Aug. 26, 1947. S. L. LONG 2,426,514

FOLDING TABLE

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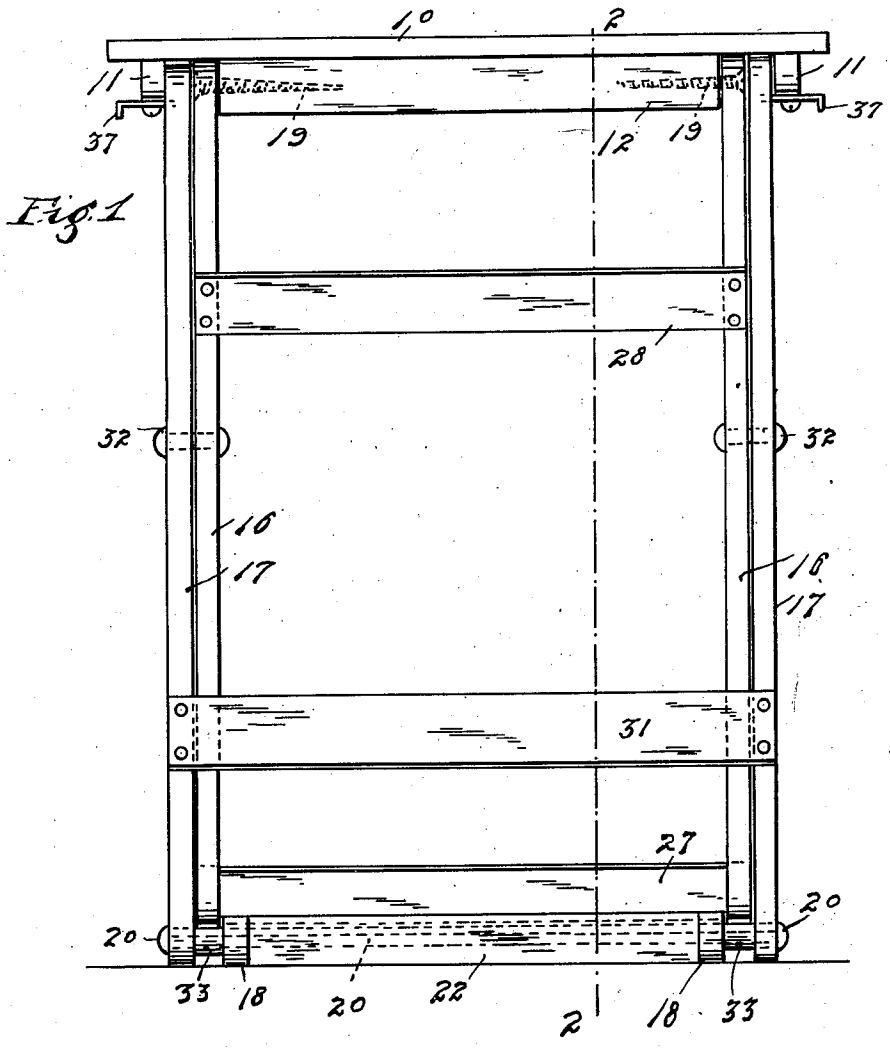


