May 14, 1935. W. R. STUCK 2,001,438

TRAY

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Fig. 2

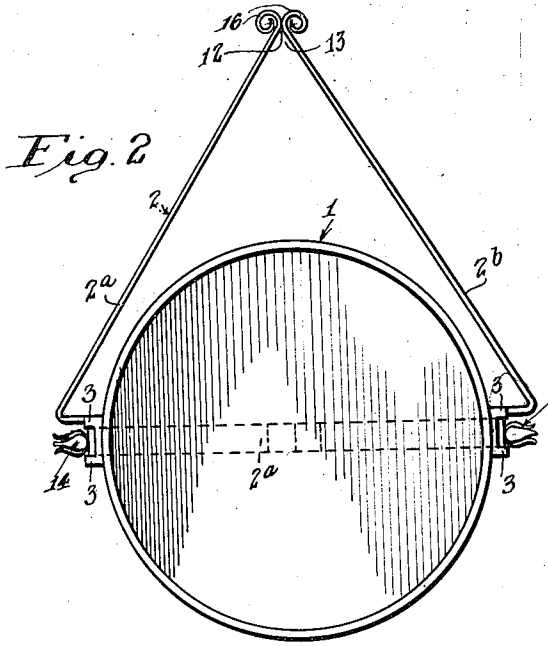


Fig. 1

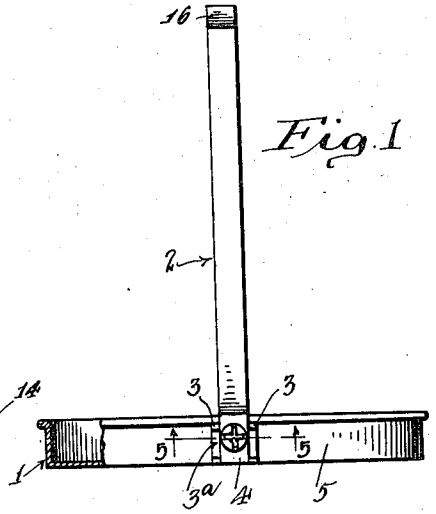


Fig. 4

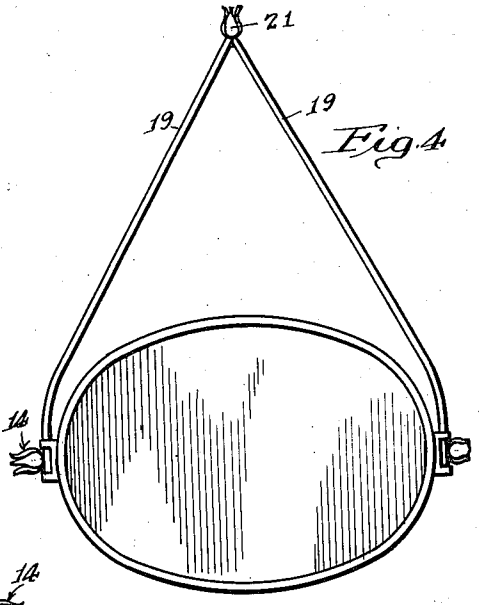


Fig. 3

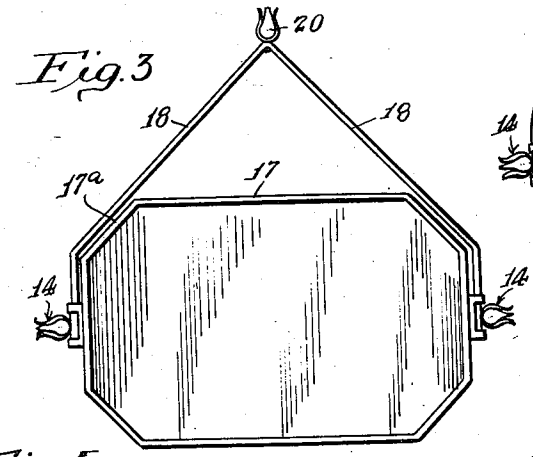
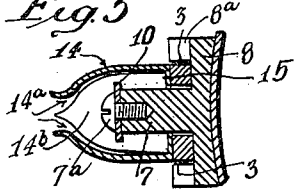


