United States Patent

Uyeda et al.

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[54] TRAY FOR GAME TABLE

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[21] Appl. No.: **12,612**

[52] **U.S. Cl.** **108/66**, 108/97, 108/152

[51] **Int. Cl.** **A47b 1/00**

[58] **Field of Search** 108/66, 97, 64, 65, 69, 152, 108/89, 88, 25

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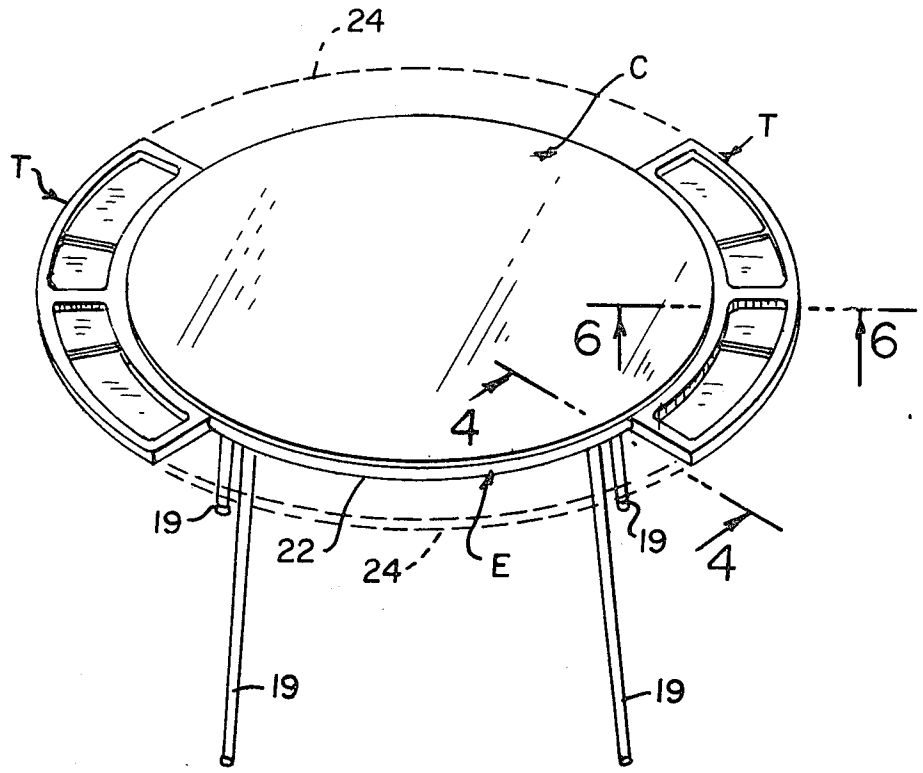
Primary Examiner—Francis K. Zugel

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[57] **ABSTRACT**

A lightweight, arcuate plastic tray for a circular table, a series of which may be secured to the edge of the table to outstand therefrom. Each tray includes a suitable arrangement of depressed sections or wells to hold poker chips, glasses and food dishes. The tray has radial ribs which engage the outside of a depending edge structure of the table and an inside lip adapted to rest on the edge structure. The tray is reinforced at its underside by a framework adapted to rigidify the same and permit it to be securely connected to the table, as by a latch engaging the inside of the edge structure. This framework includes a radial bar, attached to the underside of the center of the tray and adjacent the inner end of which the latch is mounted, and a chord bar attached centrally to the radial bar and at each end to the underside of the tray. The three points of attachment of the framework, in a triangular arrangement, rigidify the tray so that it may be formed of thinner plastic and thus appreciably reduce its weight.

