

**Feb. 24, 1970**

E. M. O'BRIEN

**3,497,076**

RETRACTABLE SUPPORT FOR SERVING TRAYS OR THE LIKE

Filed April 9, 1968

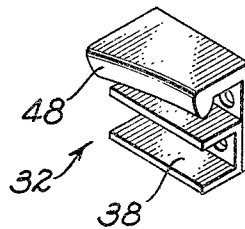
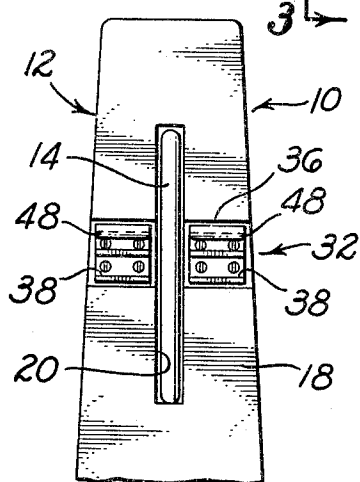
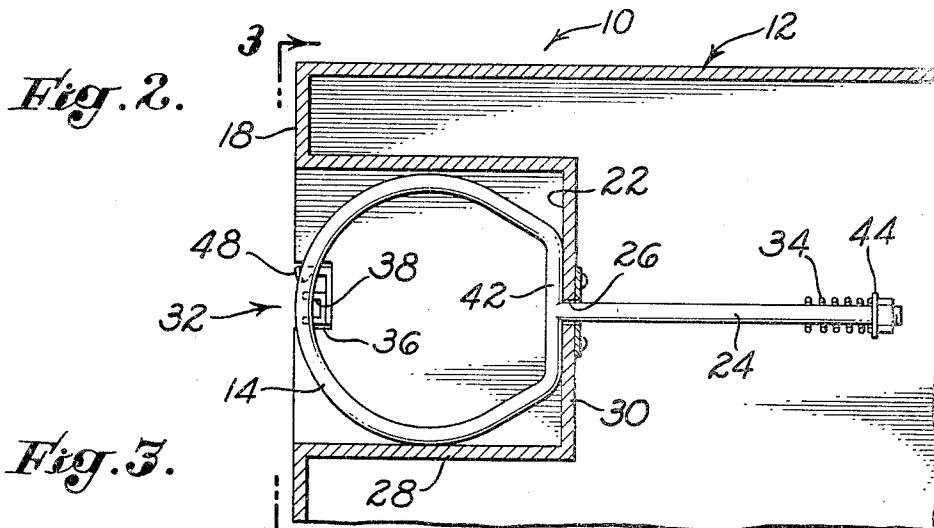
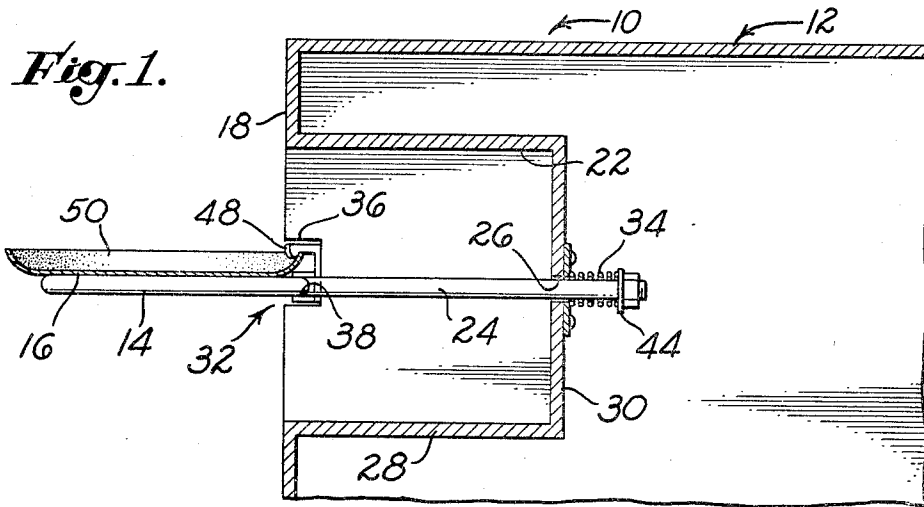