Fig. 5



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Fig. 6

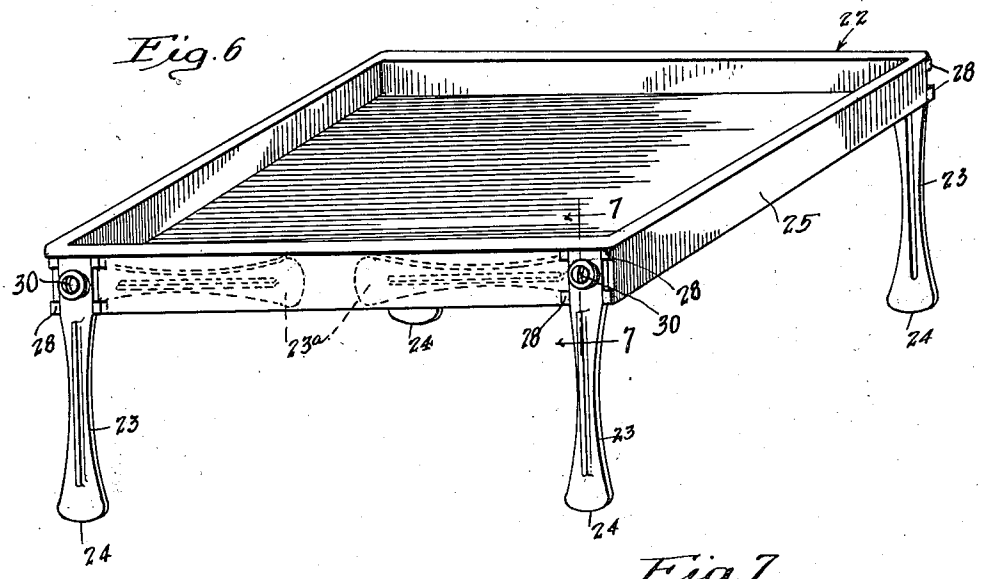


Fig. 7

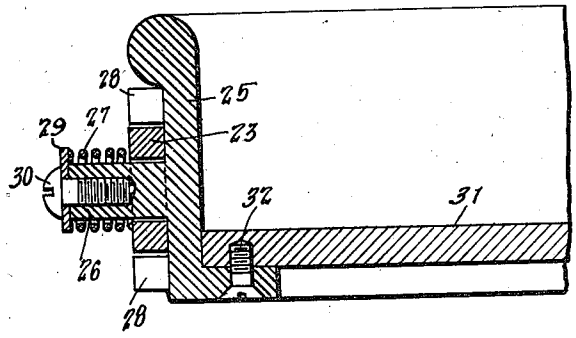
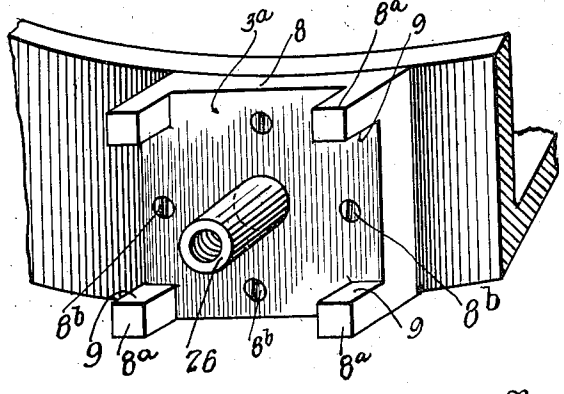


Fig. 8



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UNITED STATES PATENT OFFICE

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TRAY

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Application November 30, 1932, Serial No. 644,991

12 Claims. (Cl. 65—53)

This invention relates to trays, and is particularly applicable in the construction of trays for use in hospitals, for serving patients in bed, or for household use, and in which the tray body is supported on a bail, or on legs. In trays of this type, if a support such as a bail or a leg is rigidly secured to the tray, it extends in a plane at right angles to the tray, and this requires considerable packing space if the trays are shipped. It would, of course, be possible to ship such trays with the bails or legs separate, so that they could be attached to the body of the tray at the receiving point, but this would entail some labor in assembling the trays.

The general object of this invention is to produce a tray of this type having a simple construction enabling a bail, or supporting legs, to be normally held rigid on the body of the tray, but connected to the tray body in such a way that these parts can readily be disengaged sufficiently to enable them to be swung into substantially the same plane as the body of the tray.

