March 24, 1959 H. HOWE ET AL 2,879,120

LONG TWO PART FOLDING TABLE

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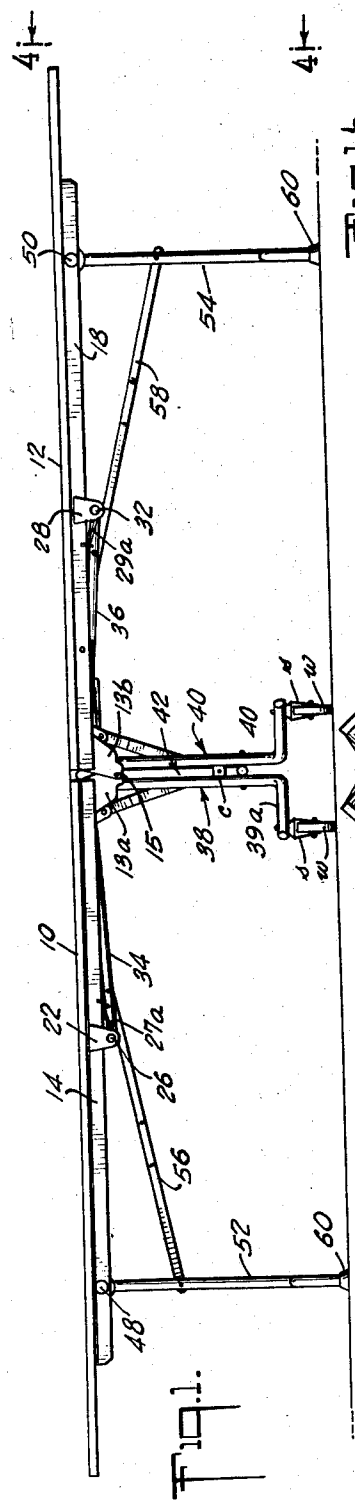


Fig. 1.

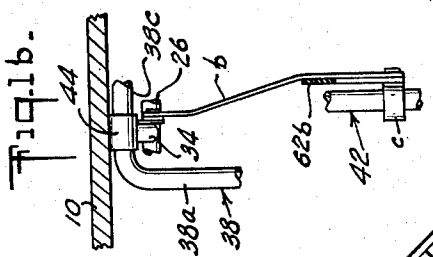


Fig. 1b.

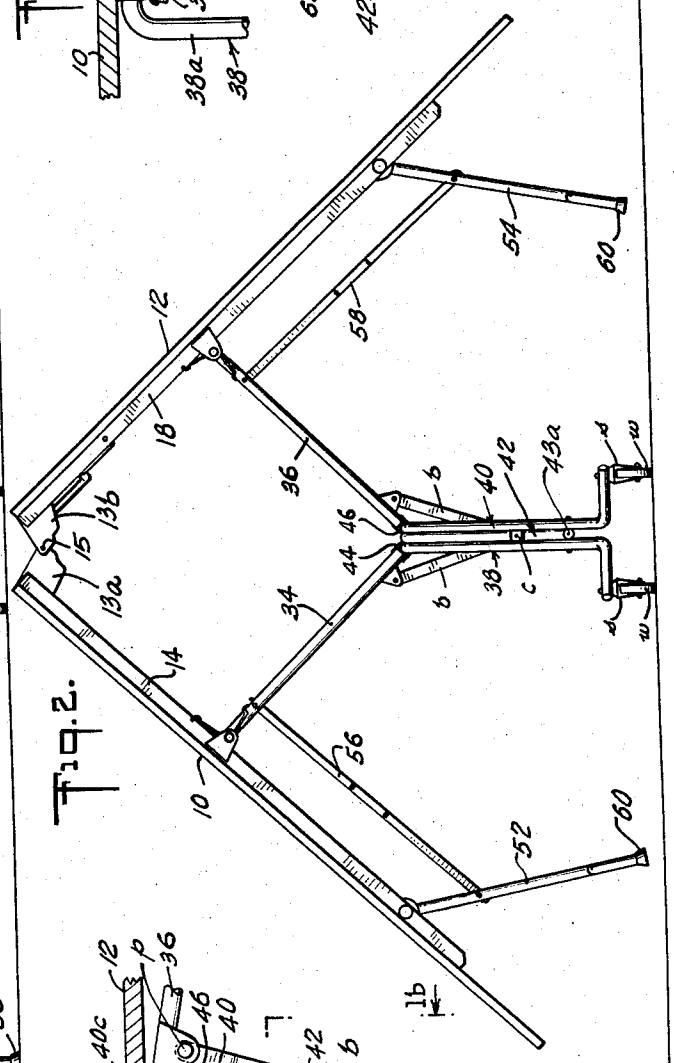


Fig. 2.