9 Claims, 13 Drawing Figures



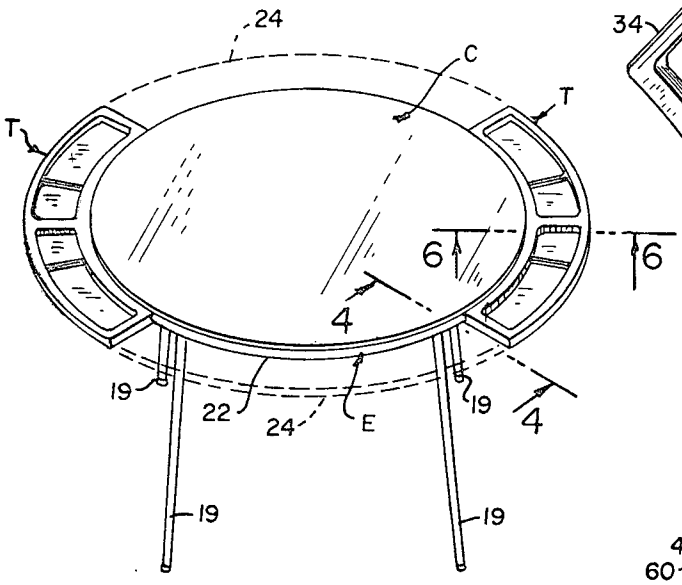


Fig. 1

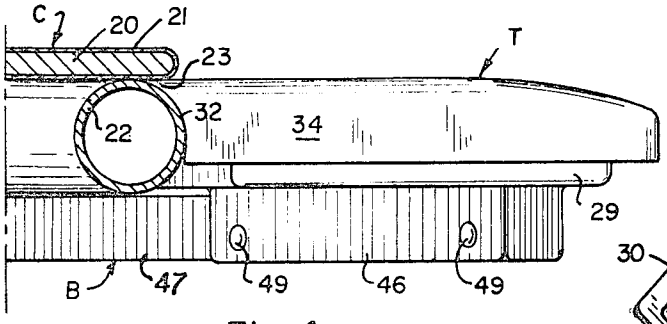


Fig. 4

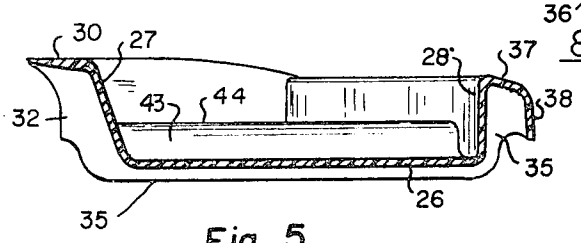


Fig. 5

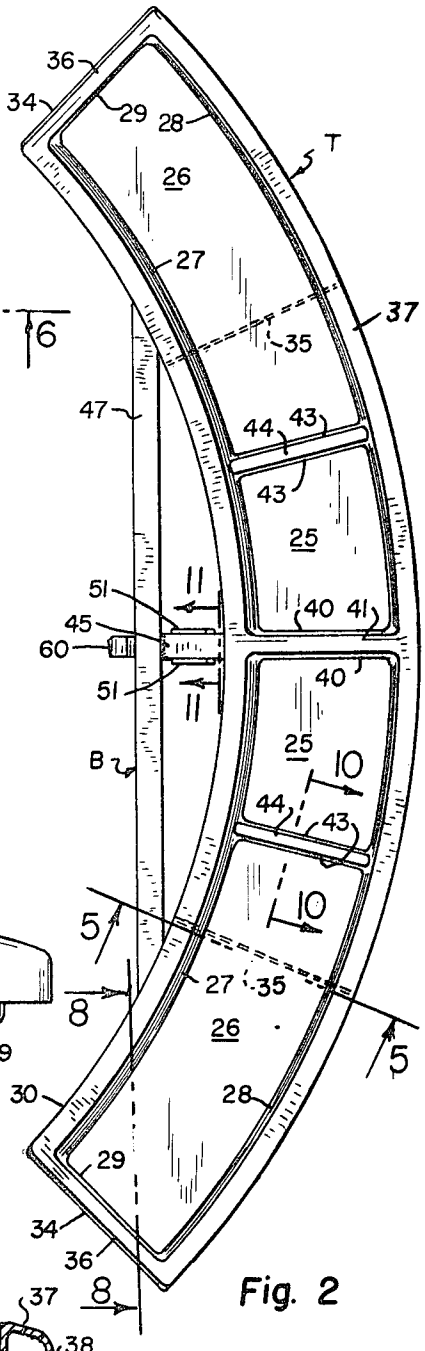


Fig. 2

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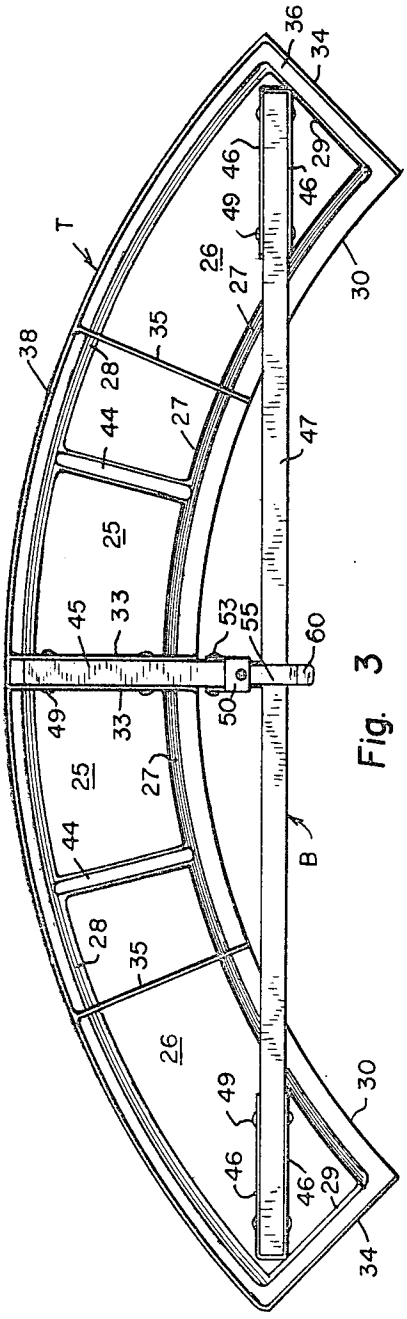