Fig. 1

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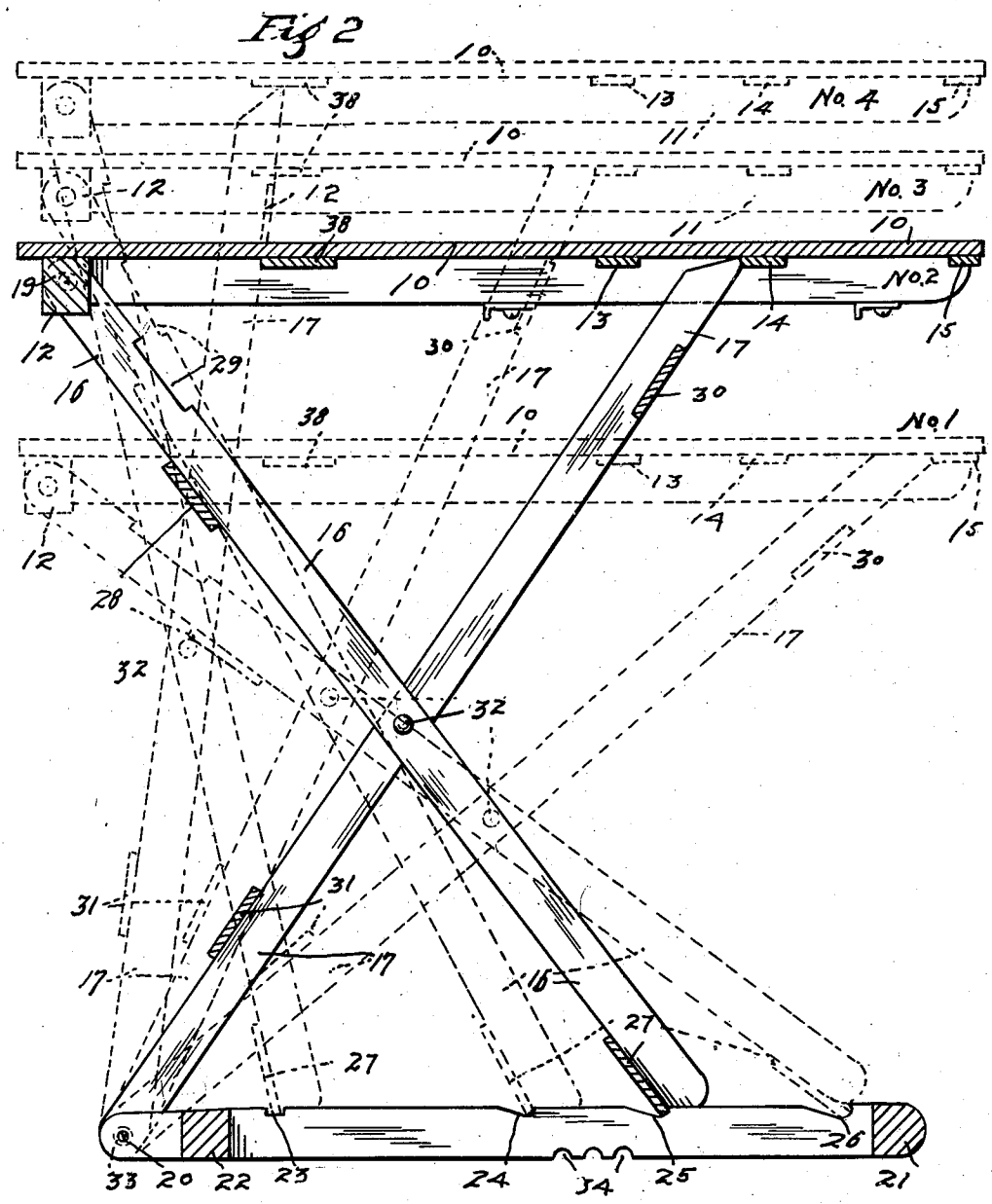
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Aug. 26, 1947. S. L. LONG 2,426,514