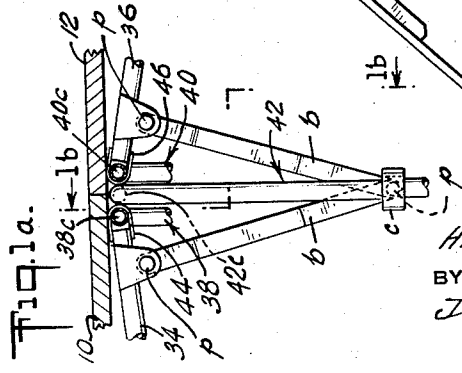


Fig. 1a.

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Fig. 3.

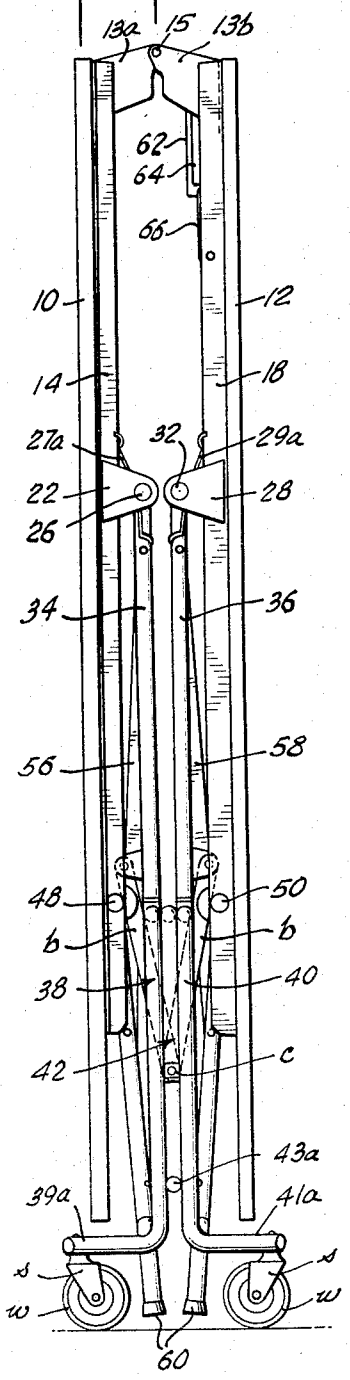


Fig. 4.

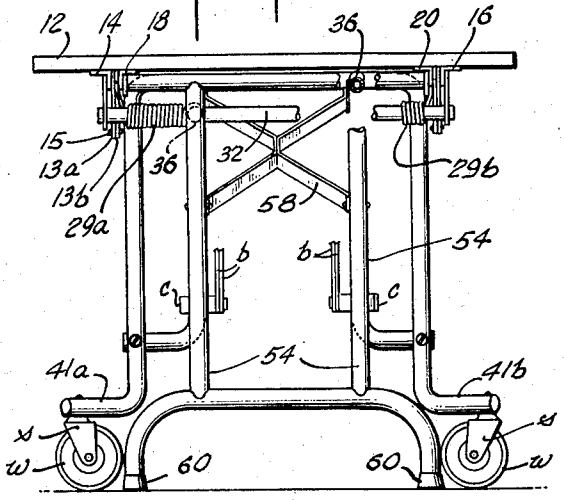


Fig. 5.

