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SLIDING CABINET SHELF

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Fig. 1.

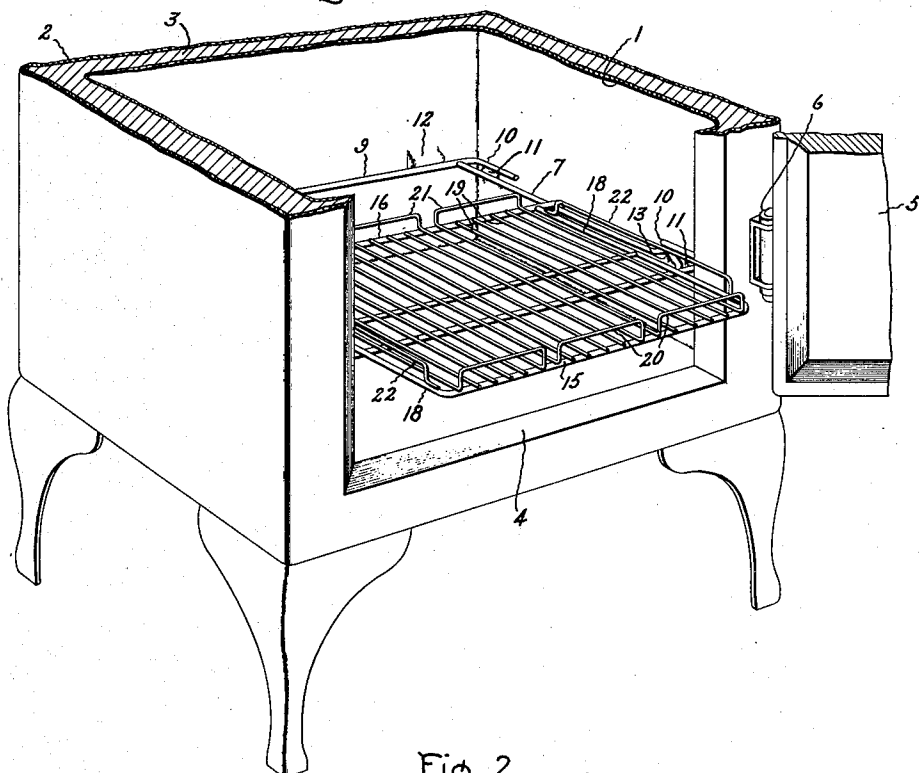


Fig. 2.

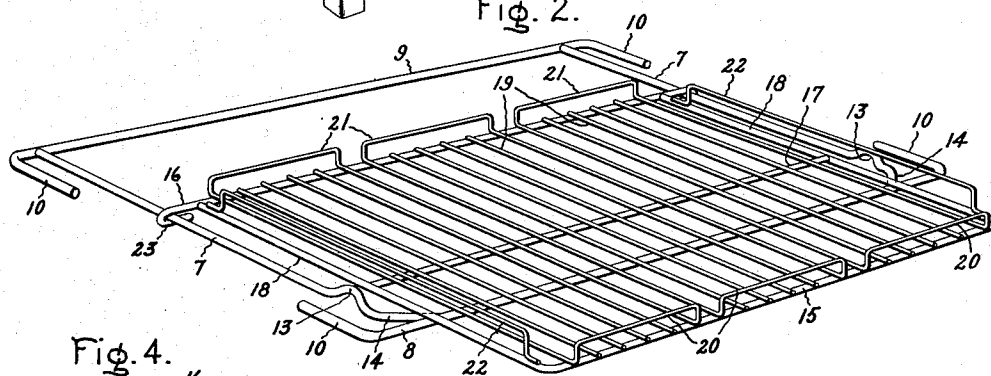
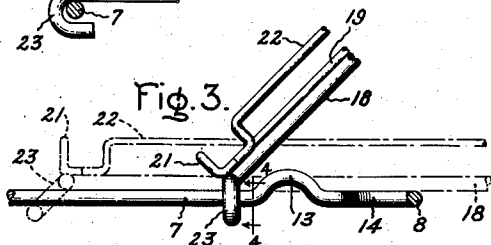


Fig. 4.



Fig. 3.



