

[54] ADJUSTABLE STOW-AWAY TABLE

[57] ABSTRACT

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[51] Int. Cl.A47c 7/68

[58] Field of Search.....297/174, 170, 173, 150, 154, 297/162, 192, 135; 5/332; 108/49

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3 Claims, 14 Drawing Figures

A stow-away table comprising a tabletop hinged for vertical swinging movement to the top end of a vertical supporting post. The bottom end of the post is bent horizontally and received within a tubular member mounted on a carriage that slides along tracks in a frame fixed to the under side of a chair or the like. The horizontal portion of the post is rotatable within the tubular member, and locks with respect thereto when the post is vertical. The top end of the supporting post is extendable upwardly to raise or lower the tabletop, and is swiveled to allow the tabletop to swing horizontally. A releasable lock in the post permits locking the tabletop in either of two horizontal positions, 180° apart. The vertical post is slidable on the carriage toward and away from the chair for a limited distance. The vertical post is pring-loaded toward the locked position, and is released by pulling the post forwardly against the pressure of a spring, to unseat a pin from its locking notches. The post is then laid down horizontally, and is pushed rearwardly to stow the tabletop under the chair.

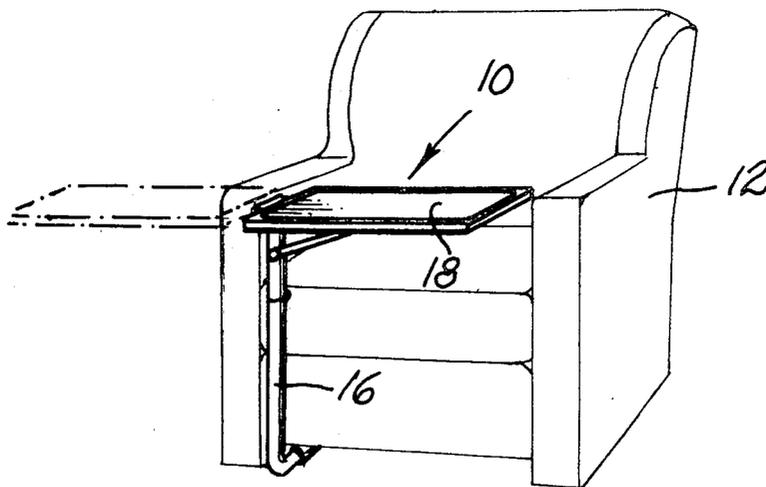


FIG. 1.

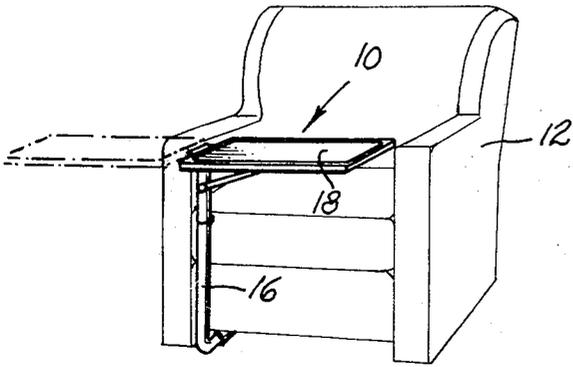


FIG. 2.

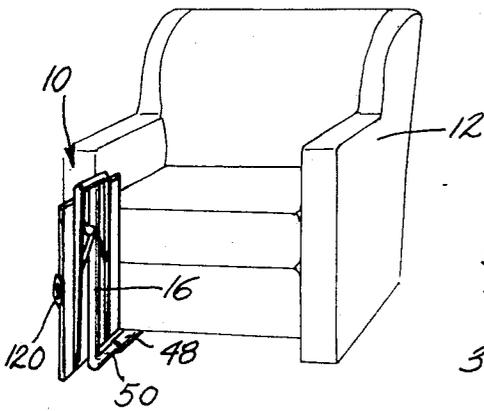
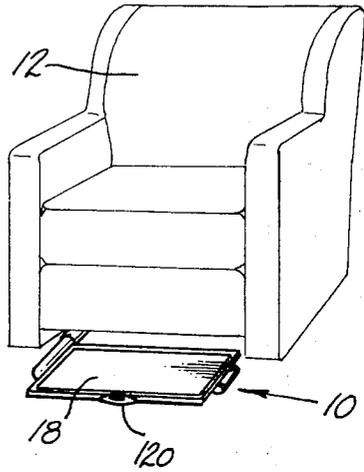


FIG. 3.

