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TRAY RACK ADAPTER

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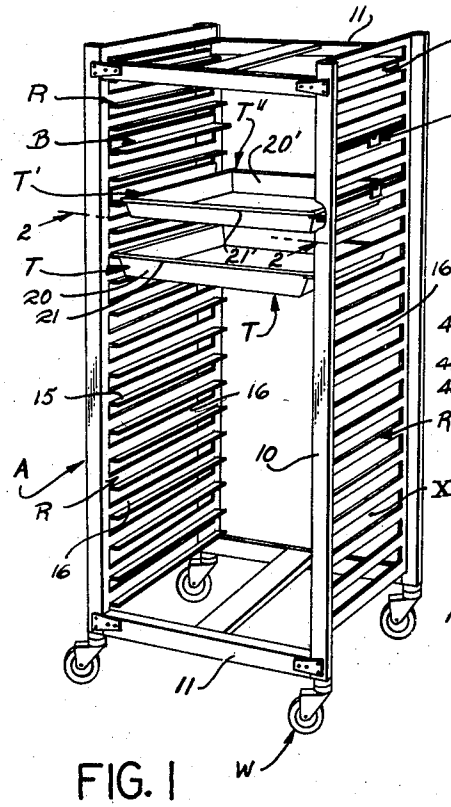


FIG. 1

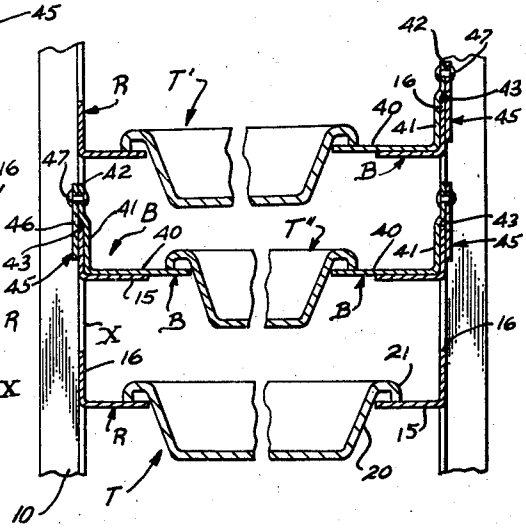


FIG. 2

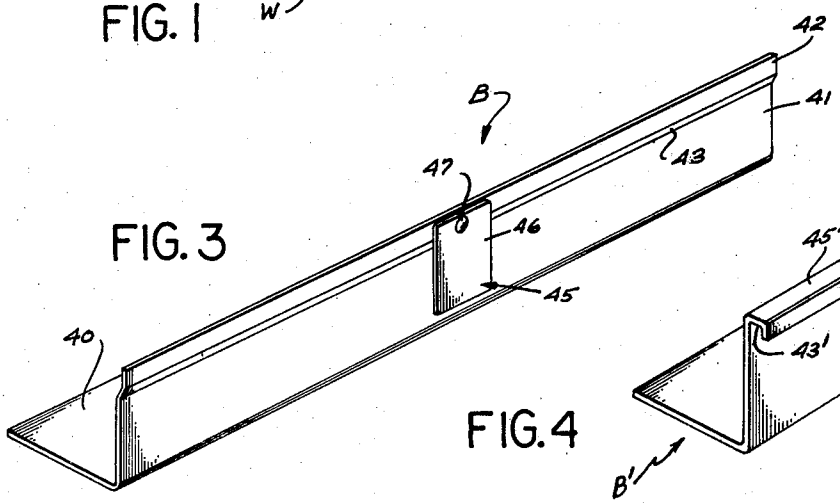


FIG. 3

FIG. 4

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TRAY RACK ADAPTER

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This invention relates to a tray rack and is more particularly concerned with an adapter for use in connection with a tray rack to facilitate engagement of trays of varying dimensions in the rack.