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## UNITED STATES PATENT OFFICE

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## SLIDING CABINET SHELF

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10 Claims. (Cl. 211-153)

Our invention relates to improvements in cabinet shelves, especially to sliding shelves adapted to be slid out of the cabinet with which it is used, so that articles can be placed thereon or removed therefrom, and then slid back to their position within the cabinet.

An object of our invention is to provide a simple sliding shelf construction which can be easily and cheaply produced.

Another object of our invention is to provide a sliding shelf of this kind which is adjustable to fit the cabinet with which it is used.

A further object of our invention is to provide a sliding shelf which will not tilt and which cannot be accidentally withdrawn entirely from the cabinet, but which can be readily removed therefrom when it is desired.

A still further object of our invention is to provide a sliding shelf having open and accessible sliding joints of such construction that the shelf can be readily cleaned and removed from its support for cleaning if desired.

Further objects and advantages of our invention will become apparent from the following description referring to the accompanying drawing and the features of novelty which characterize our invention will be pointed out with particularity in the claims appended to and forming a part of this specification.

In the drawing, Fig. 1 is a perspective view of part of a refrigerator cabinet containing a shelf embodying our invention, the shelf being partly pulled out; Fig. 2 is a perspective view of the shelf and supporting frame more clearly showing the detail construction and their assembled relation; Fig. 3 is an enlarged detail side elevation of the stop on the frame and the retaining end of the shelf, showing them in position for sliding the shelf off of the frame and the dot and dash view shows them in their normal horizontal position; and Fig. 4 is a view on the line 4-4 of Fig. 3.

Referring to the drawing, we have shown a refrigerator cabinet made of inner and outer steel shells 1 and 2 respectively and having heat insulating material 3 between them. A door opening 4 is provided somewhat narrower than the spacing of the side walls, and a door 5 is hinged at 6 to the cabinet.

In accordance with our invention, the shelf is slidably supported on a frame so that the shelf can be partly withdrawn from the cabinet or placed entirely within the cabinet, in which position the door can be closed. The frame is substantially rectangular in shape, and includes longitudinally extending bars 7 welded or otherwise

connected at the front and back thereof by bars 8 and 9, respectively. The bars 8 and 9 extend slightly beyond the connections with the longitudinal bars 7 and have inturned ends forming integral transverse arms 10, which rest on supports 11. These supports preferably are pressed out of the metal inside walls of the cabinet and have upwardly presented bearing surfaces so as to support the frame and shelf in the cabinet. The back of the cabinet is provided with abutments 12 pressed out of the inner metal wall at such a height that the downwardly presented bearing surfaces thereof fit snugly over the bar 9 so as to secure the supporting frame in place within the cabinet, thereby preventing it from tipping forward when the shelf is slid out of the cabinet. The longitudinal bars 7 are formed with upwardly extending bent portions 13, more clearly shown in Fig. 3, which serve as stops to limit the outward movement of the sliding shelf. Just forward of the bent portions 13, the bars 7 are formed with inturned sections 14 and are attached to the bar 8 adjacent the ends of the inturned portions. When the frame is placed in the cabinet with the bar 9 under the projection 12 and the arms 10 resting on the projections 11, the bar 8 of the frame is in close contact with the inside of the front walls of the cabinet about the door opening so that the frame is securely retained in place and will not tilt forward when the sliding shelf is drawn out of the cabinet.

It has been found in the production of standard size cabinets that the dimensions of the interior of the cabinet vary somewhat due to bulging of the sides or other causes, and consequently it is very desirable that a standard shelf shall be readily adjustable to fit the particular cabinet with which it is used. The position of the abutments 11 and 12 may also vary slightly and in order to have a good fit of the shelf within the cabinet some adjustment to take care of these variations must be provided. We accomplish this by bending the transverse arms 10 of the frame in or out to adjust for the dimensions of the side walls, and up or down to adjust for inaccuracies in the positions of the abutments 11 and 12. The inturned portions 14 may be bent to adjust for inaccuracies in the dimensions from front to rear of the interior of the cabinet. Thus the frame is readily adjusted to accurately fit the interior of the cabinet insuring a firm, stable support on which the shelf can conveniently be slid outwardly to remove, or place articles within the refrigerator cabinet.