Fig. 3

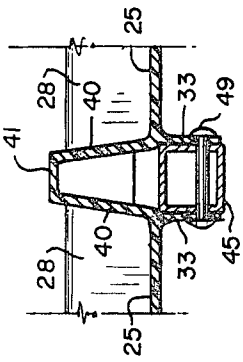


Fig. 7

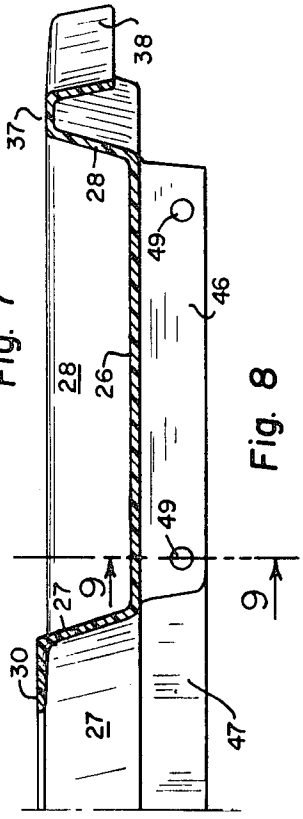


Fig. 8

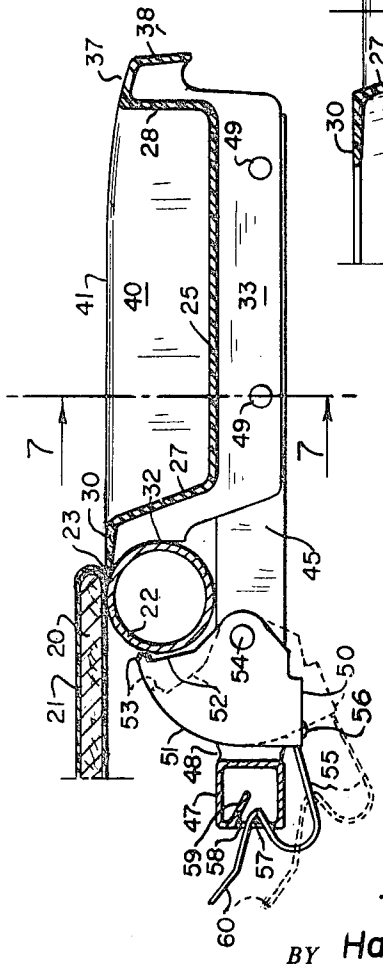


Fig. 6

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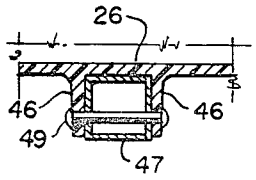