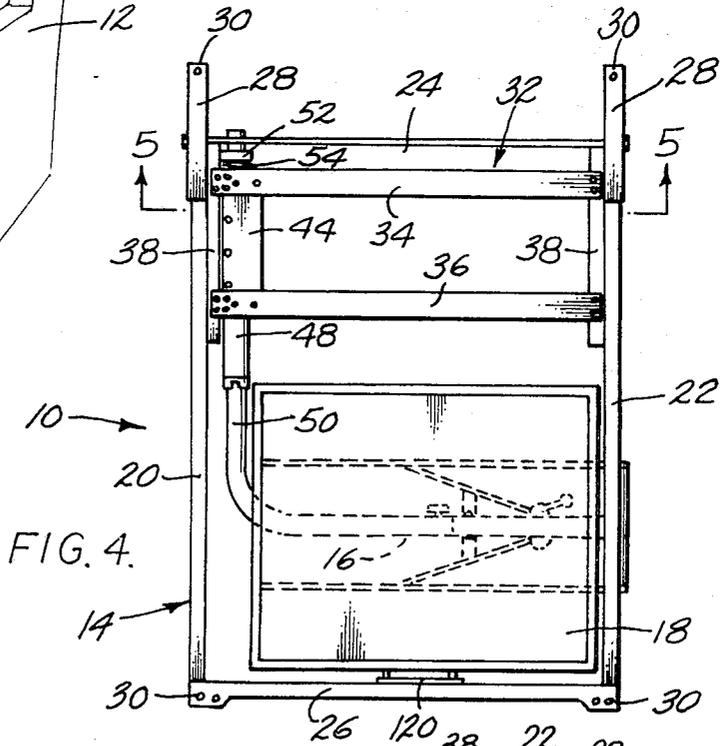


FIG. 4.

