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H. HOWE

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FOLDING DEVICE FOR TABLES AND THE LIKE

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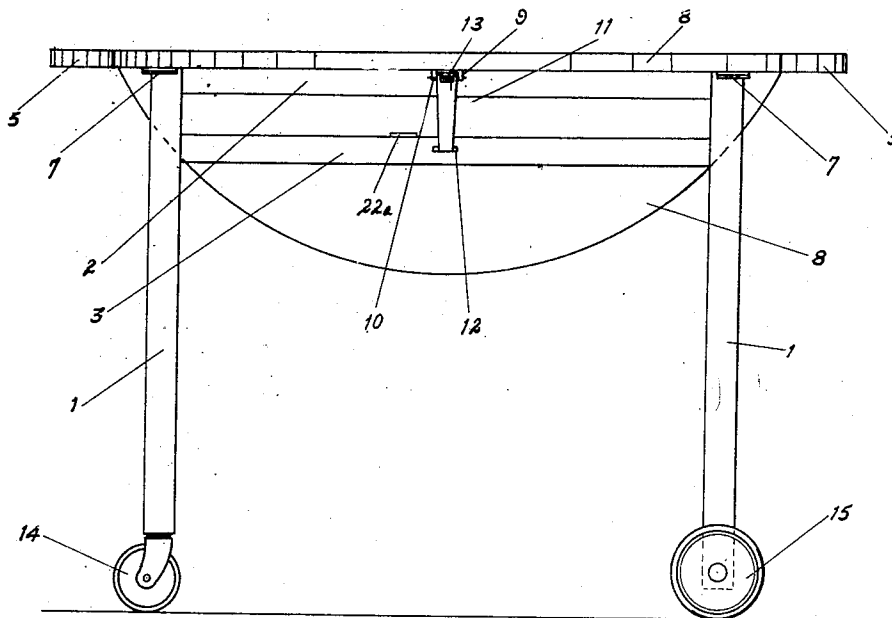


Fig. 1.

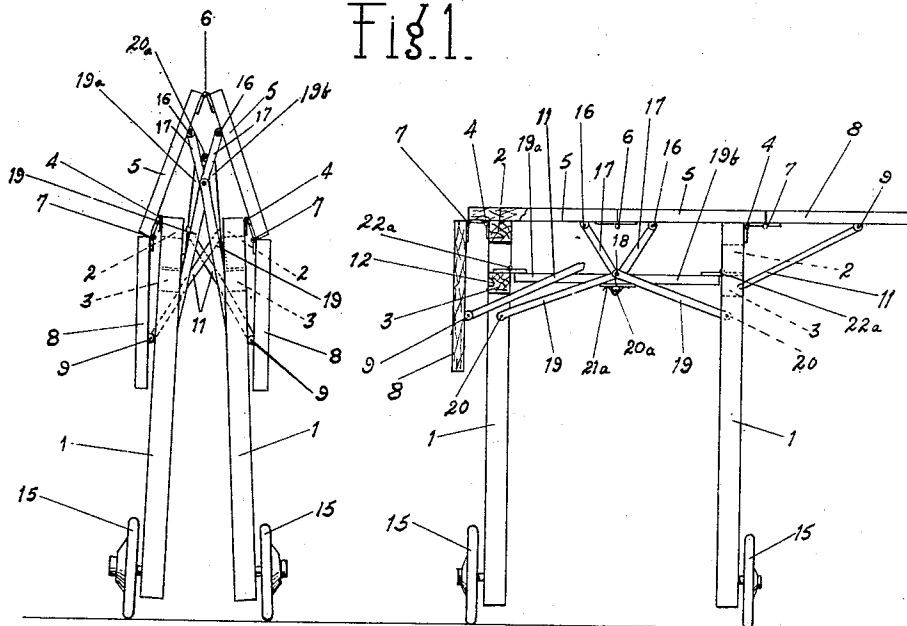
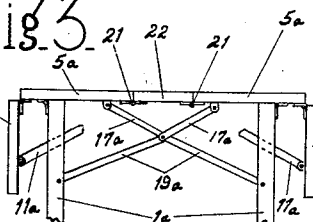


Fig. 3.

Fig. 2.

Fig. 4.



