Aug. 11, 1936. M. WALDSCHOCK 2,050,677

TABLE

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Fig. 1

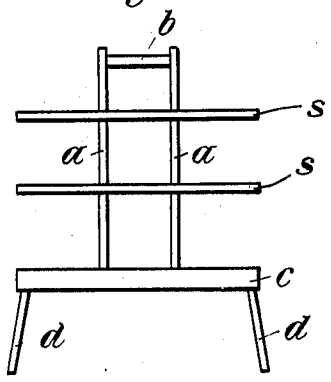


Fig. 3

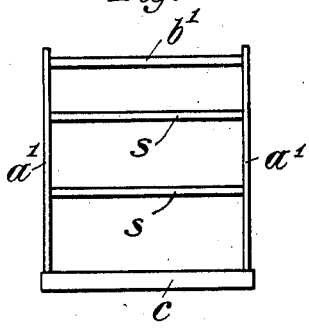


Fig. 2

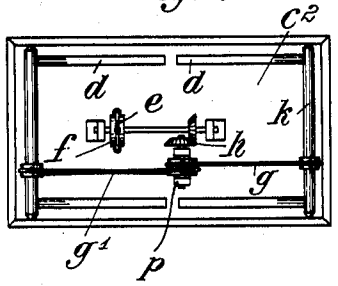


Fig. 4

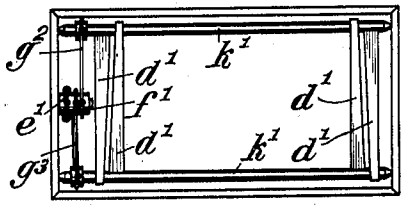
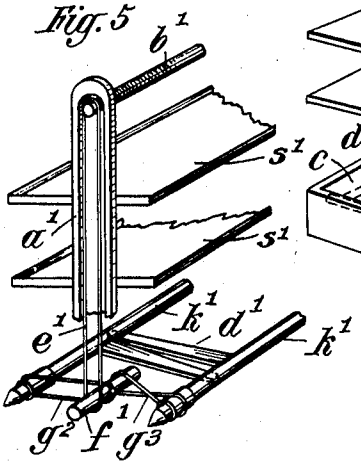


Fig. 5



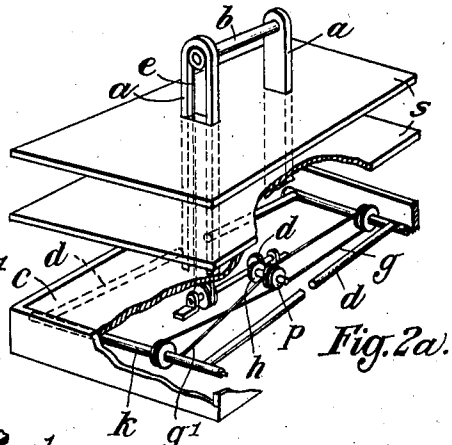


Fig. 2a.

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TABLE

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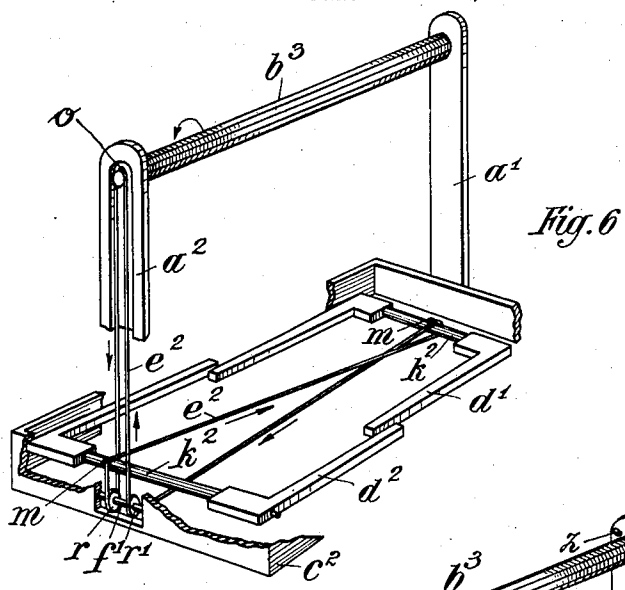


