Dec. 14, 1954 G. Z. GEORGIDES 2,697,018

LAP TRAY WITH LEG ENGAGING MEANS

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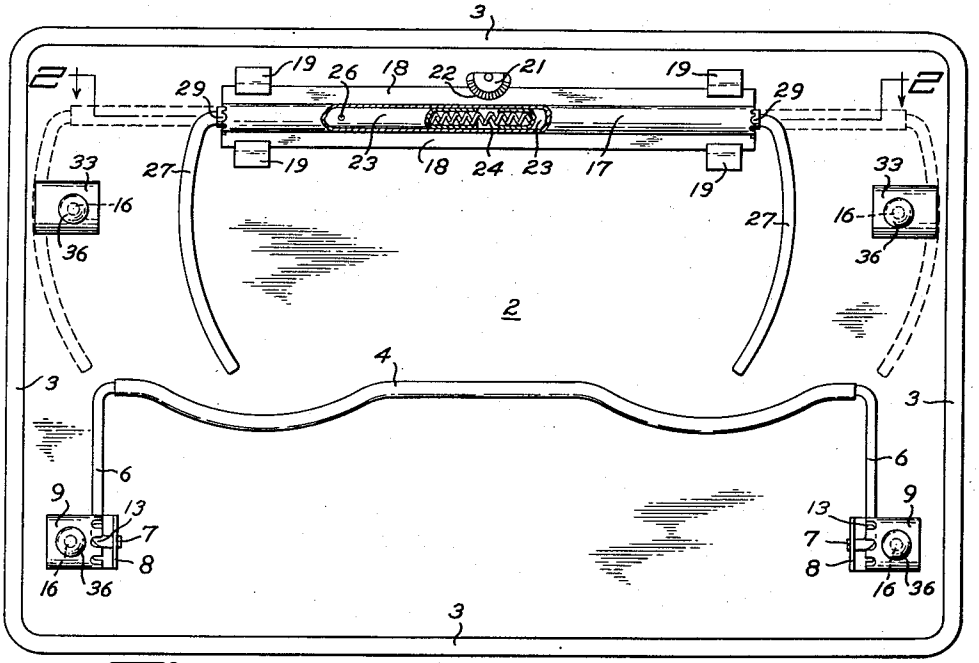


Fig. 1

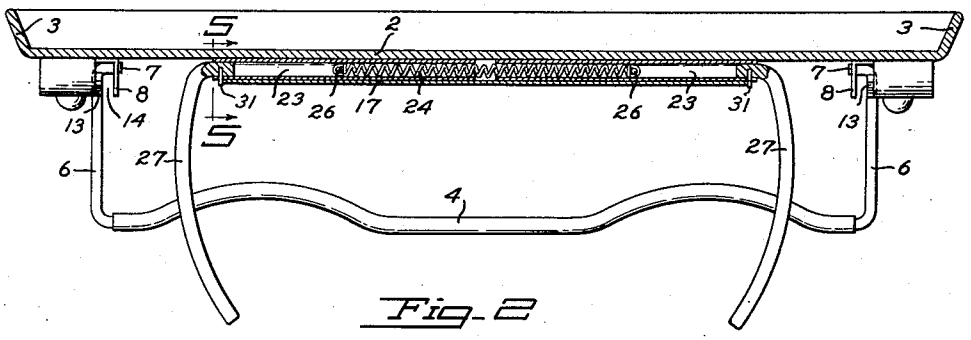


Fig. 2

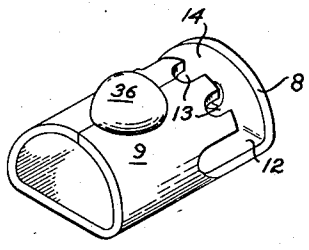


Fig. 3

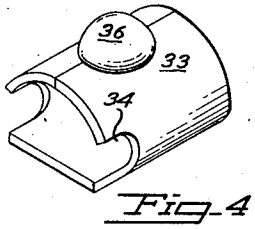


Fig. 4

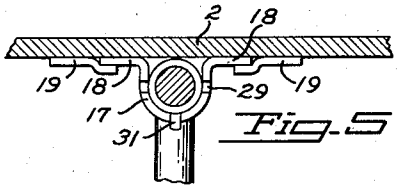


Fig. 5

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LAP TRAY WITH LEG ENGAGING MEANS

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1 Claim. (Cl. 311—25)

My invention relates to serving trays and one of the objects of the invention is the provision of a tray having leveling and stabilizing means for holding the tray in position of use on the lap of the user.