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FOLDING DEVICE FOR TABLES AND THE LIKE

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My invention relates generally to folding devices for tables and the like and particularly to serving tables such as are used in hotels for room service and likewise used in clubs, churches or the home.

The ordinary type of round serving table with drop leaves in common use today is a non-folding table requiring a large amount of storage space when not in use and is difficult to transport from the storage space to the room or other point where it is to be used, and which is generally difficult and awkward to handle. It is the primary purpose of my invention to provide a simple, inexpensive folding table for this purpose, which occupies but a fraction of the storage space required for the non-folding type of table, which is easily and conveniently portable, which may be set up for use with a minimum amount of effort, which when unfolded for use provides a substantial table of relatively large size and which when it has served its purpose can be easily and quickly folded and disposed of out of the way, either in the room where it is used or in the usual storage place provided in the hotels, clubs, etc.

Another object of my invention is to provide a design for a table of this character which makes it economical to manufacture, sturdy of construction, easily operated and free of extraneous attachments, locking devices, etc.

One of the principal features of my invention is a folding means by means of which an operator may with the greatest ease fold or unfold a table to operative or inoperative position, and which when so folded or unfolded remains in such position for use or transportation.

More specifically, my invention contemplates the provision of a system of pivoted links or braces, which permits ready folding or unfolding of a table or other foldable device to which my invention may be applied by manipulation of the table top at either end or either side, and with an ease which permits ready operation thereof by a woman.

Another object lies in the provision of synchronized folding means whereby the

table may be folded by lifting on either side thereof.

Still another object lies in the provision of novel means for utilizing drop leaves for the table and supporting them in extended or unfolded position.

A further object lies in the provision of a wheel support for the table, which provides a substantial and rigid supporting means for the table in unfolded or ready to use condition, and which provides a ready and easy means of transportation or portability with the table in its folded position.

Still another object of my invention lies in the provision as a modified form, of a table provided with a central top piece which serves as a support in either the folded or unfolded position of the table.

Other objects and advantages in details of construction and operation will be apparent as the description proceeds, reference now being had to the figures of the accompanying drawings forming a part of this application, and wherein like reference numerals indicate like parts.

In the drawings:—

Figure 1 is a side view of a table constructed in accordance with my invention.

Figure 2 is an end view thereof, certain parts being shown in section.

Figure 3 is an end view of the table in its folded or collapsed position.

Figure 4 is a detail view of one end of a table constructed in a slightly modified manner.

The table structure consists essentially in a pair of spaced side frames, these frames each consisting of the upright supports 1 connected together at their upper ends by means of the longitudinal bar or strip 2, and further connected and held in spaced relation by a second cross bar or strip 3, spaced slightly below the upper bar 2. Each of the longitudinal bars 2 has hinged thereto at its upper and outer edge as at 4, one of the sections 5, forming the table top. These sections 5 are hinged together at their inner ends and on their underside as at 6, thereby rendering the table top collapsible upwardly when the side frames, comprising the upright 1 and

the cross bars 2 and 3, are moved toward each other, as is shown clearly in Figure 3. Likewise when the side frames are moved outwardly away from each other to the position shown in Figure 2, the sections 5 forming the table top, hinge downwardly and rest upon the upper surfaces of the cross bars 2. Such cross bars therefore forming a substantial support for the outer edges of the table top and likewise serving to align these sections 5 of the top in order to provide a smooth level surface.

As is clear from Figures 2 and 3, the sections 5 forming the table top extend slightly beyond the cross bars 2 and hinged to the outer lower edges of the sections 5, as at 7, are the drop leaves 8. Secured to the underside of the drop leaves 8 is a bracket 9 forming a bearing for a pintle 10 (see Figure 1) upon which is pivoted at one end a brace rod 11 adapted to engage at its free end in a notch or groove 12 provided centrally in the cross piece 3, when the drop leaf is raised to a position flush and level with the sections 5 forming the table top, as is clearly shown in Figures 1 and 2. A coil spring 13 encircles each of the pintles 10 and engages the supporting rod 11 in such a manner as to normally urge the same upwardly into engagement with the cross bar 3 where it is automatically disposed out of the way when the table is collapsed or folded as shown clearly in Figure 3.