FOLDING TABLE

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Fig 2



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FOLDING TABLE

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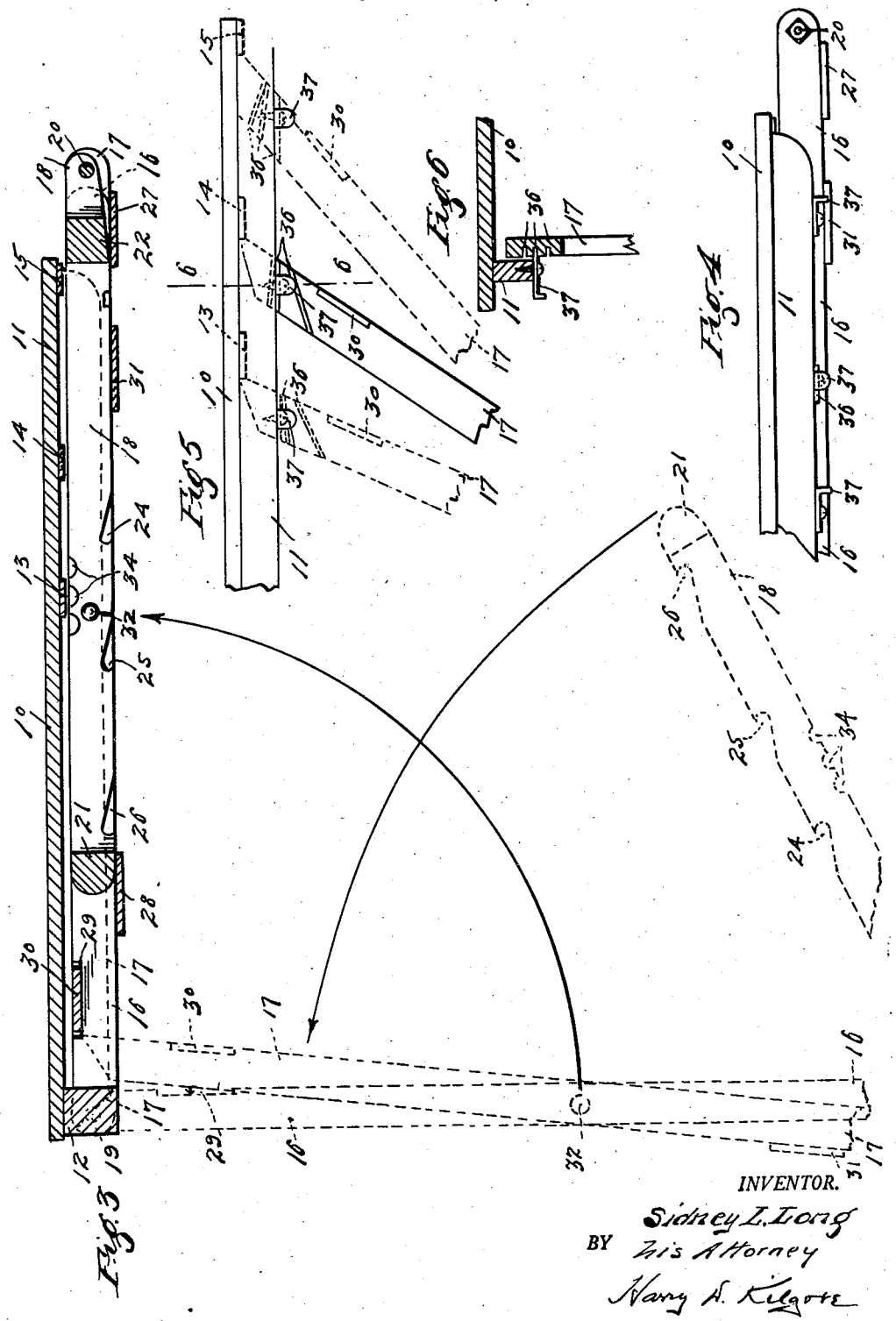