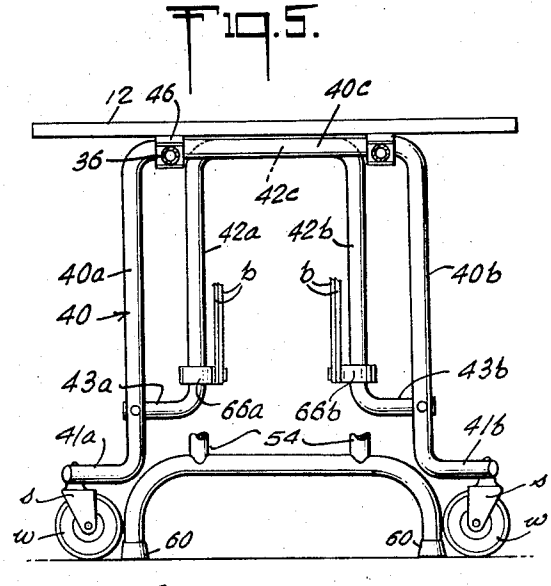
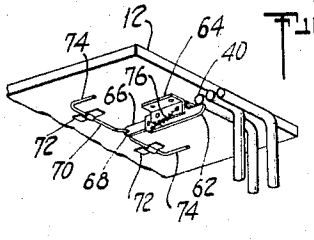


Fig. 6.



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LONG TWO PART FOLDING TABLE

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Application July 21, 1958, Serial No. 749,840

6 Claims. (Cl. 311—92)

This invention relates to a folding table characterized in that the whole structure is automatically foldable along hinged transverse lines of fold from a horizontal operative position to a folded vertical position.

The table disclosed herein is a twelve foot table. Heretofore tables of this size have been difficult to fold and unfold and have been unsteady, tending to teeter back and forth when in folded condition.

An object of this invention is to overcome the deficiencies of the prior art and provide a long folding table which is easy to fold or unfold and stands steadily when in unfolded position.

Another object of the invention is to provide a center pedestal and swing arm means adapted to support the top parts on the center pedestal when the table is folded, and so related to leg means at the outer ends of the top parts respectively that said leg means are elevated from the floor as the structure is folded and are lowered onto the floor as the structure is unfolded to provide additional support for the top when the table is unfolded.

Another object of the invention is to provide a structure of the kind described which may be either folded upwardly along its hinged transverse mid-line or unfolded with ease, without moving a center pedestal on which the folded structure may be easily moved.

Another object of the invention is to provide a structure of the kind with auxiliary support means at its outer ends operative when the table is unfolded to aid in supporting the outer ends of the table and also in preventing inadvertent moving of the unfolded table or unauthorized moving of the table as by children.

Another object of the invention is to provide a structure of the kind described having center and end support means and interconnecting means such that the end support means are elevated to non-operative position when the structure is folded.

Another object of the invention is to provide a structure of the kind described in which the two top halves are supported in folded position by single link means extending from a center support means to said halves respectively, including means for preventing teetering or oscillating movements of the top parts when in folded position.

Another object of the invention is to provide a structure of the above described type such that it may be completely folded or unfolded by an operator standing at one central point, on either side of the unit.

Another object of the invention is to provide a folding structure of the kind described which is simple, durable and efficient and occupies a minimum of floor space when in folded position.

The invention will best be understood if the following description is read in connection with the drawings in which:

Figure 1 is a side elevation of a structure embodying the invention, in unfolded position;

Figure 1*a* is a detail side view of means carried by the center pedestal and serving to balance the halves of the structure and prevent teetering in folded position;

Figure 1*b* is a detail view looking in the direction of arrow 1*b* to Figure 1*a*;

Figure 2 is a side elevation showing the structure of Figure 1 in partly folded position;

Figure 3 is a side elevation showing the structure in fully folded position;

Figure 4 is an end elevation;

Figure 5 is a view similar to Figure 4 with certain parts removed, and

Figure 6 is a detail view of means for locking the structure in unfolded position.

As shown herein the structure comprises the table top parts **10, 12** joined together by hinge means each comprising leaves **13***a* and **13***b* and the pivot pin **15**.

On the under surface of table top **10** the long angle members **14** and **16** are provided, spaced apart and slightly converging from their inner to their outer ends. On the under surface of table top **12** the angle members **18** and **20** are similarly disposed. The hinge leaves may be mounted on the angle members of the top parts respectively. Thus one leaf **13***a* may be added to the inner end of angle **14** and a leaf **13***b* to the inner end of angle **18**, and another leaf **13***a* may be welded to the inner end of angle **16** and a leaf **13***b* to the inner end of angle **20**.

Depending from the angle members **14** and **16** in alignment transversely of the table top part **10**, nearly half way from the inner end to the outer end of part **10**, are the brackets **22** and **24** which serve as bearings for rotatably mounting the cross rod **26** spaced from the inner surface of table top part **10**. Depending from the angle members **18** and **20**, in alignment transversely of the table top part **12**, nearly half way from the inner end to the outer end of table top part **12**, are the brackets **28** and **30** which serve as bearings for rotatably mounting the cross rod **32** spaced from the under surface of table top part **12**.

