

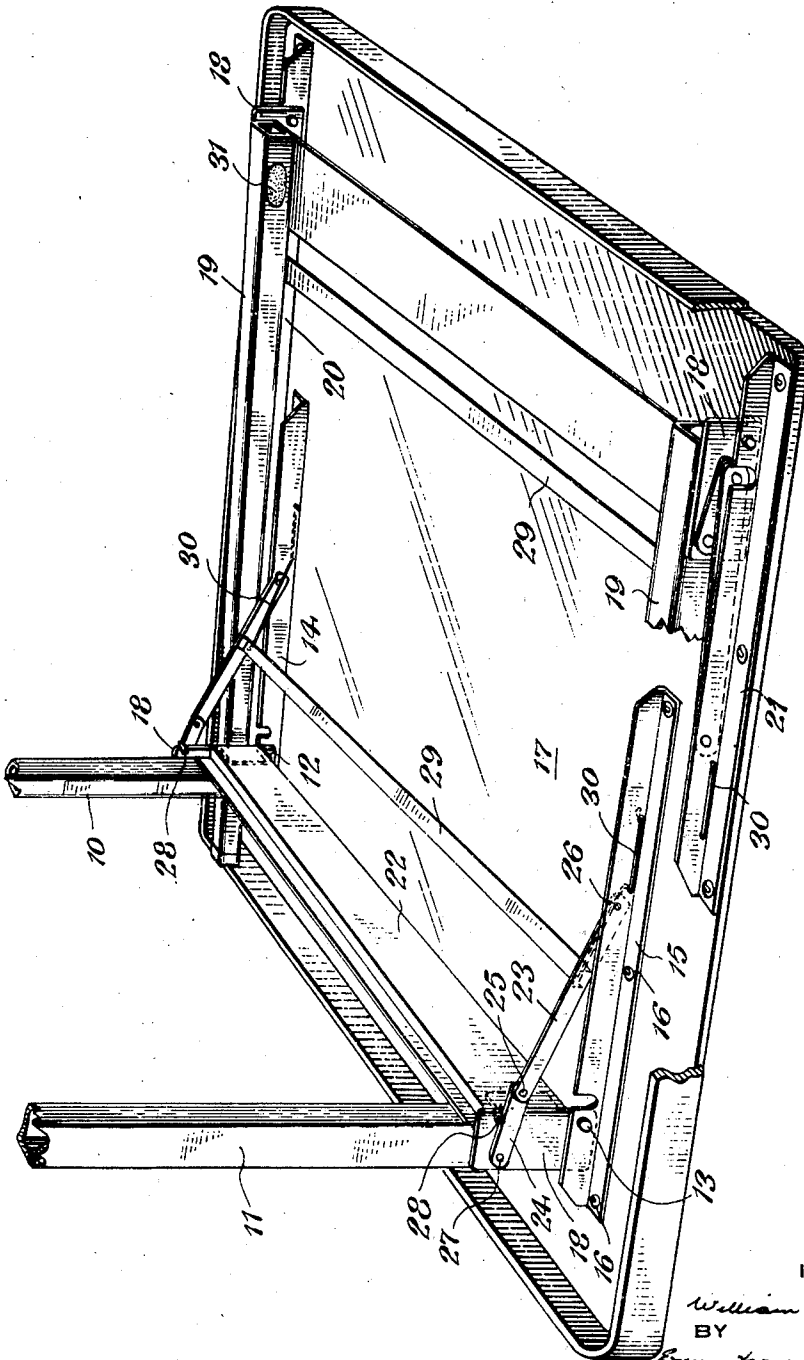
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FOLDING TABLE

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FOLDING TABLE

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This invention relates to improvements more especially applicable to folding tables of the smaller sizes such as are adapted for use as card tables, typewriter tables and the like and of the type in which toggle links are employed to control the movements of the legs which are generally connected together in pairs so that the legs of each pair can be moved simultaneously and in unison in erecting and collapsing the table.

These improvements have been designed to provide a table of this type to be constructed preferably from thin metal sheet in a manner to afford a light weight, simple and strong self-contained folding and paired-leg assembly, including supporting rails on which the legs and toggle links pivot and which serve to reinforce the table top as well as for the attachment of the legs to the table top. These and other advantages of my improved construction will be apparent from the following description of a folding table embodying my invention.

In the drawings, the single figure is a perspective view of such a table as seen from the underside thereof, with the reinforcing and protecting rail surrounding the edges of the table top partly broken away, and with one leg-pair shown in its erected position while the other leg-pair is shown in folded position with the end of one of its legs broken off for convenience in illustration.

As shown in the drawings, the pair of legs 10, 11 at the right hand end of the figure are pivotally connected at the points 12, 13 respectively to rails 14, 15 which are rigidly secured in any suitable manner, as by screws 16, to the underside of the table top 17 so as to extend lengthwise of the table top, such pivotal connections being provided conveniently by studs formed on plates 18 secured to the upper ends of the legs, such studs entering the rails as shown clearly, for example, in the case of the pivotal stud for the leg 11. The other pair of legs 19 are likewise pivotally connected respectively to a second pair of rails 20, 21 similarly secured to the underside of the table top and also extending lengthwise of the table top, but are placed exteriorly of the first mentioned pair of rails so that the legs pivoted to the first pair of rails, when all the legs are all folded flat against the table top, will lie within the legs pivoted to the second pair of rails. Moreover, the inner ends of one rail-pair preferably overlap the inner ends of the other rail-pair to provide a continuous stiffening or reinforcement for the table top center which otherwise might be flexible or weak. And each said rail, if of metal, may most conveniently consist of the common angle form

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whereof one flange may be secured to the table top and the other used for the attachment of the legs as shown, and of the toggle links presently to be described.

