July 10, 1945. W. A. KUENZLI 2,380,053

REFRIGERATING APPARATUS

Filed March 11, 1944

Fig. 1.

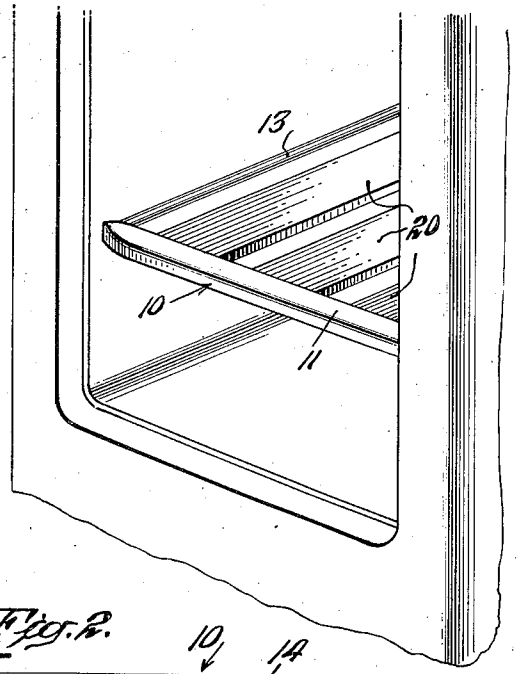


Fig. 2.

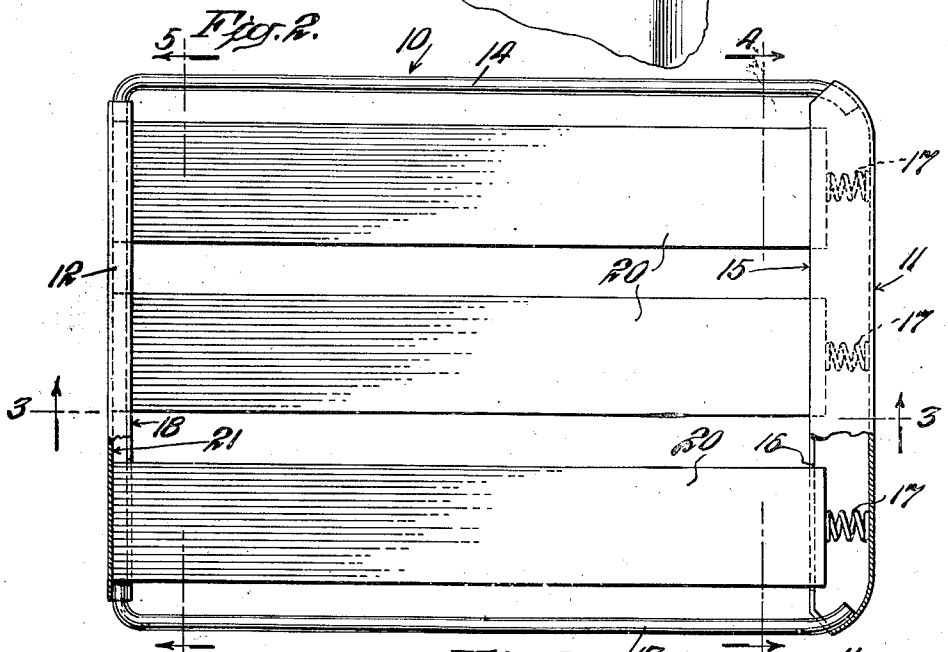


Fig. 3.

Fig. 4.

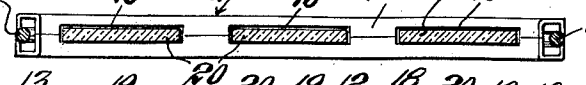
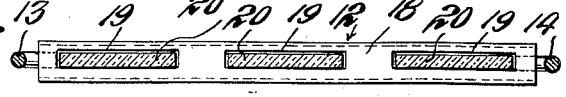


Fig. 5.



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REFRIGERATING APPARATUS

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7 Claims. (Cl. 211—153)

My invention relates to improvements in food supporting shelves particularly adapted for use in domestic refrigerators.

Refrigerator shelves heretofore have generally been made of metal. Metal shelves are expensive, difficult to fabricate and hard to keep clean.

Glass shelves have been proposed heretofore but have generally been expensive in that the glass must be drilled in order to attach it to a supporting frame, or, as in some instances, complicated fastening devices have been provided.

It is an object of my invention to provide a refrigerator shelf that may be made mostly of non-metallic material and still be quickly and conveniently assembled.

It is a further object of my invention to provide a sanitary refrigerator shelf that may be conveniently assembled and disassembled for cleaning.

Other objects and advantages of my invention will be apparent during the course of the following description.

