Sept. 3, 1940. C. J. SYMMONDS 2,213,681

FOLDING TABLE

Filed Sept. 11, 1939 3 Sheets-Sheet 1

Fig. 1.

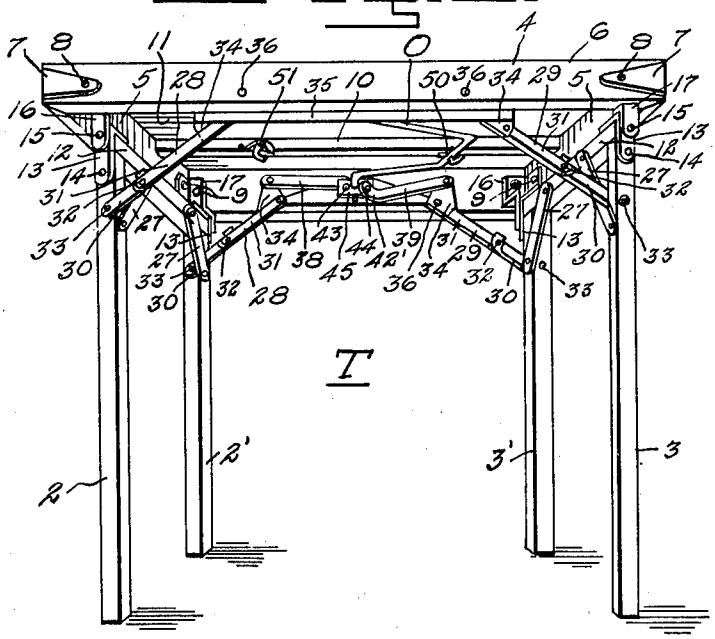
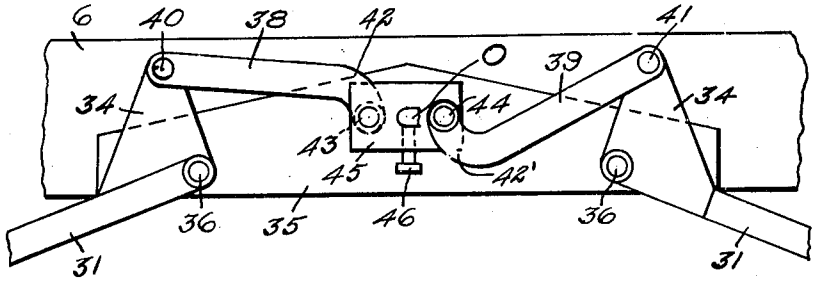


Fig. 2.