Another object is the provision of such a tray in which the leveling and stabilizing means may be collapsed closely against the bottom of the tray so as to achieve compactness for handling during use and for storage, or to facilitate the stacking of several trays together for storage or shipment after manufacture.

Still another object is to provide a serving tray with leveling and stabilizing means which are demountable so as to widen the usefulness of the tray in situations where the leveling and stabilizing means are not needed and a flat bottom tray with short legs for use on tables or counters is required.

Other objects of the invention together with the foregoing will be set forth in the following description of the preferred embodiment of my invention which is illustrated in the accompanying drawings. It is to be understood that I do not limit myself to the showing made by the said descriptions and drawings, as I may adopt variations of my preferred form within the scope of my invention as set forth in the claim.

In the drawings, Fig. 1 is a plan view of the bottom face of my serving tray. The leveling and stabilizing means are shown folded against the bottom. Portions of the view are sectioned to disclose the construction, and the extended position of the gripping arms is shown in dotted lines.

Fig. 2 is a vertical sectional view, taken in the plane of the line 2—2 of Fig. 1, but showing the gripping arms erected and extended in position of use.

Fig. 3 is a perspective view of the combination hinge and pad holder, before assembly.

Fig. 4 is a perspective view of the combination stop and pad holder, before assembly.

Fig. 5 is a cross-sectional fragmentary view taken in the plane indicated by the line 5—5 of Fig. 2.

The usefulness of the common flanged serving tray for carrying dishes and food is widely known. One of the best appreciated uses of such trays is upon the lap of the user as a temporary substitute for a small table at meal time. Such use has long been current both in the home and hospitals, for the sick confined to bed, and the convalescent allowed to sit up. Of late years the so-called "tray service" has been widely extended to travelers both on trains and planes.

Always present in the use of smooth bottom trays are the twin hazards of lateral slipping and tipping, with resulting disaster to food and clothing. It is therefore the broad purpose of my invention to provide as a part of the tray structure both stabilizing and leveling means by which the user of the tray may readily attain a reasonable degree of security against accidents during its use.

I accomplish this end by arranging a pair of spring-held curved arms on the bottom of the tray in such fashion as to permit extension of the arms and a resilient clasping across the upper portions of the legs of the user, whether lying in bed or sitting up. These arms literally fasten the tray to the legs of the user and effectively prevent all lateral shifting of the tray.

Since the portions of the legs near the body are on a somewhat higher level than more remote portions, I provide a low cross leg on the tray bottom near the edge opposite the gripping arms, so that under usual conditions, the tray approximates a level position.

Both gripping arms and cross leg are pivotally mounted so that they can be swung down from the position of use to the position of disuse flat against the bottom; latch means being provided to hold them in either position. Ordinarily the gripping arms and cross leg are folded flat to condition it for storage and general handling up to the moment of placing it upon the lap of the user, at which time the cross leg may be swung down and the gripping arms adjusted.

Both units of cross leg and gripping arms may be retracted against the bottom of the tray after use on the lap of the user; and the tray may then be laid down upon any table top, since the parts lie within the plane of the low legs provided.

In order to extend the usefulness and convenience of my tray as far as possible, I have made both gripping arms unit and the cross leg unit demountable, that is to say, readily detachable from their fixed mountings. This leaves the tray somewhat lighter; and with the bottom clear, better adapted for some uses.

Referring now to the drawings in detail, my tray comprises a flat sheet or plate 2 formed with a flange 3 thereabout in the usual way. Spaced inwardly from one of the long edges and on the bottom face, as shown, a cross leg 4 preferably of tubing is pivoted for movement from a folded position against the bottom to an erect position at right angles to the bottom. The cross leg is bent as shown to overlie more closely the legs of the user when the tray is set up for use, and thus prevent lateral shifting after it is in position.

