# United States Patent

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[15] **3,680,942**

[45] **Aug. 1, 1972**


[54] **DRAWER MOUNTED EXPANSIBLE TABLE**


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[22] Filed: **Dec. 23, 1970**

[21] Appl. No.: **101,058**

[52] **U.S. Cl.** .....**312/317,** 108/48, 108/93, 108/112, 108/113

[51] **Int. Cl.**.....**A47b 88/00,** A47b 5/00, A47b 3/00

[58] **Field of Search** .....312/317, 277, 221; 311/61; 108/48, 78, 79, 93, 99, 100, 112, 113



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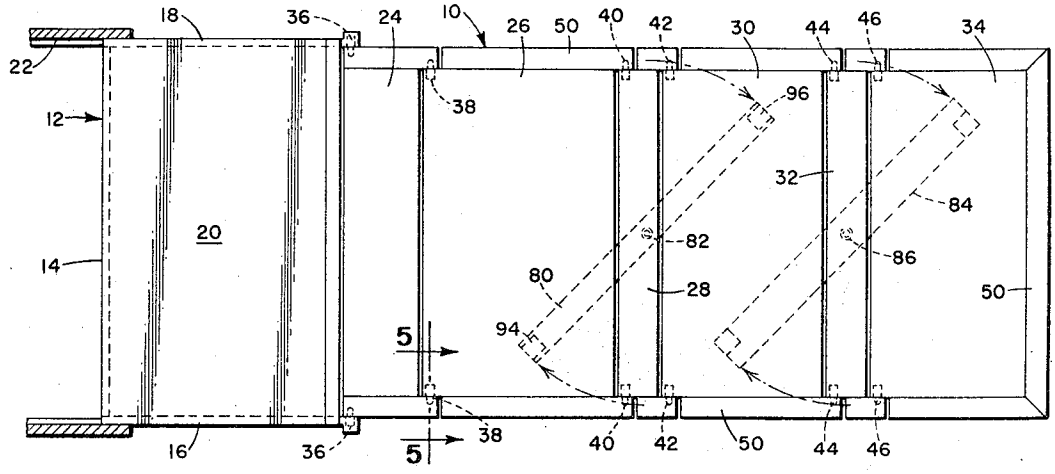
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[57] **ABSTRACT**

An expansible table stored in the drawer of a cabinet or the like, with the table comprising a plurality of interconnected table sections which can be folded for storing within the drawer and expanded for use. The table includes cleat members which can be pivoted for supporting the table when expanded, and is further provided with folding legs carried by the cleat members and adapted to be folded to a vertical support position when the table is expanded.