Ordinary or conventional tray racks such as are used in bakeries, restaurants, hospitals and the like are rigid frame-like structures having a plurality of laterally-spaced, parallel pairs of tray-engaging rails arranged in vertical spaced relationship. Due to the fact that such racks must support considerable loads and are subjected to severe strains and stresses as a result of being moved about when loaded as well as when ladened trays are slid into and out of engagement therewith, they must be extremely rigid and free from working parts and the like. As a result, such racks cannot be made adjustable to accommodate trays of varying dimensions. This requires that separate and especially manufactured racks must be provided for each of the several standard sizes of trays.

An object of my invention is to provide a novel, easy and economical way to manufacture adapters applicable to a standard tray rack construction, which adapter or adapters can be easily and conveniently engaged with the rack to facilitate engagement of trays of varying dimensions in the rack.

It is an object of my invention to provide an adapter or adapters for the purpose set forth above which are applicable to any one of the several tray rack constructions wherein the tray supporting parts or members, that is their rails, are L-shaped in cross-section, having laterally inwardly - projecting, horizontal tray - engaging flanges and upwardly projecting, vertical retaining or reinforcing flanges.

It is a further object of my invention to provide an adapter, L-shaped in cross-section, which adapter is coextensive with and is adapted to be cooperatively engaged on L-shaped tray supporting members or rails in a conventional tray rack.

The various objects and features of my invention will be fully understood from the following detailed description of typical preferred forms and applications of my invention, throughout which description reference is made to the accompanying drawings, in which:

FIG. 1 is a perspective view of a typical tray rack showing my adapter and trays related thereto;

FIG. 2 is a sectional view of a portion of the structure shown in FIG. 1, taken substantially as indicated by line 2—2 on FIG. 1;

FIG. 3 is a perspective view of my new adapter; and

FIG. 4 is a perspective view of a portion of a modified form of adapter as provided by the present invention.

The ordinary tray rack A such as is illustrated in FIGS. 1 and 2 of the drawings is an open framework having four vertical corner posts **10**, spreaders **11** extending between the posts **10** and the upper and lower ends thereof to hold them in fixed relationship with each other and a plurality of elongate, horizontal, vertically-spaced tray supporting rails R fixed to and extending between two adjacent corner posts and a light plurality of rails R fixed to and extending between the other two corner posts. In practice, suitable caster wheels W are provided at the lower ends of the corner posts to facilitate transporting the rack.

In the particular case illustrated, each vertically-spaced series or sets of rails and the corner posts **10** related

thereto are established from a single sheet of metal suitably punched and formed.

Each rail R is an elongate member, L-shaped in cross-section and establishes a flat, horizontal inwardly-projecting tray supporting flange **15** and a flat, vertical, upwardly-projecting reinforcing flange **16**. The ends of the rails are, in the case illustrated, joined integrally with the posts **10** related thereto, but could, if desired, be separate parts secured to the posts by means of suitable fasteners, such as rivets, without departing from the spirit of the invention.

The corresponding or related rails are of the two series of rails provided in the rack cooperate to establish laterally-spaced parallel pairs of rails. The inner opposing edges of the supporting flanges of each pair of rails are spaced apart a fixed predetermined distance so as to cooperatively receive a conventional commercial food tray T of a particular size.

The ordinary or conventional commercial food tray, such as is used in bakeries, restaurants and the like is a simple, flat, rectangular sheet metal unit having an upwardly and outwardly inclined flange **20** about its perimeter. The upper edge of the flange about the perimeter of the tray is provided with an outwardly and then downwardly turned lip **21**. In practice, some trays of the character referred to, are provided with outwardly-projecting, downwardly and inwardly-turned beads about the upper edges of the flanges **20**, instead of lips, as illustrated in the drawings, but this distinction does not affect the novelty of the present invention.

Trays T of the character referred to have become standardized so as to be capable of being related to and handled by standard or conventional apparatus and equipment found in kitchens and the like and are provided in several fixed predetermined sizes.

When a tray T is engaged in a tray rack, such as is illustrated in the drawings, the inner edges of the supporting flanges of the rails are slidably engaged the adjacent or opposing flanges **20** upon the tray and the lip **21** on the flange of the tray, engages and rests upon the top surface of the supporting flange. It will be apparent that when the tray T is thus engaged in the rack A, it is supported on and extends between the flanges **15** related thereto, through its lip **21** and is guided and is prevented from shifting laterally out of engagement with the supporting flanges **15**, by the said supporting flanges.

