Oct. 5, 1954 B. MARCUS 2,690,942

FOLDING TRAY LEG STRUCTURE WITH SPRING LOCK

Filed April 9, 1952

Fig. 1.

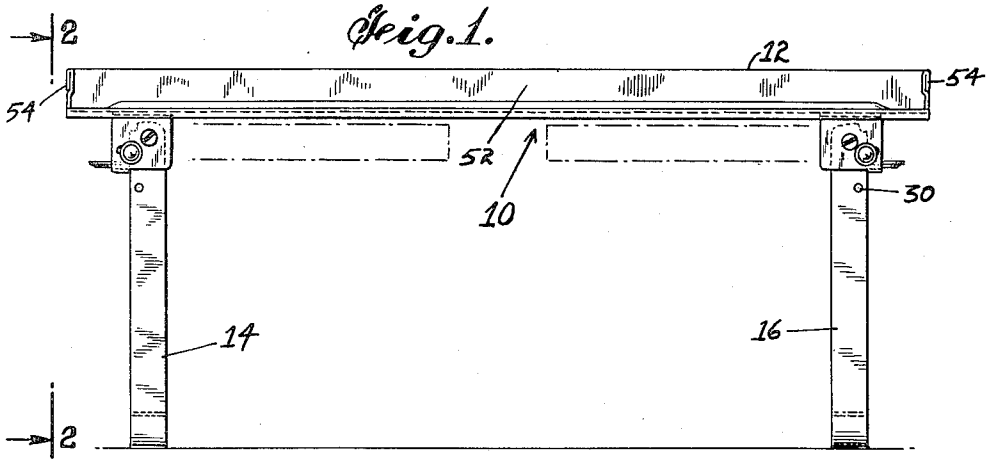


Fig. 2

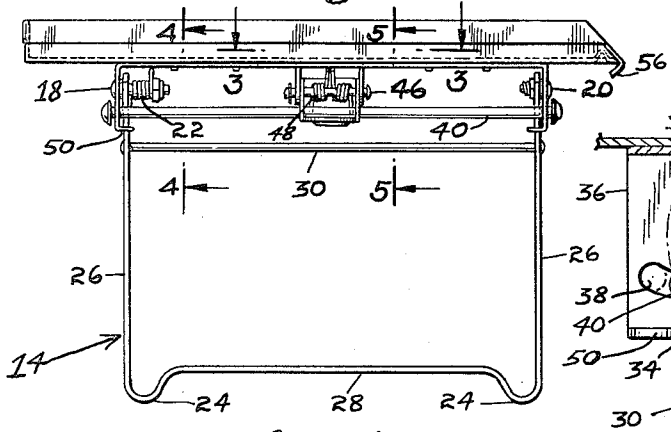


Fig. 4.

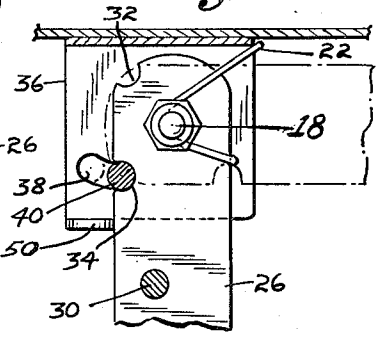


Fig. 3.

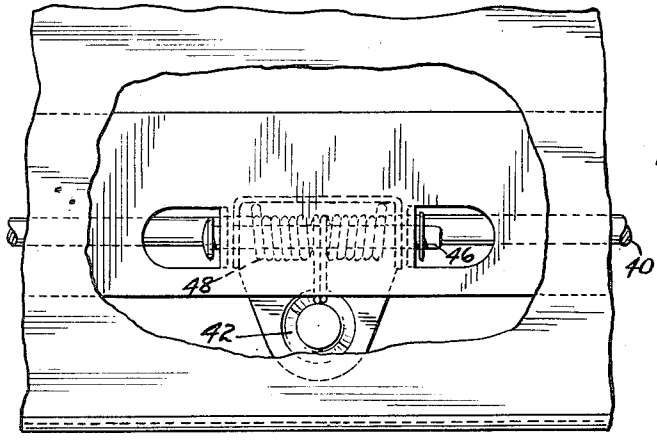
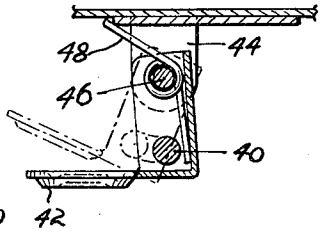


Fig. 5.