**6 Claims, 8 Drawing Figures**



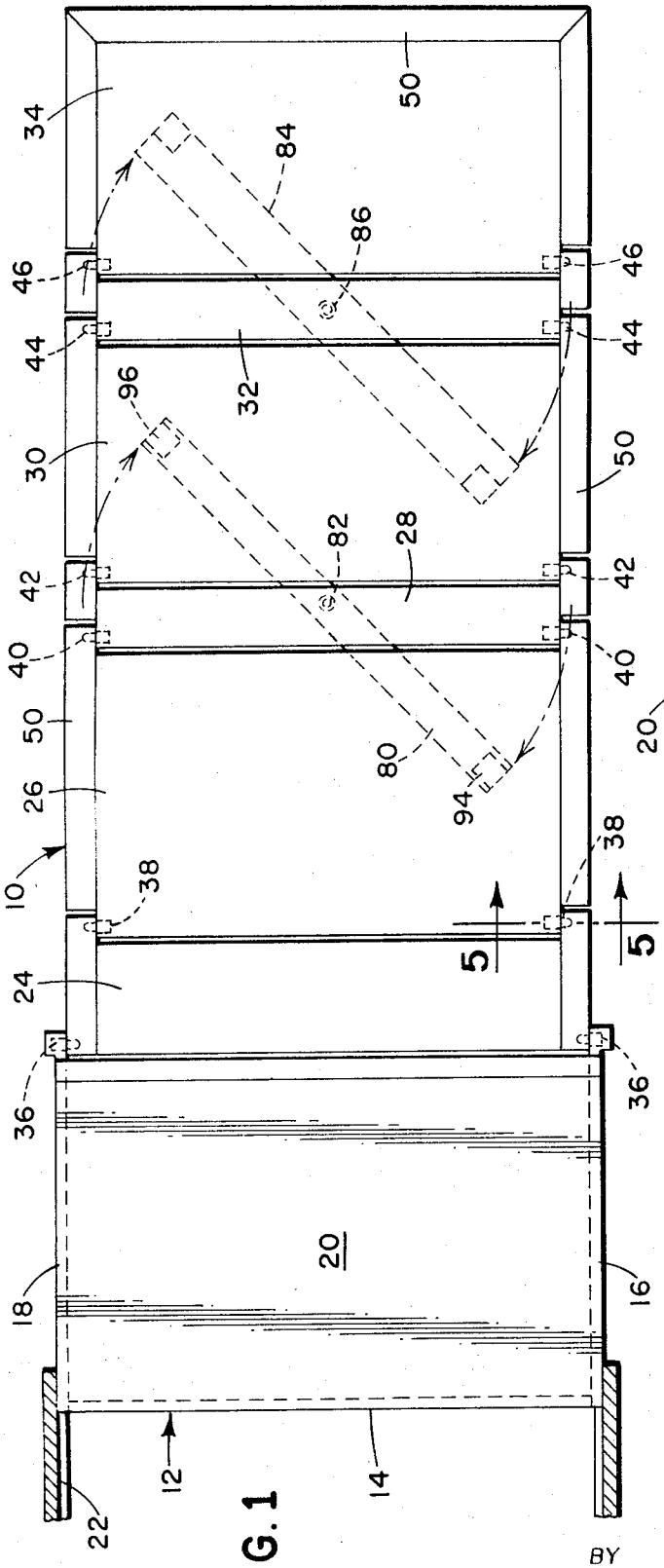



FIG. 1

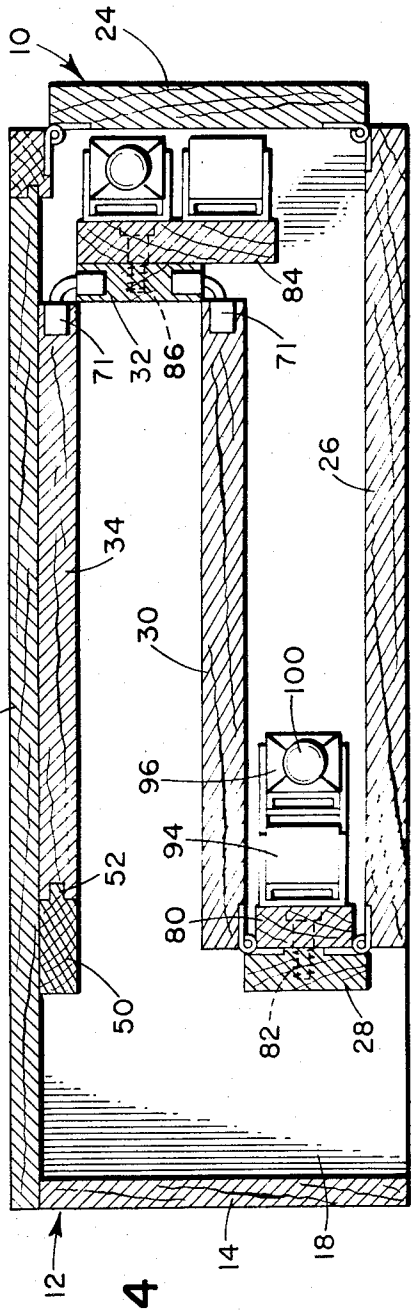



FIG. 4

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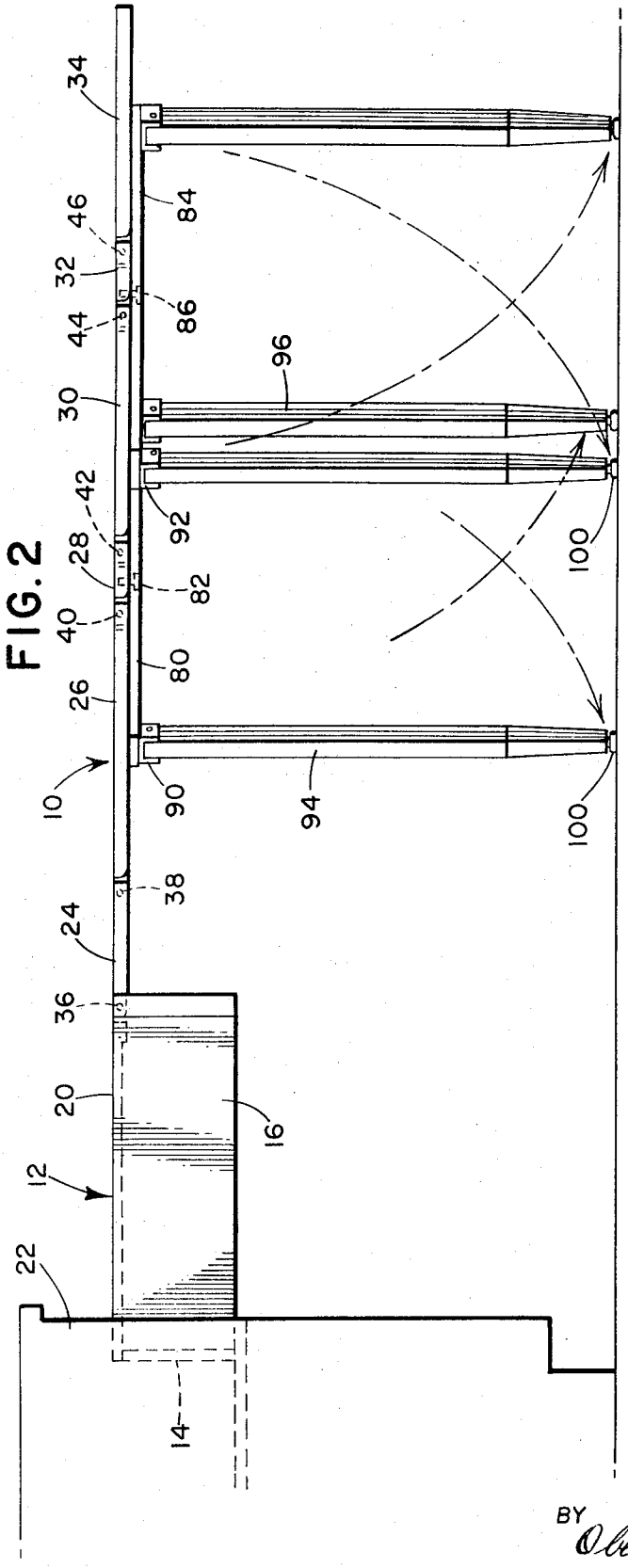