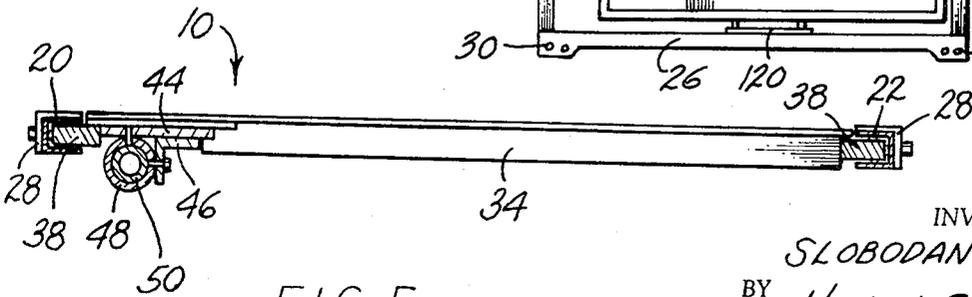
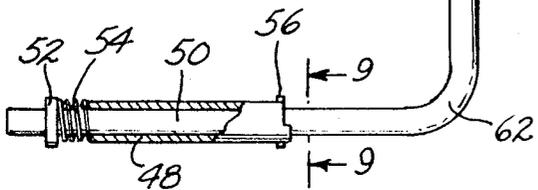
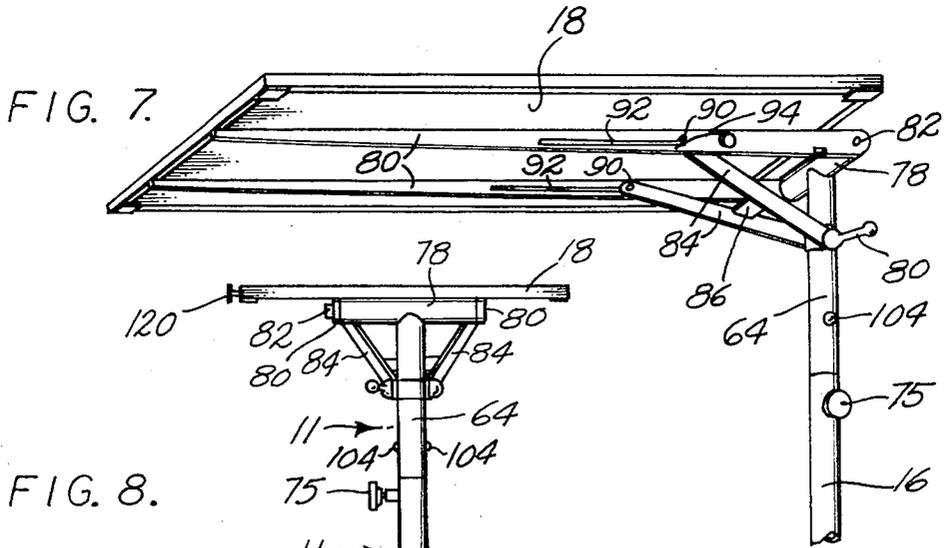
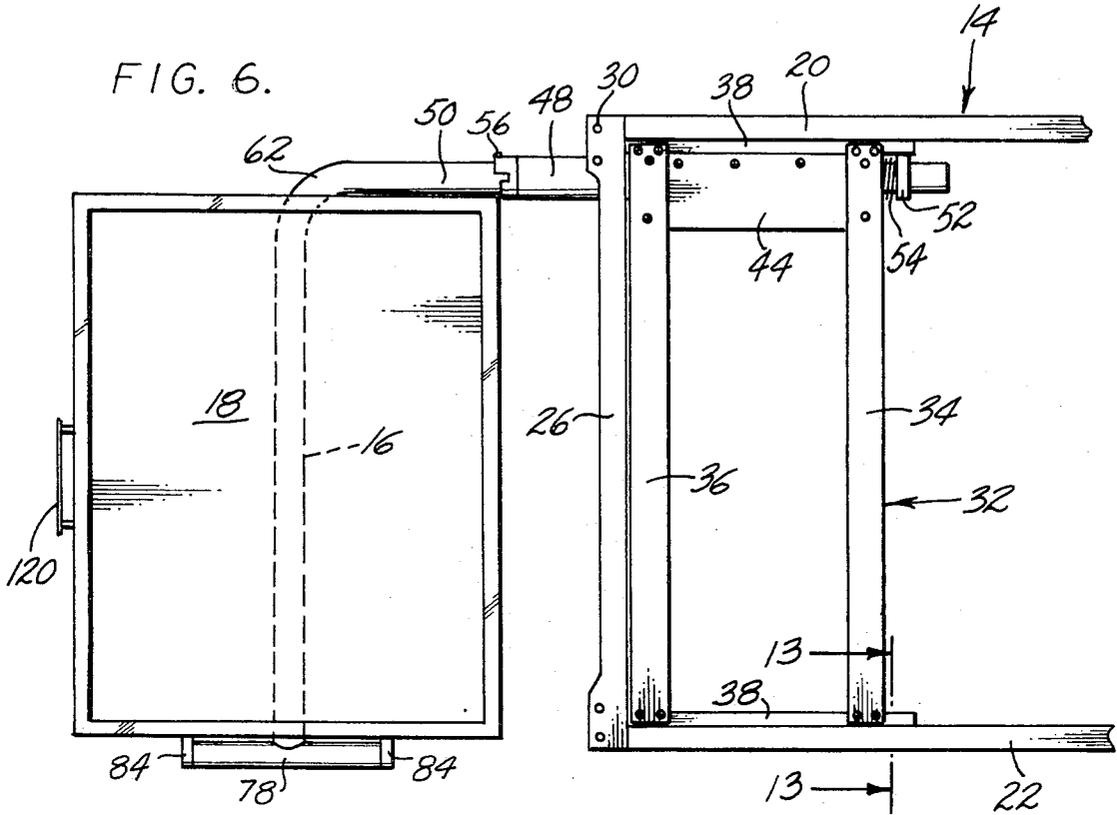


FIG. 5.