Fig. 3

Fig. 5

Fig. 6

Fig. 4

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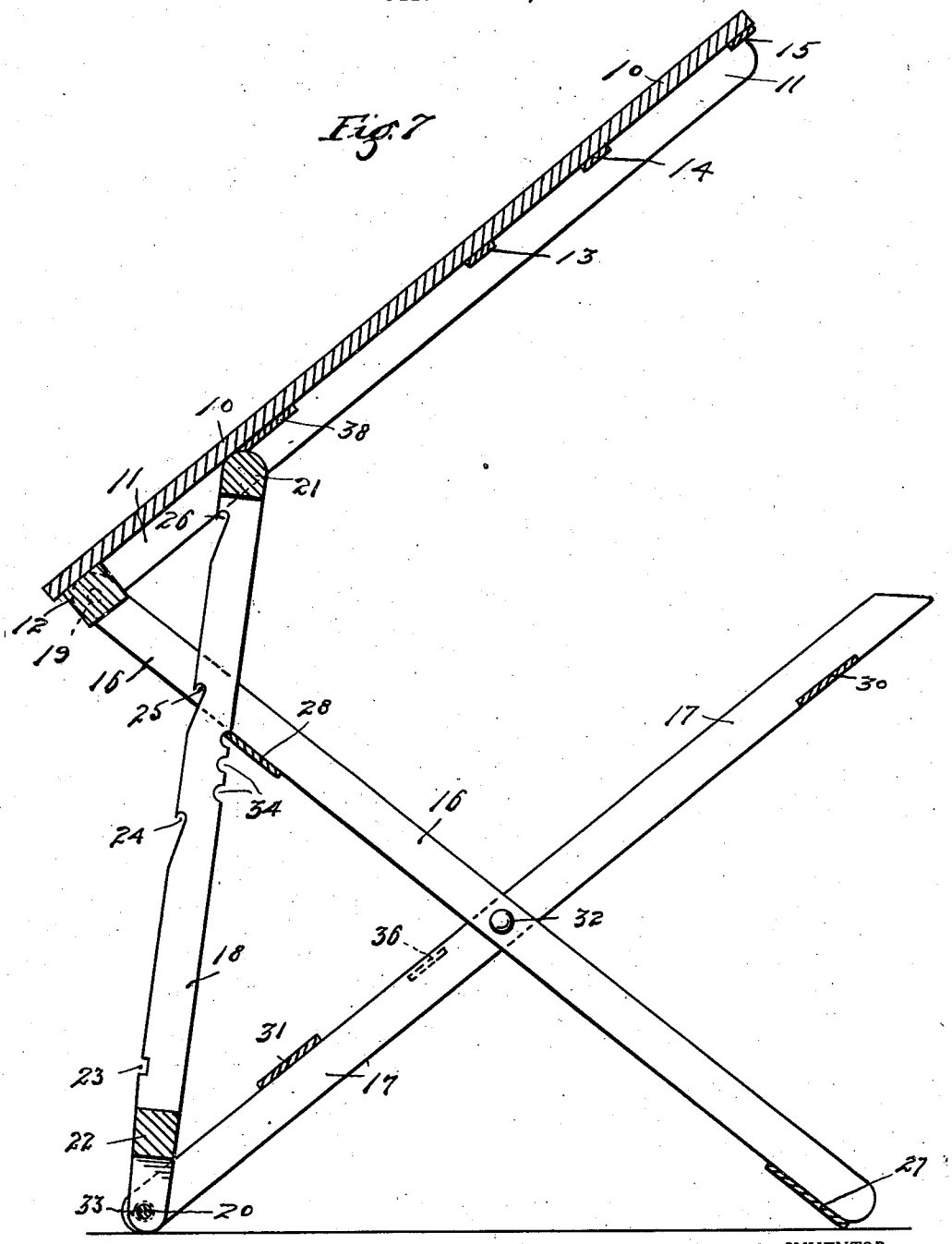
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Aug. 26, 1947. S. L. LONG 2,426,514

FOLDING TABLE

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Fig. 7



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Patented Aug. 26, 1947 2,426,514

UNITED STATES PATENT OFFICE

2,426,514

FOLDING TABLE

Sidney L. Long, Minneapolis, Minn.

Application November 6, 1944, Serial No. 562,157

7 Claims. (Cl. 311—83)

1

My present invention provides an extremely simple and highly efficient folding table and, generally stated, consists of the novel devices, combinations of devices and arrangements of parts hereinafter described and defined in the claims.

The table is of such character that it is adapted for a very large number of different adjustments adapting it for various and numerous different uses. It is of such nature that it is especially adapted to be made entirely of wood but may be made of other materials or combinations of materials as far as the broad idea is concerned.

Generally stated, the objects of the invention are: small cost of construction, ability for adjustments to the various different desired uses, rigidity of construction when set up, and capability of folding into flat formation in which the folded parts will occupy little or no greater space than the thickness of one of the table elements.