*Fig. 4.*

INVENTOR.  
EDWARD M. O'BRIEN

BY HIS ATTORNEYS.  
HARRIS, KIECH, RUSSELL & KERN

1

2

3,497,076

## RETRACTABLE SUPPORT FOR SERVING TRAYS OR THE LIKE

Edward M. O'Brien, 1717 E. St. Louis Ave.,  
Las Vegas, Nev. 89105

Filed Apr. 9, 1968, Ser. No. 719,866

Int. Cl. A47b 1/05, 1/10

U.S. Cl. 211-1.3

8 Claims

### ABSTRACT OF THE DISCLOSURE

A restaurant serving tray jack which is retractable when not in use. It comprises a shelf which can be rotated into a vertical position for movement through a vertical slot into a storage space in any suitable structure in the restaurant, such as a divider or partition between adjacent booths. The shelf is rendered operative by pulling it forwardly through the vertical slot, and then rotating it 90° into a horizontal position. A spring latch system secures it in this position. A tray hook above the operative position of the shelf engages the upstanding peripheral lip on the serving tray to prevent accidental dislodging of the tray from the shelf.

### BACKGROUND OF INVENTION

My invention relates in general to a shelf-like support which is movable between retracted and extended positions and which, when extended, is capable of having various articles placed thereon. Since the invention is particularly applicable to a serving tray jack for restaurant use, it will be considered in such connection herein as a matter of convenience in disclosing the invention. However, it will be understood that various other applications of the invention are possible and that I do not intend to be limited to the particular application elected for consideration herein.

As is well known, restaurants are equipped with tray jacks on which waiters may place serving trays while serving patrons in adjacent tables or booths. Conventionally, restaurants are provided with portable tray jacks which are simply folding stands on which the serving trays may be set. Occasionally, wheeled tray jacks, which may be rolled into position with serving trays thereon, are used.

Portable tray jacks of the foregoing nature are subject to various objections and disadvantages, not the least of which is that they are frequently unsightly contrivances. More important, such portable tray jacks are conventionally placed or parked in whatever spaces may be available somewhere near the tables or booths occupied by patrons to be served. Frequently, the only available space is in an aisle or passageway between or adjacent the booths or tables. In such a location, a conventional portable tray jack is a potentially hazardous obstruction over which patrons and/or waiters can trip and which can easily be upset with serious consequences, the least of which may be the loss of the contents of a serving tray thereon. Additionally, the only available space in which to place a portable tray jack may be some distance from the table or booth to be served, which results in inefficient service and which can result in such things as excessive cooling of hot food, and the like.

One purpose of the present invention is to provide a device which, when used as a serving tray jack, will obviate the foregoing and various other objections to and disadvantages of conventional portable tray jacks.

### SUMMARY AND OBJECTS OF INVENTION

Considering the invention generally, the primary object thereof is to provide a shelf-like support which is mounted

on any suitable structure in any appropriate location and which is retractable into that structure when not in use.

For example, when used as a serving tray jack in a restaurant, the retractable support of the invention may be built into the structure of a booth, such as the conventional dividing or partitioning structure between adjacent booths. In such a location, the retractable support may be used as a tray jack for serving patrons in adjacent booths, or even at adjacent tables, in the event that the restaurant is equipped with a combination of booths and tables. Alternatively, the retractable support of the invention may be built into a wall, or any other suitable structure, in a convenient serving location.

However, the invention is not limited to restaurant use and, accordingly, it may be built into any desired structure in any appropriate location. For example, the retractable support of the invention may be built into the arm of a chair, sofa, or the like, for home use to support food, drinks, and so forth.

Considering the invention more specifically now, it may be summarized as including, and an important object thereof is to provide a retractable support which includes: a supporting structure or housing provided therein with a shelf storage space and having at the front thereof a generally vertical slot communicating with the storage space; a shelf, or the like, of a size and shape to pass through the slot into and out of the storage space when the shelf is on edge in a generally vertical position; and means mounting the shelf on the housing for fore-and-aft movement of the shelf into and out of the storage space through the slot between retracted and extended positions, and for rotational movement about a fore-and-aft axis between its generally vertical position and a generally horizontal operating position.

