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K. B. OLANDER ET AL

2,957,736

STOP FOR FOLDING SUPPORT FRAME

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2 Sheets-Sheet 1

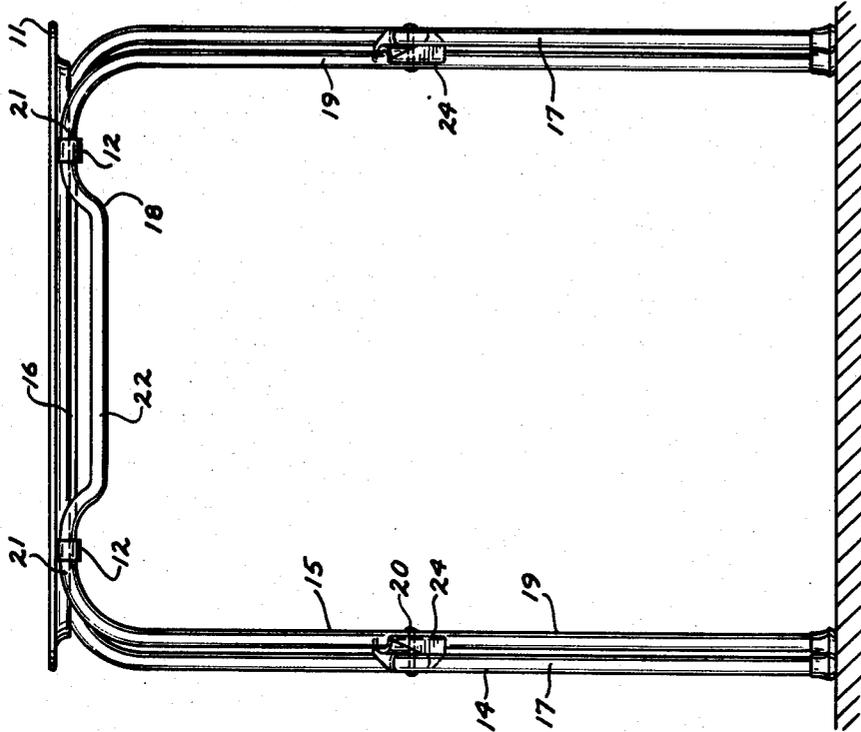


FIG. 2

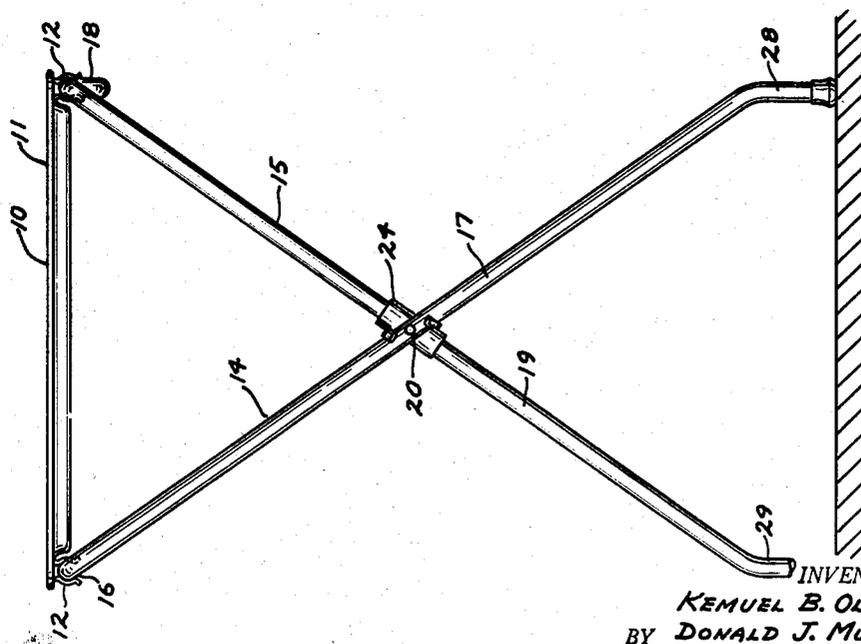


FIG. 1

INVENTORS
KEMUEL B. OLANDER
BY DONALD J. MUNSON
Carlson & Hayle
ATTORNEYS

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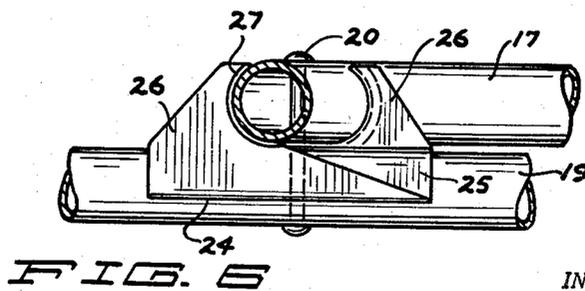
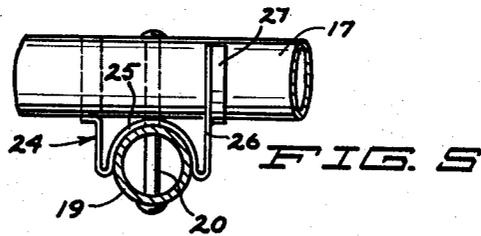
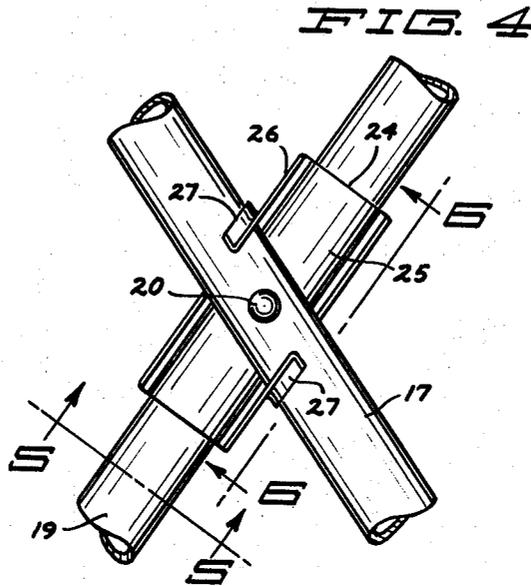
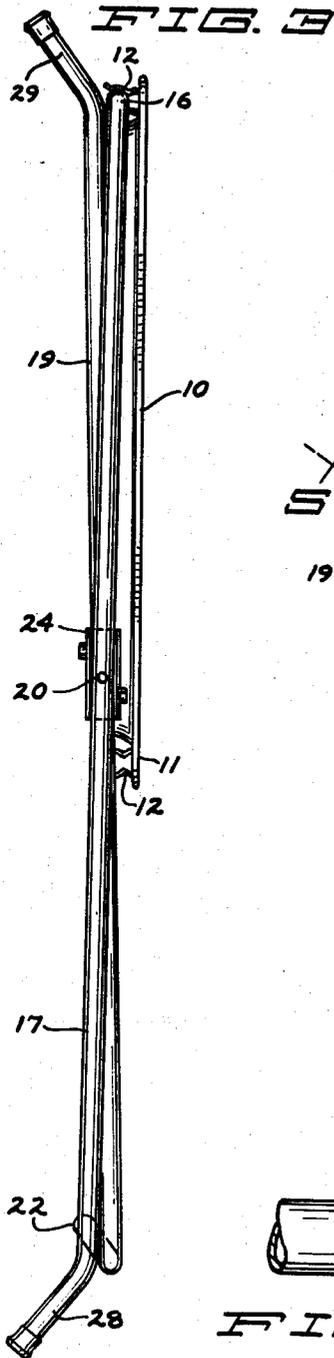
K. B. OLANDER ET AL

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INVENTORS
KEMUEL B. OLANDER
BY DONALD J. MUNSON

Carlson & Hagle

ATTORNEYS

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STOP FOR FOLDING SUPPORT FRAME

Kemuel B. Olander and Donald J. Munson, Minneapolis, Minn., assignors to The J. R. Clark Company, Spring Park, Minn., a corporation of Minnesota

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This invention relates generally to table construction and more particularly concerns table units of the type in which a serving tray is supported on a collapsible leg structure.