Fig. 6

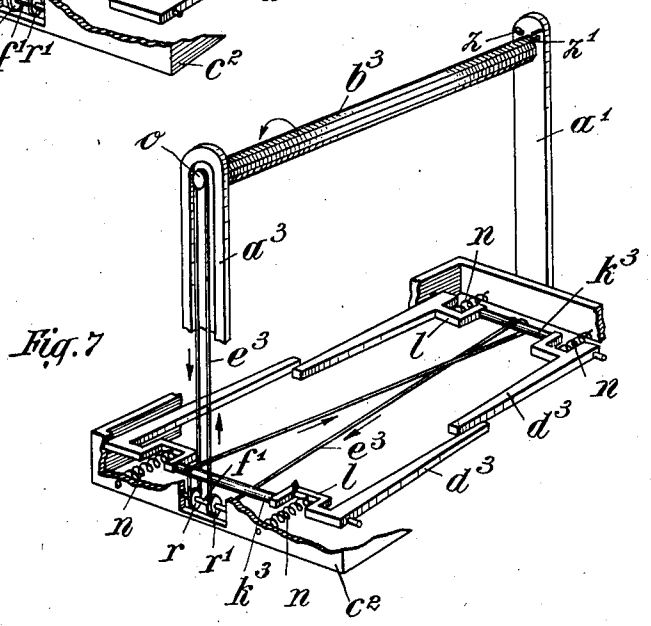


Fig. 7

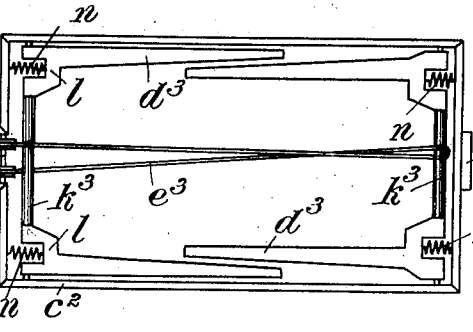


Fig. 8

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Patented Aug. 11, 1936 2,050,677

UNITED STATES PATENT OFFICE

2,050,677

TABLE

Moritz Waldschock, Golssen, Germany, assignor to Ottilie Waldschock, Golssen, Germany

Application January 18, 1934, Serial No. 707,042
In Germany January 19, 1933

12 Claims. (Cl. 224—48)

This invention refers broadly to tables, tabletops, trays or the like having foldable or collapsible supporting legs or supports, and as compared with the state of the art some of the important objects and advantages of this invention reside in the fact of a great increase of stability and adaptability of such structures, great promptness and exactness of operation, increased facility of manufacture and general reduction of the cost thereof. Another important object comprises the possibility of using one hand only for carrying and balancing the structure and for manipulating the legs, so as to leave the other hand of the operator free for carrying other articles, operating a door for instance, or attending to other duties. An additional important advantage in connection therewith is the lowering of the center of gravity of the structure with its carrying load, thereby substantially eliminating unintentional swinging movement in ascending and descending stairs, escalators and the like in the manipulation of such structure. Of additional objects of my improvement I may mention the avoidance of shocks in the operation of the legs by the combined readily responding legs-operating and carrying handle, and the possibility of mounting the carrying members of the device in spacedly superimposed or other convenient relative arrangement. Other important improvements and advantages will appear from the specification and claims and from an inspection of the drawings.

Broadly considered, my invention comprises a receiving or carrying member for the reception of the load to be conveyed which member is connected at opposite points thereof with a spacedly disposed combined lifting and leg manipulating member mounted for axial rotation in substantially parallel relation to the carrying member in suitable supports and opposite the leg-carrying side of said carrying member, so as to constitute in its preferred embodiment a kind of inverted U-shaped or bail-like supporting handle with axially rotatable means adapted to operate the foldable or collapsible legs on the opposite side of said carrying member, table, tray or the like and connected thereto by flexible, or bendable substantially resilient belt-like or chain-like motion transmitting and connecting means which keep the movable operating members in engagement with each other and cause them to readily respond to the rotation of said supporting handle in the axial direction or substantially in a plane at right angle to the carrying member. Spring actuated cranking means may be employed in connection with the foldable legs or supports and with the leg-operating member to assist in keeping the parts in the proper engaging position and in facilitating operation and in overcoming any possible resistance torque of the rotatable carrying and manipulating member. Means may also be provided to overcome any slipping tendency of the leg operating members.

My invention will be further described by reference to the accompanying drawings representing by way of exemplifications several improved embodiments of the essential features of my improved table-top or the like.

In the drawings:—Figure 1 is an elevation, somewhat diagrammatical, and Figure 2 is a bottom view seen from below of a table of a substantially rectangular shape, although the invention is not restricted to this particular exemplification.—Figure 2*a* is a perspective view of this embodiment with part of the table broken away to more clearly disclose the leg-operating means.