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FIG. 9.

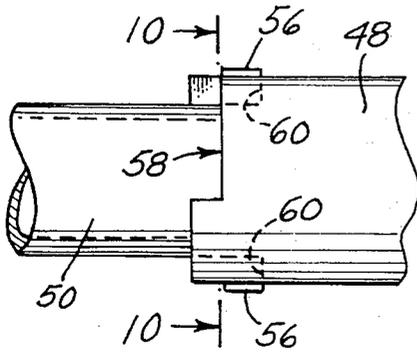


FIG. 10.

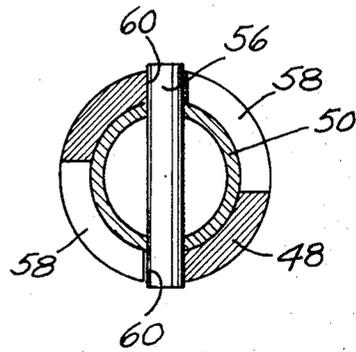


FIG. 11.

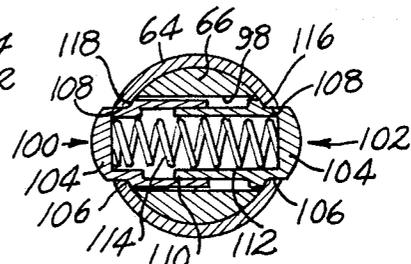
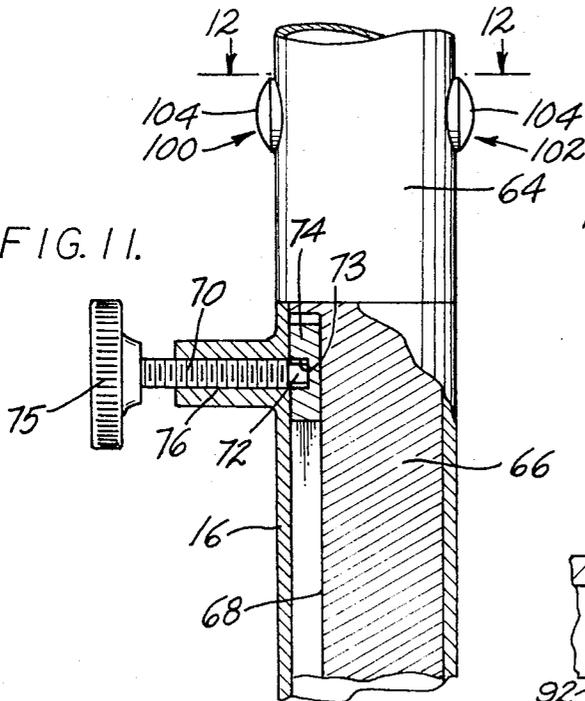


FIG. 12.

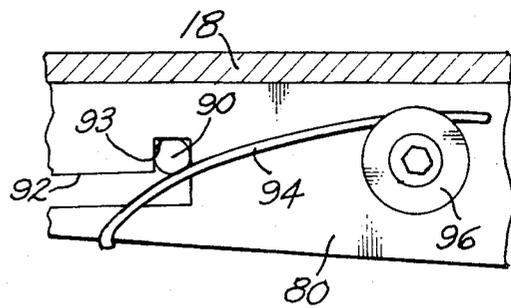


FIG. 14.

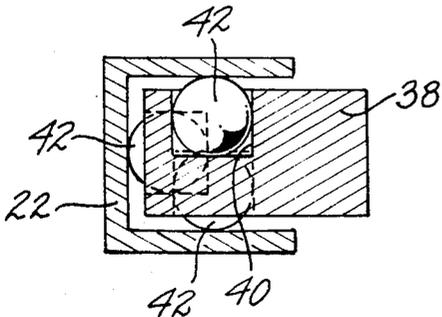


FIG. 13.