Fig. 9

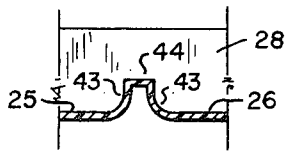


Fig. 10

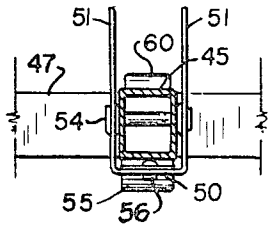


Fig. 11

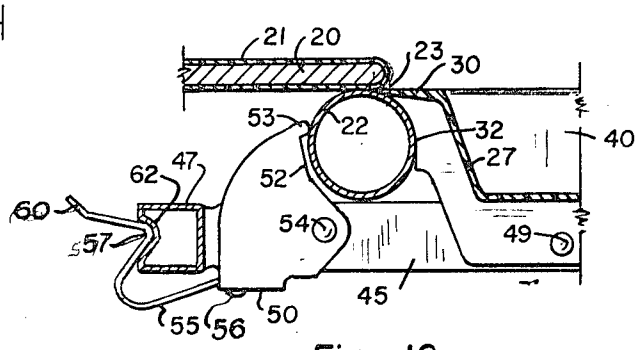


Fig. 12

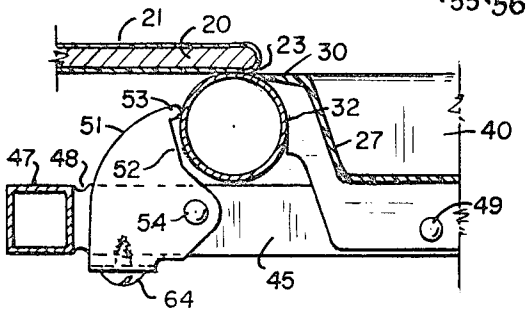


Fig. 13

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TRAY FOR GAME TABLE

This invention relates to trays and containers which are mounted on a table, and more particularly to removable table trays for round gaming tables and the like. As such, the invention will be hereinafter referred to as a "table tray" or as a "-tray for a round table."

A normally built gaming table includes an integral ledge extending around the circumference of the table for holding game apparatus, such as poker chips, cards and the like, and also for holding refreshment items, such as glasses, food snacks and the like. However, most gaming tables with permanently attached trays are expensive, difficult to handle and store, and such tables are not commonly purchased by the general public. In contrast, small circular folding tables of a standard size are very common because they are low cost units and are easy to handle and store. They are capable of being used for many purposes, including gaming. However, as a gaming table, a circular folding table is not completely satisfactory because of the lack of a suitable circumferential ledge for holding chips and the like.

The present invention was conceived and developed with the above considerations in view, and comprises, in essence, a curved tray adapted to be fitted against and secured to the curved edge of a round table to form an outward extension thereof. It is contemplated that a plurality of trays, such as comprising 90° segments, may be combined to provide a continuous set extending completely around the table. As used herein, a round table is usually circular, but may be oval or the like.

It follows that an object of the invention is to provide a novel and improved tray for a round table which is adapted to convert the table into a gaming table and to otherwise increase the possible uses of the table, at the same time retaining the easily storable feature.

Another object of the invention is to provide a novel and improved tray for a round which is a lightweight, strong and rigid unit adapted to snugly fit against and to outstand from the edge of the table and is capable of supporting a moderate load, as when an individual at the table may rest his elbows upon the tray.

Another object of the invention is to provide a novel and improved tray for a round table, to fit against and outstand from the edge of the table, which may be quickly and easily connected to and disconnected from the table.

Another object of the invention is to provide a novel and improved tray for a table having a circumferential, depending edge structure, such as a tube, which is disposed just beneath the outer edge of the top conforming to the shape of the top.

Another object of the invention is to provide a novel and improved removable tray for a round table which is especially adapted to be used with standard sizes of lightweight tables.

Other objects of the invention are to provide a novel and improved tray for a table which is a low cost, neat appearing, simple, rugged and durable unit.

With the foregoing and other objects in view, as will hereinafter appear, the invention comprises certain constructions, combinations and arrangements of parts and elements, as hereinafter described and illustrated in the accompanying drawings, in which:

FIG. 1 is a small scale, isometric view of a round table having a pair of trays of this invention mounted on the edge of the table in diametrical opposition, illustrative of one arrangement in which the trays may be used, and with broken lines indicating in a diagrammatic manner the arrangement in which four trays extend completely about the table.

FIG. 2 is a top plan view of one of the trays of FIG. 1.

FIG. 3 is a bottom plan view of the tray of FIG. 2.

FIG. 4 is an end view of a tray and a radial section of the edge portion of the table, along line 4—4 of FIG. 1, but on an enlarged scale.

FIG. 5 is a radial section of the tray taken along line 5—5 of FIG. 2, but on an enlarged scale.

FIG. 6 is a central, radial section of the tray and the edge portion of the table, taken along line 6—6 of FIG. 1, but on an enlarged scale.

FIG. 7 is a fragmentary sectional detail of the tray, taken along line 7—7 of FIG. 6.

FIG. 8 is a fragmentary sectional detail of the tray, taken along line 8—8 of FIG. 2, but on an enlarged scale.