Figures 3 and 4 are views similar to the ones shown respectively in Figures 1 and 2 with the operating parts preferably arranged at right angle to those shown in Figures 1 and 2, Figure 3 being an elevation of the parts mounted on top of the table and Figure 4 showing the table as viewed from below.—Figure 5 is a perspective view similar to Fig. 2*a* and on a somewhat larger scale and partly broken away and substantially corresponding to Figs. 3 and 4.—Figure 6 is a perspective illustration with the table broken away, showing as a modification the utilization of a single endless flexible driving member for the simultaneous and antagonistic operation of the supporting legs.—Figure 7 is another modifica- in perspective view illustrating spring actuated operation of the legs; and Figure 8 is a bottom view of Figure 7.—Figures 1, 2, and 2*a* illustrate a most simple species of embodiment of the principles of my invention. In these figures the supporting table or tray is indicated at *c*, while the foldable legs are indicated at *d*. On the upper side of the table uprights *a* are provided opposite each other and in suitable balanced relationship and carrying the axially rotatable handle *b* by which the legs may be operated and the structure may be grasped and carried preferably in parallelism of the table top. The operation of the legs of which two pairs *d* are shown for instance in opposite antagonistic relation on carrying shafts *k* is effected from the preferably fluted or roughened handle *b* by means of flexible yielding belts, strings, chains or the like *e* and a gear wheel, friction wheel, pulley or the like *f* from

which motion is transmitted for instance by means of bevel gears to another pulley or the like h and/or a pulley or shaft p coaxial therewith in an obvious manner. Other flexible or bendable belt-like or string-like means or the like, g, g' connect these pulleys or the like h, p to the shafts k of the legs, so as to constitute respectively an open and a crossed belt driving member, adapted to impart rotation in opposite directions to the legs in the manner required.

Additional, spacedly disposed shelves, plates, frames or the like s for increasing the available working surface of the structure may be arranged above the table proper c.

In the modification according to Figures 3, 4 and 5 where the legs d' are for instance supposed to extend crosswise instead of lengthwise of the table the flexible belt-like driving means e', g^2 and g^3 connect the shafts k' of the legs d' by means of one or two intermediate gearing f'. The uprights a' in this modification (and in other modifications) may be arranged at opposite ends of the table c^1 and may be used to box up or otherwise conceal the driving means e wherever required, and to also steady the shelves s', if need be.

In the embodiment illustrated in Figure 6 a single, substantially continuous bendable endless belt-like or string-like driving member e^2 is used, the two oppositely movable reaches of which are taken over guide rollers r, r' on a stub-shaft f^2 in such a manner that the reaches or operating belt sections of said member e^2 are respectively connected to the legs d^2 or to their shafts k^2 at points m. By crossing the belt or the like e^2 between the points m on the parallel shafts k^2 and passing the remaining portion of the driving shaft e^2 loop-like over the rotatable operating handle b^2 the revolving movement of this handle b^2 will turn the shafts k^2 of the legs d^2 simultaneously in opposite directions. A suitable guide roller o or the like may be provided on the handle b^2 in order to prevent slipping of the belt member e^2 lengthwise of said handle b^2. Of course, a single endless belt or the like e^2 may be used which is secured in the manner described.

Another embodiment of the principles of my invention is shown by way of example in Figures 7 and 8 of the drawings. In this modification the shafts k^3 of the legs d^3 are under the action of compression springs n or the like, the pressure of which keeps the movable operating parts in engagement and is readily overcome by the rotation of the handle b^3 without any particular effort on the part of the bearer of the structure and without causing disengagement or axial slipping during operation.

In this exemplification the springs n may be caused, if desired to act upon cranked portions l of the legs d^3 whereby the pressure and promptness of operation of the springs n are increased and an additional safeguard against undesired slipping or tilting movement is provided.

In order to assist the operator in selecting the proper direction of rotation of the legs, particularly when the tray or table c is loaded with articles, guiding marks, pins, stops or the like z, z' on one or both of the uprights are provided in the vicinity of the handle.

The structure in accordance with this invention may be made of any suitable material, such as wood, metal, vulcanized fiber and the like. By using belt-like, bendable pressure transmitting means in preference to rigid links or levers a great uniformity and integration of operating pressure are produced and jamming and sticking of the parts are avoided and the manipulation of the handle is facilitated. The uprights may be hollow for the reception of the driving means.