The end pieces 6 of the cross leg, preferably of stiff solid rod brazed into the tubular portion, are turned inwardly toward each other at their extremities to provide stub shafts 7, each of which is journaled in the upturned flange 8 of a mounting bracket 9 shown in Fig. 3, and which is fixed permanently to the tray by spot welding. The bracket is formed as a short half-round tube, the flat side 12 extending from one end and being turned up to form the flange 8. The adjacent end of the tube is provided with notches 13 in one of which the leg end 6 normally seats to hold it firmly in position. When the position of the cross leg is to be changed, the ends are pressed toward each other to disengage the notches and then the leg is turned in the space 14 between the flange and the notched edge to the new position and released to engage the corresponding notch. The shape of the wire cross leg gives it ample resilience, and the shape and proportion of the parts is such that the leg ends are held in whatever notch the desired positional adjustment requires. Four positions for the cross leg are provided by the five notches as shown, so that the cross leg may be held perpendicular to the bottom or at 45° to it on either side of the perpendicular thus making two different heights available, or the cross leg may be turned in toward the center of the tray, where it is held flat against the bottom.

It will be observed that the lowest side notches nearest the adjacent long edge of the tray are deeper than the other notches. This permits the ends of the cross leg to be spread apart sufficiently when turned toward the long edge and against the bottom, to disengage the stub shafts from the bearing flanges, so that the cross leg can be dismounted, leaving the two mounting brackets free to function as very short legs. So that the tray may be set down on finished surfaces without danger of injury to the finish, a soft rubber button is pressed into the hole 16 formed in the outer wall of each bracket.

Arranged along the opposite long edge of the tray is the demountable gripping arm unit. This comprises a channel bar 17 having a flange 18 extending along each edge of the channel body.

The channel bar is demountably held on the bottom of the tray by two cleats 19 on each side. These are welded to the tray bottom and are bent to lap over the channel flanges to provide a snug slideway in which the channel may be pushed lengthwise to a central position. Here it may be locked by a knurled "circle" latch 21 pivoted on a pin fixed in the tray bottom and engaging in a round notch 22 in the flange.

Slidably and pivotally disposed in each end of the channel is a stiff straight tube 23 terminating near the center of the channel. A coil spring 24 connects the

tubes. In order to get an even tension over a wide range, a long spring is placed inside the tubes, the eye at each end of the spring being held by a pin **26** through the wall of the tube and spaced well in from its inner end.

At its outer or free end, each straight tube carries an extension arm **27**, curved inwardly as shown to better its hold upon the leg of the tray user. The bent arm is preferably made of solid rod having one end turned sharply and secured in the tube. These parts like the cross leg unit, are readily brazed or welded together in suitable jigs; and the structure may be conveniently referred to as a gripping arm because of its function. If desired, the arms may be of flattened cross section.

Means are provided for retaining the gripping arms in erect or folded position. Each end of the channel bar is provided with three notches **29** spaced 90° apart. These are engaged by a stop pin **31** fixed in the plugged end of the enclosed straight tube. The position of the pin with reference to the adjacent curved extension arm **27** is such that one of the notches is engaged when the arm is in erect position, and the other notches may be engaged when the arm is folded on either side flat against the tray bottom. The position of the pin relative to the inner end of the tube is such that the spring connecting the tubes is under some slight tension when the pin is in a notch. Such tension should be sufficient to assure the arms remaining in their adjusted position. The spring thus maintains an even resilient pull on the gripping arms, tending to retain the arms in retracted position whether erect or folded, and exerting a steady gripping pressure across the legs of the tray user when the arms are so arranged.

It may be desirable to extend the gripping arms, but leave them folded against the bottom of the tray until it is placed on the lap of the user. This is accomplished by a stop **33** such as shown in Fig. 4, welded to the tray bottom in position to be engaged by the extension arm **27**, which may be seated in the notch **34** where it is held securely by tension of the spring **24**. The stop is somewhat similar to and the same height as the main body of the mounting bracket **9**, and is similarly equipped with a rubber pad **36** so that it may also function as a short leg. Thus the tray is provided with four short legs, but long enough to assure clearance to the folded cross leg and gripping arm units which will be usually left in place, and demounted only for special uses of the tray.

It is of course obvious that my tray and its component parts may be made of any suitable material, such as metals, plastic, fiber glass, or other.

I claim:

A serving tray comprising a tray bottom, a plurality of cleats fixed to the bottom to form a slideway, a channel bar slidably engageable in the cleats, latch means interposed between the bottom and channel bar to lock the bar against sliding movement in the cleats, a pair of axially aligned and resiliently connected tubes pivotally and slidably journaled in the channel bar, each of said tubes at its outer end terminating in a rigidly connected gripping arm, and selective stop means between the channel bar and each arm for locking the arms in a selected erected or folded position relative to the bottom.

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