Aug. 31, 1954 J. R. GOMERSALL 2,687,924

EXTENSION HANGER FOR CABINET DRAWERS

Filed June 18, 1952 2 Sheets-Sheet 1

Fig. 1.

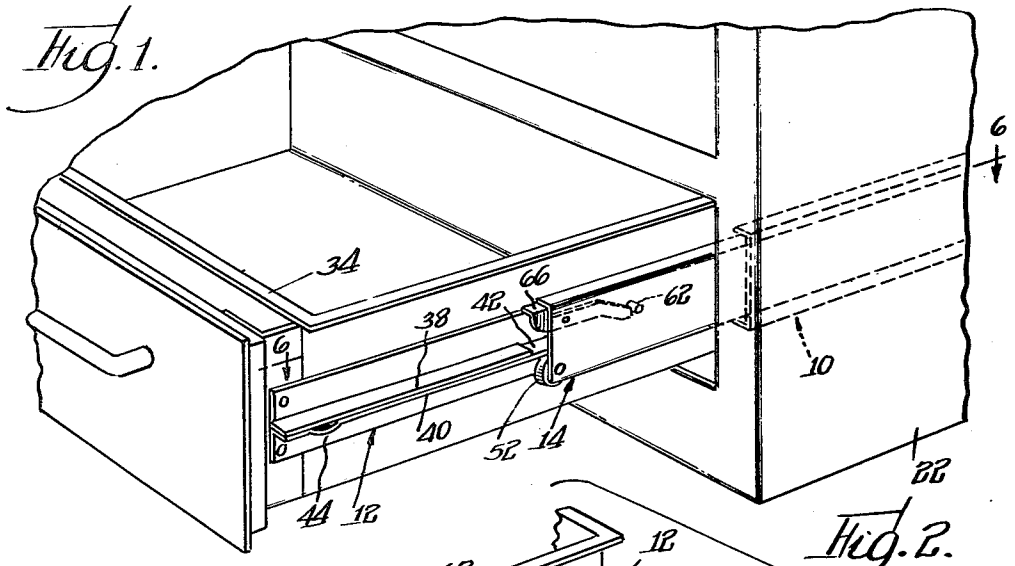


Fig. 2.

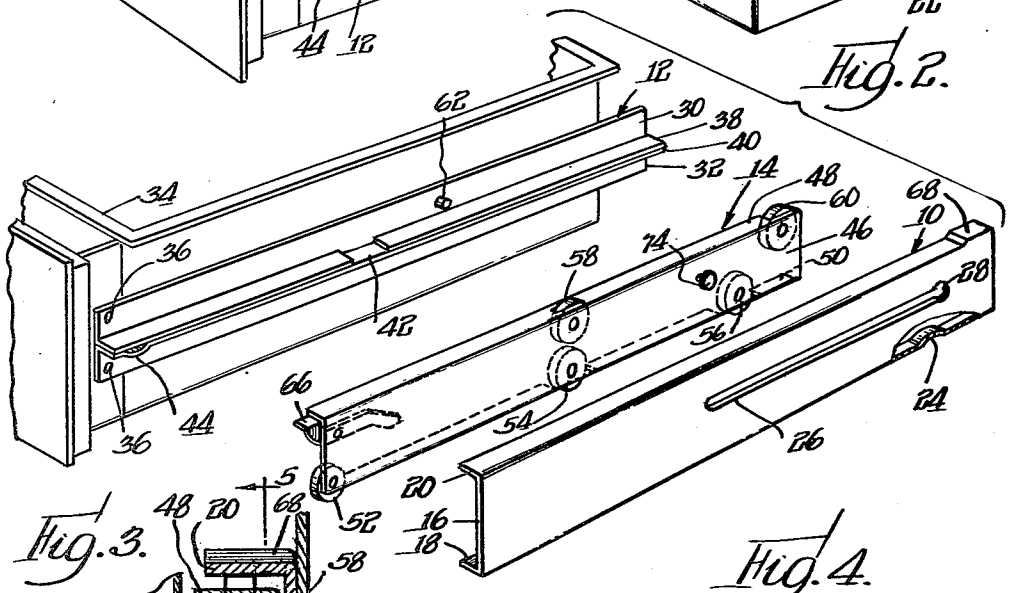


Fig. 3.