With the foregoing construction, the shelf, when retracted, is completely, or substantially completely, concealed, and can readily be withdrawn from its storage space and rotated into its operative position when needed, which are important features of the invention.

Another and important object of the invention is to provide means for latching the shelf in its operating position after it has been withdrawn from its storage space. Thus, it cannot be dislodged inadvertently to spill the contents of a serving tray, or other article, placed thereon.

Another object is to provide interengageable latching means on the shelf and the housing, and responsive to slight rearward movement of the shelf, for automatically latching the shelf in its operative position. A further object is to provide spring means acting between the shelf and the housing for biasing the shelf rearwardly so as to automatically interengage the latching means.

An additional object is to provide a retractable support wherein the shelf is carried by a rearwardly extending shaft slidable and rotatable in a bearing in the housing to permit the shelf to be moved between its retracted and extended positions, and to be rotated into its operating position when extended.

A further object is to provide a retractable support wherein the spring means for automatically interengaging the latching means comprises a compression coil spring on the shaft seatable against a stop at the rear end of the shaft and against the housing.

Yet another object is to provide a retractable support of the foregoing nature wherein the latching means respectively comprise a forwardly facing, generally horizontal latching channel carried by the housing, and a latching element on the shelf insertable into the latching channel. This latching element, for example, may simply be a part of the rear edge of the shelf.

Still another and very important object of the invention is to provide on the front of the housing above the operative position of the shelf a downwardly-facing tray

hook engageable with, i.e., adapted to be hooked over, the upstanding peripheral lip with which a conventional serving tray is provided. This upstanding lip may be inserted under and behind the tray hook readily by tilting the serving tray upwardly and rearwardly slightly, and then sliding it rearwardly. Once hooked in this manner any possibility of dislodging the serving tray from its supporting shelf inadvertently is greatly minimized, which is an important feature.

The foregoing objects, advantages, features and results of the present invention, together with various other objects, advantages, features and results thereof which will be evident to those skilled in the art in the light of this disclosure, may be achieved with the exemplary embodiment of the invention illustrated in the accompanying drawing and described in detail hereinafter.

#### DESCRIPTION OF DRAWING

In the drawing:

FIG. 1 is a vertical sectional view of a retractable support which embodies the invention and shows a retractable shelf thereof in an extended, operative position;

FIG. 2 is a view similar to FIG. 1, but showing the retractable shelf in its retracted position;

FIG. 3 is a front elevational view taken as indicated by the arrowed line 3—3 of FIG. 2 and showing the retractable shelf in its retracted position; and

FIG. 4 is an isometric view of a latching element and tray hook of the invention.

#### DESCRIPTION OF EXEMPLARY EMBODIMENT OF INVENTION

In the drawing, the retractable support of the invention is designated generally by the numeral 10 and is shown as comprising a suitable housing 12, which may be any desired structure in any convenient location. For example, as suggested in FIG. 3, the housing 12 may be a divider or partition separating adjoining booths, not shown, in a restaurant.

Carried by the housing 12 is a retractable shelf 14 which is movable in the fore-and-aft direction between a retracted position, FIG. 2, and an extended position, FIG. 1. The shelf 14 is also rotatable about a fore-and-aft axis between a generally vertical position, FIG. 2, wherein it is on edge, and a generally horizontal operating position, FIG. 1. In its operating position, the retractable shelf 14 is adapted to support any desired article, such as a restaurant serving tray 16.

The front wall 18 of the housing 12 is provided therein with a generally vertical slot 20 through which the shelf 14 is movable between its extended and retracted positions when the shelf is in its generally vertical position. The slot 20 conforms closely in size and shape to the size and shape of the shelf 14 when on edge.