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FOLDING TRAY LEG STRUCTURE WITH SPRING LOCK

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1 Claim. (Cl. 311—87)

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This invention relates to a folding tray leg structure with spring lock.

The tray which is herein described and claimed is intended for use in hospitals but it may also be used at home and in hotels and elsewhere.

The principal object of this invention is the provision of a foldable tray which may be carried from place to place in folded position and which may be placed upon a bed or other suitable support in unfolded position. When it is in folded position, it functions as a serving tray; when it is in unfolded position, it functions as a table on which food may be served and consumed. This foldable tray consists of a tray portion and legs to support it. The legs are pivotally connected to the tray and they may be folded upwardly flat against the tray or they may be swung downwardly into perpendicular relation to the tray. When the legs are flat against the tray, the tray may be used for carrying and serving purposes. When the legs are in perpendicular relation to the tray, the tray becomes a table which is adapted to be placed on any suitable horizontal surface, such as a hospital bed. The legs are so disposed that they straddle the patient lying or sitting in bed.

An important feature of this invention is the locking and unlocking mechanism whereby the legs are locked flat against the tray or in perpendicular relation thereto and whereby they may be unlocked from either position so that they may be swung to the other position. More specifically, notches are provided in the legs for engagement with spring-urged rods on the tray. When the legs are flat against the tray, they may be released by simply disengaging the rods from one group of notches and the legs would then drop of their own weight into perpendicular relation to the tray. The spring-urged rods on the tray would automatically engage a second group of notches in the legs and the legs would thereby be locked in perpendicular position. By the same token the legs may be unlocked from such perpendicular position by simply disengaging the rods from the last mentioned group of notches and then swinging the legs up against the tray. The rods would once again automatically engage the first group of notches in the legs and the legs would thereby be locked in folded position.

A very handy mechanism is thereby provided which makes for easy handling of the tray and for quick conversion to a table and back again to a tray. The mechanism is also easy to keep clean since its parts are few, simple and fully exposed.

A preferred form of this invention is shown in the accompanying drawing in which:

Fig. 1 is a side view of a foldable tray made in

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accordance with this invention, said tray being shown in unfolded position and serving as a table.

Fig. 2 is an end view of the same tray, also showing it in unfolded position and serving as a table, said view being indicated by arrows 2, 2 of Fig. 1.

Fig. 3 is an enlarged, fragmentary view looking in the direction of arrows 3, 3 of Fig. 2, the tray being partly broken away to expose the release mechanism by which the legs are unlocked from either of their two positions.

Fig. 4 is an enlarged fragmentary section on the line 4—4 of Fig. 2.

Fig. 5 is an enlarged fragmentary section on the line 5—5 of Fig. 2.

The hospital tray 10 herein described and claimed is shown in unfolded or opened position in Fig. 1 and it will be understood that in such position it constitutes a table of the type which may be placed on hospital beds and the like, although it is certainly not limited to such use. It comprises a tray portion or element 12 and a pair of double leg elements 14 and 16 respectively. The leg elements are pivotally connected to the tray element and they are swingable from one to the other of two positions: the solid line position in Fig. 1 wherein the leg elements stand vertically and support the tray element as a table top, and the broken line position in Fig. 1 wherein the leg elements are folded flat against the tray element and render the latter useful as a serving tray.

Bolts 18 and 20 serve as the pintle elements for pivotally attaching the legs to the tray. Torsion springs 22 may be mounted on bolts 18 for engagement with the legs and tray to urge the legs into their vertical positions perpendicular to the tray. These springs would assist gravity in swinging the legs from their broken line positions to their solid line positions once they are released for such movement. The use of bolts for this purpose is, of course, purely illustrative, and other pivoting means such as rods, pins and rivets may also be used for the same purpose.

Each leg element comprises a U-shaped element or member with two foot or pad portions 24 constituting the two lower corners thereof. The upright portions of the leg elements are designated in the drawing by means of reference characters 26 and the horizontal yoke between the feet or pads is designated by reference character 28. Bolts 18 and 20 extend through the upper ends of upright portions 26 as Figs. 1, 2 and 4 clearly show. Rods 30 may be secured to said upright positions for rigidity.