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ADJUSTABLE STOW-AWAY TABLE

BACKGROUND OF THE INVENTION

The present invention pertains to stow-away tables for temporary use with other pieces of furniture, such as overstuffed chairs, sofas, divans, couches, beds, or the like, and the characteristic feature of the invention is that the table can be folded up and stowed away under the piece of furniture to which it is attached, where it is completely out of the way and virtually invisible.

While there are many uses for a stow-away table of the type described, the most common is to support dishes and eating utensils for persons who wish to eat while watching television. Another common use of such tables is to provide dining tables for use in buffet dinners or other party activities, where it is desirable to provide convenient support for glasses, plates, bottles, ash trays, etc. Still another use of the invention is to provide a dining table or horizontal surface for writing or other activities, for use by bed-ridden patients, in which case the tables' supporting structure would be attached to the bed frame.

There have been various attempts to provide temporary tables for use in eating while watching television, or for party use, but for the most part, these have been fold-up tables, or nesting tables, which are removed to a storage area after use. Such tables are often unstable and easily knocked over, or awkward and inconvenient to use. In many cases, storage of such tables presents problems, particularly in small apartments where space is limited.

SUMMARY OF THE INVENTION

The primary object of the invention is to provide a new and improved stow-away table which is convenient to use, adjustable to many positions, and which is quickly and easily erected or stowed away under the piece of furniture with which it is associated.

Another object of the invention is to provide a stow-away table that is ruggedly built, simple and easy to manufacture, low in cost, and easy to install.

Still a further object of the invention is to provide a table of the class described which is permanently attached to the chair or other piece of furniture with which it is associated, and which stows away so completely as to be virtually invisible to any casual looker.

These and other objects and advantages of the invention will become apparent to those skilled in the art from the following detailed description of the preferred embodiment thereof, with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of an overstuffed chair having an adjustable stow-away table embodying the principles of the invention mounted thereon, said table being shown in two positions;

FIG. 2 is a view similar to FIG. 1, showing the table as it appears when first pulled out from under the chair;

FIG. 3 is another view similar to FIG. 1, showing the supporting post for the table swung up to the vertical position, in readiness to have the tabletop swung up to the horizontal position shown in phantom lines in FIG. 1;

FIG. 4 is an enlarged top plan view of the structure of the present table and its supporting framework, showing the table in the stowed-away position;

FIG. 5 is an enlarged sectional view, taken at 5—5 in FIG. 4;

FIG. 6 is a slightly enlarged, fragmentary view of the structure shown in FIG. 4, showing the table pulled out to the extended position;

FIG. 7 is a perspective view, looking up at the underside of the table, and showing the supporting structure therefor;

FIG. 8 is a view of the table, as seen from the right-hand end in FIG. 7;

FIG. 9 is an enlarged, fragmentary view of the base portion of the supporting leg and the tubular member into which it is inserted, showing the locking means for locking the post in the vertical position;

FIG. 10 is a sectional view taken at 10—10 in FIG. 9;

FIG. 11 is a partially cut-away, enlarged fragmentary view of a detail, taken at 11—11 in FIG. 8;

FIG. 12 is a sectional view taken at 12—12 in FIG. 11;

FIG. 13 is an enlarged fragmentary sectional view taken at 13—13 in FIG. 6; and

FIG. 14 is an enlarged fragmentary detail, showing, in elevation, the arrangement whereby the tabletop is locked in the horizontal position.

DESCRIPTION OF THE PREFERRED EMBODIMENT:

In the drawings, the table of the present invention is designated in its entirety by the reference numeral 10, and in FIGS. 1, 2 and 3, the table is shown as it appears mounted on an overstuffed living room chair 12, of the type in which television is commonly viewed. The table 10 is supported on a structural framework 14 which is attached to the underside of the chair, and extending upwardly along the front side of the chair is a vertical post 16, which supports the tabletop 18 at its top end.

