

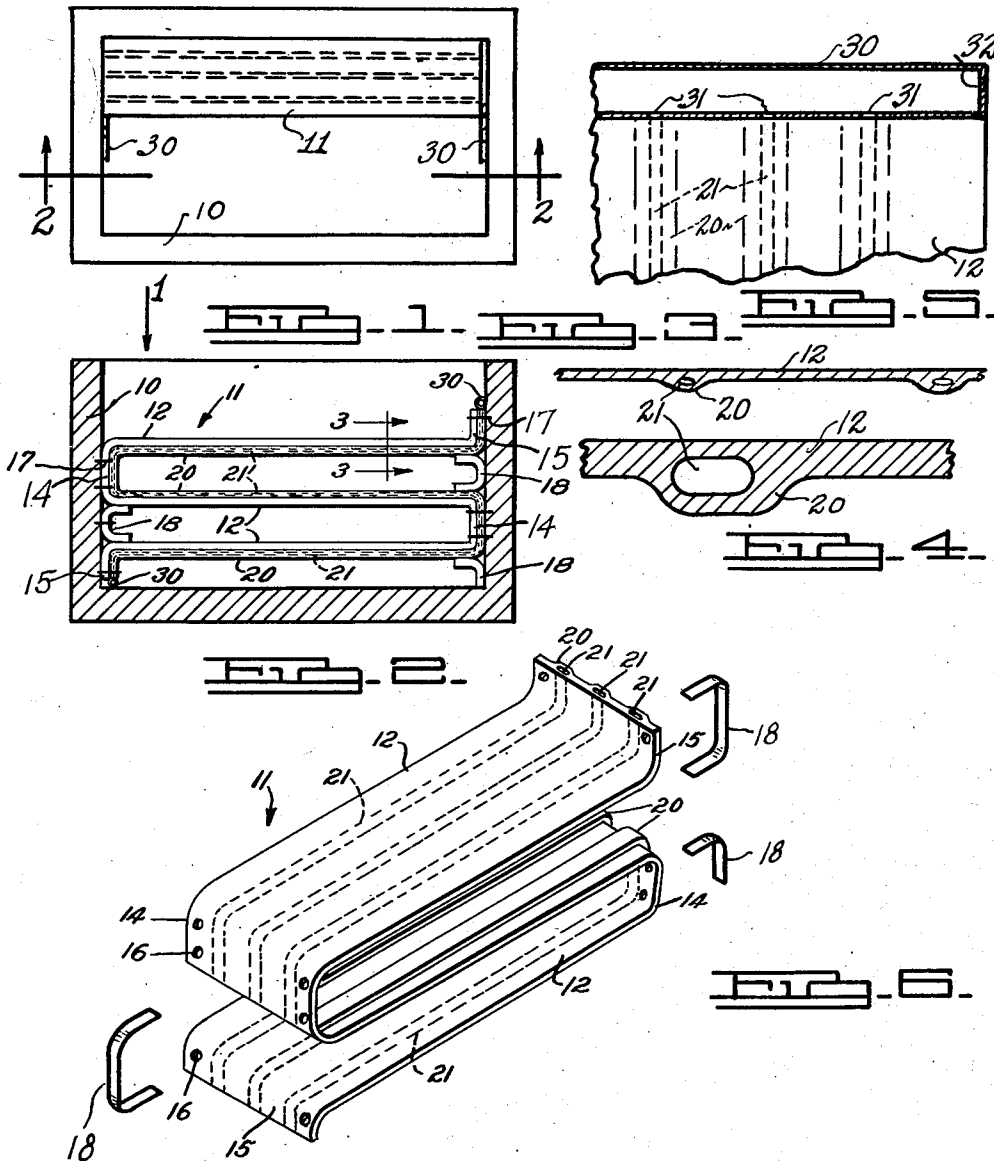
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SERPENTINE FREEZER SHELF

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## UNITED STATES PATENT OFFICE

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## SERPENTINE FREEZER SHELF

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1 Claim. (Cl. 62-126)

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This application relates to refrigerator shelf construction.