In handling a tray that is carried on a bail, if articles such as glasses are removed at one side of the bail when serving from the tray, the load remaining on the tray will be eccentric on the tray and would tend to swing the tray to one side so that the body of the tray would assume an inclined position. One of the objects of the invention is to construct the bail of such a tray so as to prevent this; in other words, to construct the bail so that it can readily be maintained in a vertical plane by the hand holding the bail, thereby maintaining the body of the tray in a substantially horizontal position.

A further object of the invention is to produce an article which can be employed as a tray, and having a bail, which, if desired, can be held with the bail in the same plane as the body of the tray, to enable the article to be hung upon a wall for ornamental purposes, or so that the body of the tray can operate as a frame or support for a picture.

As applied to a household tray, the invention, in its preferred embodiment, involves the use of oppositely disposed pivot pins on the sides of the tray, to which the ends of the bail are attached. When using the tray, the ends of the arms are interlocked with sockets on the sides of the tray that hold the bail rigidly at right angles to the plane of the tray body. By moving the arms outwardly on the pins, the interlocking connection between the arms and the tray may be disengaged to permit the bail to be swung down into the same plane as the tray. One of the objects of this invention is to provide means for guarding the pivot pins to prevent one's fingers from being accidentally pinched between the ends of the arms and the heads of the pins when the bail is being manipulated to break the interlocking connection with the body of the tray.

Further objects of the invention will appear hereinafter.

The invention consists of novel parts and combinations of parts to be described hereinafter, all of which contribute to produce an efficient tray.

A preferred embodiment of the invention is described in the following specification, while the broad scope of the invention is pointed out in the appended claims.

In the drawings, Figure 1 is an end elevation of a tray embodying my invention and showing the bail in its normal interlocked upright position on the body of the tray. This view is partially in section to illustrate details of the connection between the bail and the tray. In this view the normal position of the tray is indicated in dotted lines.

Figure 2 is a plan of the tray with the bail latched or locked to the tray in its swung down position, so that it is in the same plane as the body of the tray.

Figure 3 is a view similar to Figure 2, but showing a construction of the tray in which the tray body is of elongated form instead of circular form, as shown in Figure 2.

Figure 4 is a view similar to Figure 2, but illustrating a tray of elliptical form.

Figure 5 is a horizontal section taken on the line 5—5 of Figure 1, upon an enlarged scale, and looking upwardly.

Figure 6 is a perspective view of a hospital tray embodying my invention.

Figure 7 is a vertical section taken about on line 7—7 of Figure 6, upon an enlarged scale, and further illustrating details of the connection between the legs and the tray body.

Figure 8 is a perspective view showing a short portion of the edge of a round tray, and particularly illustrating the socket plate shown in Figure 1, and which I prefer to employ for securing a bail or leg movably to the tray body in accordance with this invention.

Referring particularly to the parts, and especially to Figures 1 and 2, 1 indicates the body of the tray which may be of circular form as indicated. At two opposite points, the sides of this tray are provided with shoulders capable of engaging the sides of the bail 2. While one shoulder at each side of the tray might be used, I prefer

to provide oppositely disposed substantially vertical shoulders 3 on each side, which shoulders cooperate to form a rudimentary socket 3a for receiving the adjacent end of the bail. The bail end may be in the form of an extension or ear 4 to lie against the side wall 5 of the tray when the bail is in its upright position indicated in Figure 1. When in this position, the sides or side edges 6 of the bail engage the shoulders 3 and lock the body against rotation on the bail. Any suitable pivotal connection may be provided for connecting the bail to the body 5. For this purpose I prefer to employ a pivot in the form of a pin or pintle 7 which is relatively long (see Fig. 5) and having a removable head or cap 10 at its outer end, held in place by a machine screw 7a. In the present instance, the shoulders 3 are the adjacent sides of posts 8a that project outwardly from a socket plate 8 secured on the side wall of the tray. This socket plate may be secured in any desired manner. In Fig. 8 screws 8b are illustrated for this purpose.

