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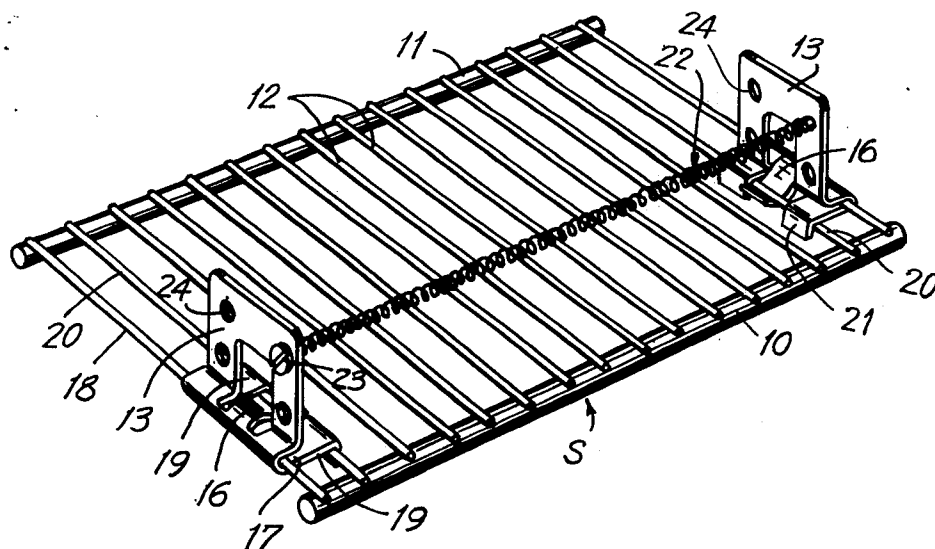
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211/184; 312/140.4, 185, 190

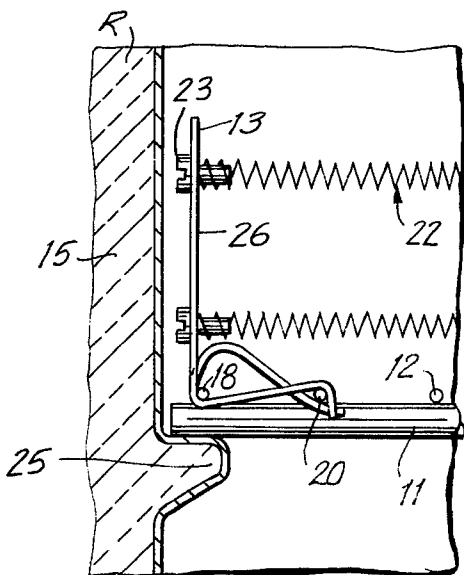
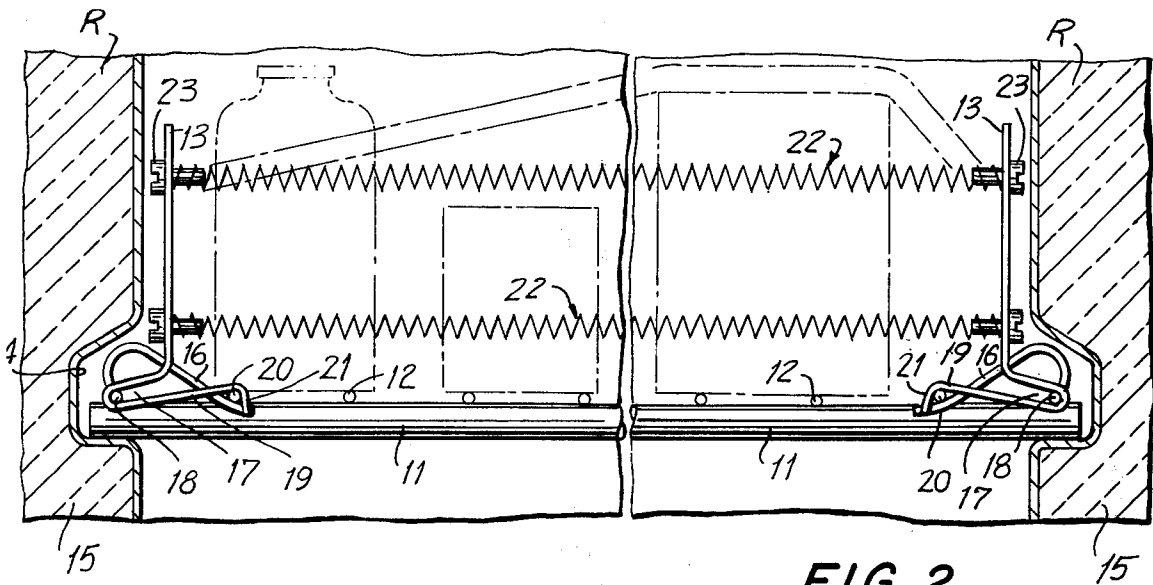
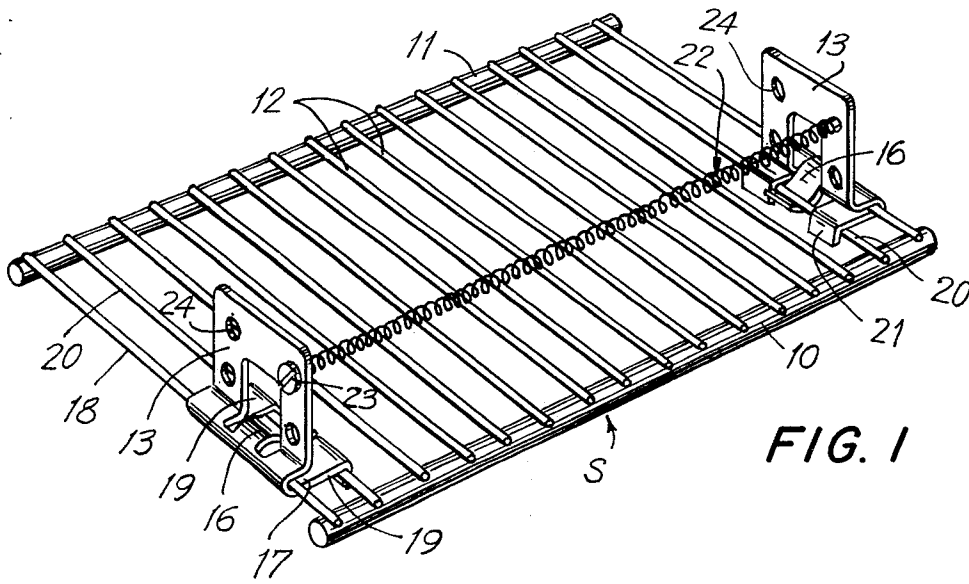
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Retaining devices for shelves, particularly for use in boats, trailers, or other moving vehicles, which are selectively positioned on the shelves in order to prevent the articles thereon from overturning due to jolts and various inclinations of the moving transporter. The retaining devices can be easily and rapidly removed when it is not necessary for use with the shelves.