In the accompanying drawing in which like reference characters are employed to designate like parts:

Fig. 1 is a perspective view of a part of a refrigerator cabinet showing my improved shelf supported therein;

Fig. 2 is a plan view of my improved shelf;

Fig. 3 is a vertical longitudinal section on line 3—3 of Fig. 2;

Fig. 4 is a vertical transverse section on line 4—4 of Fig. 2; and

Fig. 5 is a vertical transverse section on line 5—5 of Fig. 2.

In the drawing, wherein for purposes of illustration, is shown a preferred embodiment of my invention, the numeral 10 designates generally a rectangular frame. This frame includes a relatively deep rectangular tubular member 11 at one end and a relatively shallow rectangular tubular member 12 at its opposite end. End members 11 and 12 are connected by two rods 13 and 14 which form the sides of the rectangular frame and which are welded or otherwise secured to the end members.

End member 11 is provided, on its inner face 15, with a plurality of elongate openings 16. Arranged in the end member 11, centrally of each of the openings 16, is a coil spring 17, one end of which may be welded or otherwise secured to said end member. End member 12 is provided, on its inner face 18, with a plurality of elongate openings 19, which openings are located directly opposite openings 16 of end member 11. Arranged in rectangular frame 10 is a plurality of removable shelf forming strips 20 made of glass, plastic, or other suitable light weight non-metallic material.

Strips 20 are applied to the frame 10 by first manually inserting the right end of a strip, as viewed in Fig. 2, into an opening 16 in end member 11, thereby compressing the abutting spring 17 until the left end of said strip registers with an opposite opening 19, in end member 18. Then the strip is released and spring 16 expands and forces the left end of the strip against the inside inner face 21 of end member 12. The shape and size of openings 16 and 19 and the transverse cross section of the strips 20 is such that the strips fit neatly within said openings and due to the compression of spring 16 are firmly held in place in the frame. The strips are, however, readily removed from the frame by merely pushing them to the right, as viewed in Fig. 2, until their left ends clear the inner face 18 of end member 12. Then the left ends are raised slightly so as to clear the top of end member 12, and then they are moved to the left to remove the right ends from the openings 16, in end member 11.

While I have illustrated and described a preferred embodiment of my invention, it is to be understood that the invention is limited only by the following claims.

What is claimed is:

1. A shelf comprising a frame, said frame including a pair of spaced hollow end members having openings in the inner faces thereof and a pair of spaced side members connecting said end members, a plurality of individually removable plates supported by said end members with the ends thereof projecting through said openings into the hollow of each of said end members, and means associated with one of said end members and arranged to contact one end of each of said plates to urge the opposite end of each of said plates into the hollow of the other of said end members.

2. A food supporting shelf comprising a frame, said frame including a pair of spaced recessed end members and a pair of spaced side members secured to said end members, a plurality of individually removable food supporting plates supported by said end members and having the ends thereof projecting into the recesses of said end members, and means located in the recesses of one of said end members and arranged to resil-

iently urge one end of said supporting plates into the recesses of the other of said end members.

3. A food supporting shelf for domestic refrigerators comprising a frame, said frame including a plurality of spaced recessed end members and a plurality of spaced side members connecting said end members, a plurality of individually removable non-metallic food supporting strips having their ends projecting into the recesses of said end members and being supported by said end members, and means associated with one of said end members arranged to resiliently urge said strips toward another of said end members.

4. A shelf comprising a frame, said frame including a pair of tubular spaced end members each provided with openings in the inner face thereof and a pair of spaced side members secured to said end members, a plurality of individually removable flat plates supported by said tubular end members with the ends thereof projecting through said openings into said tubular end members, and a plurality of springs located in one of said tubular end members and arranged to contact one end of each of said flat plates to urge the opposite end of each of said flat plates into the other of said tubular end members.

5. A shelf comprising a rectangular frame made up at least in part of recessed supporting members at opposite ends of the frame, a plurality of removable elongate plates in said frame with opposite ends thereof extending into the recesses of said supporting members, and resilient means located in the recesses of one of said supporting members at one end of said frame and arranged to contact one end of each of said plates to urge the opposite end of each of said plates into the recesses of the supporting member at the opposite end of said frame.

6. A shelf comprising a plurality of horizontally spaced end members each provided with recessed portions, spaced means holding said end members in spaced apart relation, a plurality of individually removable strips located in a horizontal plane between said end members with the ends of said strips projecting into the recessed portions of said end members, and resilient means associated with said strips and with the recessed portions of one of said end members for removably holding said strips between said end members.

7. A shelf structure including a pair of laterally spaced members each provided with a recessed portion opening toward each other, means for holding said members in spaced relationship, a detachable strip located in a common horizontal plane with said members to form an article supporting surface, the opposite ends of said strip projecting into said recessed portions of said members but withdrawable therefrom, and means concealed within the recessed portion of one member for exerting force between said member and said strip to hold the latter in place, said means being flexible to permit withdrawal and insertion of said strip for cleaning or replacement.

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