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FOLDING TABLE

Filed Sept. 11, 1939 3 Sheets-Sheet 2

Fig. 3

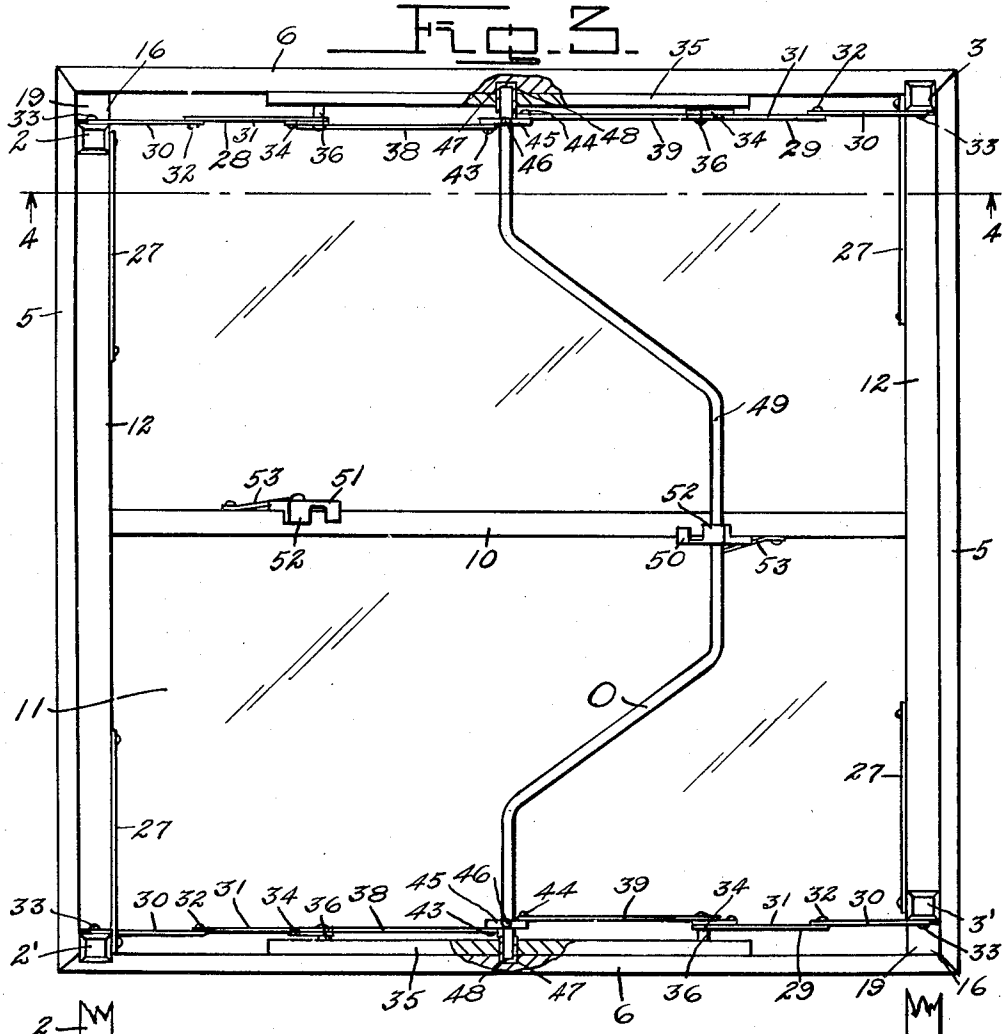
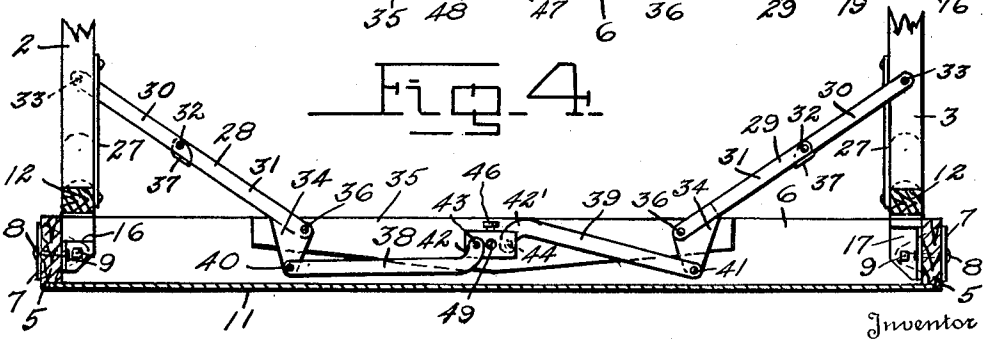


Fig. 4



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Filed Sept. 11, 1939 3 Sheets-Sheet 3

Fig. 5.