The nature of the structure and the various different uses thereof will be better understood after having first described a commercial form of the device illustrated in the accompanying drawings wherein like characters indicate like parts throughout the several views.

Referring to the drawings:

Fig. 1 is an end elevation showing the table set up for use;

Fig. 2 is a vertical section taken through the table on the line 2—2 of Fig. 1, one position of the table being shown by full lines and several other adjustments thereof being illustrated by dotted lines;

Fig. 3 is a section taken on the same line as Fig. 2 but showing the table folded and illustrating by dotted lines certain of the steps performed in folding the table;

Fig. 4 is a side elevation showing the table folded, some parts being broken away;

Fig. 5 is a side elevation, with parts broken away, illustrating the manner in which one of the leg frames is adapted to be locked to the table top;

Fig. 6 is a fragmentary section taken on the line 6—6 of Fig. 5; and

Fig. 7 is a section taken on the same line as Fig. 2 but showing the table structure adjusted for use as an easel or with the table top held in an inclined position.

The table top 10, on its underside, is provided with longitudinally extended side rails 11 and at one end with a rigidly secured hinge bar or heavy cleat 12, the ends of which terminate short of

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the side rails 11. Also on its underside the table top 10 is provided with a plurality, as shown three, of stop cleats 13, 14 and 15.

The table top is supported by transversely crossed leg frames 16 and 17 and a base frame 18. The base frame 18 and the leg frames are substantially rectangular structures comprising parallel bars rigidly connected in pairs by transverse tie connections. The leg frames 17 are wider than the leg frames 16 and the leg frames 16 are wider than the base frame 18. The bars of the leg frame 16, at their upper ends, are pivotally connected at 19 to the ends of the hinge bar or cleat 12, so that bars 17 come just inside of and in close engagement with the rails 11 of the table top. The lower ends of the bars of the leg frame 17 are pivotally connected to the rear ends of the bars of the base frame 18 by a transverse hinge rod 20 that is extended transversely through the connected members.

The rails of the base frame 18, at their free ends, are rigidly connected by a cross bar 21 and just forward of the hinge 20 are further connected by a cross bar 22. In their upper edges the rails of the base frame 18 are formed with lock or stop notches 23, 24, 25 and 26. The lower ends of the bars of the leg frames 16 are connected by a cross slat 27 applied to the rear sides of said bars and located with their lower edges near the lower ends of said bars. The lower edge of this slat 27 is adapted for engagement, at will, with the notches 23, 24, 25 and 26. For a reason which will presently appear, the notches 24, 25 and 26 are progressively, from the left toward the right, cut lower and lower into the upper edge of the rails of the frame 18. The bars of the leg frame 16, at their upper portions, and on the same side as the slat 27, are further cross-connected by a slat 28 and farther up on the front sides the bars of said leg frame 16 are shown as notched at 29 to receive a cross slat 30 that is rigidly applied to and connects the upper ends of the bars of the leg frame 17, when the structure is folded, as will presently appear.

The bars of the leg frame 17, on their lower portions and on their rear sides, are further tied together by a cross slat 31 which is farther up than the slat 27 and hence will not engage the latter when the leg structure is folded. The bars of the leg frames 16 and 17 are pivotally connected at 32. By reference particularly to Fig. 1, it will be noted that spacing sleeves 33 are placed on the hinge rod 20 between the bars of the leg structure 17 and the bars of the base

frame 18. These sleeves space the bars of the said elements 17 and 18 so that the bars of the leg frame 16 may fold between the same. Moreover, it is important to note that the bars of the leg frame 16 are short enough so that they will clear the pivoted ends of the bars of the base frame 18.

For purposes which will hereinafter appear, the bars of the base frame 18 are formed on their under sides with notches 34. The bars of the leg frame 17, near their upper ends, are provided with diverging lock grooves 36. For engagement with the lock grooves 35 and 36, see particularly Figs. 5 and 6, the rails 11 of the table top are, as shown, provided with pivoted lock levers 37.