FIG. 9 is a fragmentary sectional detail of the tray, taken along line 9—9 of FIG. 8.

FIG. 10 is a fragmentary sectional detail of the tray, taken along line 10—10 of FIG. 2, but on an enlarged scale.

FIG. 11 is a fragmentary sectional detail of a latch and associated parts, taken along line 11—11 of FIG. 2, but on an enlarged scale.

FIG. 12 is a fragmentary section similar to FIG. 6, but showing a modification of the construction.

FIG. 13 is a fragmentary section similar to FIG. 6, but showing another modification.

Referring more particularly to FIGS. 1 and 2 of the drawings, one or more of the improved trays T are adapted to be mounted at the edge of a table C having a circular top, and it is apparent that the tray should be properly proportioned with respect to the diameter of the tabletop for a proper fit. Accordingly, the trays should be manufactured for standard sizes of tables. For example, the table of FIG. 1 is a popular, low cost type which is commonly used for playing games. The table is standard in size, and includes a series of legs 19 supporting a circular top, which may include a top plate 20, of rigid sheet material, such as hardboard or plywood, and finished by a covering 21 of plastic or cloth, as in FIG. 4. Top plate 20 is mounted upon a tubular rail 22 formed into a circle to extend about the edge of the tabletop, with its outer edge being approximately beneath the edge of the top plate 20. Cover 21 extends around the edge and is lapped under top plate 20, thus being clamped between the plate and rail 22. The top and rail thus form the peripheral edge E of the table against which the trays T abut and, as in FIGS. 2 and 6, the contact of the tubular rail 22, circular in cross section, against the undersurface of the flat top, forms a groove 23 at the edge E, which receives the inward side of the tray rim, as hereinafter described. The table is otherwise constructed in a conventional manner, the top being attached to the rail in any suitable manner, as by conventional clips (not shown) and the legs 19 being secured to conventional brackets (not shown) mounted on the rail, at the inside. Ordinarily, the legs are adapted to be folded underneath the tabletop, when the table is not in use, but they may be fixed in some models of tables.

Each tray T is generally arcuate in shape and adapted to fit against the edge E of the table, with each tray being formed as a quadrant, so that four trays may extend completely around a circular table, as indicated by the broken lines 24 of FIG. 1. Each tray is conveniently formed as a thin-walled, unitary structure of a selected synthetic resin plastic, such as high impact polystyrene, polycarbonate or an acrylic nitrile butadiene styrene copolymer, being reinforced by a mounting bracket B of metal, as will be described. The manufacture of tray T is preferably by injection molding operations to better form various wells, ribs, flanges and rims on the tray, as hereinafter described.

In plan, the tray T is elongated and curved as an arcuate segment, being comparatively shallow and having flat-floored wells 25 and 26 at each side, surrounded by inclined walls including an arcuate inner wall 27, an arcuate outer wall 28 and radial end walls 29. As heretofore, stated, the tray T is proportioned to fit against the edge E of the table C, part of this fit being at the extended arcuate edge of a rim 30 at the top of the inner wall 27, the rim lying parallel to the well floors and the edge of the rim fitting into the groove 23 when the tray is in place, as in FIG. 6. Another part of the fit is provided by an arcuate surface 32 of a pair of central, radial ribs 33, as in FIG. 6, proportioned to engage rail 22, a similar arcuate surface 32 of an end flange 34, as in FIG. 4, and a similar arcuate surface 32 of a pair of spaced intermediate, radial ribs 35, as in FIG. 5.

The end walls 29 are each capped by narrow, outwardly extended edge rims 36, from the outer edge of which an end flange 34 depends in a generally radial direction to thus extend towards the center of curvature of the arcuate segment. The arcuate, outer wall 28 is capped by a narrow, outwardly extended rim 37, from which an arcuate flange 38 depends. It will be noted that the rims 30, 36 and 37 merge together at the four corners of the tray and that the outward ends of the flanges 34 merge with the adjacent ends of flange 37 to form the outward corners of the tray. In addition, intermediate ribs 35 are integral, as in FIG. 5, with the inner wall 27, floor of well 26, outer wall 28, inner rim 30, outer rim 37 and outer flange 38. Center ribs 33 are similarly integral with contiguous parts.