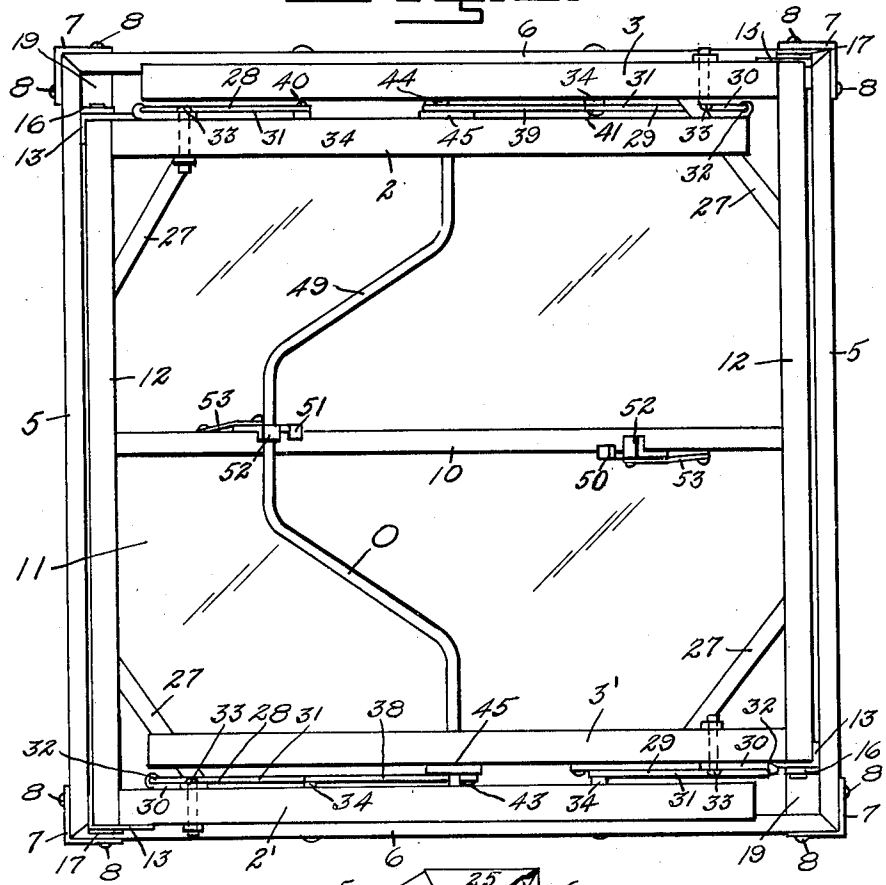
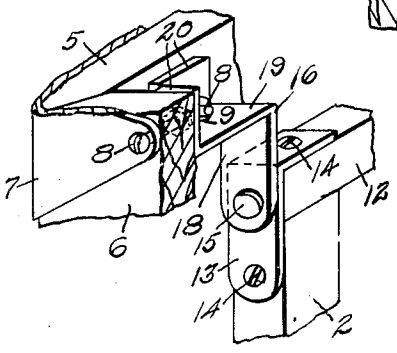


Fig. 6.



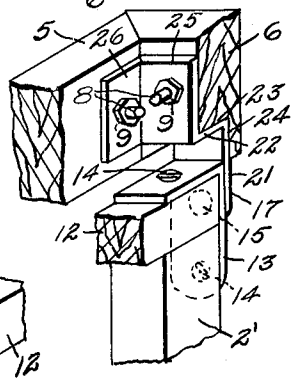


Fig. 7.

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Patented Sept. 3, 1940

2,213,681

UNITED STATES PATENT OFFICE

2,213,681

FOLDING TABLE

Charles J. Symmonds, Chevy Chase, Md.

Application September 11, 1939, Serial No. 294,345

3 Claims. (Cl. 311—85)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

This invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention relates to a table having folding legs, more particularly it is directed to a folding, locking and leg bracing mechanism for a table ordinarily having a flat top.

One of the objects of the invention is to provide a folding, locking and leg bracing mechanism which is adapted to be easily and quickly applied to an article of furniture such as a table having folding legs, to provide means for simultaneously folding and unfolding the legs thereof, also for rigidly bracing said legs when in an unfolded or operative position and for locking said leg folding and unfolding mechanism including said legs into a position as usage requires.

Another object of the invention is to provide a table having folding legs and including a mechanism for simultaneously folding and unfolding said legs into an operative and inoperative position, said table being cheap in construction, light in weight, also strong, rigid and stable, and said mechanism being simple and easy to construct and easily and conveniently manipulated for folding and unfolding the legs of said table.

In my Patent No. 1,980,450, there is disclosed a folding type table in which an operating lever is caused to rotate first on one pivot and later upon another pivot for moving first one set of unitary leg members and then another set of unitary leg members into folded or unfolded position. It has been found that if the pivot on which the operating lever rotates is caused to remain stationary at all times instead of rotating first on one pivot and later upon another and that if the upper surface of the legs are caused to lie in the same plane with the legs of one set alternating with the legs of the other set, that is one leg of one set being adjacent to a leg of another set and the other leg of the first set being adjacent to the other leg of the second set at opposite sides of the table when in a folded or inoperative position, then the sets of unitary leg members may be simultaneously moved into an operative or inoperative position, thus reducing the number of linkage parts for folding and unfolding the legs and diminishing the depth of the sides of the table as compared to the number of linkage parts required and the depth of the sides of the table in the patent above referred to.