A lightweight individual serving unit commonly referred to as a "TV tray" consists of a tray mounted on a pair of pivotally interconnected leg frames. The tray is generally detachably secured to at least one of the leg frames so that by detachment thereof the frames and tray may be collapsed into a relatively flat condition for storage. It is with improvements in this type of unit that the present invention is concerned.

The principal object of the invention is to provide a new and improved serving table unit of the character described wherein the top has fixed spaced connecting means for detachable connection with the upper ends of relatively collapsible frames, and said leg frames having stop means for automatically limiting erecting movement thereof to positions where the frame upper ends will be properly spaced for engagement by said connecting means.

Another object of the invention is to provide a table or stand structure having a top detachably connected to cross members of a pair of leg frames, one of said cross members being so formed as to provide a handle means spaced from the top to facilitate detachment of the top therefrom.

Still another object of the invention is to provide a table structure having a pair of intercrossing leg frames pivotally interconnected for movement between erect and collapsed conditions, and having bracing means adjacent the pivot to rigidify the pivotal connection when the structure is in erected condition and to assure proper relative collapsing movement of the leg frames about the pivot.

Still another object of the invention is to provide a table unit having a collapsible leg structure formed of a pair of pivotally interconnected leg frames and having a pivot restricting means on one frame and engageable with the other frame for controlling relative movement of the frames about the pivot, and which means has very limited projection from the plane of the frame on which it is mounted to allow the entire leg structure to be collapsed to a relatively flat condition.

The above mentioned and still further objects of the invention will be brought to light during the course of the following specification, reference being made to the accompanying drawing, in which:

Fig. 1 is a side elevation of the unit in erected condition.

Fig. 2 is an end elevation of the unit in erected condition.

Fig. 3 is a side elevation of the unit in collapsed condition.

Fig. 4 is an enlarged side elevation of the pivotal connection between the leg frames at one side of the supporting structure and with the structure in erected condition.

2

Fig. 5 is a section taken along line 5-5 of Fig. 4.

Fig. 6 is a section taken along line 6-6 of Fig. 4.

Referring now more particularly to the drawings reference numerals will be used to denote like parts or structural features in the different views. The numeral 10 designates generally a shallow tray member having a marginal rim 11. Downwardly opening spring clips 12 are mounted in transversely spaced but aligned relation on the underside of rim portions 11 at each end of the tray.

A pair of leg frames 14 and 15, each having an inverted general U-shape, serves as a supporting leg structure for the tray. Frame 14 has a straight transversely extending bight portion or cross bar 16 at its upper end interconnecting a pair of parallel legs 17 which extend diagonally downward under the tray. The other frame 15 has a cross bar 18 at its upper end interconnecting a pair of parallel legs 19 which extend diagonally downward under the tray. The legs 19 pass closely by the legs 17 at each side of the structure in inter-crossing relation and are pivotally interconnected thereto at their points of crossing by pivot pins 20.

Cross bar 18 has its end portions 21 aligned transversely and spaced from pivots 20 equidistant with the cross bar 16 so as to be disposed at the same elevation as the latter. The portion 22 of member 18 intermediate the end portions 21 is offset downwardly therefrom as best observed in Fig. 2.

The clip means 12 at one end of the tray are adapted to firmly grip the cross bar 16 while the clips 12 on the opposing portion of flange 11 are adapted to grip the end portions 21 of the member 18. When the tray is so mounted on the leg frames the central portion 22 of the cross bar 18 will be spaced downwardly below the flange 11 and the bottom of the tray 10 to serve as a handle means for gripping the bar.

Clips 12 are U-shaped in cross section with resilient legs having sufficient relative compressive bias to securely grip the members 16 and 18 so that the leg frames will be carried with the tray when it is lifted. However, when positive vertical separating force is exerted between the tray and cross bars 16 or 18, the clips can be made to release their frictional grip on the bars for removal of the tray from the leg frames.