I also desire it to be understood that the spring-acting leg operating means may be used in connection with any of the species shown and the same applies to the marking means, z, z' and to the endless, belt-like driving member and to other interchangeable features of the device as shown and claimed, and it is to be understood that any one of the uprights may be used for the mounting of the belt-like driving means and other modifications and changes may be made within the scope of this invention as herein set forth and shown and as appears from the appended claims.

I claim:

1. In a table, a plate, legs pivotally mounted on said plate, a handle for carrying the table, means mounting said handle on said table to rotate about an axis extending in parallel relation to said plate, flexible means operatively connected to said handle, gearing operatively connected to said flexible means, and other flexible means operatively connected to said gearing and to said legs, for operating said legs from said handle.

2. In a table, a plate, legs pivotally mounted on said plate, a handle for carrying the table, means mounting said handle on said table to rotate about an axis extending in parallel relation to said plate, a driving member mounted to rotate on said plate, means operatively connecting said driving member to said handle, and means operatively connecting said driving member to said legs.

3. In a table, a plate, legs pivotally mounted on said plate, a handle for carrying the table, means mounting said handle on said table to rotate about an axis extending in parallel relation to said plate, a driving member mounted to rotate on said plate, means operatively connecting said driving member to said handle, and flexible means and gearing operatively connecting said driving member to said legs.

4. A table comprising a supporting top, upright supports extending opposite each other from one side of said top, lifting and manipulating means above said top and intermediate the ends thereof and rotatably mounted in said uprights for rotation about an axis substantially in parallelism with said top, foldable legs swingingly disposed on the other side of said top, and flexible, substantially belt-like bendable connecting means, respectively operatively connected to the manipulating means and to said legs.

5. A table comprising a supporting top, upright supports extending opposite each other from one side of said top, lifting and manipulating means above said top and intermediate the ends thereof and rotatably mounted in said uprights for rotation about an axis substantially in parallelism with said top, foldable legs disposed on the other side of said top, and substantially belt-like connecting means extending along at least one of said uprights and unslippingly connected respectively to said manipulating means and to said foldable legs.

6. A table comprising a supporting top, upright supports extending opposite each other from one side of said top, lifting and manipulating means above said top, intermediate the ends thereof and mounted in said uprights for rotation about an axis substantially in parallelism to said top, foldable legs disposed on the other side of said top, and an endless, flexible operating member, un-

slippingly connected to said manipulating means and operatively connected to said legs.

7. A table comprising a supporting top, supporting uprights extending from one side of said top, lifting and manipulating means above said top intermediate the ends of said top and mounted in said uprights for rotation about an axis substantially parallel to said top, foldable legs on the other side of said top, and an endless, substantially belt-shaped operating means positioned near at least one of said uprights and parallel thereto and unslippingly secured to said manipulating means and operatively connected to said legs.

8. A table comprising a supporting top, supporting uprights extending from one side of said top, lifting and manipulating means above said top and mounted in said uprights, intermediate the sides of the top, foldable legs including crank arms on the other side of said top, spring means connected to the cranked portions of the legs, and substantially belt-like cperating means unslippingly secured on at least one terminal portion of said lifting and manipulating means and connected to said legs.

9. A table comprising a supporting top, supporting uprights extending from one side of said top, lifting and manipulating means mounted in said uprights for rotation in a plane at right angle to said top, collapsible legs on the other side of said top, and substantially belt-like operating means on at least one terminal portion of the lifting and manipulating means concealed by the adjoining supporting upright and connected to said legs and secured against slipping movement with relation thereto.

10. In a table, a plate, bars mounted on said plate, legs on said bars, a rotatable handle for carrying said table and substantially coextensive with the plate, mounting means on said table for supporting the handle, and bendable, substantially string-like motion transmitting means on said handle operatively connected to said legs.

11. A table comprising a supporting top, supporting means extending from one surface of said top, lifting and manipulating means mounted in said supporting means above the top for rotation on its axis in a plane at right angle to said top and intermediate the ends of said top, foldable legs pivotally secured to the other surface of said top, and substantially string-like bendable motion transmitting means fastened respectively to the manipulating means and to said legs.

12. A table comprising a supporting top, upright supports extending from one surface of said top, lifting and manipulating means mounted in said uprights for rotation about an axis substantially in parallelism with said top, foldable legs pivoted to the other surface of said top, and substantially yielding, string-like motion transmitting means intersectingly extending near one of said uprights and respectively secured to said manipulating means and to said foldable legs.

MORITZ WALDSCHOCK.