Referring now to Fig. 2 which illustrates various different adjustments of the table for height, the position marked No. 1 is a low adjustment such as would probably be required for use by children; position No. 2 is a position probably required for a card table; position No. 3 is a position usually required for a dining table; and position No. 4 is a position such as required if the table board was to be projected over the top of a bed as frequently required in hospitals. In all of these positions the strain, due to the weight of the table top or parts thereon, is taken in direct end thrust through the bars or leg frames and there is little or no strain on the pivot joints 32. In fact, the pivot joints 32 are only necessary to bring the leg frames to proper positions. In the lower position No. 1, the upper ends of the leg bars engage the stop cleat 15; in the position No. 2 the upper ends of said leg bars engage the stop cleats 14; in the position No. 3, the upper ends of said leg bars engage the stop cleat 13; when in the position No. 4, the upper ends of said leg bars engage a spacing cleat 38 secured to the bottom of the table top. This spacing cleat 38 is found desirable to bring the table top to a level when the parts are adjusted as shown in position No. 4.

In the said position No. 4, the lower edge of the slat 27 engages the notch 23 in the bars of the base frame 18 and thereby locks the leg frames against spreading movements. In the position No. 3, the lower edge of the slat 27 engages with the notches 24; in the position No. 2, the lower edge of said slat 27 engages notch 25; and in the position No. 1, the lower edge of said slat 27 engages notch 26.

In practice it is found that the progressively increasing depth of the lock notches 24, 25 and 26 in the direction stated and in the order named is, in order to keep the table top level, necessary to compensate for the downward movement of the lower edge of the slat 27 due to the downward movement thereof produced by the decreasing angle of the leg frame 17.

To positively lock the leg frame 17 to the table top in the positions Nos. 1, 2 and 3, the turn buttons or lock levers 37 are turned into one or the other of the co-operating notches 36 in the upper ends of the bars of said leg frame 16, see particularly Fig. 6. By reference particularly to Fig. 5, it will be noted that the ends of the levers 37 will go into the particular slot 36 that is horizontal or parallel to the bottom of the rails 11 in the respective positions of the leg members.

Fig. 7 illustrates a very different adjustment of the table structure in which the base frame is turned backward and then upward with one or the other of its notches 34 engaged with the cross slat 28 of the leg frame 16 and with the

inclined table top turned down against the upper end of said base frame, thereby causing the latter to act as a strut to hold the table top inclined for use as an easel or for similar purpose where an inclined support is required. The inclination of the table top can be varied by engagement of the slat 28 with different notches 34.

In Fig. 3 the table is shown as completely folded by full lines, the dotted lines indicate the order of folding. When the leg frame 16 is turned down the leg frame 17 will be turned as indicated by the curved line *a* until the two leg frames are nearly or quite in the same plane and then the two leg sections are turned on the line *b* to completely folded positions in which the thickness of the folded structure is approximately the same depth as the table top with its under surface members including the bar 12. When the parts are thus folded they may be locked together by turning the levers 37 into engagement with the slots 36 in the ends of the leg frame 17 as shown in Figs. 4, 5 and 6. Fig. 4 also shows the thickness of the folded structure.

The ability to fold the structure into this small compact and flat formation is due to the relative arrangement and widths of the supporting members 16, 17 and 18. Obviously, the folded structure will occupy but very little space and in fact a large number thereof can be packed in a comparatively small space. This is not only important for packing and shipping and resulting low freight rates, but adapts the tables or a number thereof to be carried in auto trunks, in trailers and the like. In fact, this table will be found very desirable for use in connection with trailers. It is however a desirable device and capable of many uses too numerous to enumerate.

A preferred form of the device has been illustrated but it will be understood that the same is capable of modification within the scope of the invention herein disclosed and claimed.

The leg frames 16 which, at their upper ends, are pivoted to the rear end of the table top, may be designated as the rear legs and the leg frames 17 that are pivoted to the base frame may be designated as the brace legs.