A stop member designated generally at 24 is mounted on each leg 19 adjacent the pivot pin 20. The construction of this member may be best understood by reference to Figs. 4 through 6. The member 24 has a semi-tubular body portion 25 adapted to fit securely against the cylindrical surface of leg 17 between the legs 17 and 19. Portion 25 is apertured to receive the pivot pin 20. The longitudinal edges of the stop member are bent laterally outward to form stops 26 at each side of the member. These stops project laterally on planes parallel to the pivot axis into the path of swinging movement of the adjacent leg 19 and are provided with semi-circular stop flanges 27 adapted to peripherally engage and firmly seat the leg 19. The stops 26 on each member 24 are spaced above and below the pivot and are respectively disposed between the legs 17 and 19 above and below the pivot. Accordingly, the upper flange 27 will engage leg 17 above the pivot and lower flange 27 will engage leg 17 below the pivot to limit movement of the cross members 16 and 18 toward each other. The stop flanges 27 are so positioned to engage the leg 17 with the members 16 and 18 properly spaced to receive the clips 12.

The lower end portions of the legs 17 and 19 may be angled downwardly as at 28 and 29 respectively to allow placement of the pivot 20 above the longitudinal centers of the legs without extending the legs beyond the limits of the tray 10. The bottom ends of the legs are capped by friction tips 30 of rubber or the like.

The inherent advantages of the construction disclosed will be readily understood. The unit is normally stored in the collapsed condition shown in Fig. 3 with the clips 12 on one side of the tray in engagement with the member 16. To erect the unit the tray 10 is swung upwardly and handle means 22 is raised swinging frame 15 about the axis of pivots 20 until the stop flanges 27 engage the leg 17. The cross bars 16 and 18 are now automatically spaced for reception of the cross bar portions 21 in the clips 12 at the corresponding end of the tray. The tray may thus be readily engaged with the bar 18 and the unit is ready for use.

The stop member 24 not only limits erecting movement of the leg frames to the proper relative position but also serves to strongly brace the pivot points of the legs. This is effected by the firm engagement of semi-circular flanges 27 against legs 17 both above and below the pivot point. It is also significant that the stop member is so constructed to provide double engagement with the other leg without any substantial projection from the plane of the leg frame 15 on which it is mounted. This enables the entire leg structure to be collapsed into a relatively flat condition without any obstructive or unsightly projections.

When the unit is to be collapsed for storage the operator merely manually grasps the handle means 22 and presses upwardly with the thumb of the same hand against the underside of the tray forcing the clips 12 off of the bar portions 21. At this point the members 24 again serve an important purpose in that they positively prohibit erroneous collapsing movement of the leg frames by moving the members 16 and 18 toward each other, which is a natural but inoperative manner of collapsing this type of unit. Correct erecting and collapsing operation of the unit is accordingly assured.

The structure disclosed accordingly economically and effectively carries out the aforementioned objectives. It is understood that suitable modifications may be made in the structure as disclosed, provided such modifications come within the spirit and scope of the appended claims. Having now therefore fully illustrated and described our invention, what we claim to be new and desire to protect by Letters Patent is:

1. In a collapsible supporting structure having a pair of straight frame sections disposed in parallel planes and interconnected by a pivot pin for relative folding of the sections about the pin axis on their respective planes between an intercrossing erect condition and a substantially parallel collapsed condition, a stop member mounted on the pin for limiting said relative movement of the sections, the stop member having an elongated channel shaped body portion disposed between the sections and apertured to receive the pivot pin, the body portion extending along one of the sections with the channel walls extending partially around the opposite sides of said section away from the other section above and below the pivot axis to prohibit movement of the stop member about said axis, said stop member having at least one side edge portion turned back from the channel wall to extend into the plane of movement of said other section to form a stop to limit relative movement of said other section about the pivot axis, said edge portion lying in a plane which is adjacent and substantially parallel to its connected channel wall for edge-wise stopping engagement with the other section.

2. The subject matter of claim 1 wherein the stop member has stops formed on both sides thereof for edge-wise stopping engagement against opposite sides of the other section on opposite sides of the pivot axis, said other section being tubular in cross section, and each of said stops having arcuate stopping edges adapted to engage peripherally around opposite sides of said other section when the sections are in erect condition.

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