It is therefore the aim and purpose of this invention to provide an improvement over the folding, locking and leg bracing mechanism disclosed in my Patent No. 1,980,450, by providing means for simultaneously collapsing or extending pairs of legs of a table and to cause the upper surfaces of the legs of said pairs to lie in the same plane with the legs of one pair alternating with the legs of the other pair when in a collapsed or extended position, whereby the number of parts for collapsing or extending the legs may be reduced and the depth of the sides of the table may be diminished as compared to the above mentioned patent, thus reducing the cost of manufacture of the table, improving its appearance and increasing its compactness when the legs of the table are collapsed.

With the above and other objects and advantages in view, the invention specifically consists in features of construction, arrangement and operation of parts which will be described and claimed with reference to the accompanying drawings in which like reference numbers distinguish like parts and in which:

Fig. 1 is a perspective view of my folding table with the legs thereof in operative position having my improved invention applied thereto;

Fig. 2 is an enlarged fragmentary front elevation of a side portion of my improved leg folding, locking and leg bracing mechanism;

Fig. 3 is a bottom plan view partly in section of Fig. 1;

Fig. 4 is a fragmentary inverted cross-sectional view of another side portion of the improved leg folding, locking and leg bracing mechanism, taken on line 4—4 of Fig. 3, looking in the direction of the arrows;

Fig. 5 is a bottom plan view of my table with the legs thereof shown folded into an inoperative position;

Fig. 6 is an enlarged fragmentary detail perspective view illustrating the manner of pivotally securing one side of each pair of legs of the table to the table top and;

Fig. 7 is an enlarged fragmentary detail perspective view illustrating the manner of pivotally securing the other side of each pair of legs to the table top.

In the illustrated embodiment characterizing my invention T indicates generally an improved article of furniture, here illustrated in the form of a table to which my invention may be applied for collapsing and extending the pairs of legs 2 and 2' and 3 and 3' respectively.

The table T comprises a top supporting frame 4 having depending side rails 5 and 6 which are joined together at their ends by means of corner irons 7 which are attached to the side rails 5 and

6 by bolts 8 and nuts 9. Extending transversely across the side rails 5 and suitably connected thereto at its ends is a stabilizing beam or cross-brace 10 which is parallel to and equidistant from the side rails 6. Mounted on the supporting frame 4 is a table top 11 which is suitably fastened to the rails 5 and 6 and the beam 10.

The legs 2 and 2' and 3 and 3' are assembled into pairs by means of cross bars 12 which are fixedly secured each to its pair of legs by means of angle irons 13 securely fastened by screws 14 to both bar and legs. The angle irons 13 are pivotally connected at 15 to angle irons 16 and 17 which pivotally support each pair of legs on the opposite sides thereof, to the frame 4 of the table.

The angle irons 16 pivotally support the leg side 2 and the leg side 3' of the pairs of legs 2 and 2' and 3 and 3' on two diagonal corners of the table and as more particularly illustrated in Fig. 6 each comprises a depending portion 18, an outwardly extending portion 19 at right angles thereto and upwardly extending portions 20. The upwardly extending portions 20 of the angle irons 16 are formed at right angles to each other whereby they may be fitted into a corner of the table, one of the angle irons 16 being secured in one corner of the table and another angle iron 16 being secured in another corner of the table diagonal thereto, which are formed by the meeting of certain ends of the side rails 5 and 6, where they are secured in said corners to the inner surface of the side rails 5 and 6 by means of the same bolts 8 and nuts 9 which are used for attaching the corner irons 7 to the side rails 5 and 6.

The angle irons 17 pivotally support the leg side 2' and the leg side 3 of the pairs of legs in the other diagonal corners of the table and as more particularly illustrated in Fig. 7 each angle iron 17 comprises a depending portion 21, on inwardly extending portion 22 at right angles thereto which is of less length than the outwardly extending portion 19 of the angle irons 16 and is adapted to seat up against a shoulder 23 formed by groove 24 provided on the inner surface adjacent one end of each of the side rails 6. The angle irons 17 also include an upwardly extending portion 25 and a portion 26 bent at right angles thereto so that the upwardly extending portion 25 and the portion 26 of the angle irons 17 day be fitted into a corner of the table which is diagonally opposite to the corner formed by the meeting of the other ends of the side rails 5 and 6 and secured to the inner surfaces of the side rails in said corners by the bolts 8 and nuts 9 which are used for attaching the irons 7 of these corners to the side rails.