From the foregoing, it will be apaprent that in practice, a special rack must be provided for each size of tray.

In carrying out the present invention, a rack A designed and constructed in accordance with the above and to cooperatively-engage and support a large-size or the largest size tray T, is provided and one or more like adapters B are provided to engage with the rack to adapt it for handling trays T′ and/or T″, of one or two sizes smaller.

Each adapter B is an elongate unitary sheet metal structure, L-shaped in cross-section and corresponding, generally, in longitudinal extent with the rails R of the rack A to which it is to be related.

Each adapter B has a flat horizontal inwardly-projecting support flange **40** having an outer portion with a flat bottom surface which seats upon the flat top surface of the flange **15** of the rail R with which it is related and an inner portion having a straight inner edge, which portion projects inwardly from the supporting flange **15** to slidably engage the flange **20** of the tray T′ arranged in the rack and to engage the lip **21** of the tray.

The adapter B also has an elongate vertically-disposed, upwardly-projecting outer flange **41** which flange establishes flat bearing engagement on the inner surface of the

reinforcing flange **16** of the rail R. The upper edge of the flange **41** is provided with a laterally outwardly offset longitudinal web **42**, the lower edge of which establishes a substantially downwardly-disposed stop shoulder **43**, which shoulder engages and seats upon the upper edge of the flange **16** of the rail.

The adapter B further includes one or more retaining clips **45** fixed to the outer surface of the web **42** to depend therefrom and engage the outer surface of the reinforcing flange **16** and to hold the adapter in engagement on the rail.

The clip or clips **45** as the case may be, is shown as a simple, flat, vertical, rectangular plate **46** having one end fixed to the web of the adapter by means of a rivet **47** and its other ends depending from the web, to occur in parallel spaced relationship from the flange **41**.

In FIG. 4 of the drawings, I have shown a modified form of the invention, in which, the stop shoulder **43'** is established by an outwardly-turned flange **45'** on the upper edge of the flange **41'** and the cleat **46'** is in the nature of a downwardly-turned lip coextensive with the flange **45'**. The upper portion of the flange **41'** flange **45'** and lip or clip **46'** establish a downwardly-opening channel which establishes hooked engagement with the upper edge of the flange **16** of the rail to which the adapted B' is related.

This second form of the invention is less desirable than the first form, described above, since it takes more material to establish the adapter, the channel is more difficult to establish, the channel establishes a trap for foodstuff and is therefore less sanitary and the channel is subject to being crushed and collapsed so as to render the adapter unsuitable for use.

In practice, the adapter B that I provide can be engaged with the rail R with which it is to be related by arranging it with the rail R from within the rack A, or, if desired, it can be engaged with the rail R from the exterior of the rack A. When the adapter is engaged with the rail from within the rack, its outer flange **41** is first extended outwardly through the opening X in the rack defined by the rail R, the next higher rail related thereto and the corner posts related thereto, and is then lowered so that the clip slidably engages the outer surfaces of the supporting flange and the support flange and the outer flange engage and seat on the support and reinforcing flanges of the rail. When the adapter is engaged with the rail from the exterior of the rack, it is shifted through the opening X in the rack and is lowered into engagement with the rail R in the same manner as set forth above. The ability to engage the adapter B with the rail R from the exterior of the frame is most important when laden trays are positioned in the rack and would prevent engagement of the adapter from within the rack.

It is to be noticed that the ends of the web on the adapter B and the ends of the flange on the adapter B' oppose the adjacent corner posts so that longitudinal shifting and displacement of the adapters B and B' in the rack, as when trays are slid into and out of engagement therewith, is prevented. That is, the adjacent corner posts **10** serve as stops at the ends of the adapters.

In practice, and as illustrated in FIG. 2 of the drawings, one adapter B can be used with each pair of rails, in which case a tray, one size smaller than that which the rack A is designed to receive can be accommodated; or, two adapters can be employed, one on each rail R, in which case a tray two sizes smaller than that which the rack is designed to receive, can be accommodated.

