

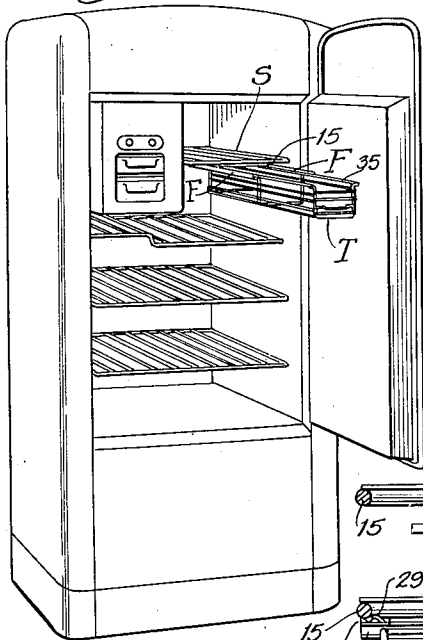
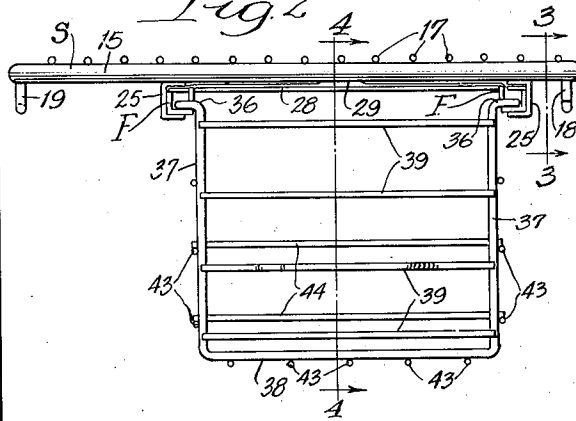
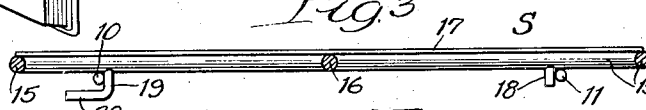
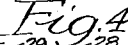
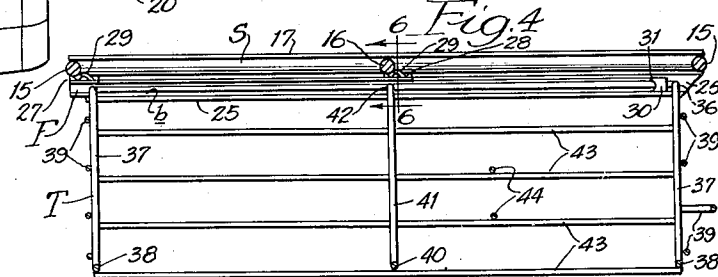
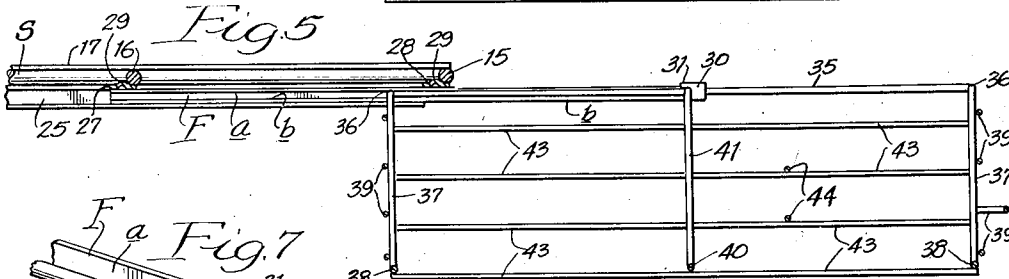
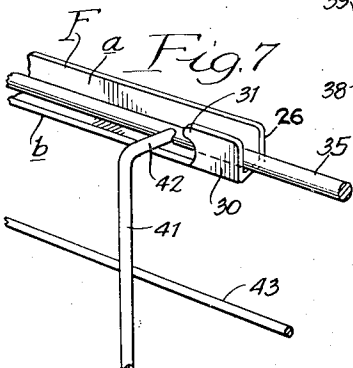
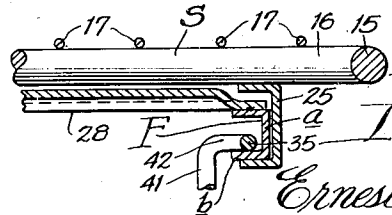
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E. R. CARR

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REFRIGERATOR SHELF

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UNITED STATES PATENT OFFICE

2,207,115

REFRIGERATOR SHELF

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4 Claims. (Cl. 211-143)