The legs of each leg-pair are connected together, so that both will move or be capable of being moved simultaneously and in unison to their erect or folded positions by a cross piece 22 which may be of a hollow box-like structure or truss formation to give it rigidity, and which is secured to the inner faces respectively of the legs near their top portions.

Each set of toggle links, of which there are four sets, that is, two sets for each leg-pair, comprises two links, one 23 of which is substantially longer than its companion link 24, the link 23 being shown in the present case as approximately three times as long as the link 24. The inner ends of these two links in each set are jointed together pivotally in any suitable manner to form the knuckle 25 of the toggle, while the other end of the longer link is pivoted to one of the rails and the other end of the shorter link to one of the legs. Referring, for example, to the leg 11 and its associated or operatively related toggle set, it will be seen that the longer link 23 thereof is pivoted to the rail 15 at a point 26 which is relatively distant from the pivotal connection 13 of the leg 11 to the table top, and that the shorter link 24 is pivoted at the point 27 relatively near the table top (as compared with the distance between the pivots 13 and 26) and lies (when the leg 11 is in its erected position) at a greater distance from the table center than a line perpendicular to the table top and passing through the pivot 13. It will be understood that the same relation that exists between the pivots 13, 26 and 27 with respect to the leg 11 and its associated rail and toggle set, prevails in respect of each of the other legs and the corresponding parts with which it is associated, the purpose of this relation or arrangement being (1) to increase the leg room under the table (more particularly in the case of low tables) by attaching the shorter link near the top of the leg, (2) to gain rigidity and stiffness by carrying the point of thrust of the toggle far from the leg-rail-bearing and nearer the center line of the table top thus ensuring greater rigidity with lighter material in the rail, and (3) to provide a start for the movement of the toggle in the right direction when the legs are erected from their folded position.

Means, such as a positive stop 28 formed on each of the plates 18, or at least on one of the two such plates associated with each leg-pair,

is provided to limit the movements of the toggle links when erecting the legs from their folded position, each such stop being so located as to be contacted by the shorter link of the corresponding toggle set as soon as the knuckle of that set has passed its dead center position, thus causing the toggle thrust to act against the stop by contact with the shorter link.

The longer links of the two toggle sets associated with each leg-pair are cross-connected by a stiff light member 29, such as a channel or angle, so that the links will operate or may be operated in unison, and particularly so that when the legs are in their erected position pressure applied near the center of such cross member in the direction to cause the knuckle to break, will cause both knuckles to break simultaneously and permit the folding or closing of the legs.

A spring 30, or two such springs, each of which, for example, consisting of a stiff piece of wire, may be employed to assist the toggle sets of any leg-pair to move from their folded position and their links to assume a straight line position, and while in this position or slightly forward of this position, to maintain a pressure of the shorter links against the positive stops 28, thus ensuring the legs against folding or collapsing when in their erected position. As shown, one end of either of said springs is passed twice through the corresponding rail to attach it securely thereto while the other or free end of each spring bears against the cross member 29 connecting the toggle sets of a leg-pair.

Moreover, when the table stands erected, the weight of the toggle links and cross-connecting bars acts in the same direction as the aforesaid springs and aids the springs in maintaining the pressure of the shorter links against the aforesaid positive stops, thus increasing the security of the table in its erected position and particularly against shocks or blows and such strains as might occur in moving or dragging the table; and through these same means, the table may be readily erected automatically by holding it in its folded position top-side up and giving it a quick upward movement whereby sufficient momentum will be added to the weight of the legs to cause them to open up and automatically assume their erected position. The legs are preferably held in their folded position by two friction pads 31, one on each leg of the outside leg-pair so that when the legs are folded these pads will be disposed between the top inside surface of the "outside" legs and the lower outside surface of the "inside" legs, the friction of the pads being readily overcome in the manner just described for erecting the legs automatically.

The connecting of the legs in pairs as described, and the direction of the movement of the toggle links and cross-connecting bar are all designed

to promote compact folding of the legs in a minimum of space without interference and without necessarily following any particular sequence.

It will be understood that the word "table," as used herein, is intended to include benches, seats and other similar devices, whether of wood or metal, and that this invention is applicable thereto as well as to tables per se, although its utility will generally be greater for tables and other such devices of the shorter lengths.

I claim as my invention:

1. A folding table whereof the legs are pivoted to the table top and connected in pairs so that in erecting and collapsing them the legs of each pair will move simultaneously, said table having two sets of toggle links in operative relation to the table top and to the legs of each respective leg-pair, each toggle set having a cross bar extending from a link of one toggle set to the corresponding link of the other toggle set and a spring one end of which is fixed in relation to the table top and the other end of which contacts said bar so as to urge the associated leg-pair at all times toward their erected position, and a friction device carried by a leg of one leg-pair and in such position thereon as to be contacted by a leg of the other leg-pair when the leg-pairs are in their folded position whereby with each leg-pair in its folded position a quick upward movement of the table with its top side uppermost will release the leg-pairs from frictional engagement and permit them to assume their erected position automatically through the action of the springs.

2. The folding table of claim 1 further characterized by this: that one leg-pair lies within the other leg-pair when in their folded position against the table top, and that the friction device comprises a pad secured to one of the legs of a leg-pair so as to contact with the adjacent leg of the other leg-pair when the leg-pairs are in their folded position.

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