The bail 2 is constructed in such a way that the ends of the arms 2a and 2b of the bail, press the extensions or ears 4 yieldingly into the socket between the posts 8a. In order to accomplish this, I prefer to construct the bail of resilient material and shaped so that before the bail is applied to the tray its natural resiliency would hold the extensions 4 closer together than would be permitted by the presence of the tray body between the ears 4. In the present instance, the bail 2 may be constructed of two bars of strap iron shaped substantially as shown and connected together at their upper ends by a weld 12, so that the arms 2a and 2b form an angle 13. There are four of the posts 8a, thereby forming a rudimentary socket on a horizontal axis between the horizontal faces 9 of the posts.

If a tray is constructed as described above, it will be evident that by pulling both extensions 4 outwardly simultaneously, they can be readily disengaged from the vertical sockets 3a, and after being disengaged, the bail can readily be swung on the pintles 7 as an axis into the plane of the body of the tray as indicated in Figure 2, with the ears 4 received in the horizontal socket between the faces 9 of the posts 8a.

In order to prevent any possibility of one's fingers being pinched under the heads 10 of the pintles 7, I prefer to cover each pintle with a suitable guard 14. This guard is preferably formed of a substantially tubular sleeve having a circular head 15 at one end secured to the outer side of the corresponding extension 4. A plurality of longitudinal slits 14a divide the sleeve into a plurality of leaves 14b, the ends of which may be bent toward each other so as to cover the outer end of the pintle.

In serving from a tray of this type, it will be evident that if a number of articles are taken off at one side of the bail, the tray will become unbalanced by an eccentric load. In that case, the tray would tend to swing laterally and assume a position in which the body of the tray is inclined to a horizontal plane. In order to overcome this, I prefer to form the upper end of the bail with a handle or knob which can be grasped by the person carrying the tray. In the embodiment of the invention shown in Figures 1 and 2, this can be accomplished by forming a handle rigid with the bail, preferably in the form of two rolls 16 on the ends of the arms 2a and 2b. These rolls cooperate to form a handle that can be grasped in the hand that is supporting the tray, and will enable force to be applied at this point to maintain the tray body in horizontal position. In grasping the handle the angle 16 cooperates by forming a socket for fingers of the hand holding the handle.

It is advantageous to have the arms of the bail on the outer side of the rim of the tray, as compared with a construction in which the arms are on the inside, for the reason that when the arms are on the outside, the action of the weight on the tray is to draw the arms inwardly at their lower end. In other words, the action of gravity tends to tighten the connection between the arms and the tray bottom. If the arms are on the inside of the rim, the weight on the tray develops a condition in which the lower ends of the arms tend to move inwardly and away from the side of the tray to which they are attached.

If desired, the tray body may be made of other forms than that illustrated in Figure 2. For example, the tray may have forms indicated in Figures 3 and 4. As illustrated in Figure 3, the tray body 17 may be of elongated, octagonal form with the ends of the bail attached on the ends of the tray. In this case, the arms 18 of the bail are preferably substantially parallel with the inclined edge 17a of the tray body when the bail is folded down into the plane of the tray body. As illustrated in Figures 3 and 4, the bails 18 and 19 are each formed of a single piece of strap metal. In this case, in order to form a handle to accomplish the purpose of the rolls 16, I form a knob such as the knobs 20 and 21 at the upper end of the bail. This knob is, of course, rigidly attached, and operates as a handle for maintaining the tray body in a horizontal position. If desired, these knobs 20 and 21 can be constructed of a split sleeve having the general form of the sleeve 14. This gives uniformity in the general design of the tray.

When the bail is in the plane of the tray body, it will be evident that the tray can very readily be packed in a small space.

If desired, the tray can be hung on the wall while the bail is in the plane of the body of the tray, to enable the tray body to be used as a picture frame, or to hold a mirror fitted into the tray.

The invention can be readily applied to a small table or tray which could be used in a household, but which would be particularly useful in hospitals as a tray to be set up on a bed to enable a patient to eat with ease. In Figure 6 I illustrate such an embodiment of the invention. In this view, 22 indicates the body of the tray. At its four corners it is provided with means for pivotally supporting four legs 23, which operates as supports for the tray to support the same in a set up position. These legs preferably have rounded lower ends 24 to avoid forming sharp corners which might injure the bedspread. Each leg is pivotally attached to a corner of the tray body on a pivotal axis. In the present instance, I prefer to form the tray body with a cast rim 25 having an integral outwardly projecting pin or pintle 26 near each corner, and on this pin the upper end of a corresponding leg is pivotally mounted. The pin 26 is of sufficient length to project a considerable distance beyond the outer face of the leg 23, and a coil spring 27 on the pin presses the leg 23 yieldingly against the side of the rim, thereby holding it between the inner vertical faces of posts 28 which project outwardly from the side of the rim. These posts, like the pin 26, may be cast integral with the rim. The

spring 27 is held in place by a cap or head 29 secured to the end of the pin by machine screw 30.