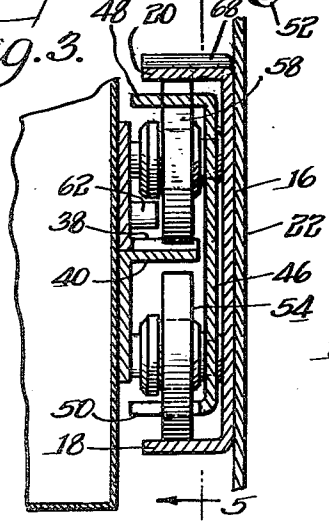
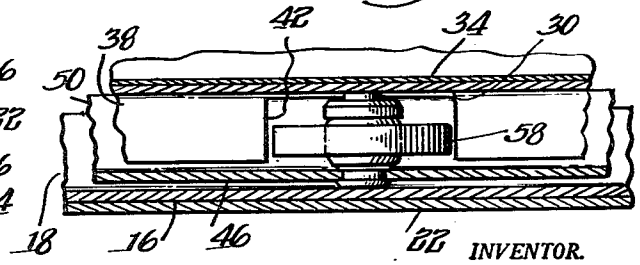


Fig. 4.



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EXTENSION HANGER FOR CABINET DRAWERS

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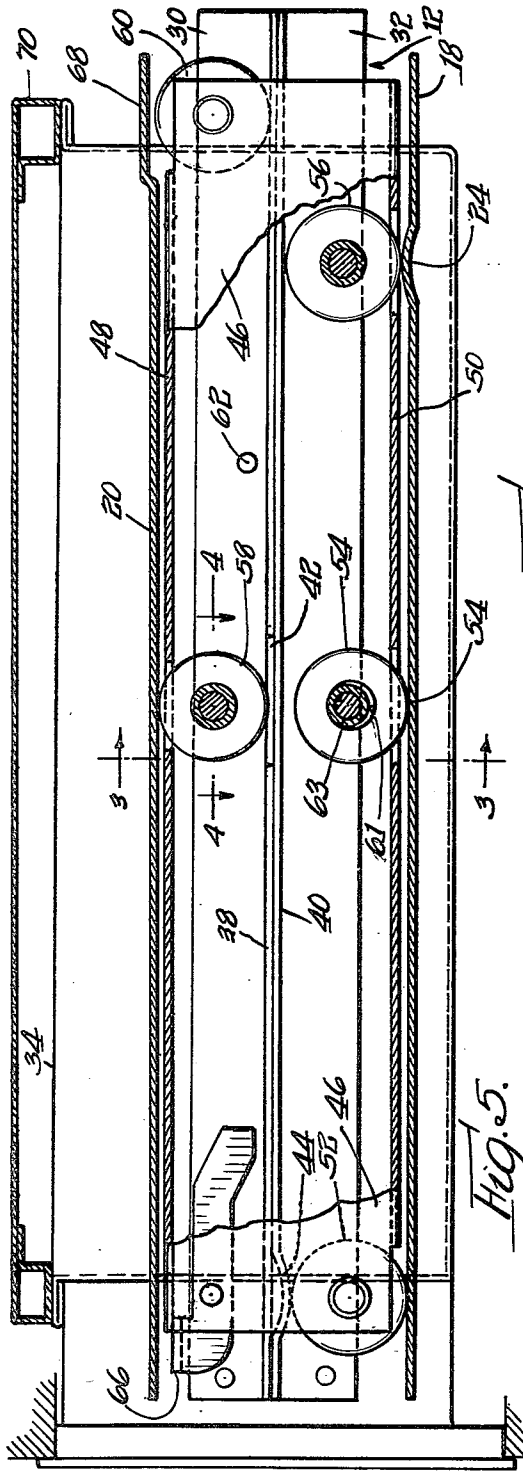


Fig. 5.