The wells 25 are separated by the closely spaced, transverse but unitarily inclined walls 40 at the center of the tray, which are positioned above center ribs 33, as in FIG. 7. Walls 40 merge with the inner and outer arcuate walls and are interconnected at their top edges by a center rim 41 which also merges into the inner and outer wall rims 30 and 37, as in FIGS. 2, 6 and 7. Wells 25 and 26, at each side, may also be divided, as by an auxiliary wall which is not as high as the edge walls and formed by a pair of closely spaced, radially transverse walls 43 which upstand from the floor of the adjacent wells and their top edges interconnected by a rim 44, as in FIGS. 5 and 10. The ends of walls 43, as well as rim 44, merge into the inner and outer walls 27 and 28.

The center ribs 33 form depending flanges on the underside of the tray for attachment of a radial arm 45 of bracket B. For a similar purpose, an obliquely oriented pair of retaining flanges 46 depend from the underside of the tray, at each side. Each of the two pairs of bracket flanges 46 are in spaced parallelism and each pair commences at an outer corner of the tray and is aligned diagonally thereon with respect to the outer and end walls of the tray, but in a common alignment with the opposing pair of bracket flanges 46 at the opposite end of the tray. Thus, bracket flanges hold a bar 47 of bracket B in a chordal arrangement with respect to the arcuate tray, as in FIGS. 3, 8 and 9.

The bracket B is formed as a generally T-shaped member, as by arm 45 and bar 47, each being a rigid metal tube which is preferably square in section, as illustrated, and secured to the underside of the tray to rigidify the tray. Arm 45 may be the same size as bar 47, with the inner end 48 of the arm being reduced in section and, as in FIG. 6, abutted against and attached to the center of bar 47 by welding, the reduced section of end 48 providing greater weld area along the top and bottom of the end. Rivets 49, extending through registering holes in the ribs or flanges and in the tubes, secure the arm and bar to the respective tray ribs 33 and flanges 46, as in FIGS. 3 and 6–9. The steel chordal bar 47 is particularly valuable because it supports the remote ends of the tray and, with the steel arm 45, provides three areas of support in a triangular relationship, thereby resisting bending or twisting of the tray and also resisting an "elbow load" at any position on the tray. In essence, the bracket B, when attached to the tray, provides an essentially unitized structure.

The bracket B, thus connected to the retaining flanges underneath the tray, will also lie underneath the tubular rail 22 of the table whenever the tray is positioned against the edge of the table, as in FIG. 6. It is to be noted that when so positioned with respect to the circular rail 22, the bar 47 will extend across and beneath rail 22 in a chordal arrangement, while the arm 45 will be radially positioned with respect thereto, at the center of the tray. This permits a locking device to be mounted upon the bracket adjacent to the arm and bar connection, to engage the inside of the rail 22 and lock the tray assembly to the table. The locking device conveniently includes a U-shaped hook having a base 50 beneath the underside of arm 45 with upstanding sides 51 at each side of the arm, as in FIGS. 6 and 11, with each side having an obtuse angular edge 52 facing the rail and a nose 53 at the upper end, to engage the rail above its centerline. The sides of the hook are pivotally connected to the arm by a rivet 54 extending through the sides thereof to permit the latch to swing upwardly against the rail 22 to hold the tray in place, or to swing downwardly and out of the way, as indicated in dotted lines in FIG. 6, to release the tray from the table.

A latching means is associated with the hook to hold it in position when it is against the rail. This latching means is conveniently formed by a spring 55 formed of flat material and secured to the base of the hook, beneath the arm, as by a rivet 56 of FIGS. 3 and 11. Spring 55 extends inwardly from the hook and then upwardly, to embrace the bar 47 when the hook is in locking position. Spring 55 has an offset 57 adapted to engage a slot 58 formed in bar 47, as in FIG. 6, by inward displacement of a tab 59 of the sidewall. Offset 57 is adapted to snap into the slot to hold the hook against the rail. The spring end 60, beyond offset 57, forms a single finger latch which may be moved downwardly to pull the offset from the hole and thereby release the hook, when the tray is to be removed from the table. As in FIG. 12, a ramp-type depression 62, formed by offsetting inwardly the inner wall of bar 47 and corresponding in shape to the offset 57 of spring 55, may be utilized in lieu of slot 58 of FIG. 6. In each instance, the distance between the inner end of spring offset 57 and rivet 54, on which the hook is pivoted, is greater than the distance between the point of engagement of nose 53 with the rail and the rivet 54, and preferably sufficiently greater that, in order to overcome the locking force of nose 53, it will be necessary to exert a force much greater than that which would be encountered in the normal use of the table. Such forces may include a force directed outwardly attempting to pull the tray away from the table; a force directed upwardly beneath the tray, tending to cause the tray to be twisted off the rail, but in this case the inner edge of rim 30 will act as a fulcrum, increasing the resistance of the hook and particularly nose 53 to dislodgment; or a force directed downwardly against the tray, resistance to which will be assisted by the engagement of the inner edge of rim 30 with the groove just beneath the tabletop. In any event, the distance between rivet 54 and the inner end of spring offset 57 may be increased considerably from that indicated in FIGS. 2, 3 and 6. With the nose 53 engaging the rail above the centerline of the latter, as indicated above, and the remainder of each edge of the hook facing the rail spaced therefrom, the nose provides a cam effect in locked position and also compensates for any tolerance discrepancies in the size of the tubing, the location of the hole for the rivet 54, or the like.