FIG. 2

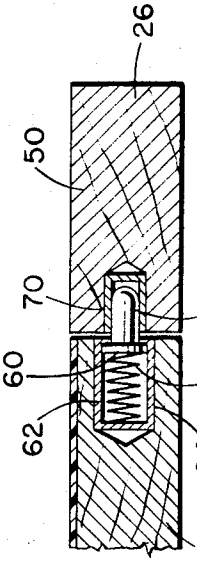



FIG. 5

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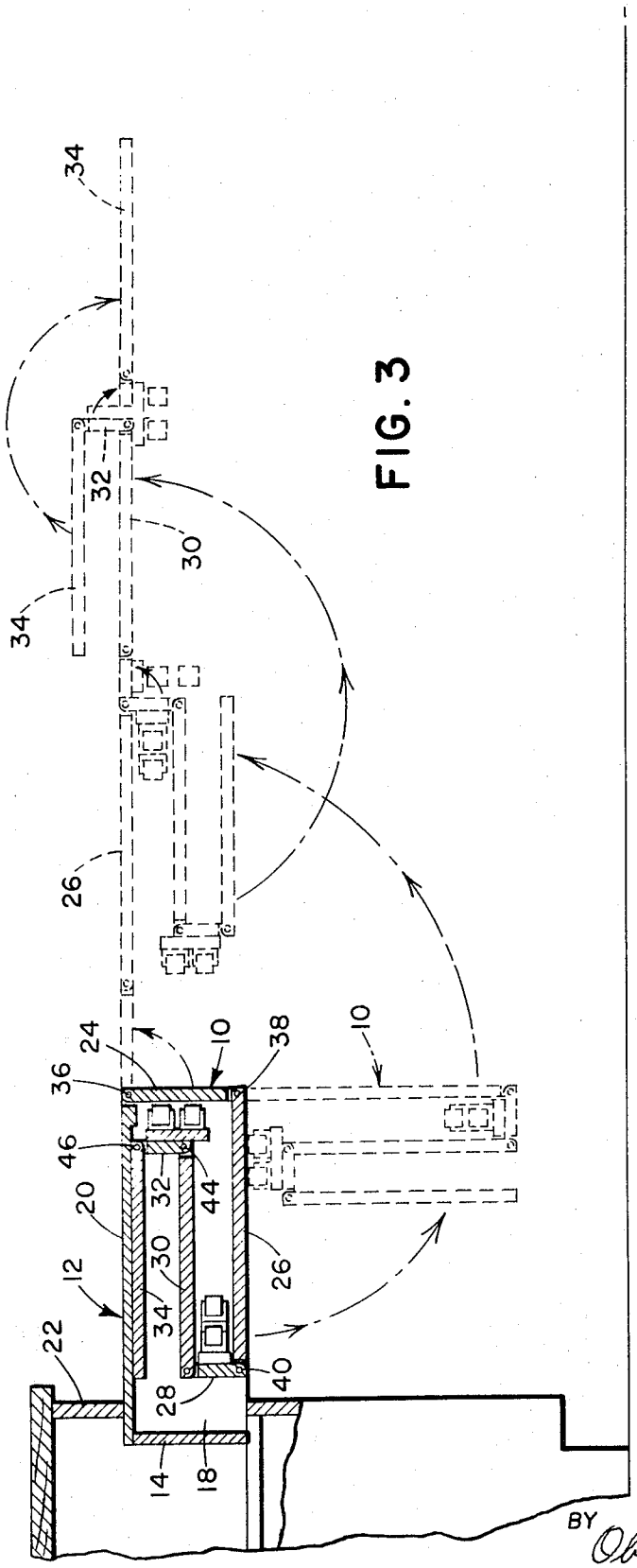