As best shown in FIG. 4, the structural framework 14 consists of two laterally spaced, parallel side members 20 and 22 which, as shown in FIG. 13, are in the form of deep channel members having sharp internal corners, and smoothly finished inner surfaces. The side members 20 and 22 are cross-connected at their back and front ends by transverse members 24 and 26. Adjustably connected to the rear ends of members 20, 22 are extension angle irons 28, having screw holes 30 in their horizontal top flanges. Extension members 28 can be adjusted to increase or decrease the overall length of the frame side members, so as to locate the screw holes 30 directly under a frame cross member at the back of the chair 12. Other screw holes 30 are provided in the ends of front cross members 26, and attachment screws (not shown) are passed through these holes and screwed into the wooden frame members on the underside of the chair to solidly connect the framework 14 thereto.

Slidably mounted on the side members 20, 22 of framework 14 is a carriage 32, consisting of two parallel cross members 34 and 36, which are connected at their ends to longitudinally extending, solid rectangular bars 38. The outer edges of bars 38 extend into the channels 20, 22 with a slight amount of clearance on all sides, and at opposite ends of each member 38 there are three cylindrical cavities 40 (see FIG. 13) formed

in the top, bottom, and outer edge of the bar, within which are contained ball bearings 42. These ball bearings bear against the inside surfaces of the channel 22 on the sides and bottom thereof, and provide friction-free linear movement of the carriage within the members 20, 22.

Fixed to the top side of the carriage 32 on one side thereof is a rectangular plate 44, and attached to its underside is a fore- and-aft extending angle iron 46. Bearing against the vertical flange of angle iron 46 and against the under side of rectangular plate 44 is a tubular member 48, which is solidly attached to the members 44 and 46. Extending through the tubular member 48 and slidable and rotatable therein is another tubular member 50, which projects beyond both ends of member 48. The rearwardly projecting end of tubular member 50 has an annular collar 52 fixedly attached thereto, and confined between the collar 52 and the back end of tubular member 48 is a compression coil spring 54, which exerts a rearward thrust against collar 52, urging the tubular member 50 to the rear. Rearward movement of the tubular member 50 is limited by a diametrically extending pin 56, which passes through member 50 on the front side of tubular member 48. Pin 56 bears against the front end of tubular member 48 and its ends seat against annular shoulders 58 on opposite sides of member 50, each of said shoulders 58 being slightly more than 90° in angular distance, so that the pin 56 and member 50 can turn 90°. At one end of each of the shoulders 58 is a recess 60, into which the pin 56 drops when the post 16 is in the upright position, thereby locking the post in the vertical position.

Post 16 is an extension of tubular member 50, and is connected to the latter by a 90 degree bend 62. The top end of post 16 is comprised of a second member 64, which is essentially a short length of tubing of the same outside diameter at post 16, and having a solid rod 66 inserted in its lower end, which projects below the bottom end of member 64 and is slidably received within the top end of member 16, as best shown in FIG. 11. Rod 66 has a longitudinally extending, elongated slot 68 formed in one side thereof, and projecting into this slot is a set screw 70, the end 72 of which is seated in a cavity 73 formed in a shoe 74. Shoe 74 is elongated in the direction of the slot 68 and is a snug sliding fit in the slot. The purpose of the shoe 74 is to provide an enlarged frictional bearing surface for the inner end of set screw 70. Set screw 70 has a large knurled head 75 on its outer end, and the threaded shank of the screw is screwed into a tapped hole formed in a boss 76 projecting laterally from one side of the post 16. When set screw 70 is tightened up, so that its end 72 presses firmly against the bottom of cavity 73, thereby clamping the shoe 74 against the bottom of slot 68, the rod 66 is locked in a vertically adjusted position, if it is desired to raise the table up from its lowermost position.

Fixed to the top end of the tubular post extension member 64 is a crosspiece 78, which lies just beyond and slightly below the end of tabletop 18. Tabletop 18 has two lengthwise-extending, tapered strips 80 attached to its underside, and these project slightly beyond the end of the tabletop and pass on either end of the crosspiece 78. The ends of the members 80 are pivotally connected to crosspiece 78 by means of a pin or rod 82, which extends through member 78 and turns

freely therein. By virtue of this construction, tabletop 18 is hinged for vertical swinging movement to the top end of post 16,64.