This invention relates to a refrigerator shelf equipped with a depending tray having a sliding mounting by which it may be advanced outwardly from beneath the shelf for full exposure of the tray from end to end; the present improvements are concerned also with a simplified and dependable shelf-tray construction, and with the provision of (1) means readily adapted to existing refrigerators by which the shelf may be releasably locked immovably in place, (2) means by which the tray is normally maintained against disassembly from the shelf, and (3) means by which sliding movements of the tray are confined to a fixed range. These and other objects of my invention as hereinafter noted may be accomplished advantageously by the suggestive construction which is set forth in the accompanying drawing in the manner following:

Figure 1 is a perspective view of an open refrigerator equipped with a top shelf having the present extensible tray which, as shown, is advanced outwardly to its limit;

Fig. 2 is a front elevation of the shelf-tray assembly;

Fig. 3 is a detail in section, taken on line 3-3 of Fig. 2;

Fig. 4 is a longitudinal section through the shelf-tray assembly, taken on line 4-4 of Fig. 2;

Fig. 5 which is a similar view (fragmentary), shows the tray advanced outwardly to its limit;

Fig. 6 is a detail in section (enlarged), taken on line 6-6 of Fig. 4; and

Fig. 7 is a fragmentary view in perspective showing the slidable mounting for the tray, together with the means by which the tray is retained against disassembly therefrom.

The present shelf-tray assembly is adapted for use in any appropriate refrigerator cabinet having suitable means for its support. As shown, this may comprise opposite pairs of pins 10 and 11 extended into the cabinet from its walls (or partitions) at points near the rear and front ends thereof, respectively, so as to afford adequate support for a shelf S which, when rested thereupon, may extend horizontally into the cabinet for substantially its full depth. This dimension of the shelf will be hereinafter referred to as its length.

The shelf may comprise a heavy wire frame 15 together with a heavy cross wire 16 located at substantially a mid point of its length, all supporting a plurality of closely spaced wires 17, a pair of lugs 18 being depended from the frame just aft of the supporting pins 11 (see Fig. 3) so that the shelf will normally be prevented from

sliding forward with respect to the cabinet. Also depending from the frame is a second pair of lugs 19 each provided with a rearward extension 20 forming a hook which is adapted to underlie the proximate supporting pin 10 (see Fig. 3). By means of these several pins and lugs the shelf may be positioned within the cabinet to remain immovable therein so long as engagement continues between those at the forward end.

Carried upon the under side of the shelf is a pair of spaced facing channeled guides 25 adapted to accommodate between them a slide in the form of a frame F having a pair of spaced bars 26, one fitting within each guide and each substantially co-extensive in length therewith, the two bars being cross connected by narrow plates, one 27 at the rear end and the other 28 at about a mid point of its length. Each cross plate may be formed with an upwardly extended reinforcing rib 29, the one on the plate 28 being so positioned as to engage successively with the shelf forward frame wire 15 and cross wire 16 whereby to confine the range of movement of the slide. In one extreme position the slide remains wholly below the shelf whereas in the opposite extreme position the two bars of the slide are extended forwardly of the shelf for a distance which is substantially one-half the length of the slide and of the shelf as well. Each bar which is of channel form throughout its rear portion may be angled in its forward portion, and is so faced that one vertical web *a* will lie within the guide channel close to the vertical wall thereof, the other web *b* extending horizontally just above the lower horizontal wall of the guide channel whereon it is adapted to rest for sliding movement thereupon. At the forward end of each angle bar is upwardly extended from the horizontal web *b* a tongue 30, in spaced relation to the vertical web *a*, there being a lug 31 extended rearwardly from this tongue, in spaced relation to the horizontal web *b*, so as to form in effect a hook.

With such a shelf and slide I associate a tray T which is suspended therebelow. As shown, the tray comprises a pair of bars 35 extended along the top to form side edges thereof, these bars at opposite ends being laterally turned inwardly, as at 36, thence extending downwardly at 37 and across at 38 for mutual union, there being as many other cross wires 39 as needed to define an end closure for the tray. The bars so extended and joined form upper side edges and end frames for the tray. In addition I employ an intermediate U-frame, at a point about midway of the tray length, comprising a horizontal bar 40 from

which rise vertical bars 41 each laterally turned outwardly at 42 for union with the proximate top side bar 35, this U-frame being of a size and shape substantially the same as the corresponding bars on the two end frames. Between all these frames are extended a sufficient number of wires 43 to provide side and bottom closures for the tray. A tray so constructed may be provided with a handle (as by outwardly bowing one of the cross wires 39) and with a partition (as by the use of additional cross wires 44), or with other optional features not forming any part of this invention.