FIG. 3

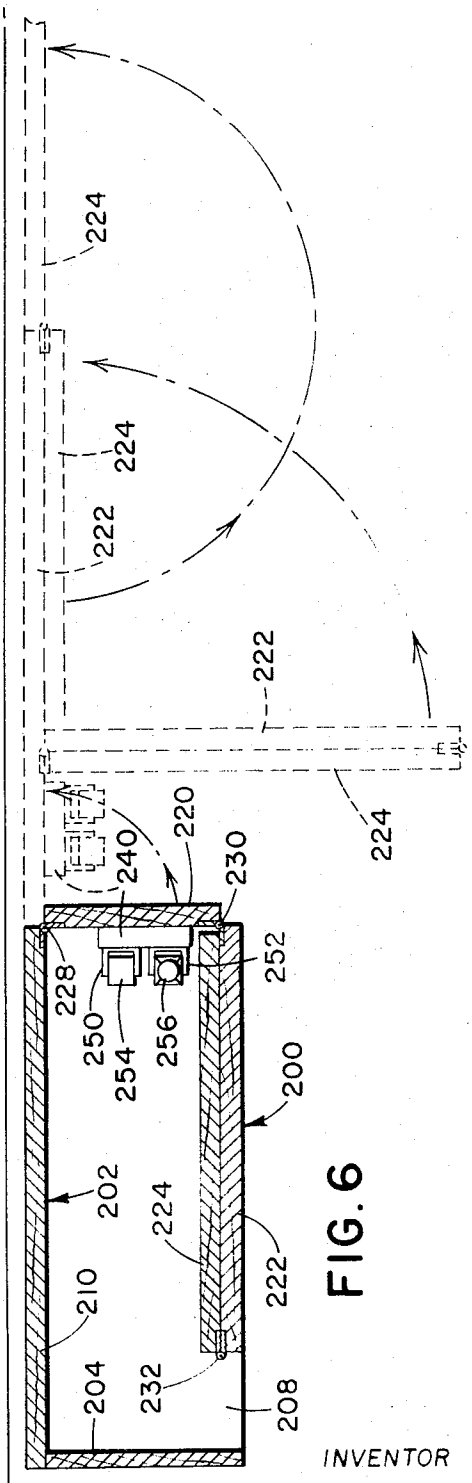
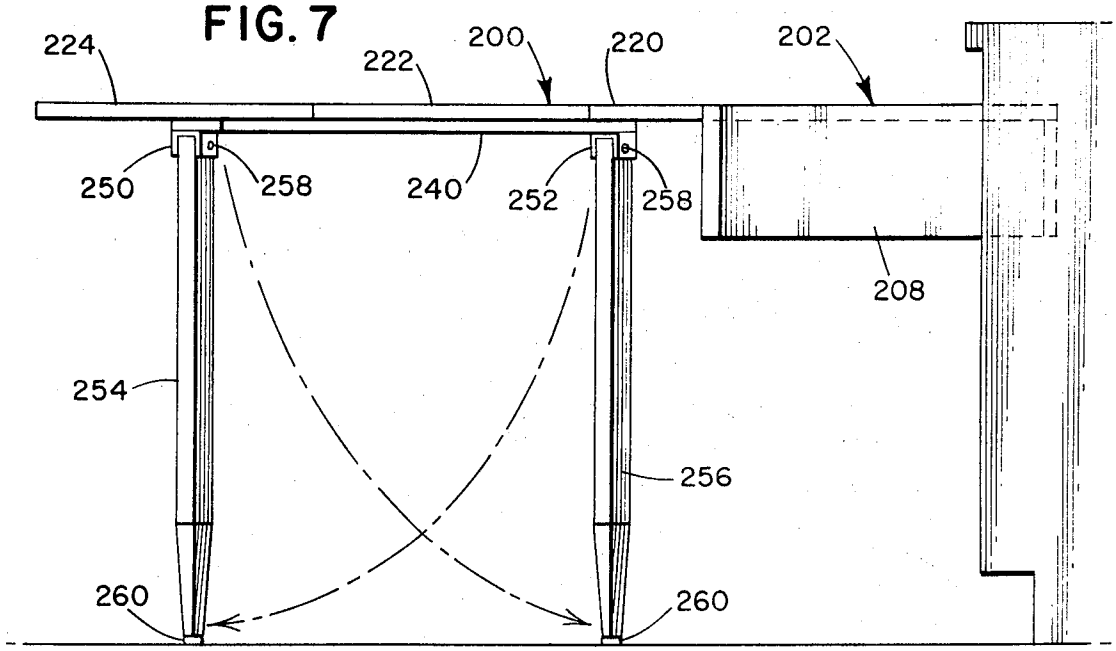