As hereinabove described, it is a very simple matter to mount a tray T upon a table for which the tray is designed. The hook is released from its latching position, while the tray is merely set against the edge of the table with the rim 30 fitting into the groove 23 at the edge of the table. The spring end may then be moved upwardly to cause the hook to engage the inside of the rim and to move the spring offset into slot 58 or depression 62 to lock the latch in position. The removal of the tray from the table merely involves pulling the spring down to the dotted position of FIG. 6, to release the hook.

In the event that the trays are to be attached to the table more or less permanently, the hook base 50 may be secured to arm 45 by a screw 64, as in FIG. 13. For this purpose, spring 55 is omitted and screw 64 inserted through the hole in base 50, normally occupied by the rivet which attaches the spring to base 50, as in FIGS. 6 or 12, with this hole being enlarged, if necessary, and a corresponding hole, but normally of smaller diameter, drilled in the underside of arm 45, as screw 64 is conveniently a self-tapping screw. Installation of the modification of FIG. 13 is accomplished by loosening screw 64 so that the hook will pivot freely, placing the tray in position, then pushing the hook toward rail 22 and tightening screw 64 in the underside of arm 45. Removal of a tray so installed, when desired, involves merely loosening of screw 64 until the hook will pivot away from the rail. To retain screw 64 upon removal, a fiber washer may be placed on the screw, on the side of hook base 50 opposite the screwhead.

As will be evident from the foregoing, the objects and requirements hereinbefore set forth are fulfilled to a marked degree. Thus, a tray has been provided which readily converts an ordinary table into a gaming table, particularly a round or circular table. When the trays are formed as quadrants of appropriate curvature, as in the preferred embodiment, a set of four trays will complete the circumference of a table thereby forming a ledge all the way around, in which chips, refreshment accessories or the like may be placed. The tray itself may be formed of a relatively thin plastic, so as to be light in weight, but reinforced and strengthened by a metal bracket which is generally T-shaped thus providing a reinforcement not only for the center, but also for each end of the tray. The center arm of the bracket is particularly adapted to carry a latching mechanism for engaging the inside of a depending rail extending around the table, at the underside of the top. The upper nose of the hook, pivoted on the center arm of the bracket, provides a cam action and also accommodates variations in manufacturing tolerances. When the hook is held in position by a leaf spring having an offset which engages a slot, depression or the like in the chordal bar of the bracket, the end of the spring provides a handle for the spring used when the tray is installed or removed. Or, the hook may be held in fixed position by a screw attaching the hook base to the bracket arm, for a semipermanent installation. Reinforcing ribs and flanges are also provided with abutments for engaging a rail which is curved in transverse section, such as being circular, while the radial walls for various wells of the tray also reinforce the tray structure. Such a tray is, of course, readily mounted on or removed from the table, but when mounted on the table, provides a lightweight but strong and rigid unit. The rim of the top of the inner wall of the tray is also particularly adapted to engage a groove between the rail and the top of the table, thus not only providing additional support for the tray, but also adding further stability to the tray structure. Although each tray has been described as preferably a quadrant covering an arc of 90° to permit four trays to completely encircle a circular table, the extent of such a tray may vary in any manner desired. Likewise, the number of wells in the tray, hereinabove described as two at each side, may be increased or decreased in any suitable manner.

Although a preferred embodiment of this invention and certain modifications have been illustrated and described, it will be understood that other embodiments may exist and that various changes may be made therein, all without departing from the spirit and scope of this invention.