The sliding shelf includes a framework com-

prising a bar 15 bent into U-shape and joined at the ends to a transverse bar 16, the shelf being of such size that it can be slid entirely within the cabinet, in which position the door can be closed.

5 A reinforcing bar 17 joins the sides 18 of the U-shaped bar 15 of the shelf, and articles are supported thereon by a grid formed by a plurality of wires 19 welded or otherwise secured to the bars 15, 16 and 17. To prevent articles on the shelf from falling off of the shelf or being knocked against the front walls of the cabinet some of these wires are looped into upwardly extending portions 20 and 21 at the front and back of the shelf, respectively, and upwardly extending sides 15 22 are formed of wires welded or otherwise secured to the sides 18. The front loops 20 also form convenient handles for sliding the shelf out or into the cabinet. In order to slidably and removably support the shelf on the frame the ends of the bar 16 are formed into inwardly turned open loops or hooks 23 which fit on the longitudinal bars 7 of the supporting frame. As shown in Figs. 3 and 4 these ends are formed so that the loops are considerably larger than the bars 7 but are vertically inclined to the axis 20 of the bars so that the sides of the loops are in contact with the bars to provide a snug sliding fit thereon when the shelf is in a horizontal position. When the shelf is withdrawn from the cabinet the loops 23 engage the bent portions 13 of the frame so as to limit the outward movement of the shelf.

The connections of the elements of the unitary shelf and frame constructions are all made with welded joints and the simple arrangement and adjustment of the various parts gives a very practical combination which can be very easily and cheaply produced.

When it is desired to clean the shelf or for any other reason to remove it from the cabinet, it is slid outwardly from the cabinet until the hooked portions 23 are near the upwardly bent stops 13. It is then tilted by raising the front upwards so that the back portion is in the position shown in full lines in Fig. 3. This places the open loops 23 coaxial with bars 7 so that they can be readily slid over the stops 13 and off at the inturned portions 14, the open inward end of the loops or hooks 23 permitting their easy removal in this manner.

50 Thus the open loops 23 of the shelf engaging the simple bar frame gives a construction which is readily separable and all parts of which are easily accessible for cleaning. When it is desired to clean the entire shelf structure or the interior of the cabinet, the supporting frame may be readily removed from the cabinet by lifting the front part enough to slide the bar 9 from under the abutments 12 on the rear wall of the cabinet. The frame is then tilted sidewise in the cabinet and is withdrawn in this position through the doorway 4.

Modifications of our invention, which we have illustrated and described, will occur to those skilled in the art. We desire it to be understood, therefore, that our invention is not to be limited to the particular arrangement disclosed, and we intend in the appended claims to cover all modifications which do not depart from the spirit and scope of our invention.

70 What we claim as new and desire to secure by Letters Patent of the United States, is,—

1. A sliding shelf construction including a supporting frame having longitudinal bars and a transverse bar connecting adjacent ends thereof, a shelf having loops adjacent one end arranged

on said longitudinal bars and slidable along substantially the entire length thereof, said shelf being slidably supported on said transverse supporting frame bar, and upwardly extending bends in said longitudinal bars adapted to engage said loops to serve as a stop for limiting the outward movement of said shelf when it rests on said supporting frame, said loops being arranged to slide over said bends for removal of said shelf when the same is tilted with respect to said frame.

2. A sliding shelf construction including a supporting frame having longitudinal bars and a transverse bar connecting them adjacent the ends thereof, a shelf formed of a framework and an article supporting structure, said shelf framework extending about said longitudinal bars to form a sliding connection therewith, said shelf being slidably supported on said transverse supporting frame bar, an upwardly extending bend in one of said longitudinal bars adapted to engage the portion of said shelf framework extending about the longitudinal bar to limit the outward movement of said shelf when it rests on said supporting frame, the portion of said framework extending about said longitudinal bar being arranged for sliding the portion of said shelf framework extending about the said bar over said bends when said shelf is tilted with respect to said supporting frame.

3. A sliding shelf construction including a supporting frame having longitudinal bars and a transverse bar connecting adjacent ends thereof, said adjacent ends having portions extending inwardly of the main part of said longitudinal bars, and a shelf having means adjacent one end slidably engaging said longitudinal bars, said means having an opening on the side toward said inwardly extending portion of said longitudinal bars to provide for removal of said shelf from said frame.