FIG. 6

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FIG. 7



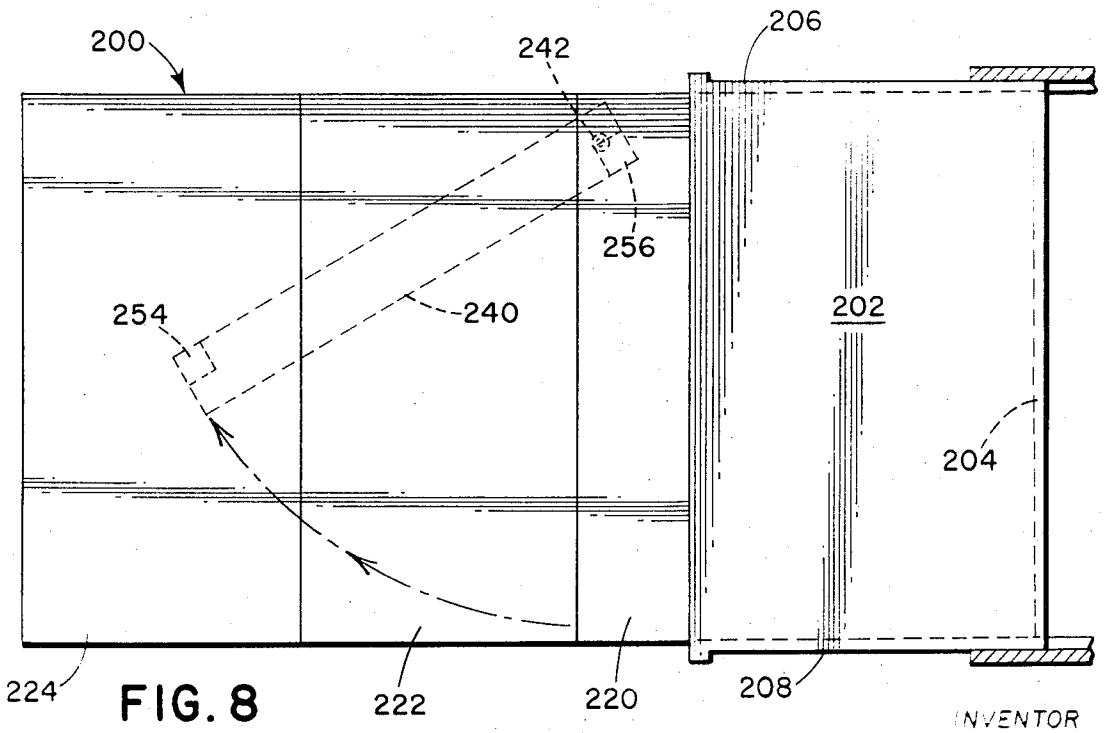




FIG. 8

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# DRAWER MOUNTED EXPANSIBLE TABLE

## BACKGROUND OF THE INVENTION

The present invention relates as indicated to an expansible table and more particularly to a table which is mounted on a drawer of a cabinet or the like for movement between a collapsed position within such cabinet in which it occupies very little storage space and an expanded position extending outwardly from the cabinet in which it provides a substantial table top surface.

Tables which extend and fold away are of course desirable from the standpoint of conserving much needed space, and tables of this type have taken on many forms in the past. By way of example but not limitation, reference is directed to U.S. Pats. Nos. 1,532,996; 2,672,384 and 3,072,453 which show tables that can be folded away and stored in an article of furniture, such as a cabinet or the like.

Prior tables of this type have not been wholly satisfactory for a number of reasons. Frequently, the mechanism employed either for folding the table or for supporting the same when expanded, or both, is relatively complex and thus costly. A further problem presented in prior art arrangements is the provision of sufficiently strong support means when the table is expanded without greatly sacrificing much needed space when the table is folded or collapsed. Leg support is of course a common method of supporting the table when open, but with a multi-section table the space required for leg storage presents a problem. As a result, the table when expanded is frequently supported only at its hinged and outer ends, thereby leaving the intermediate sections without firm support. Where the table sections are numerous and/or the table is used to support relatively heavy objects when open, a lack of firm support may present limitations on the use of the table

## SUMMARY OF THE INVENTION

With the above in mind, the primary object of the present invention is to provide an expansible table mounted on a cabinet drawer and adapted to be quickly and easily moved between a collapsed, stored position in the cabinet to an extended, open position. The folding and unfolding of the table can be effected without the need for tools or other equipment. Although the table of the present invention can be used in essentially any environment where space is of considerable importance, the table can be used to particular advantage in environments such as scientific laboratories and the like. With construction costs continually increasing, laboratory space is becoming correspondingly more expensive and tables constructed in accordance with the present invention permit maximum utilization of available floor space when the tables are collapsed and stored.