What is claimed is:

1. A series of trays for a table having a rounded top and a circumferential depending edge structure, each tray having a curvature corresponding to a portion of the circumference of said table and comprising:
- a rim along the inner edge of said tray for engaging an edge portion of said table;
- means extending inwardly at spaced positions along the inner edge of said tray and shaped to conform generally to the transverse configuration of and adapted to abut against said depending edge structure;
- reinforcing means attached to the underside of said tray and including a chordal bar adapted to extend beneath said depending edge structure; and
- clamping means for engaging the inside of said depending edge structure and mounted on said reinforcing means.

2. A tray as defined in claim 1, wherein:
- said depending edge structure is transversely round; and the inner ends of each said inwardly extending means is provided with an abutment corresponding thereto.

3. A series of trays as defined in claim 1, wherein each said tray includes:
- means providing at least one well generally enclosed by generally upwardly extending walls;
- a series of riblike members spaced along said well structure to extend inwardly to provide said inwardly extending means; and
- said riblike members include end flanges and intermediate ribs of said tray extending radially thereof.

4. A series of trays as defined in claim 1, wherein said depending edge structure comprises a tubular rail and said clamping means includes:
- a hook pivotally mounted on said reinforcing means and having an upright edge facing said rail, said edge having an upper nose for engaging said rail with the remainder of said edge clearing said rail.

5. A tray as defined in claim 1, wherein:
- said tabletop is circular and said depending edge structure comprises a tubular rail which is transversely circular and disposed beneath the edge of said tabletop to form therewith a circumferential groove;
- means providing at least one well in each tray is formed of molded plastic, is arcuate to correspond to a quadrant of said table circumference, and includes an arcuate front wall, an arcuate rear wall and radial end walls, an arcuate inner rim and an arcuate outer rim connected to the respective inner and outer walls, an end rim connected to each end wall and an end flange depending therefrom, a pair of spaced, radial center walls extending between said inner wall and outer wall, a pair of radial ribs on the underside of said tray corresponding in position to said center walls and a radial rib on the underside of said tray intermediate each said end wall and said center walls, the inner edge of said inner rim being adapted to engage said groove and the inner edges of said center ribs, intermediate ribs and end flanges each being contoured to engage a portion of said rail;
- said reinforcing means includes a radial arm attached to the underside of said tray between said center ribs and said chordal bar extends generally between the ends of said tray and is attached to spaced flanges depending from the underside of said tray in generally perpendicular relation to said center ribs, each of said arm and bar being hollow, generally rectangular and formed of metal with the inner end of said arm being attached to the center of said bar and said bar having a slot or depression opposite said arm; and
- said clamping means includes a hook having a base and sides extending upwardly on opposite sides of said arm, said sides being pivoted to said arm, and a latch spring connected to said base of said hook and having an offset adapted to extend, in locking position, inwardly into said slot or depression.

6. A series of trays for a table having a rounded top and a circumferential depending edge structure, each tray having a curvature corresponding to a portion of the circumference of said table and comprising:
- a rim along the inner edge of said tray for engaging an edge portion of said table;
- means extending inwardly at spaced positions along the inner edge of said tray and shaped to conform generally to the transverse configuration of and adapted to abut against said depending edge structure;
- reinforcing means attached to the underside of said tray;
- clamping means for engaging the inside of said depending edge structure and mounted on said reinforcing means;
- said depending edge structure providing a groove between said edge structure and the top of the table; and
- said inner rim of said tray being constructed and arranged to engage said groove.

7. A tray for a table having a top and a circumferential depending edge structure, comprising:
- means providing at least one well generally enclosed by generally upwardly extending walls;
- a rim along the inner edge of said tray for engaging an edge portion of said table;
- a series of riblike members spaced along said well structure to extend inwardly, the inner ends of said riblike members being shaped to conform generally to the transverse configuration of and adapted to abut against said depending edge structure;

an arm attached to at least one depending flange on the underside of said tray and extending inwardly from the inner edge of said tray for a distance greater than the width of said edge structure;

a chordal bar extending generally between the ends of said tray and generally transversely to said arm, with the inner end of said arm attached to said chordal bar, and with each end of said chordal bar attached to at least one depending flange at the corresponding end of said tray; and

clamping means for engaging the inside of said depending edge structure and mounted on said arm.

8. A tray as defined in claim 7, wherein:

said clamping means includes hook means pivotally mounted on said arm for engaging the inside of said depending edge structure, and latch means associated with said hook means.

9. A tray as defined in claim 8, wherein:

said latch means includes a leaf spring attached to said hook means and extending inwardly therefrom past said chordal bar, said spring having an offset for engaging a latching configuration of said chordal bar and the inwardly extending end of said spring forming a handle for latching and unlatching said spring.

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