By this construction the leg side 2' of the pair of legs 2 and 2' and the leg side 3, of the pair of legs 3 and 3', or in other words one leg of each pair, is situated close to its corner so that it will lie along the lower edge of the side rails 6 when in a folded or inoperative position, as illustrated in Fig. 5, and the other leg 2 of the pair of legs 2 and 2' and the leg 3' of the pair of legs 3 and 3' are pivoted a short distance away from their corners diagonally of the table in order to allow the legs 2 and 3 and the legs 2' and 3' to fold adjacent to each other on opposite sides of the table in alternate relation and with the upper surface of the legs being in the same plane.

The set of legs 2 and 2' and 3 and 3' are further secured to the cross bars 12 by fixed braces 27. The legs are braced perpendicular to the plane thereof by folding or collapsible braces 28 and 29 comprising links 30 and 31 which are pivotally connected together at one end at 32. The other ends of the links 30 are pivoted to the legs 2 and 2' and 3 and 3' at 33, while the other ends of the links 31 terminate in inverted substantially V-shaped offset portions 34 which are pivotally secured to the connecting bars 35 and side rails 6 at 36. The substantially V-shaped offset portions 34 on the ends of links 31 are inverted from the offset portions disclosed in my above mentioned patent, whereby the folding or collapsible braces 28 and 29 may be shortened which gives greater strength and stability thereto and permits an operating lever to pivot nearer the top of the table whereby the depth of the sides of the table may be diminished, improving its appearance and increasing its compactness when the legs thereof are in an inoperative or collapsed position.

Referring to Figs. 2 and 4, a stop 37 is provided as an extension of the links 31 of the folding braces 28 and 29 to abut against the table side of links 30 and thus prevent the braces from unfolding beyond a straight line and holding them in a more rigid position. Connecting rods 38 and 39 are provided between the inverted V-shaped offsets 34 of the links 31, one of the ends of said rods being pivotally secured to said offsets at 40 and 41, respectively, and the other ends thereof terminating in crooks 42 and 42', respectively, which crooks 42 and 42' are pivotally secured to spaced pivot bearings 43 and 44 provided on opposite ends and on opposite sides of rotatable lever or crank members 45. The rods 38 and 39 are so connected with the inverted V-shaped offsets 34 and the lever members 45 that the crooks 42 and 42' on the connecting rods 38 and 39 are in opposed relation to each other. Each lever member 45 is fixedly secured by welding or in any other suitable manner, such as by a set screw 46 to an operating or control lever O which extends across the table between the connecting bars 35 and side rails 6 and has one of said lever members 45 fixedly secured at each of the remote ends thereof. The said remote ends of the lever O extend through each of the connecting bars 35 and pivotally engage in a well 47 provided in the side rails 6 of the table, midway between the pivot bearings 43 and 44 of the lever members 45 thereby making the pivot, upon which the control lever or handle O rotates, stationary at all times. In order to provide smoothness in the rotation of the lever O each remote end thereof may rotate in a bearing 48 which extends through the connecting bar 35 into the well 47 in the side rails 6, as illustrated in Fig. 3.

The control lever or handle O containing the lever members 45 is connected by said lever members to all of the side corner or leg moving linkages so that upon movement thereof both sets of legs 2 and 2' and 3 and 3' will simultaneously be collapsed or extended into operative position. This control lever O comprises a substantially bail or U-shaped member 49 made of resilient material which is adapted to be sprung into a locked or latched position by means of any suitable spaced latch members 50 and 51. In the present case the latch members 50 and 51 are pivotally secured to opposite sides of the

cross-brace 10 and each comprises a finger engaging portion 52 which is held in an operative position by means of a spring 53.

To operate my device when the legs of the table are in an extended or open position, as illustrated in Figs. 1, 3 and 4, I proceed as follows:

I first grasp one of the sides of the table paralleling the leg axis and place the table in a sloping inverted position so that the extended legs will be away from me. Next with the other hand I grasp the operating lever O near its middle, press slightly thereon and push outwardly on the finger engaging portion 52 of the latch member 50, thus rotating the latch member 50 on its pivot against the action of its spring 53 to release the operating lever therefrom and then swing the operating lever across the bottom of the table.