Within the housing 12 and communicating with the slot 20 is a storage space 22 for the shelf 14, the shelf being inserted into such storage space, on edge, when in its retracted position. The storage space 22 may be a shelf-receiving compartment as shown in the drawing, or it may simply be a portion of the interior of the housing 12, or other structure into which the shelf is retractable.

The shelf 14 may have any desired configuration. In the particular construction illustrated, it is what might be termed ring-like in form. However, other appropriate shapes and structures may be used.

The shelf 14 is carried by, and is connected to the front end of, a rearwardly extending shaft 24 which is slidable forwardly and rearwardly in and rotatable in a bearing 26 carried by the housing 12 internally thereof. In the particular construction illustrated, the lower edge of the shelf 14 rests on the bottom wall 28 of the compartment forming the storage space 22 when the shelf is retracted, and the bearing 26 is a single bearing carried by the rear wall 30 of such compartment. If desired, how-

ever, the shaft 24 may be reciprocable and rotatable in two or more bearings, not shown, spaced apart longitudinally of the shaft, in which case it is unnecessary to support the lower edge of the shelf on the bottom wall 28 of the storage space 22 when the shelf is retracted.

The retractable support 10 of the invention includes interengageable latching means on the shelf 14 and the housing 12, and responsive to slight rearward movement of the shelf, for latching the shelf in its operative position, these interengageable latching means being designated generally by the numeral 32. A spring means 34 biases the shelf 14 rearwardly so as to interengage the latching means 32 automatically upon forward movement of the shelf into its extended position and subsequent rotation thereof into its operative position.

Considering the latching means 32 more specifically, the front wall 18 of the housing 12 is provided therein with a generally horizontal recess 36 which extends transversely across the slot 20 and which contains two generally horizontal, horizontally spaced, latching elements 38 respectively disposed on opposite sides of the slot. The latching elements are shown as channels vertically symmetrical relative to a horizontal plane containing the axis of the shaft 24. The latching channels 38 are wide enough in the vertical direction, and deep enough in the rearward direction, that a waiter may insert his index finger longitudinally along one of the latching channels and behind the forward edge of the ring-like shelf 14 to withdraw it forwardly through the slot 20 into its extended position.

The latching means 32 further includes a latching element 42 carried by the shelf 14 and insertable rearwardly into the latching channels 38 upon slight rearward movement of the shelf after it has been pivoted or rotated from its generally vertical position into its operative position. The latching element 42 is shown simply as a portion of the rear edge of the shelf 14 conforming to the latching channels 38, although it may be a separate element, if desired.

The spring means 34 comprises simply a compression coil spring telescoped over and carried by the shaft 24 and seatable against a stop 44 at the rear end of the shaft. As will be apparent, when the shelf 14 is pulled forwardly through the slot 20 into its extended position, the spring 34 is compressed between the stop 44 and the rear wall 30 of the storage space 22. Consequently, when the shelf 14 is rotated into its operative position and released, the spring 34 automatically displaces the shelf rearwardly slightly to insert the latching element 42 thereon into the latching channels 38. Thus, the shelf 14 is automatically latched in its operative position against inadvertent displacement therefrom, which is an important feature of the invention. Further, it will be noted that the latching channels 38 support the weight of the shelf 14, and that of a loaded serving tray 16 thereon, the spring 34 automatically maintaining the latching element 42 in load-supporting engagement with the latching channels 38, which is another important feature.

On opposite sides of the slot 20 above the respective latching channels 38 are arcuate, downwardly facing tray hooks 48 under which the upstanding peripheral lip 50 with which a conventional restaurant tray is normally provided may be inserted to prevent accidental dislodgement of the serving tray 16 from the shelf 14. The serving tray 16 is normally generally elliptical or oval in plan and the curvature of each tray hook 48 is such that it will accept either one side or one end of the lipped edge of the tray. Thus, the serving tray 16 may be placed on the shelf 14 with any desired orientation of the serving tray. It will be apparent that the peripheral lip 50 on the serving tray 16 may be inserted under the tray hooks 48 readily by elevating the front edge of the tray sufficiently to permit sliding the rear edge thereof under the tray hooks, whereupon the hooks automatically engage the peripheral lip when the tray rests flat on the shelf 14.