From cross rods **26** and **32** link-levers **34** and **36** respectively extend to a central support or pedestal on which they are pivotally mounted as will be described. The central support comprises two inverted U-members **38** and **40** extending transversely of the top under the hinged together inner ends of the top parts, each having the end portions **39***a*, **39***b* and **41***a* and **41***b* respectively bent outwardly and with swivel mounts *s* for the castors or wheels *w*.

It will be noted that end portions **39***a*, **41***a* and **39***b*, **41***b* which project on either side of the structure, are disposed at a relative angle and thus spaced apart longitudinally of the table to provide solid and non-tipping support for the whole structure in folded position.

Between members **38** and **40** is a third inverted U-shaped member **42** (Figure 5), the arms **42***a* and **42***b* of which serve as parallel vertical guide members on which slide the collars *c*. The intermediate portion **42***c* of **42** is shorter than the intermediate portions of members **38** and **40** and the arms **42***a* and **42***b* are offset inwardly from the arms **38***a*, **40***a* and **38***b*, **40***b* of members **38** and **40**, except for their lower extremities **43***a*, **43***b* which are bent outwardly and anchored in any suitable way between the arms **38***a*, **40***a* and **38***b*, **40***b* respectively. Each collar is connected to link-levers **34** and **36** by arms *b* respectively, pivoted at one end to the collar and at the other end to the link-lever by the pivots *p*.

The intermediate portions of **38**, **40** and **42** may be bolted or welded together, and provide a support surface on which the inner ends of the table top parts **10** and **12** rest when the table is unfolded.

Link-levers **34** and **36** are provided interconnecting the

top parts respectively to the center support means or pedestal as has been described. It will be understood that one link-lever **34** and one link-lever **36** may be used. As shown herein two similar members **34** and two similar members **36** are shown spaced apart laterally of the top parts respectively but the members of each pair are duplicates of one another and lie in the same plane and move together and connect the center support to the top part along the same transverse line. The duplicate link means **34** are fixed at one end to the cross member **26** and at the other end are mounted as by U-brackets **44** for rotation around the central portions **38***c* and **40***c* respectively of pedestal member **38**.

Around the ends of cross member **26** the torsion springs **27***a* and **27***b* are wound. Spring **27***a* is wound around the portion of member **26** which is between angle member **14** and a link-lever **34** and one end of said spring is anchored to angle member **14** and the other end is anchored to said link. Similarly spring **27***b* is wound around the portion of member **26** which is between angle member **16** and a link-lever **34**, and one end of said spring is anchored to angle member **16** and the other end is anchored to said link.

The duplicate link-lever means **36** are fixed at one end to a rotatable cross member **32**, and at the other end are mounted as by U-brackets **46** for rotation around the central portion **40***b* of pedestal member **40**.

Around the ends of cross member **32** the torsion springs **29***a* and **29***b* are wound, the ends of spring **29***a* being anchored to angle member **16** and link-lever **36** respectively, and the ends of spring **29***b* being anchored to angle member **18** and a link-lever **36** respectively.

The springs **27***a*, **27***b* and **29***a* and **29***b* exert force tending to rotate the top parts relative to link-levers **34** and **36** respectively and thus aid in folding the structure substantially throughout the folding step. Instead of two springs a single spring may be provided on each cross member, **26** and **32**. Any suitable latch means may be provided for locking the structure in unfolded position. The locking means shown in Figure 6 comprises the latch member **62** which is mounted between the guides **64**. Its rear end is pivotally connected to link **66** the other end of which is pivoted at **68** to the cross bar **70** which is rotatably mounted on the under surface of a top as by brackets **72**, and handles **74** are provided projecting from the cross bar **70** at right angles to the cross bar. A spring **76** is interconnected between the latch **62** and a guide plate **64** which urges the latch into locked position. The latch is released by pulling down on a handle **74**.

There has thus been provided a folding table structure in which the above stated objects have been accomplished in a thoroughly practical manner.