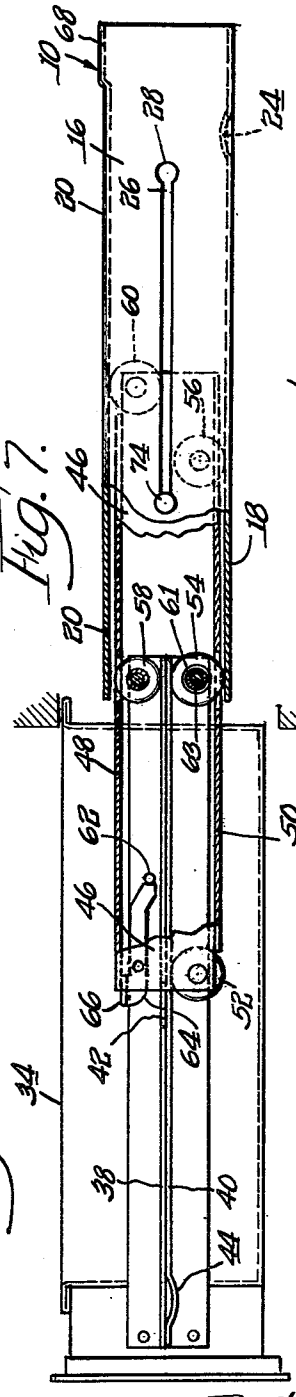


Fig. 7.

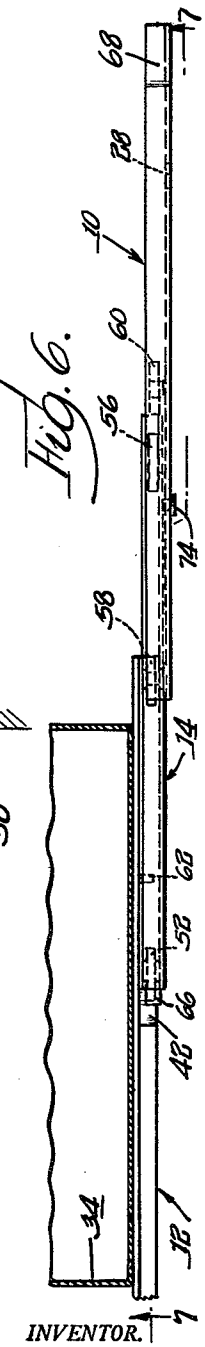


Fig. 6.

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EXTENSION HANGER FOR CABINET DRAWERS

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23 Claims. (Cl. 308—3.8)

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This invention relates to suspensions for drawers, and more particularly to the extensible type roller suspension wherein the drawer is supported when in a fully opened position.

This invention is particularly useful for but not limited to food preserving cabinets having a food retaining drawer movable into and out of the cabinet and having a cover or closure for the drawer disposed within the cabinet. The cover or closure in such a structure is disposed for sealing engagement with the drawer to prevent air from circulating therethrough.

An object of this invention is to provide an extensible drawer suspension whereby the drawer may be moved from a position in sealing engagement with a drawer cover out of and back into the cabinet without frictionally engaging the drawer cover during such movement.

Another object of the present invention is to provide a simple extensible drawer suspension having means thereon for upwardly moving the drawer into engagement with a cover or closure therefor when the drawer reaches its closed position, and for lowering the drawer out of engagement with the cover, whereby the drawer may be readily withdrawn from the cabinet.

A more specific object of the present invention is to construct an extensible drawer suspension in a manner to allow relative up and down or vertical movement between the parts thereof whereby the drawer may be raised into sealing engagement with a cover or closure therefor.

Other objects and advantages of the present invention will be apparent from the following description and the drawings, wherein:

Fig. 1 is a perspective view showing a drawer in its fully opened position which is being supported by my novel suspension;

Fig. 2 is an exploded perspective view showing the elements of my novel drawer suspension;

Fig. 3 is a vertical cross section taken along line 3—3 in Fig. 5;

Fig. 4 is a partial cross section taken along line 4—4 in Fig. 5;

Fig. 5 is a partial vertical cross section taken along line 5—5 in Fig. 3;

Fig. 6 is a cross section taken along line 6—6 in Fig. 1; and

Fig. 7 is a cross section taken along line 7—7 in Fig. 6.

Referring more specifically to the drawings, wherein like parts are designated by the same numeral throughout the figures, the novel suspension comprises a stationary cabinet track member 10, a movable drawer track member 12,

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and an intermediate member 14 which is movable relative to both the stationary track 10 and the drawer track 12 (see Fig. 2).

The stationary cabinet track member 10 comprises a U-shaped channel having an upstanding web portion 16, a flange 18 extending inwardly from its lower edge and providing an upwardly facing track surface, and a flange 20 extending inwardly from its upper edge and providing a downwardly facing track surface. The stationary track member 10 is adapted to be secured to the side of the cabinet 22 by rivets or any other suitable means, not shown. Adjacent its rear end, the flange 18 of the track 10 is provided with an upstanding raised portion or bump 24 which is for the purpose more fully described hereinbelow (see Figs. 2, 5, and 7). An elongated slot 26 having an enlarged opening 28 at its rear end is provided in the upstanding portion 16 of the stationary track 10.