It will be evident that each leg 23 can readily be disengaged from the vertical faces of the post 28 by pulling the same outwardly on the pin 26; the leg can then be rotated to a substantially horizontal position, as indicated by the dotted lines 23a and set back against the rim between the upper pair of posts 28 and the lower pair of posts, thereby interlocking the leg with the rim in a horizontal position and in the plane of the body of the tray.

The tray may have a bottom 31 of any suitable material, such as fiber or other material, which can be held in place above the flange by suitable screws, such as the screw 32. These screws are countersunk and only pass partially through the tray bottom so that they do not mar the appearance of the tray.

It is understood that the embodiment of the invention described herein is only one of the many embodiments this invention may take, and I do not wish to be limited in the practice of the invention, nor in the claims, to the particular embodiment set forth.

If desired, the tray having folding legs, such as illustrated in Figure 6 may also be provided with a bail having the characteristics of construction illustrated in Figures 1 and 2.

What I claim is:

1. A service tray having a body with a flat bottom for supporting articles served on the tray, said body having a side wall with oppositely disposed sockets formed thereon, and a bail having a pair of arms with the ends of the arms pivotally attached to the body of the tray at said sockets, said sockets having side walls engaging opposite sides of the bail, said bail being of resilient material so as to press the ends of the arms yieldably toward the sockets and operating in an upright position of the bail to maintain the ends of the arms in the sockets to support the tray in a substantially horizontal position, the upper end of the bail having means rigid with the bail and forming a handle to be grasped to enable the tray to be maintained in a substantially horizontal position with an eccentrically disposed load on the tray.

2. A tray having a body with a pin projecting outwardly from the side thereof, a supporting member pivotally mounted on the pin, yieldingly pressing itself against the tray body, and shoulders projecting from side portions of said tray cooperating with the opposite side edges of the supporting member to hold the same against rotation and enabling the supporting member to be disengaged from the shoulders by an outward movement while maintained on the pin and enabling the supporting member to be moved into a folded position on the outside of the tray.

3. A tray having a plate on each side thereof, each plate having a pair of separated posts disposed respectively on opposite sides of the middle vertical axis through the plate, a supporting member including arms located at opposite points on the outer sides of the tray, with means for pivotally securing the same to the plate on a vertical line between the posts, said arms having means for yieldingly pressing the same against the side of the plate and into engagement with the posts to hold the supporting member against rotation, and cooperating to enable the arms to be moved outwardly to disengage the same from the posts and rotated into a folded position to re-engage the posts in a substantially horizontal position on the side of the tray.

4. A tray having a rim of cast metal with an outwardly projecting integral pin formed thereon, said rim having an inwardly projecting flange at its lower edge, a bottom for said tray secured on said flange, a supporting member mounted for rotation on the pin with means for yieldingly pressing the same against the side of the rim, means on the outer end of the pin for retaining the supporting member on the pin, and means including abrupt shoulders carried by the rim and the supporting member cooperating to hold the supporting member positively in an upright position.

5. A tray having a rim of cast metal with an outwardly projecting integral pin formed thereon, said rim having an inwardly projecting flange at its lower edge, a bottom for said tray secured on said flange, a supporting member mounted for rotation on the pin with means for yieldingly pressing the same against the side of the rim, means on the outer end of the pin for retaining the supporting member on the the pin, and means including abrupt shoulders carried by the rim and the supporting member cooperating to hold the supporting member positively in an upright position and cooperating to hold the same positively in a folded position against the side of the rim.

6. A tray for supporting articles to be served, having a body with a flat bottom and a side wall, said side walls having oppositely disposed sockets formed thereon on their outer sides and a bail having a pair of arms, means for maintaining a pivotal connection in all positions of the bail between the ends of the arms and the wall of the tray at said sockets, said bail being of resilient material so as to press the ends of the arms yieldingly at all times inwardly towards the sockets, said bail capable of folding down over and past the end of the tray, said bail and said sockets having abrupt shoulders for engaging each other and cooperating in the upright position of the bail to form a positive lock to support the tray in a substantially horizontal position.