Pivoted to the underside of the top parts **10** and **12**, near their outer ends, as by means of cross bars **48** and **50** pivotally mounted between the angle members **14**, **16**, and **18**, **20** respectively, are the leg means **52** and **54**. Brace-links **56** and **58** extend between the leg means **52**, **54** and the link-levers **34**, **36** respectively, each being pivotally connected at the other end to the link-lever intermediate its ends. These pivotal connection points are predetermined and selected, particularly the points of connection of said brace-links to said link-levers respectively, to cause the leg means to be lifted off the floor substantially at the beginning of table folding action and only returned into contact with the floor substantially at the end of table unfolding action.

Instead of castors or wheels we prefer to provide on the lower ends of the leg means **52** and **54** caps **60** of rubber or other material adapted to frictionally contact the floor and resist movement of the unfolded table. Tables of the kind disclosed herein are often used in school dining halls and for various other institutional uses and the friction caps **60** serve a useful purpose in preventing undesired or unauthorized moving of the table. When it is desired to move the table it is a simple matter to fold it, partly or completely and move it on the castors or wheels on which the center pedestal is mounted.

The arms *b* by pivotally connecting the link-levers **34** and **36** to the collars *c* which slide on the vertical guide members **42***a*, **42***b* stabilize the top parts in their vertical folded position and prevent them from teetering back and forth as might otherwise occur, for example when the folded table is being moved.

There has thus been provided a structure in which the objects mentioned above are achieved in a thoroughly practical manner.

What we claim is:

1. A folding table comprising two top parts, hinge means joining opposed ends of the top parts for movement of said parts into end to end alignment in unfolded position and into substantially parallel planes in folded position, a center pedestal the height of which determines the level of the top in unfolded position and on which the inner ends of the top parts rest when in unfolded position, a pair of swing arms rotatably mounted at one end on the top of the center pedestal and with their other ends pivotally connected to the top parts respectively at a distance from the inner ends of said top parts which is less than one-half the length of said top parts, and means pivotally connected to the top parts adjacent their outer ends.

2. The structure claimed in claim 1 in which the pivot connections between the swing arms and the top parts are spaced below the top parts by brackets depending from the top parts respectively and substantially normal to the top parts.

3. The structure claimed in claim 1 including link-brace means pivotally connected between said leg means and said swing arms respectively at points intermediate the ends of the swing arms and nearer the inner ends of the top parts respectively than the pivot connections between said swing arms and the top parts.

4. The structure claimed in claim 1 in which the center pedestal comprises an inverted U-shaped member, collars are slidably mounted on the respective upright outer portions of said member, a pair of arms are pivotally connected between each collar and the respective members of each pair of swing arms, and means are provided against which the arms independently abut when the structure is completely folded, thereby preventing teetering of the top parts in folded position.

5. A folding table comprising two top parts, hinge means joining opposed ends of the top parts for movement of said parts into end to end alignment in unfolded position and into substantially parallel planes in folded position, a center pedestal which is mounted on anti-friction means disposed under the hinge line of the top parts and is wide enough to provide a surface on which the inner ends of the top parts rest when in unfolded position, swing arm means mounted on the center pedestal for swinging movement between horizontal and raised vertical position around a horizontal axis which is adjacent immediately under the level of the top in unfolded position, the other ends of said swing arms being pivotally connected to brackets projecting downwardly from the under surface of the top parts respectively, said brackets being disposed substantially nearer the inner ends than the outer ends of said top parts respectively, legs pivotally connected to the top parts adjacent their outer ends respectively, said legs having friction contact means at their lower ends respectively, and means pivotally connected between said legs and said swing arms respectively, the relationship between the center pedestal, said swing arms, and the top parts being such that the legs are lifted out of contact with the floor immediately after the start of a folding operation.

6. The structure claimed in claim 5 in which the swing arms and the brackets to which their outer ends are pivoted change in angular relation during folding of the structure from being disposed substantially a right angle

at the beginning of the folding action to a position in which the brackets are aligned with the swing arms at the end of the folding action and are in effect a continuation of the swing arms respectively, thus giving added elevation to the top parts and said legs, and enabling the lower ends of the legs to clear the floor.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 2,879,120 March 24, 1959

Harold Howe et al.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 3, line 50, beginning with "There has thus been provided" strike out all to and including "practical manner." in line 52; column 4, line 75, after "substantially" insert -- at --.

Signed and sealed this 18th day of August 1959.

(SEAL)
Attest:

KARL H. AXLINE
Attesting Officer

ROBERT C. WATSON
Commissioner of Patents