The uprights 1 at one end of the table are provided at their lower ends with swiveled casters 14 whereby that end of the table may be readily turned and guided in transportation or disposition for use. The uprights 1 at the opposite end of the table are supported at their lower ends by wheels 15 whereby the table as a unit when in either folded or unfolded position may be readily transported by wheeling it from one place to another.

In order that the table may be folded and unfolded in the easiest possible manner, and also in order to provide a brace for the table when in unfolded position, I have provided a novel link folding means at each end of the table which will now be described.

Adjacent each end of the table, the sections 5 forming the table top are provided on their undersides with ears or brackets 16 to which are pivoted one end of each of the links 17 of equal length and the opposite ends of which links are pivoted to a common pivot centrally disposed beneath the table top and indicated at 18. Also pivoted at their inner end to this common pintle 18, are a second pair of links 19, of equal length and having their opposite ends pivoted each to one of the upright supports 1 as at 20. It will be understood of course, that the links 17 and 19 and their pivotal arrangement are duplicated at each end of the table. It will be obvious therefore, that with this arrangement of

links pivoted at their inner ends to a common pivot 18 disposed centrally of the table and an equal distance from the upright supports 1, merely lifting upwardly on either of the sections 5 comprising the table top, will serve to fold the table top upwardly as shown in Figure 3 and at the same time by virtue of the links 19, draw the side frames toward each other whereby the table may assume the folded position shown in Figure 3. If it is desired to unfold the table and place it in condition for use, it is merely necessary to spread the side frame members consisting of the uprights 1 and the cross bars 2 and 3, whereupon through the links 17 and 19 the top sections 5 will be lowered to level abutting or coplanar position and at substantially right angles to the frame legs. The novel link arrangement makes it possible for the user of the table in unfolding the same for use to merely lift one side thereof slightly and pull outwardly away from the opposite side until the top sections 5 assume the position shown in Figure 2 resting directly upon the longitudinal cross bars 2, and in which position the table is ready for use. The length of the link members 17 and 19 prevent further spreading of the side frame and serve to support and brace the table in unfolded position. It will be noted also that a brace is provided in the form of two bars 19a and 19b, hinged together at their inner ends as at 20a, a coil spring 21a being provided around the hinge and so positioned as to normally urge the bars upwardly to longitudinal alignment. The outer ends of the bars are hinged as at 22a to the cross bars 3. When the table is folded as shown in Figure 3, the bars 19a and 19b fold upwardly. The weight which may be placed upon the top of the table is equally distributed through the links 17 and 19 and the bars 19a and 19b to the side frames of the table, whereby to provide a very rigid and solid construction for regular table use. If desired, of course, the drop leaves 8 may be raised to the position shown in full lines in Figure 1, and are held in such position by brace arms 11 engaging within the notches in the cross bar 3. It will also be observed that when the drop leaves 8 are in their upper braced position, they form a double lock and brace against the table unfolding, due to the brace rods 11 engaging the bars 3.

By considering my folding device in relation to planes or surfaces, the operation thereof becomes clear. The pivoting of a link to each surface involved in the folding and the provision of a free common pivot for the opposite ends of the links, produces a definite relation between the surfaces in folding and unfolding. For instance, each time the top sections 5 are brought to coplanar relation they are disposed and braced at sub-

stantially right angles to both the leg surfaces forming the table frame.

It will be noted with reference to Figure 3 particularly that when the table is folded or collapsed it occupies but relatively little space and is supported upon the wheels and casters 15 and 14 respectively, whereby it may be readily wheeled or transported from place to place instead of having to be carried as is the case with the rigid type of serving table. The frame portions of the table and the top sections, as well as the drop leaves may of course be made of any suitable material, but are preferably of wood of any desired finish and strength, thus providing an attractive table, light in weight, but durable and substantial. The system of connections between the folding parts is such that there is little or no likelihood of breakage or parts getting out of order and requiring repair. The entire construction is of but few parts which in production may be standardized, whereby rendering the table economical to manufacture and easy of assembly.

In Figure 4 is shown a slightly modified type, but embodying all of the features and principles shown and described in connection with the other figures. The upright members 1a correspond to the uprights 1 in Figures 1, 2 and 3, and are provided at their upper ends with the top sections 5a, the outer extending ends of which have hinged thereto the drop leaves 8a. These drop leaves are likewise provided with the supporting brace rods 11a, corresponding to the rods 11 of the other figures.