The tabletop 18 is braced vertically to support any load placed thereon by means of two brace members 84, which are connected together intermediate their ends by a cross strap 86. The brace members 84 converge, and their ends pass on opposite sides of tubular member 64, where they are connected together by a transverse pin extending diametrically through member 64 and through aligned holes in the ends of members 84. A handle 88 is fixedly attached to one of the braces 84, as shown in FIG. 7, the purpose of which will be explained presently.

At their other ends, members 84 have laterally projecting pins 90, which slide freely along longitudinally extending slots 92 formed in members 80. At the end of each slot 92 nearest the post 64 is an upwardly extending notch 93 (see FIG. 14) in which the pins 90 seat to lock the tabletop 18 in horizontal position. The pins are lifted up into seat 93 by means of a spring wire 94, which is anchored at one end by a clamp 96 to the side of member 80. Fastener 96 is located a short distance beyond the end of slit 92, and wire 94 extends in an arcuate curve from the top of the fastener to the bottom edge of the slot, crossing the slot at an acute angle and passing under the notch 93.

As pin 90 approaches the end of slot 92 due to raising the tabletop 18 to the horizontal position, pins 90 cams the wire 94 downwardly, and then as the pin reaches the extreme end of the slot 92 directly below notch 93, the upward pressure of spring wire 94 lifts the pin into the notch and holds it there. To unseat the pin 90 from notch 93, the outer end of handle 80 is raised slightly, and this causes its attached brace 84 to pivot downwardly and thereby pull the pin 90 down out of notch 93 against the pressure of spring wire 94. The tabletop 18 can then be lowered to the position shown in FIG. 3.

Tabletop 18 can be releasably locked in either of the two positions shown in FIG. 1, by means of a locking arrangement shown in FIG. 12. Slidably disposed within a transverse bore 98 in the inner post 66 are two spring-loaded members 100 and 102, each of which has a spherically rounded outer end 104 and a short cylindrical barrel portion 106. The cylindrical portions 106 project through diametrically opposite holes 108 in tubing 64, and fit snugly within said holes, thereby locking tube 64 to post 66. Within the bore 98, members 100 and 102 have telescoping tubular sleeve portions 110 and 112, and inside of these sleeves is a coil spring 114, which urges the members 100, 102 apart. Annular shoulders 116 and 118 on members 100, 102 bear against the inside of tubing 64 around the margins of holes 108, to limit the outward movement of members 100 and 102.

To release the tabletop so that it can be swung around from one position to another, the spherically rounded outer ends 104 of members 100 and 102 are pressed inwardly between the thumb and a finger of one hand, and this unseats the cylindrical portions 106 from their holes 108. With the members 100, 102 pressed inwardly far enough, the tubing 64 can be turned on post 66, carrying with it the tabletop 18. When the tubing 64 has completed a 180 degree turn,

the spring-loaded members 100, 102 drop into the holes 108 again, locking the tabletop in its new position.

To facilitate pulling the carriage 14 and tabletop 18 outwardly from under the chair 12, a handle 120 is provided on the edge of tabletop 18 closest to the front of the chair when the table is stowed away under the chair.

The mode of operation of the invention is as follows: Assuming that the table is stowed away underneath the chair 12, the first step is to pull the tabletop out to the position shown in FIG. 2, which is accomplished by grasping handle 120 and pulling outwardly on it. This causes carriage 32 to slide outwardly along tracks 20, 22 until the carriage reaches the forward end of its travel. At this point, the free end of tabletop 18 is grasped with one hand and raised up to the position shown in FIG. 3. As the post 16 reaches the vertical position, pin 56 drops into notches 60 in tubular member 48, thereby locking the post in the vertical position. The next step is to raise the tabletop 18 to the position shown in phantom lines in FIG. 1. As the tabletop approaches the horizontal position, pins 90 of braces 84 approach the ends of slots 92 and cam the spring wire 94 downwardly. The upward pressure of spring 94 causes the pin to rise into the notch 93, as shown in FIG. 14. This locks the tabletop in the horizontal position.