Another object of the present invention is to provide an expansible table the design of which permits the table to require a minimum of space when collapsed but which when expanded provides a table of substantial size and work surface.

A further, more specific object of the present invention is to provide an expansible table in which the supporting legs when folded and stored require a minimum of space but which can be pivoted to a position generally diagonal to the table sections when expanded, thereby giving the table firm support in the intermediate portions thereof as well as at its hinged and open ends.



A still further object of the present invention is to provide a table which is highly attractive yet inexpensive to manufacture, and which can be provided with a top surface adaptable to the conditions of use. In scientific laboratories, for example, the table sections are preferably provided with a chemically resistant top surface.

Other objects of the present invention will become apparent as the following description proceeds with particular reference to the application drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** comprises a top plan view of the invention with the table shown in an open or fully expanded position, and the legs being positioned to provide maximum support;

FIG. **2** is a side elevational view of the table when in its FIG. **1** expanded position;

FIG. **3** is a sectional view illustrating the table in a collapsed position, and further showing in dash lines the sequence in which the table is unfolded to an expanded position;

FIG. **4** is a sectional view similar to the FIG. **3**, showing an alternative hinging arrangement;

FIG. **5** is a section view taken along line **5—5** of FIG. **1** showing the preferred form of pivotal connection between the table sections;

FIG. **6** is a sectional view of an alternative embodiment of the invention, illustrating the table in a collapsed position, and further showing in dash lines the manner in which the table is unfolded to an expanded position;

FIG. **7** is a side elevational view of the alternative embodiment of FIG. **6** with the table being shown in an open or fully expanded position, and

FIG. **8** is a plan view of the embodiment of FIG. **6**, with the table shown in an open or fully expanded position, and the legs, shown in dash lines, being positioned to provide maximum support.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings, where like parts are indicated by like reference numerals, the table of the present invention is generally indicated at **10** and the construction thereof is best shown in FIG. **3**. The table **10** is mounted on a drawer generally indicated at **12** which comprises rigidly interconnected back wall **14**, side walls **16** and **18**, and top wall **20**. The drawer **12** is horizontally slidably mounted in cabinet **22** or movement from an inner position stored within said cabinet to an outer position substantially withdrawn from said cabinet but still supported thereby in cantilevered relation as shown in FIG. **2**. The manner in which the drawer is slidably mounted in the cabinet forms no part of the present invention and can comprise, for example the drawer mounting arrangement shown in pending application Ser. No. 76,505 , filed Sept. 29, 1970, in the name of Donald A Davis and Anthony Galluzzo.

The folding section of the table illustrated in FIGS. **1–3** are six in number and are indicated at **24**, **26**, **28**, **30**, **32** and **34**, respectively. The first table section **24** is pivotally connected by means of pins **36** to the outer

end of the top wall 20 of drawer 12. Similarly, the second table section 26 is pivotally connected by pins 38 to the adjacent end of table section 24, the third section 28 is pivotally connected by pins 40 to the adjacent end of table section 26, the fourth section 30 is pivotally connected by pins 42 to the adjacent end of third section 28, the fifth table section 32 is pivotally connected by pins 44 to the adjacent end of table section 30, and the sixth table section 34 is pivotally connected by pins 46 to the adjacent end of table section 32. It will be noted that the alternate sections 26, 30 and 34 generally correspond in length (the dimension from left to right as viewed in FIGS. 1 and 2), as do the alternate sections 24, 28 and 32. Such dimensional relationship permits compact folding of the table, as can best be seen in FIG. 3, with each respective group of three sections being disposed in parallel relation.

Referring to FIG. 1, each table section is formed with an edge 50 which may be of hard wood material and rabbited or otherwise rigidly secured to the adjacent portion of the table section as shown at 52 in FIG. 3. Normally, plywood material, due to its availability and cost, is employed for the main body portion of the table sections, and the plywood is preferably covered throughout with a chemically resistant plastic laminate material well known in the art. A highly attractive yet durable and resistant top table surface is thus provided.

It will further be noted that the table sections at their adjoining ends are laterally offset 50 to accommodate the pivotal connections therebetween. In this manner, each table section can be pivoted relative to the adjacent section without interference between adjacent sections.

Referring to FIG. 5, there is illustrated therein such preferred form of pivotal connection between the several table sections, with FIG. 5 illustrating the pivotal connection between the table sections 24 and 26. A pin 38 is resiliently mounted in the exposed edge of the section 26, with the pin including a base collar 60 which is slidable within a cylindrical sleeve 62 mounted in an opening 64 in the table section 26. A coil spring 66 is seated against the base collar and 64 biases the pin 38 outwardly, as shown in FIG. 5.