9 Claims, 3 Drawing Figures





ADJUSTABLE ARTICLE RETAINING DEVICE FOR SHELVES

BACKGROUND OF THE INVENTION

It is well known that when boats or auto trailers are on the move, there are jolts and inclinations of the transporter. Thus, articles on shelves, for example in a refrigerator, may overturn and spill and, if liquid, may cause damage to the interior of the refrigerator and/or to the interior of the boats, trailers, or other moving vehicles.

Previous constructions have evolved to remedy this, in which refrigerator retaining devices are provided with aligned, downwardly directed holes that are located in each side wall of the refrigerator above the shelves in the refrigerator cabinet. A gate in the form of a grate was used, having spaced, downwardly directed pins for insertion in the holes on each side of the refrigerator cabinet. In this manner, the gate is located inwardly on the shelf resulting in the area within which articles can be stored being limited due to the presence of the gate. However, there is still a capability of a certain amount of free lateral movement of the articles on the shelves. In addition, the gate and its retaining members take up valuable space in the refrigerator cabinet. Furthermore, the mounting of the gate and its retaining members requires time; and they cannot be readily removed if they are no longer necessary in the refrigerator cabinet.

The present invention relates to a retaining device for articles on shelves in a moving transporter, such as a trailer or boat.

It is an object of the present invention to provide a retaining device for articles comprising two movably mounted clips on opposite sides of a shelf and interconnected by at least one support member for holding the articles on the shelf.

It is a further object of the present invention to provide a support member which is resilient in a direction along its longitudinal axis.

The invention will now be more fully described with reference to the accompanying drawings, in which:

FIG. 1 is a perspective view of a wire shelf for a refrigerator cabinet having a retaining device for articles placed on the shelf;

FIG. 2 is a vertical sectional view of a refrigerator cabinet with the shelf resting in spaced grooves in the walls of the refrigerator cabinet and the retaining devices mounted on the shelf; and

FIG. 3 is a vertical sectional view of a part of a refrigerator cabinet having an alternate embodiment of the present invention in which a horizontal ledge is shown projecting into the interior of the refrigerator cabinet.

DESCRIPTION OF THE PREFERRED EMBODIMENT OF THE INVENTION

FIG. 1 shows a shelf S for a refrigerator cabinet R. In FIG. 2, the shelf S is shown mounted within the refrigerator cabinet and comprises a front support rail 10 and a rear support rail 11, located parallel thereto. A plurality of parallel wires are mounted on their opposite ends on the support rails 10 and 11, respectively, and are disposed at right angles to the support rails. The parts of the shelf are welded together in a suitable manner and protected against corrosion by a coating of zinc, paint, or plastic. A clip 13 is movably arranged on either side of the shelf S. The clip as shown in FIGS. 1

and 2, is used on refrigerator shelves that rest in the horizontally disposed grooves 14 in the insulated wall 15 of the refrigerator R. Each clip 13 constitutes a metal plate in the central part of which a resilient tab 16 is struck out and bent downwardly. The plate is bent in such a manner that a channel 17 is formed whereby the clip can be fitted on the extreme outer lateral wire 18 with the latter located in the channel 17. The two spaced bottom tabs 19 are fitted over a second wire 20 disposed inwardly of the outer lateral wire 18. As seen in FIG. 2, the tab 21 is bent downwardly over the second wire 20. Furthermore, as clearly seen in FIG. 2, the tab 16 is inserted under the wire 20 and is biased upwardly due to the spring force of the resilient tab. As seen in FIGS. 1 and 2, the two separate clips 13 are connected by one or more support members 22 for retaining the articles on the shelf in their upright positions. It will be observed that the support member 22 comprises a spiral, yieldable wire that is secured to the clips 13 by means of screws inserted through holes 24 in the clips and screwed into the ends of the wire.