The movable drawer track member 12 is preferably formed of a pair of angle irons 30 and 32 which are adapted to be secured to the side of the drawer 34 by rivets 36 or any other suitable means. The angle irons are disposed with their flanges 38 and 40 in back to back relationship to form both upwardly and downwardly facing track surfaces. The mid portion of the flange 38 of the angle iron 30 is cut away as at 42 to interrupt the upwardly facing track surface to provide a clearance for the purpose more fully described below. Adjacent its front end, the flange 40 is provided with a depending bump 44 similar to the bump 24 on the flange 18 of the stationary track.

The intermediate member 14 comprises a U-shaped channel member having upstanding web portion 46 and upper and lower inwardly extending flanges 48 and 50 (see Figs. 2 and 3). A plurality of rollers 52, 54, and 56 are mounted adjacent the lower edge of the upstanding portion 46. As shown in Figs. 2 and 5, roller 52 is disposed adjacent the front end of the intermediate member 14; roller 54 is disposed substantially midway between the ends of the member 14; and roller 56 is spaced from the rear end of the member 14. A pair of upper rollers 58 and 60 are also mounted on the upstanding web portion 46 adjacent its upper edge. The roller 58 is preferably disposed directly above roller 54, and the roller 60 is located adjacent the rear end of the intermediate member 14. As shown in Figs. 2, 5, and 7, the flanges 48 and 50 are cut away to allow the rollers to extend therethrough for engagement with upwardly and downwardly facing track surfaces of the track member 10.

When in assembled relationship as shown best in Figs. 1, 3, 5, and 6, the intermediate member 14 is disposed within the stationary cabinet track member 10 with the lower rollers 52, 54, and 56 positioned to ride on the upwardly facing track surface of flange 18. The upper roller 58 is positioned for engagement with the downwardly facing track surface of flange 20 of the stationary track 10 to prevent the intermediate member from tilting downwardly when the parts are in the extended position shown in Figs. 1, 6 and 7.

The intermediate member is retained in this assembled relationship by a headed or shouldered rivet 74 which extends through the slot 26 in the stationary track and retains the intermediate member against both lateral and longitudinal displacement from the track 10. The drawer track is disposed between the upper and lower rollers as shown in Figs. 3, 5, and 7. Preferably, the roller 54 is loosely mounted in the intermediate member for vertical relative movement thereto. Roller 54 may be conveniently mounted in this manner by providing it with a bore 61 having a larger diameter than stub shaft 63 by which the roller is supported. By this structure, the weight of the system presses the roller 54 against the flange 18 of the stationary cabinet track member 10 and the upper roller 58 which rides on the upwardly facing track surface of the flange 38, presses the downwardly facing track surface of the drawer track 12 against the top of the roller 54 so that when the drawer 34 is pulled out of the cabinet 22, the drawer track 12 frictionally engages the roller 54 and drives it along the stationary track 10, thereby causing the intermediate member to be positively driven at about half the speed the drawer is being moved.

The drawer is limited in its forward movement relative to the intermediate member 14 by means of a stop pin 62 which extends from the drawer track member 12 and engages the gravity biased lever or catch 64 which is mounted adjacent the front end of the intermediate member 14. As shown in Fig. 7, the pin 62 and the lever 64 are located so that when the drawer is in its fully extended position, the outer end 66 of the lever is at about the mid portion of the drawer 34 so that the drawer may be held at about its center of gravity and the end of the lever 64 depressed by the thumb of the operator to release the catch and allow the drawer to be easily withdrawn or removed from the suspension mechanism.