A pin receiving sleeve 68 is mounted in an opening 70 provided therefor in the edge portion 50 of table section 24, thereby permitting pivotal movement of the second table section 26 relative to the first table section 24 about the longitudinal axis of the pin 28. The resiliently biased pin connection between adjacent sections permit quick assembly of the sections and disassembly thereof in the event one or more sections are desired to be removed. In lieu of the pivotal connections shown in FIG. 5, the adjoining edges of the several table sections may comprise a continuous planar surface, and the edges connected by continuous hinges of the type shown in 71 in FIG. 4.

A first cleat member 80 is contiguous and pivotally connected to the relatively short third table section 28 by pivot pin 82. The cleat member 80 can be rotated from its stored position as shown in FIG. 3, in which the cleat member 80 is oriented parallel to the third section 28 and wholly within the confines thereof, to a support position shown by phantom lines in FIG. 1, in which the cleat member 80 extends generally diagonally to the table sections 26, 28 and 30. In such support position, the cleat member 80 extends substantially beneath both adjacent sections 26 and 30 for firm support of the same when the legs are folded to support position, as will be hereinafter described.

A second cleat member 84 is pivotally connected to the relatively short table section 32 by pivot pin 86. The cleat member 84 can be rotated from its stored position as shown in FIG. 3 in which the cleat member 84 is oriented generally parallel to the table section 32 to the support position shown in FIG. 1, in which the cleat member 84, shown in phantom, extends generally diagonally to the table sections 30, 32 and 34 and substantially beneath the relatively long table sections 30 and 34.

Each cleat member 80 and 84 has mounted on the underside thereof a pair of brackets 90 and 92. Legs 94 and 96, respectively, are pivotally mounted by pins commonly designated at 98 to the brackets 90 and 92 on each cleat member for folding movement between a folded position as shown in FIG. 3, and a vertical support position as shown in FIG. 2. The direction of folding of the legs 94 and 96 is shown in dash lines in FIG. 2.

It will be noted that the brackets 90 and 92 are mounted on the cleat member 84 on either side of a longitudinal plane through the pin 86. In this manner the legs can be folded to a position contiguous the cleat member 84 when the table is collapsed, as shown in FIG. 3. The brackets 90 and 92 on cleat member 80 are similarly mounted although the space requirements when the table is collapsed are such as to require some overlap of the legs, as shown in FIG. 3. The space between the sections 26 and 30 when the table is collapsed and stored defines the available area in which the legs are received when folded.

The bottom of each leg 94 and 96 is preferably provided with an adjusting foot commonly designated at 100 for vertically leveling the legs for uniform support of the table when in its expanded position.

To move the table to an open position, the drawer 12 is withdrawn from its closed, stored position to the cantilevered position thereof shown in FIG. 2. The sections are then unfolded in the sequence shown in FIG. 3 until the table sections are horizontally disposed, as shown in FIG. 2. The cleat members 80 and 84 are thereafter rotated to their FIG. 1 position wherein they extend generally diagonally under the adjacent table sections. The legs 94 and 96 are then folded downwardly into their FIG. 2 vertical position thereby supporting the table in its fully open position.

To fold or collapse the table, the reverse procedure is followed, with the sections when folded assuming the position as shown in FIG. 3. When in such position, the drawer can be closed and the table thus completely concealed. The table can be supported in collapsed position within the drawer by any suitable means, for example, by a hook and eye mounted respectively on the cabinet and the adjacent edge of one of the table sections. Alternatively, the table can be supported when stored by the releasable pin arrangement used to pivotally connect the table sections, shown in FIG. 5. The pin can be mounted on the cabinet wall and an opening therefor formed in the adjacent edges of the table section 26. The pins can be depressed until the drawer is positioned so as to align the openings with the pins, and the latter thereafter released.

It will further be noted that the table section **24** forms the front of the cabinet drawer when the latter is collapsed and stored.

It will be understood that the dimensions of the table may vary considerably. By way of example, the table illustrated in the preferred embodiment has a length of approximately five feet, approximately three times greater than the depth of the drawer in which such table is stored, and a width of approximately two and one-half feet. It will thus be seen that the table when opened provides an extensive working surface which is firmly supported and thus capable of sustaining fairly heavy loading.

Referring now to the second or alternative embodiment as shown in FIGS. **6–8**, the expansible table indicated generally at **200** is again adapted to be moved from a collapsed position within drawer **202** to an expanded generally horizontal position. The drawer **202** includes rigidly interconnected back wall **204**, side walls **206** and **208** and top wall **210**. The drawer is horizontally, slidably received in a cabinet in the same manner as above described in connection with the FIGS. **1–5** form of the invention.

The folding sections of the table **200** comprise first, second and third table sections indicated at **220**, **222**, and **224**, respectively. The first table section **200** is pivotally connected by means of continuous hinge **228** to the outer end of top wall **210**. Similarly, the intermediate table section **222** is pivotally connected by hinge **230** to the adjacent end of the first table section **220**, and the third table section **224** is pivotally connected by hinge **232** to the adjacent end of the intermediate section **222**.