The links 17a and 19a correspond to the links 17 and 19 of the other figures.

The difference between this table and that shown in the other figures, lies in the fact that the top sections 5a are spaced apart centrally and are hinged at their inner ends as at 21 to the underside of the center piece 22 extending longitudinally of the table. It will be clear from this construction that when this table is folded to the position of that shown in Figure 3, this center section 22 will remain horizontal because of the synchronized action of the links, and provide a supporting means for anything which it may be desired to set on the table during non-use of the table in unfolded position. Thus, the table may remain in a room as a permanent piece of furniture and serve as a support for books, vases or the like during non-use. When it is desired to use the table, however, for serving, it may be unfolded whereupon the sections 22 and 5a provide a flat smooth table top as shown in Figure 4.

Although I have shown and described a construction in which the links of each pair, above and below the common pivot, are of equal length, it will be understood that, depending upon the hinge point, the links may

vary in length without departing from my invention.

It will be understood, of course, that changes may be made in details of construction and arrangement of parts. I do not limit myself therefore, to the exact form herein shown and described other than by the appended claims.

I claim:

1. A folding table comprising parallel side frames constituting supporting legs, a top section hinged to the upper edge of each frame and hinged together between and parallel with said frames, a link pivoted at one end to each frame and each top section, and a common pivot for the opposite end of all of said links.

2. A folding table comprising parallel side frames constituting supporting legs, a top section hinged to the upper edge of each frame and hinged together between and parallel with said frames, a link pivoted at one end to each frame and each top section, and a common pivot for the opposite end of all of said links, said common pivot being disposed centrally between said frames and free to swing upwardly and downwardly during folding and unfolding of the table.

3. A folding table comprising parallel side frames constituting supporting legs, a top section hinged to the upper edge of each frame and hinged together between and parallel with said frames, a link pivoted at one end to each frame and each top section, and a common pivot for the opposite end of all of said links, said common pivot being disposed centrally between said frames and free to swing upwardly and downwardly during folding and unfolding of the table, said links being disposed at each end of said table.

4. A folding table comprising parallel side frames constituting supporting legs, a top section hinged to the upper edge of each frame and hinged together between and parallel with said frame, a link pivoted at one end to the underside of each top section, said links being of the same length and having their opposite ends pivoted to a common pivot, and a link pivoted at one end to each of said side frames, said links being of equal length and having their opposite ends pivoted to said common pivot.

5. A folding table comprising parallel side frames constituting supporting legs, a top section hinged to upper edge of each frame and hinged together between and parallel with said frames, a link pivoted at one end to each of said top sections and to each of said frames and a common pivot for the opposite ends of all of said links, said links and common pivot being so disposed that said links cooperate to provide a rigid brace for the table in unfolded position.

6. A folding table comprising parallel side frames constituting supporting legs, a top

section hinged to the upper edge of each frame and hinged together between and parallel with said frames, a link pivoted at one end to each of said top sections and to each of said frames, and a common pivot below said top and between said frames for the opposite ends of all of said links, said links and common pivot being so disposed that said top sections and said frames always maintain a definite predetermined relation to each other in folded and unfolded position.

7. A folding table comprising parallel side frames constituting supporting legs, a top section hinged to the upper edge of each frame, a center top section, the inner edges of said first named top sections being hinged to said center top section, and links pivoted at one end to said first named top sections and said frames and at their opposite ends to a common pivot, whereby said table may be folded and unfolded, said links maintaining a definite predetermined relation between said top sections and said side frames.

8. A folding table comprising frames having cross bars, a foldable top for said table, drop leaves hinged to said top, and supporting means for said drop leaves cooperable with said cross bars for preventing folding movement of said frames and top when said drop leaves are in supported position.

9. A folding mechanism for three pivotally connected members, comprising three links, two of said members being foldable to coplanar relation at substantially right angles to said third member, each of said members having one of said links pivotally attached thereto, and all of said links having a free common pivot.

10. A folding mechanism for four pivotally connected members, comprising four links, two of said members being foldable to coplanar relation at substantially right angles to said other two members, each of said members having one of said links pivotally attached thereto, and all of said links having a free common pivot.

In testimony whereof, I affix my signature.
HAROLD HOWE.

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