When the articles on the shelf are required to be supported in a manner such that jolting or inclinations of the vehicle or boat do not result in the overturning of some or all of the articles on the shelf, the two spaced clips 13 are moved inwardly in the refrigerator cabinet toward the rear support rail 11 so that one or more than one support member 22 will be moved backwardly against the articles on the shelf. Since the support member 22 is resilient, it is possible to lift the spiral wire over some of the articles on the shelf thereby retaining these articles on the shelf. The resilient wires of the support member 22 have a slight tension which permits the clips 13 to be moved inwardly and the wires stretched to a degree without damaging the articles on the refrigerator shelf. The tension of the resilient wires causes the clips 13 to be urged toward each other, and this action together with the location of the tabs 20 permits the clips to be frictionally moved to any desired position on the shelf against the action of the frictional force by which the clips are firmly held in the desired position.

It should be noted that the clips 13 shown in FIGS. 1 and 2 are identical in configuration, and the resilient wire of the support member 22 is adapted to be fastened in selected holes 24 of the clips 13 on either side of the shelf S. It should also be apparent that the clips 13 can be easily and rapidly removed if it is desired to use the shelf without the above-described retaining devices.

FIG. 3 shows a clip 13 of a different configuration which is used with a refrigerator shelf of another design constituting a horizontal ledge 25 projecting into the interior of the refrigerator R. The shelf S is illustrated as resting on the ledge 25 of the cabinet wall 15; and in this construction, the upper part 26 of the clip 13 is extended straight and upwardly from the location of the outer wire 18. The metal clip 13 shown in FIG. 2, discloses a construction in which the metal plate of the clip is bent inwardly over the outer lateral wire 18 of the shelf S so that the upper part of the clip will be located at the required distance from the inside of wall 15.

The drawings show resilient wires of the support member 22 removably secured to the clips 13 by means of screws 23. However, it is within the scope of the present invention to provide other suitable means for

securing the resilient wires to the holes 24 in the clips 13.

The present retaining means for shelves are inexpensive to fabricate and simple to install and remove from the shelves. In addition, the retaining means may be easily adjusted on the shelves in order to effectively maintain the articles upright thereon while the transporter is under movement.

What is claimed is:

1. An adjustable article retaining device in combination with a shelf, said shelf comprising a pair of spaced support rails and a plurality of spaced connecting wires extending perpendicular to said support rails said adjustable retaining device comprising, a pair of clips, each of said clips being mounted on the end connecting wire on opposite sides of said shelf, each of said clips having an upstanding portion and being provided with a depending tab that lies under the adjacent connecting wire, and a support member for said articles having opposite ends removably attached to the upstanding portions of respective clips, said support member being resilient in a direction along its longitudinal axis to thus exert pressure on the clips to frictionally engage the respective end connecting wire to thereby prevent displacement thereof.

2. The device as set forth in claim 1 wherein said resilient support member is a coiled spring.

3. An adjustable article retaining device as claimed in claim 1 wherein each clip includes a metal plate with a pair of cut out tabs bent to lie under the end connecting wire of the shelf and over an adjacent connecting wire and frictionally engaging both of said wires.

4. The device as set forth in claim 3 wherein said depending tab is a struck out yieldable tab positioned between said cut out tabs which is bent downwardly and inserted under said adjacent connecting wire.

5. The device as set forth in claim 3 wherein said cut out tabs are parallel and the upstanding part of each of said clips is located inwardly a distance from the adjacent end of said support rail.

6. The device as set forth in claim 1 wherein said clips can be removably fastened on said shelf.

7. The device as set forth in claim 6 wherein said clips are mirror images of each other when mounted on said shelf.

8. The device as set forth in claim 3 wherein the upstanding portion of each said clip extends in a substantially vertical plane which lies between the respective longitudinal axes of the end connecting wire and the adjacent connecting wire, whereby the clips are adapted for use in a refrigerator-type cabinet having sidewalls with oppositely located and horizontally disposed grooves in which the ends of the support rails rest.

9. The device as set forth in claim 3 wherein the upstanding portion of each clip lies in a substantially vertical plane which is in substantial alignment with the longitudinal axis of said end connecting wire, whereby the clips are adapted for use in a refrigerator-type cabinet having sidewalls with oppositely located and horizontally disposed ledges upon which the ends of the support rails rest.

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