In light of the foregoing, it will be apparent that with the adapters that I provide, a single conventional tray rack can be utilized to accommodate and support trays of three different sizes.

Having described only typical preferred forms and applications of my invention, I do not wish to be limited or restricted to the specific details herein set forth, but wish to reserve to myself any modifications or variations that

may appear to those skilled in the art and fall within the scope of the following claims:

Having described my invention, I claim:

1. An adapter applicable to a tray rack having laterally-spaced, horizontal and parallel tray supporting rails with flat horizontal inwardly-projecting supporting flanges and flat, vertically-disposed upwardly-projecting reinforcing flanges including, an elongate support flange having an outer portion seated on the supporting flange of a rail and an inner portion projecting inwardly from the supporting flange of the rail, an elongate, vertical, upwardly-projecting outer flange engaged on the inner surface of the reinforcing flange, an outwardly-projecting part on the outer flange defining a downwardly-disposed stop shoulder engaged on the upper edge of the reinforcing flange and a clip fixed to the upper part of the outer flange and slidably engaging the outer surface of the reinforcing flange.

2. An adapter applicable to a tray rack having laterally-spaced, horizontal and parallel tray supporting rails with flat horizontal inwardly-projecting supporting flanges and flat, vertically-disposed upwardly-projecting reinforcing flanges including, an elongate support flange having an outer portion seated on the supporting flange of a rail and an inner portion projecting inwardly from the supporting flange of the rail, an elongate, vertical, upwardly-projecting outer flange engaged on the inner surface of the reinforcing flange, an outwardly offset web along the upper edge of the outer flange defining downwardly disposed stop shoulder engaged on the upper edge of the reinforcing flange, and a clip fixed to the outer surface of the web to depend therefrom and slidably engage the outer surface of the reinforcing flange.

3. An adapter applicable to a tray rack having laterally-spaced, horizontal and parallel tray supporting rails with flat horizontal inwardly-projecting supporting flanges and flat, vertically-disposed upwardly-projecting reinforcing flanges including, an elongate support flange having an outer portion seated on the supporting flange of a rail and an inner portion projecting inwardly from the supporting flange of the rail, an elongate, vertical, upwardly-projecting outer flange engaged on the inner surface of the reinforcing flange, an outwardly offset web along the upper edge of the outer flange defining a downwardly disposed stop shoulder engaged on the upper edge of the reinforcing flange and a flat rectangular metal strip fixed to the outer surface of the web to depend therefrom and slidably engage the outer surface of the reinforcing flange.

4. An adapter applicable to a tray rack having laterally-spaced, horizontal and parallel tray supporting rails with flat horizontal inwardly-projecting supporting flanges and flat, vertically-disposed upwardly-projecting reinforcing flanges including, an elongate support flange having an outer portion seated on the supporting flange of a rail and an inner portion projecting inwardly from the supporting flange of the rail, an elongate, vertical, upwardly-projecting outer flange engaged on the inner surface of the reinforcing flange, an outwardly projecting stop flange on the upper edge of the outer flange defining a downwardly disposed stop shoulder engaged on the upper edge of the reinforcing flange and a clip depending from the outer edge of the stop flange and engageable on the outer surface of the reinforcing flange.

5. An adapter applicable to a tray rack having laterally-spaced, horizontal and parallel tray supporting rails with flat horizontal inwardly-projecting supporting flanges and flat, vertically-disposed upwardly-projecting reinforcing flanges including, an elongate support flange having an outer portion seated on the supporting flange of a rail and an inner portion projecting inwardly from the supporting flange of the rail, an elongate, vertical, upwardly-projecting outer flange engaged on the inner surface of the reinforcing flange, an outwardly projecting stop flange on the upper edge of the outer flange defining a downwardly disposed stop shoulder engaged on the upper edge of the reinforcing flange, a web projecting upwardly from the

outer edge of the stop flange and a clip fixed to the outer surface of the web and depending therefrom to slidably engage the outer surface of the supporting flange.