To swing the tabletop around from the phantom line position of FIG. 1, to that shown in solid lines, the spherically rounded ends 104 of members 100, 102 are pressed inwardly by the finger and thumb of one hand, releasing the lock and allowing the tabletop and tubing 64 to swing around 180 degrees to the position shown in solid lines. The tabletop is now in position for use. If it is desired to raise the tabletop to a little higher position, set screw 70 is released by backing off the knurled head 75, and this allows the upper tubing portion 64 and post 66 to be raised up from the end of tubular post 16. When the tabletop has been elevated to the desired position, set screw 70 is again tightened.

The tabletop 18 can be moved toward or away from the person seated in chair 12, by merely pushing the tabletop outwardly to the limit of travel of sliding carriage 32, or pulling it back toward the front side of chair 12 until the post 16 contacts the chair. If desired, the tabletop 18 can be released and swung around to a position at 90° from the position shown in solid lines in FIG. 1, which will place the end of the tabletop back against the body of the person seated in the chair. This enables the user to eat off the tabletop without having to sit forwardly on the chair, as the edge of the tabletop can be brought as close to the user's body as he wishes.

To stow the table away after use, the tabletop 18 is first swung around to the phantom line position of FIG. 1, after which the bottom end of post 16 is grasped in one hand and pulled outwardly against the pressure of spring 54. This unseats pin 56 from notches 60, and allows the post 16 to be laid down to the horizontal position of FIG. 2. The tabletop is then pushed rearwardly, causing the carriage 32 to slide rearwardly on tracks 20, 22. When the tabletop is all the way back, it is virtually completely concealed and practically out of sight.

While the invention is perhaps best suited for use in eating meals or snacks while watching television, it is also of equal use as a "party" table, as in the case of a buffet dinner. Also, drinks and hors d'oeuvres, nuts and other finger foods may be held on the table while playing various card games or otherwise engaging in party activities. Still another use for the stow-away table of the invention is for bed-ridden patients, in which case the frame structure 14 would be mounted on the underside of the bed, and would be pulled out to one side thereof.

While I have shown and described in considerable detail what I believe to be the preferred form of my invention, it will be understood by those skilled in the art that the invention is not limited to such details, but might take various other forms.

I claim:

1. A stow-away table for use with a chair or other piece of furniture, said table comprising:

a supporting frame structure mounted on the underside of said chair, said structure including a pair of laterally spaced, parallel tracks extending from front to rear with respect to said chair;

carriage means mounted on said tracks for sliding movement with respect thereto between a retracted position and an extended position;

a tubular member mounted on said carriage closely adjacent one side thereof, with its axis parallel to the tracks;

an L-shaped supporting post mounted on said carriage and movable therewith, said supporting post having one leg telescoped within said tubular member and rotatable therein, and another leg extending perpendicular to said one leg, said other leg being swingable between a stowed position extending horizontally toward the other side of said carriage, and an erected position extending vertically upwardly from the carriage;

means for releasably locking said one leg with respect to said tubular member when said other leg is in said erected position;

a flat tabletop swingably mounted on the outer end of said other leg of said supporting post for movement between a first position flat against and parallel to said post, and a second position perpendicular thereto;

means for releasably locking said tabletop with respect to said post when in said second position; said tabletop being swiveled on said post for horizontal swinging movement; and

means for releasably locking said tabletop in at least one position in its range of horizontal swinging movement.

2. A stow-away table as in claim 1, wherein said track means on said frame comprises a pair of laterally spaced parallel channels extending from front to rear; said channels facing inwardly toward one another; and said carriage means includes members extending into each of said channels, said carriage members having groups of cavities formed therein near the front and back ends of said carriage means, each of said groups including a pair of opposed cavities facing toward the upper and lower flanges of said channels, and ball bearings seated within said cavities and bearing against the bottoms of the cavities and against the facing flange of the associated channel.

3. A stow-away table as in claim 2, wherein each of said groups of cavities consists of at least three cavities facing toward the upper and lower flanges and the bottom of the channel, respectively, each of said cavities having a ball bearing seated therein which bears against the facing surface of the channel.

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