4. A sliding shelf construction including a supporting frame having longitudinal bars and a transverse bar connecting adjacent ends thereof, said adjacent ends having portions extending laterally of the main part of said longitudinal bars, and a shelf having open loops adjacent one end engaging said longitudinal bars, the open part of said loops being on the side toward said laterally extending portions, said loops being formed larger than said longitudinal bars, and being inclined to the plane of the shelf so that the sides thereof are in contact with said longitudinal bars to provide a snug sliding fit thereon when the shelf is in a horizontal position, and providing a loose fit by tilting the shelf so that said open loops can be readily removed at said laterally extending portions.

5. A sliding shelf construction including a shelf having open loops adjacent one end, and a frame having longitudinal bars with which said loops are slidably engaged for guiding and supporting said shelf on said frame, a transverse bar connecting adjacent ends of said longitudinal bars and slidably supporting said shelf, said longitudinal bars having bends therein forming stops to limit the outward movement of said shelf on said frame and having portions adjacent said stops extending laterally in the direction of the open side of said loops and cooperating therewith to provide for the removal of said shelf from said frame.

6. A sliding shelf construction including a frame having longitudinal bars and a transverse bar connecting them at adjacent ends, said longitudinal bars having upwardly extending portions

adjacent their connection to said transverse bar, and laterally extending portions between said upwardly extending portions and said connection, and a shelf including an article supporting structure having upwardly extending front, back, and sides to prevent articles thereon from sliding off the same or coming into contact with an adjacent wall, and a framework including a transverse bar adjacent one end having open hooked ends slidably engaging said longitudinal bars, the open part of said hooked ends being formed on the sides toward the laterally extending portions of said longitudinal bars to cooperate therewith to provide for the removal of said shelf from said frame.

7. A sliding shelf construction including a supporting frame having longitudinal bars and transverse bars extending between the adjacent ends of said longitudinal bars and rigidly secured thereto, the outer ends of said transverse bars extending laterally beyond said longitudinal bars and lying substantially parallel thereto, said outer ends of said transverse bars constituting a supporting means for said supporting frame, said longitudinal bars having bends therein adjacent the forward ends thereof, and a shelf slidably carried by said longitudinal bars and slidable fore and aft thereon, and means cooperating with said bends for limiting the sliding movement of said shelf on said longitudinal bars.

8. A sliding shelf construction including a shelf having open loops adjacent the rear end thereof, and a supporting frame having longitudinal bars with which said loops are slidably engaged for guiding and supporting said shelf on said frame, transverse bars extending between adjacent ends of said longitudinal bars and rigidly secured thereto, the ends of said transverse bars extending beyond the adjacent portions of said longitudinal bars and forming laterally displaced supports for said supporting frame, said longitudinal bars having portions extending inwardly in the direction of the open side of said loops for cooperat-

ing therewith to provide for the removal of said shelf from said frame.

9. A sliding shelf construction including a shelf having open loops adjacent the rear end thereof, and a supporting frame having longitudinal bars with which said loops are slidably engaged for guiding and supporting said shelf on said frame, transverse bars extending between adjacent ends of said longitudinal bars and rigidly secured thereto, the ends of said transverse bars extending beyond the adjacent portions of said longitudinal bars and forming laterally displaced supports for said supporting frame, said longitudinal bars having upwardly extending bends therein adjacent their ends forming stops to limit the outward movement of said shelf on said frame and having portions adjacent said stops extending inwardly in the direction of the open side of said loops and cooperating therewith to provide for the removal of said shelf from said frame.

10. A sliding shelf construction including a shelf having open loops adjacent the rear end thereof, and a supporting frame having longitudinal bars with which said loops are slidably engaged for guiding and supporting said shelf on said frame, transverse bars extending between adjacent ends of said longitudinal bars and rigidly secured thereto, the ends of said transverse bars extending beyond the adjacent portions of said longitudinal bars and lying substantially parallel thereto, said ends of said transverse bars forming laterally displaced supports for said supporting frame, said longitudinal bars having upwardly extending bends therein adjacent the forward ends thereof forming stops to limit the outward movement of said shelf on said frame and having portions adjacent said stops extending inwardly in the direction of the open side of said loops and cooperating therewith to provide for the removal of said shelf from said frame.

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