6. An adapter applicable to a tray rack having laterally-spaced, horizontal and parallel tray supporting rails with flat horizontal inwardly-projecting support flanges with flat top surfaces and straight inwardly disposed tray-engaging edges and flat vertical upwardly projecting reinforcing flanges with flat inner and outer surfaces and straight upper edges and vertical posts at the ends of the rails including, an elongate horizontal supporting flange having an outer portion with a flat bottom surface seated on the top surface of the support flange of a rail, an inner portion projecting inwardly from the rail and having a straight inwardly disposed tray-engaging edge, an elongate vertical outer flange with a flat outer surface engaged on the inner surface of the reinforcing flange, an outwardly projecting part on the outer flange defining a downwardly disposed stop shoulder engaged on the upper edge of the reinforcing flange and a clip fixed to the upper part of the outer flange and slidably engaging the outer surface of the reinforcing flange.

7. An adapter applicable to a tray rack having laterally-spaced, horizontal and parallel tray supporting rails with flat horizontal inwardly-projecting support flanges with flat top surfaces and straight inwardly disposed tray-engaging edges and flat vertical upwardly projecting reinforcing flanges with flat inner and outer surfaces and straight upper edges and vertical posts at the ends of the rails including, an elongate horizontal supporting flange having an outer portion with a flat bottom surface seated on the top surface of the support flange of a rail, an inner portion projecting inwardly from the rail and having a straight inwardly disposed tray-engaging edge, an elongate vertical outer flange with a flat outer surface engaged on the inner surface of the reinforcing flange, the adapter engaging and stopped against the posts at the ends of the rails.

8. An adapter applicable to a tray rack having laterally-spaced, horizontal and parallel tray supporting rails with flat horizontal inwardly-projecting support flanges with flat top surfaces and straight inwardly disposed tray-engaging edges and flat vertical upwardly projecting reinforcing flanges with flat inner and outer surfaces and straight upper edges and vertical posts at the ends of the rails including, an elongate horizontal supporting flange having an outer portion with a flat bottom surface seated on the top surface of the support flange of a rail, an inner portion projecting inwardly from the rail and having a straight inwardly disposed tray-engaging edge, an elongate vertical outer flange with a flat outer surface engaged on the inner surface of the reinforcing flange, the ends of the outwardly projecting parts being engaged and stopped against the posts at the ends of the rails.

9. An adapter applicable to a tray rack having laterally-spaced, horizontal and parallel tray supporting rails with flat horizontal inwardly-projecting support flanges with flat top surfaces and straight inwardly disposed tray-engaging edges and flat vertical upwardly projecting reinforcing flanges with flat inner and outer surfaces and straight upper edges and vertical posts at the ends of the rails including, an elongate horizontal supporting flange having an outer portion with a flat bottom surface seated on the top surface of the support flange of a rail, an inner portion projecting inwardly from the rail and having a straight inwardly disposed tray-engaging edge, an elongate vertical outer flange with a flat outer surface engaged on the inner surface of the reinforcing flange, an outwardly offset web along the upper edge of the outer flange defining the downwardly disposed stopped shoulder engaged on the upper edge of the reinforcing flange and a clip fixed to the outer surface of the web to depend therefrom and slidably engage the outer surface of the reinforcing flange, the ends of the web being engaged with and stopped against the posts at the ends of the rails.

10. An adapter applicable to a tray rack having laterally-spaced, horizontal and parallel tray supporting rails with flat horizontal inwardly-projecting support flanges with flat top surfaces and straight inwardly disposed tray-engaging edges and flat vertical upwardly projecting reinforcing flanges with flat inner and outer surfaces and straight upper edges and vertical posts at the ends of the rails including, an elongate horizontal supporting flange having an outer portion with a flat bottom surface seated on the top surface of the support flange of a rail, an inner portion projecting inwardly from the rail and having a straight inwardly disposed tray-engaging edge, an elongate vertical outer flange with a flat outer surface engaged on the inner surface of the reinforcing flange, an outwardly projecting stop flange on the upper edge of the outer flange defining a downwardly disposed stop shoulder engaged on the upper edge of the reinforcing flange, a clip depending from the outer edge of the stop flange and engaging the outer surface of the reinforcing flange, the ends of the stop flange engaging and stopped against the posts at the ends of the rails.

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