When the tray is assembled with the slide the side bars 35 are fitted into the angle formed by the two webs *a* and *b*, the tongues 30 then lying inwardly thereof (see Fig. 7) so that the tray is guided in its movements lengthwise of the slide. The range of this relative sliding movement equals the distance between the laterally extending portions 36 and 42 of the two U-frames, one at the front end and the other at the mid point of the tray. During inward movement of the tray, the end laterals 36 will engage the outer edges of the tongues 30 to transmit therethrough a corresponding motion to the slide, whereas during outward movement of the tray the intermediate lateral 42 will engage the opposite edges of the same tongues to transmit therethrough a corresponding motion to the slide. Since the tray and slide are each capable of motion through a range of only one-half the shelf length, it follows that the slide may advance outwardly beyond the shelf for a distance of only one-half its own length and the tray may advance outwardly beyond the slide for a distance of only one-half its own length. When so advanced, however, the tray is fully exposed from end to end, its rear end is retained within the channeled guides wherein the slide is also mounted, and the intermediate laterals 42 are disposed below the lugs 31 which serve as hooks to prevent lifting of the tray, with consequent disassembly from the slide. Only by moving the tray back a very limited distance, sufficient to disengage from these hook lugs yet not enough to place the tray rear end appreciably within the guide channels of the slide, is the forward end of the tray so disposed as to be free for lifting preliminary to disassembly from the slide.

It will be noted that the slide is cross connected only at points substantially midway of its length and rearwardly thereof, thereby leaving forwardly of its mid point only its angle irons which lie proximate to the side bars of the tray along its top. This is advantageous because the tray is thereby left open, without any crossing elements, from end to end, affording in consequence better accessibility to every portion thereof.

I claim:

1. In an extensible shelf unit, the combination of a main shelf adapted for fixed support, a pair of spaced facing channeled guides fixed to the under side of the shelf and extending substantially the length of the same, a horizontal frame located at the under side of the shelf and provided at opposite sides with spaced channel bars slidable in the channels of the guide bars, a tray depending from the horizontal frame and having side portions slidable in the channels of the bars of the slidable frames, means for limiting the sliding movement of the horizontal frame in the channeled guides, and separate means for limiting the sliding movement of the tray in the channeled bars of the frame, the sliding move-

ments of the frame and the tray permitting the tray to be exposed on its top for substantially the full length thereof.

2. In an extensible shelf unit, the combination of a main shelf adapted for fixed support, a pair of spaced facing channeled guides fixed to the under side of the shelf and extending substantially the length thereof, a horizontal frame located at the under side of the shelf and provided at opposite sides with spaced channeled bars slidable in the channels of the guides, said frame having at the rear end and at a point intermediate of its ends narrow cross plates provided with raised reinforcing ribs arranged to engage portions of the shelf for limiting the sliding movement of the frame, a tray depending from the horizontal frame and having side portions slidable in the channels of the side bars of the frame, and means for limiting the sliding movement of the tray in the channeled side bars of the frame, the sliding movements of the horizontal frame and the tray permitting the tray to be exposed on its top for substantially the full length thereof.

3. In an extensible shelf unit, the combination of a main shelf adapted for fixed support, a pair of spaced facing channeled guides fixed to the under side of the shelf and extending substantially the length of the same, a horizontal frame located at the under side of the shelf and provided at opposite sides with spaced channeled bars slidable in the channels of the guide bars and provided with angle front portions open at the top and having stops at the front end of said frame, and a tray depending from the frame and having side portions slidable in the channeled side bars of the frame and arranged to engage the said stops in its forward movement, said tray and stops having an interlocking engagement with each other and the open top of the angle portions of the channeled side bars of the frame permitting removal of the tray when the same is disengaged from the stops, and the sliding movement of the frame and the tray permitting the tray to be exposed on its top for substantially the full length thereof.

4. In an extensible shelf unit, the combination of a main shelf adapted for fixed support, a pair of spaced facing channeled guides fixed to the under side of the shelf and extending substantially the length thereof, a horizontal frame located at the under side of the shelf and provided at opposite sides with spaced channeled bars slidable in the channels of the guides and provided with front angle portions and having stops at their front ends, said frame being also provided at the rear end and at a point intermediate of its ends with narrow cross plates having raised reinforcing ribs arranged to engage portions of the shelf for limiting the sliding movement of the frame, and a tray depending from the frame and having side portions slidable in the channeled side bars of the frame and arranged to engage in its forward sliding movement the stops at the front end of the frame, the stops and the frame having an interlocking engagement and the open top of the angle portions of the side bars of the frame permitting removal of the tray when the same is disengaged from the front stops of the frame and the sliding movement of the frame and the tray permitting the tray to be exposed on its top for substantially the full length thereof.

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