer side of the other one of said two channel-shaped bracing members, the said bracing unit including an operating member carried by the said other one of the said two channel-shaped bracing members, and the said operating member including a substantially channel-shaped portion adapted to slidably embrace a portion of the said one of said channel-shaped bracing members.

4. A bracing unit for a collapsible table or like article of furniture comprising a pair of spaced channel-shaped bracing members each including an end portion adapted to be pivotally mounted on a table top or the like at the underside thereof, an intermediate bracing member arranged between said channel-shaped bracing members and including an end portion adapted to be operatively connected to a table leg supporting structure, means yieldably urging the said channel-shaped bracing members into

clamping engagement with the said intermediate bracing member, means for hingedly connecting the said three bracing members together comprising a hinge bolt extending through aligned openings provided in the said three bracing members, the said means yieldably urging the said two channel-shaped spaced bracing members toward each other and into yieldable clamping engagement with the said intermediate bracing member comprising a coil spring carried by the said hinge bolt and including an inner end convolution bearing against the outer side of one of the said two channel-shaped bracing members, the said hinge bolt including a head portion bearing against the outer side of the other one of said two channel-shaped bracing members, the said bracing unit including an operating member carried by the said other one of the said two channel-shaped bracing members, the said operating member including a substantially channel-shaped portion adapted to slidably embrace a portion of the said one of said channel-shaped bracing members, and the said operating member including a portion projecting laterally relative to and beyond the outer side of the said other one of the said channel-shaped bracing members by which the said operating member is carried and at the side thereof at which the said head portion of the said hinge bolt is arranged.

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