A cleat member **240** is pivotally connected to the first table section **220** by a pivot pin **242**. The cleat member **240** can be rotated from its stored position shown in FIG. **6** in which the cleat member is oriented parallel and wholly within the confines of the first table section **220**, to a position shown in FIG. **8**, in which the cleat member **240**, shown in dash lines in this figure, is angularly inclined with respect to the longitudinal axis of the expanded table.

It will be noted that when the cleat member is in its dash line position, the member extends beneath the adjacent table sections **222** and **224**.

A pair of brackets **250** and **252** are fixedly mounted on the underside of cleat member **240** on either side of a longitudinal plane through the pin **242** of the cleat member. Legs **254** and **256** are pivotally mounted by pins commonly designated at **258**, FIG. **7**, to the brackets **250** and **252** for folding movement between their stored position, as shown in FIG. **6**, and their vertical support position as shown in FIG. **7**. The direction of folding of the legs is shown in dash lines in FIG. **7**.

The bottom of each leg is preferably provided with an adjusting foot commonly designated at **260** for leveling the legs for uniform support of the table.

To move the table **200** to an open position, the drawer **202** is withdrawn from the cabinet and the table sections unfolded to their FIG. **7** position, with the sequence of such unfolding being shown in FIG. **6** in dash lines. The cleat member **240** is thereafter rotated to its FIG. **8** position wherein it extends beneath all three table sections. The legs **254** and **256** are then folded downwardly into their FIG. **7** position thereby supporting the table in its fully open position. To fold or collapse the table, the reverse procedure is followed.

It will thus be seen that in both forms of the invention the table is simple in construction and can be folded and unfolded quickly and easily. The provision of a pivotally mounted cleat member or members permits the table to be collapsed with a maximum conservation of space while at the same time providing firm support for the table sections when the table is expanded.

I claim:

**1.** An expansible table stored in the drawer of a cabinet or the like and adapted to be moved from a collapsed position contained wholly within the drawer when the latter is closed to an open, expanded position when said drawer is withdrawn, comprising

a. a drawer adapted to be moved to an inner position stored within said cabinet to an outer position substantially withdrawn from said cabinet but still supported thereby in contilevered relation, said drawer including rigidly interconnected top and side walls;

b. a plurality of pivotally interconnected table sections with one of said sections being pivotally connected to the front end of said top wall of said drawer, said sections being adapted to collapse within the confines of said drawer when the same is closed and to expand when the drawer is open;

c. at least one cleat member pivotally connected to one of said table sections and extending parallel to said one table section when said table is collapsed within said drawer, said cleat member being adapted to be pivoted, when said drawer is moved to an outer position and said table sections are unfolded to a generally coplanar position, to a support position extending substantially under the adjacent table sections for supporting the same in such coplanar position, and

d. folding leg means pivotally connected to the underside of said cleat member and adapted to be folded to a support position engaging the surface supporting said table when the latter is expanded.

**2.** The expansible table of claim **1** wherein there are six pivotally interconnected table sections, with three of such sections being relatively long, with reference to the longitudinal dimension of the table when fully expanded, and alternately spaced, with the remaining three sections being relatively narrow and alternately spaced between said relatively long sections, the three relatively long sections when stored within said cabinet drawer being disposed in parallel relationship with each other, and said three relatively narrower table sections likewise being parallel to each other when the table is collapsed and stored within said drawer.

**3.** The expansible table of claim **2** wherein said one cleat member is pivotally connected to one of said relatively narrow table sections generally intermediate the length of the table when expanded, and a second cleat member pivotally connected to the relatively narrow table section disposed outwardly of said table section mounting said first cleat member when the table is in an expanded position, said second cleat member being adapted to be pivoted from a position parallel to the table section mounting the same when the table is collapsed to a diagonal support position extending substantially under the adjacent table sections for supporting the same when said table is expanded.

**4.** The expansible table of claim **3** further including folding leg means pivotally connected to the underside

of said second cleat member, each of said legs being mounted on the associated cleat member by means of a bracket mounted relatively adjacent the opposed ends of said cleat members, at least certain said brackets being mounted on opposed sides of the longitudinal center line of the associated said cleat member thereby to permit the folding of said legs to a collapsed position contiguous said cleat member and wholly within the confines thereof to facilitate folding and storing of the table.

5. The expansible table of claim 1 wherein said pivoted connections between the several table sections and between said one table section and said top wall of said drawer comprises a spring mounted detent carried by one of said pivotally connected members and a cylindrical sleeve carried by the other for receiving said detent, with said detent being adapted to be retracted from said cylindrical sleeve to permit this assembly of the pivotal connections.

6. The expansible table of claim 1 wherein said pivotal connections between the several table sections and between said one table section and the front end of said top wall of said drawer comprise continuous hinges mounted on the adjacent end of said sections.

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