As the operating lever is swung upon the axis of rotation thereof, it rotates the lever members 45, whereby upon a half turn being given to the lever members 45, the pivot bearings 43 and 44 thereon which join the connecting rods 38 and 39 to the lever members 45 will change positions, the first bearing 43 moving over to the other side of the lever members and the pivot bearing 44 moving over to the opposite side of the lever members, thereby causing the crook ends 42 of the connecting rods 38 and the crook ends 42' of the connecting rods 39 to change positions, whereby equal movement is applied to the connecting rods 38 and 39 for forcing the connecting rods against the inverted V-shaped offset portions 34 which rotate the folding or collapsible braces 28 and 29 on their pivots 36, thus simultaneously folding the pairs of legs 2 and 2' and 3 and 3' on their axis 15 into inoperative position with the legs of one pair alternating with the legs of the other pair and with the upper surfaces of the legs being in the same plane, as illustrated in Fig. 5. The operating lever is then swung into its latched position with the latch member 51, thus locking the legs 2 and 2' and 3 and 3', into their collapsed or inoperative position. To raise the legs from their collapsed position the movement of the operating lever is simply reversed, thus rotating the lever members 45. The reverse movement of the operating lever O and lever members 45 causes both pairs of legs to be simultaneously moved into an extended or operative position. The lever O is then sprung into a locked position with the latch member 50 against the action of its spring 53 to lock the pairs of legs 2 and 2' and 3 and 3' into their extended or operative position.

It will thus be seen that I have invented a novel, simple and efficient article of furniture of the folding type which is well adapted for all the purposes designated. Even though I have herein shown and described my device as comprising certain structural elements, it is nevertheless to be understood that changes may be made therein if the changes do not depart from the spirit or scope of the claims.

Having described my invention, what I claim as new and wish to secure by Letters Patent is:

1. A table of the folding type comprising in combination, a frame having ends, a table top on said frame, a unitary pair of leg members pivoted to said frame at each end, a plurality of folding braces having outer and inner ends, one of each of the outer ends of said folding braces pivoted to one of each of said legs and the inner ends of said folding braces pivoted to certain opposite sides of said frame, an operating lever having ends pivoted to said opposite sides of said frame, block members, one of each of said block members fixedly secured to one of each of the ends of said lever, bars, one end of one of each of said bars pivoted to one end of one of each of said block members and one of each of other ends of said bars pivoted to one of each of the inner ends of said folding braces whereby upon the operation of said lever said pairs of leg members are simultaneously moved to a folded or unfolded position.

2. A table of the folding type comprising in combination, a frame having ends, a table top on said frame, a unitary pair of leg members pivoted to said frame at each end, a plurality of folding braces having outer and inner ends, one of each of the outer ends of said folding braces pivoted to one of each of said legs and the inner ends of said folding braces pivoted to certain opposite sides of said frame, an operating lever having ends pivoted to said opposite sides of said frame, block members, one of each of said block members fixedly secured to one of each of the ends of said lever, bars, one end of one of each of said bars having crooks thereon pivoted to one end of one of each of said block members and one of each of the other ends of said bars pivoted to one of each of the inner ends of said folding braces whereby upon the operation of said lever said pairs of legs are simultaneously moved to a folded or unfolded position.

3. A table of the folding type comprising in combination, a frame having ends, a table top on said frame, a unitary pair of leg members pivoted to said frame at each end, a plurality of folding braces having outer and inner ends, inverted substantially V-shaped offset portions provided on the inner ends of said folding braces, one of each of the outer ends of said folding braces pivoted to one of each of said legs and the substantially V-shaped offset portions on the inner ends of said folding braces pivoted to certain opposite sides of said frame, an operating lever having rectilinear axial ends pivoted to said opposite sides of said frame, block members, one of each of said block members fixedly secured to one of each of the said axial ends of said lever, and bars, one end of one of each of said bars being bent and pivoted to one end of one of each of said block members and one of each of other ends of said bars pivoted to one of each of said substantially V-shaped offset portions on the inner ends of said folding braces, whereby upon the operation of said lever said pairs of legs are simultaneously moved to a folded or unfolded position.

CHARLES J. SYMMONDS.