A primary object of the invention is to provide a novel refrigerator shelf construction in the form of a one piece member, formed with refrigerant conduits within it, formed to provide three or more parallel horizontal shelves, and formed to be insertable into or removable from a refrigerator as a unit, and also formed to be superior in strength and ease of installation.

The construction hereof is shown in the appended drawing in which Fig. 1 is a top plan view as if in the direction of arrow 1 of Fig. 2 of a refrigerator in the form of a box provided with a shelf member of the invention, with inlet and outlet tubes for refrigerant being shown.

Fig. 2 is a section view as if on line 2-2 of Fig. 1.

Fig. 3 is a fragmentary section of the shelf member per se as if on line 3-3 of Fig. 2.

Fig. 4 is an enlarged fragment of Fig. 3.

Fig. 5 shows in detail the communication between the interior of the shelf member and an inlet or outlet tube connected to it.

Fig. 6 shows diagrammatically a shelf member consisting of three shelves integral with two vertical connecting portions and two vertical extensions.

The drawing shows a refrigerator box 10 having within it a unitary one piece serpentine or sinuous freezer shelf member of the invention. The shelf member is shown to better advantage in Fig. 6. The shelf member shown has three horizontal shelves 12 and two vertical connecting portions 14 and two vertical end or extension portions 15. The vertical portions 14 and 15 are shown as having holes 16 whereby the shelf member as a unit may be secured to the vertical end walls of the box 10, thus facilitating installation of or removal of a shelf member with respect to a box. Suitable fastening screws, shown diagrammatically in Fig. 2 at 17, may be utilized for securing the shelf member to the box. Suitable brackets shown at 18 may be utilized to reinforce the shelf member if necessary and to brace its various portions against relative movement due to loads placed upon the shelves.

The cross section of the shelf member is best seen in Fig. 3. The shelf member is formed with longitudinally extending parallel thick portions or ribs 20 each of which is hollow to provide a conduit for refrigerant. The ribs reinforce the shelf member.

Any suitable method may be utilized for fabricating the shelf member. One suitable method would be to form ribbon stock of the width desired and then to cut the stock in suitable lengths for the shelf member, and then bend it to desired shape. A suitable way of forming the ribbon stock would be to extrude it of any suitable metal, such as aluminum, in which case the shelf mem-

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ber with its ribs and conduits would all be formed with one operation.

For connecting the shelf member to inlet and outlet conduits for refrigerants, any suitable arrangement might be employed. One such arrangement is shown in the drawings. In this case, tube 30 is shown in Fig. 5 as having small holes 31 pierced in its side wall at spacings registering with the conduits 31 of the shelf 12. A shelf end 15 may then be butted against the tube 30 so that the conduits 21 register with the openings 31 and then, by soldering or in any other suitable way, the tube 30 is secured to the end 15 to seal the communication between the conduits 21 and the openings 31 and the interior of the tube 30. The end of the tube 30 will be closed as at 32.

From many points of view the shelf construction herein disclosed is superior to those presently known. It is stronger, more economical of manufacture, more facile for installation and removal, cleaner, neater, etc.

Fig. 4 shows the top and bottom sides of the conduit 21 as flat and parallel and as equidistant from the opposite surfaces of the shelf at the rib containing the conduit, whereby sharp bending of a shelf with the ribs on the inside of the bend, and without crushing the walls of the conduits 20 and thus reducing their area, is made possible.

Now having described the shelf construction herein disclosed, reference should be had to the claim which follows:

A unitary one piece serpentine or sinuous freezer shelf member for refrigerators comprising at least three parallel horizontal shelves connected by at least two vertical portions, all integral, and formed with hollow ribs extending from end to end, these ribs reinforcing the member and also providing conduits for refrigerant, the ends of these conduits being in sealed communication with refrigerant inlet and outlet tubes, the conduits having flat parallel top and bottom sides and being positioned midway of the rib, the ends of the member being formed as vertical extensions, these and the vertical portion being adapted to be fastened to vertical walls of the refrigerator to secure the member in place.

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