7. A tray for supporting articles to be served, having a body with a flat bottom and a side wall, said side wall having oppositely disposed sockets formed thereon, a bail having a pair of arms, a pintle on the side of the tray adjacent each socket for pivotally attaching each arm in its corresponding socket, said bail being of resilient material so as to press the ends of the arms yieldingly towards the sockets, said bail and said sockets having abrupt shoulders for engaging each other, said parts cooperating to support the tray in a substantially horizontal position, and enabling the bail to be pulled outwardly by hand and disengaged from the sockets by a lateral movement forcing the extreme ends of the arms along the axes of the pintles and out of engagement with the shoulders of the sockets, each pintle having sufficient length to maintain the pivotal engagement of its corresponding arm with the side wall when the arm is disengaged from the socket; and means on the pintles for limiting the outward movement of the arms.

8. A tray having a plate on the outer side thereof, said plate having a socket with abrupt shoulders formed thereon on a vertical axis and a socket formed thereon on a substantially horizontal axis, a supporting member with abrupt shoulders for engaging the first named shoul-

ders and having means for pivotally attaching the same on the plate, said supporting member normally holding itself pressed against the side of the plate to hold the same in either of said sockets, thereby securing the supporting member against pivotal rotation on the pivotal axis, said pivotal attaching means including a pin maintaining the pivotal connection when the supporting member is disengaged from said shoulders.

9. A service tray having a body with a flat bottom for supporting articles served on the tray, said body having a side wall with oppositely disposed sockets formed thereon, and a bail having a pair of arms with the ends of the arms pivotally attached to the body of the tray at said sockets, said bail being of resilient material so as to press the ends of the arms yieldably toward the sockets and operating in an upright position of the bail to maintain the ends of the arms in the sockets to support the tray in a substantially horizontal position, the upper end of the bail having a handle rigid with the arms of the bail and having an angular socket on the under side of the handle adapted to receive fingers of one's hand when grasping the handle to enable the tray to be maintained in a substantially horizontal position with an eccentrically disposed load on the tray.

10. A tray having a body with a pin projecting outwardly on one side of the same and having another pin projecting outwardly on the opposite side of the body and in axial alignment with the first-named pin, a supporting member pivotally mounted on the pins, a head placed on the outer end of each pin, said supporting member normally pressing itself against the sides of the tray body, fixed shoulders on the tray for normally holding the supporting member against rotation from a position at right angles to the tray body, other fixed shoulders capable of cooperating with the supporting member to hold the same in a folded position, said pins having a length sufficient to enable the supporting member to be disengaged from the shoulders without being disengaged from the pins, all of the above mentioned parts cooperating to enable the supporting member to be disengaged from the shoulders by an outward movement on the pins.

11. A tray having a plate on each side thereof, each plate having a pair of separated posts disposed respectively on opposite sides of the middle vertical axis through the plate, a supporting member including arms located at opposite points on the outer sides of the tray, with means for pivotally securing the same to the plate on a vertical line between the posts, said arms having means for yieldingly pressing the same against the side of the plate and into engagement with the posts to hold the supporting member against rotation, and cooperating to enable the arms to be moved outwardly to disengage the same from the posts and rotated into a folded position to re-engage the posts in a substantially horizontal position on the side of the tray, and means for limiting the outward movement of the arms with respect to the tray.

12. A tray having a body with a pin projecting outwardly on one side of the same and having another pin projecting outwardly on the opposite side of the body and in axial alignment with the first-named pin, supporting means comprising arms pivotally mounted on the pins, a head placed on the outer end of each pin, said arms being yieldingly pressed against the sides of the tray body, fixed shoulders on the tray for normally holding the supporting means against rotation from a position at right angles to the tray body, other fixed shoulders capable of cooperating with the supporting member to hold the same in a folded position, said pins having a length sufficient to enable the supporting member to be disengaged from the shoulders without being disengaged from the pins, all of the above mentioned parts cooperating to enable the arms to be disengaged from the shoulders by an outward movement on the axis of the pins.

WILLIAM R. STUCK.