It will be noted that each upright 26 has two

notches 32 and 34 formed therein at equal distances from the pivotal axis. The upper notch 32 is somewhat shallow and the lower notch 34 is relatively deep for reasons which will shortly appear. A bracket of inverted U shape, designated 36 in the drawing, is secured to each end of the tray and it is on this bracket that the leg elements are pivotally supported by means of bolts 18 and 20. Arcuate slots 38 are formed in the brackets and rods 40 are slidably disposed in said slots for movement into and out of engagement with notches 32 and 34. When leg elements 14 and 16 are in vertical position, rod 40 is engageable with their notches 34 to lock said leg elements in such position; when the leg elements are in horizontal position, rod 40 is engageable with their notches 32 to hold them in such position.

Mounted on each rod 40 is a finger piece 42 which is also pivotally supported by bracket 36 and more particularly by downwardly struck portions 44 and pin 46 extending therethrough. A torsion spring 48 is mounted on said pin and it will be seen that one end engages the bracket 36 and the other end engages the finger piece 42. The action of the spring is to urge the finger piece inwardly, that is, rightwardly as viewed in Fig. 5. Since the finger piece is mounted on rod 40, the spring acts upon said rod through said finger piece and urges it into engagement or holds it in engagement with notches 32 and 34. The leg elements are thereby locked in their respective positions relative to the tray and they may be released from their locked positions by simply pulling the finger pieces outwardly to their broken line positions (Fig. 5) to disengage rods 40 from notches 32 and 34. Notches 34 are relatively deep to prevent rods 40 from slipping out when an endwise force is applied to the leg elements to shift them from one position to another without releasing the rods from their respective notches. Notches 32, on the other hand, are rather shallow so as not to resist too strongly an attempt to swing the leg elements downwardly from their dotted line positions in Fig. 1 without prior actuation of finger pieces 42, this being something that may happen when a person unfamiliar with the mechanism of the tray tries to lower the legs by simply grasping them and pulling them down.

Certain movement limiting factors deserve mention. Leg element 14 is prevented from swinging in clockwise direction from its position in Fig. 1 because of its engagement with a pair of fingers 50 on brackets 36. Similarly, leg element 16 is prevented from swinging in counterclockwise direction beyond its Fig. 1 position by another pair of fingers 50 on the other bracket 36. Another movement limiting factor involves rods 40 in arcuate slots 38. The ends of said slots prevent the rods from moving in either lateral direction beyond a predetermined point.

The tray element 12 may be made in various sizes and shapes and with or without side walls, as well as of any suitable material, such as aluminum or stainless steel. This, of course, is also true of the legs, and the shape of leg elements 14 and 16 as shown in Fig. 2 is purely illustrative of what may be done within the broad scope of the invention. Tray 12 with its back wall 52 and its two side walls 54 and its inwardly turned front skirt 56 is also illustrative of the invention and variations may be incorporated therein.

I claim:

A foldable tray for serving food, comprising a tray, brackets secured to the ends of the tray, transversely extending pintles supported by said brackets at each end of said tray, U-shaped leg elements supporting each end of the tray, each leg element having registering holes formed at the top of its two arm portions to accommodate the pintles which are situated at the same end of the tray as each said leg element, said leg elements being pivotally rotatable on said pintles upwardly into parallel relation to the tray and downwardly into perpendicular relation thereto, torsion springs on said pintles, one end of said torsion springs bearing against the tray and the other end bearing against said U-shaped leg elements to urge said leg elements downwardly into perpendicular relation to the tray, arcuate slots formed in said brackets in concentric relation to said pintles, locking rods mounted in said slots in parallel relation to the pintles, a pair of notches formed in each arm of each U-shaped leg element for engagement with said locking rods, one notch of each pair of notches being engaged with one of said locking rods when the leg element in which it is formed is in parallel relation to the tray, the other notch of each pair of notches being engaged with said locking rod when the leg element in which it is formed is in perpendicular relation to the tray, said leg elements being adapted to be locked in either of said positions, and handles pivotally mounted to brackets secured to the ends of the tray and connected to the adjacent locking rods, said handles being manually pivoted on said brackets to move the locking rods in said slots into and out of engagement with said notches.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,203,783	Rieschmann	Nov. 7, 1916
1,709,928	Whitney	Apr. 23, 1929
1,962,126	Andersen	June 12, 1934
2,215,093	Boardman	Sept. 17, 1940