Attention is called to the important fact that when the upper ends of the bars of rear legs 17 are locked to the table top by the levers or other locks 37, the ends of the bars of the rear leg 16 will be locked to the base frame 18 by the overhanging portions of the engaged notches 24, 25 or 26, as the case may be, and which overhanging portions then overlap the lower edge of the slat 27. Thus when the parts are locked, the whole table structure will be locked together as a single unit and can be carried around without displacement of any of the adjusted parts.

What I claim is:

1. The combination with a table top and a base frame, of rear legs pivotally connected at their upper ends to the rear end of said table top, and at their lower ends having stopped detachable engagement with said base frame, brace legs pivotally connected, at their lower ends, to the rear end of said base frame and at their upper ends, having detachable stopped engagement with said table top, said base frame being narrower than the distance between said brace legs and free to be turned upward between said brace legs to support the table top in an oblique position, said rear legs to be intermediately pivoted to said brace legs.

2. The structure defined in claim 1 in which said rear legs, brace legs, and base frame are

made up of laterally spaced bars and transverse connecting slats, the bars of said brace legs being spaced farther apart than the bars of said rear leg and the bars of said rear leg being spaced farther apart than the bars of said base frame, whereby the said base frame, rear legs and brace leg structures may be folded into flat parallel relation against the bottom of the table top.

3. The structure defined in claim 1 in which the bars of said rear leg, at their lower ends, are connected by a cross slat applied to the rear edges thereof, and the bars of said base frame having longitudinally spaced notches of progressively increasing depth in a direction from front toward the rear.

4. The structure defined in claim 1 in which the bars of said rear leg, at their lower ends, are connected by a cross slat applied to the rear edges thereof, and the bars of said base frame having longitudinally spaced notches of progressively increasing depth in a direction from front toward the rear, the bars of said base frame, on their under side, having notches and the bars of said rear leg having a cross slat connecting their upper portions and engageable with said last noted notches when said base frame is turned downward, backward and upward into engagement with the table top to support the latter in an inclined position.

5. In a folding table, a table top, a base frame, a pair of leg frames pivotally connected at their intermediate portions, one of said leg frames being pivotally connected to one end of said table top and having separable stop engagement with said base frame and the other leg frame being pivoted to one end of said base frame and having stop engagement with the bottom of said table top, said base frame being free to swing relative to the pairs of leg frames, said table top being provided with side rails and at one end with a hinge bar that terminates short of said side rails, the leg frames having side bars, the side bars of the leg frame that is pivoted to said table top being located between the adjacent side rails and the ends of said hinge bar, directly pivoted to the latter, and spaced from the side rails to leave clearance for the side bars of the other leg frame.

6. In a folding table, a table top, a base frame, a pair of leg frames pivotally connected at their intermediate portions, one of said leg frames being pivotally connected to one end of said table top and having separable stop engagement with said base frame and the other leg frame being

pivoted to one end of said base frame and having stop engagement with the bottom of said table top, the leg frame that is pivoted to said base frame being wider than the leg frame that is pivoted to said table top and said base frame being narrower than the leg frame that is pivoted to said table top, whereby said leg frames and base frame may be folded into flat formation parallel to said table top, said base frame being free to swing relative to the pairs of leg frames, said base frame being free to be turned downward, rearward and upward so that its free end will engage the bottom of the table top and support the latter in an inclined position.

7. In a folding table, a table top, a base frame, a pair of leg frames pivotally connected at their intermediate portions, one of said leg frames being pivotally connected to one end of said table top and having separable stop engagement with said base frame and the other leg frame being pivoted to one end of said base frame and having stop engagement with the bottom of said table top, said base frame and leg frames comprising parallel pairs of bars and transverse connecting slats, the leg frame that is pivoted to said base frame being wider than the leg frame that is pivoted to said table top and said base frame being narrower than the leg frame that is pivoted to said table top, whereby said leg frames and base frame may be folded into flat formation parallel to said table top, said base frame being free to swing relative to the pairs of leg frames, said base frame being free to be turned downward, rearward and upward so that its free end will engage the bottom of the table top and support the latter in an inclined position.

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