5

6

It will thus be apparent that the present invention provides a retractable support 10 wherein the shelf 14 is concealed, or substantially concealed, when not in use. The shelf 14 may be extended very simply by hooking an index finger behind the front edge thereof and pulling it forwardly through the slot 20. Subsequently, the shelf 14 is simply turned 90° into its operative position, whereupon the spring 34 automatically latches it in that position. The serving tray 16 may then be placed on the shelf, preferably with the upstanding peripheral lip 50 thereon inserted under the tray hooks 48 to guard against accidental displacement of the serving tray from the shelf.

As will be apparent, particularly from FIG. 3, the various exposed parts of the retractable support 10 are quite inconspicuous when the shelf 14 is in its retracted position, particularly since the latching channels 38 and the tray hooks 48 are recessed into the front wall 18 of the housing 12. To enhance the retractable support 10 aesthetically, the various visible parts can be plated, anodized, or otherwise treated, to fit the environmental decor.

Although an exemplary embodiment of the invention has been disclosed herein for purposes of illustration, it will be understood that various changes, modifications and substitutions may be incorporated in such embodiment without departing from the spirit of the invention as defined by the claims appearing in the next section of this specification.

I claim as my invention:

1. In a retractable support, the combination of:

(a) a housing provided therein with a shelf storage space and having at the front thereof a generally vertically oriented opening communicating with said storage space;

(b) a shelf of a size and shape to pass through said opening into and out of said storage space when said shelf is on edge in a generally vertical position; and

(c) means mounting said shelf on said housing for fore-and-aft movement of said shelf into and out of said storage space through said opening between retracted and extended positions, and for rotational movement about a fore-and-aft axis between said generally vertical position and a generally horizontal operating position.

2. A retractable support as set forth in claim 1 wherein said opening is a slot closely conforming in size and shape to the size and shape of said shelf when said shelf is on edge in said generally vertical position.

3. A retractable support according to claim 2 including interengageable means on said shelf and said housing for latching said shelf in said generally horizontal operating position.

4. A retractable support as defined in claim 2 including interengageable latching means on said shelf and said housing, and responsive to rearward movement of said shelf, for latching said shelf in said generally horizontal operating position, and including spring means for biasing said shelf rearwardly to interengage said latching means.

5. A retractable support according to claim 1 wherein said mounting means includes a bearing in said housing and a rearwardly extending shaft carrying said shelf at its forward end and slidable and rotatable in said bearing to provide for said fore-and-aft and rotational movements of said shelf.

6. A retractable support as set forth in claim 4 wherein said latching means comprise a forwardly facing, generally horizontal latching channel carried by said housing, and a latching element on said shelf insertable into said latching channel.

7. A retractable support as defined in claim 2 wherein said shelf is of a size to have seated thereon a serving tray having an upstanding peripheral lip, when said shelf is in said generally horizontal operating position, said support further including a downwardly facing hook carried by said housing above said generally horizontal operating position of said shelf and engageable with the upstanding lip on the tray.

8. In a retractable support, the combination of:

(a) a housing having a shelf storage space therein;

(b) a shelf linearly movable forwardly and rearwardly relative to said housing out of and into said shelf storage space along a straight path;

(c) interengageable latching means connected to said shelf and to said housing and responsive to rearward linear movement of said shelf along said path, for latching said shelf in its extended position; and

(d) spring means acting between said shelf and said housing for biasing said shelf rearwardly along said path to interengage said latching means.

#### References Cited

##### UNITED STATES PATENTS

|           |         |          |             |
|-----------|---------|----------|-------------|
| 1,753,423 | 4/1930  | Kroschel | 248—240.1 X |
| 1,893,624 | 1/1933  | Jay      | 312—333 X   |
| 2,502,383 | 3/1950  | Loewy    | 297—194 X   |
| 2,845,113 | 7/1958  | Keel     | 297—194 X   |
| 2,916,180 | 12/1959 | Alger    | 211—71 X    |

DAVID H. BROWN, Primary Examiner

U.S. Cl. X.R.

211—71; 248—240.1; 297—194