Upon moving the drawer towards its closed position, the roller 54 acts to positively drive the intermediate member inwardly as was described above in the same manner as it acted to drive the intermediate member outwardly. When the drawer reaches its innermost closed position, the roller 56 rides up on the raised portion or bump 24 and the bump 44 on the drawer track 12 rides up on the roller 52. The roller 56 is raised above its normal operating level by the bump 24, and it in turn raises the drawer track member 12 and the drawer secured thereto. The roller 56 through its connection with the intermediate member also raises the rear end of intermediate member 14 above its normal operating level and relative to the stationary cabinet track member 10. In order to allow this vertical relative movement to take place, clearances must be provided above rollers 58 and 60. The flange 20 of the stationary cabinet track member 10 is provided with an interruption or a raised or offset portion 68 to interrupt the downwardly facing track surface to provide clearance for the roller 60. The roller 58 is lifted about half as much as rollers 56 and 60. It is of smaller diameter than the roller 60 to provide a clearance above it and under the downwardly facing track surface of the flange 20 equal to the differences in the diameter of the rollers 58 and 60. The engagement of the bump 44 on flange 40 of the drawer track 12 with the roller 52 raises the front end of the drawer track and the drawer 34 so that the drawer is supported in a substantially level position. In this raised position, the drawer is in sealing engagement with a cover or closure 70 which is supported in the cabinet 22 by any suitable means not shown. The upward movement of the drawer track member 12 relative to the intermediate member 14 which is caused by the engagement of the bump 44 with the roller 52 makes it necessary to provide a clearance between the upper roller 58 and the upwardly facing track surface of the flange 38 of the drawer track to allow this vertical movement. In the preferred embodiment described herein, the above described cutout or recessed portion 42 in the flange 38 of the drawer track 12 interrupts the upwardly facing track surface for this purpose. As shown in Fig. 5, the cutout portion is located so that when the drawer track is raised or moved vertically relative to the intermediate member and the roller 58 carried thereby the roller 58 will extend into the cutout portion 42.

From the above described structure, it is readily seen that when the drawer is moved outwardly from its closed position shown in Fig. 5, the roller 56 will ride off of the bump 24 and the bump 44 will ride off of the roller 52, thus lowering the drawer out of frictional engagement with the cover 70 and allowing it to be easily moved both outwardly and inwardly.

While the preferred embodiment of this invention has been shown and described herein, it is obvious that many modifications may be made in the disclosed structure without departing from the spirit and scope of the appended claims.

I claim:

1. A suspension for drawers and the like adapted to be moved into and out of a cabinet, comprising a stationary cabinet member, a movable drawer member, an intermediate member disposed between and movable longitudinally of said drawer member and said cabinet member, means interconnecting said cabinet member, said intermediate member, and said drawer member for movably supporting said intermediate and drawer members, said means including an upwardly facing track surface carried by one of said members and a roller carried by another of said members and engageable with said track surface, and means for raising said member carrying said track surface relative to the member carrying the roller for raising the drawer, said track surface being interrupted to accommodate said roller during such upward relative movement.

2. A suspension for drawers, as defined in claim 1, wherein the means for raising said member carrying the track surface comprises depending means extending from said last mentioned member, and a second roller carried by the member carrying said first mentioned roller and engageable with said depending means.

3. A suspension for drawers and the like adapted to be moved into and out of a cabinet, comprising a stationary cabinet track, a movable drawer track, an intermediate member dis-

posed between and movable relative to said tracks, said intermediate member being adapted to ride on said stationary track and to support said drawer track, said intermediate member having a roller disposed thereon for engagement with an upwardly facing surface of said drawer track, and means for raising said drawer track relative to said intermediate member, said upwardly facing surface having an interruption therein to accommodate said roller during such upward relative movement.

4. A suspension, as defined in claim 3, wherein said means for raising the drawer track comprises an inclined member depending from said drawer track and engageable with a second roller carried by said intermediate member.

5. A suspension, as defined in claim 3, wherein said means for raising the drawer track comprises a member depending from an outer end portion of said drawer track, and a second roller carried by said intermediate member, said depending member being engageable with said second roller when the drawer track has reached substantially the end of its inward travel into the cabinet.

6. A suspension for drawers and the like adapted to be moved into and out of a cabinet, comprising a stationary cabinet track having an upwardly facing surface, a movable drawer track having a downwardly facing surface, an intermediate member disposed between and movable relative to said tracks, at least two rollers mounted on said intermediate member and disposed between and for engagement with said track surfaces, another roller mounted on said intermediate member and disposed for engagement with an upwardly facing surface of said drawer track, means for raising one of said first mentioned rollers which in turn raises one end of said drawer track, and means for raising the other end of said drawer track relative to said intermediate member, said upwardly facing surface of said drawer track having an interruption to accommodate the roller engageable therewith to allow such upward relative movement.

7. A suspension, as defined in claim 6, wherein said means for raising the roller comprises an upwardly inclined member on said upwardly facing surface of said cabinet track, said roller being adapted to ride up on said inclined member.

8. A suspension for drawers and the like adapted to be moved into and out of a cabinet, comprising a stationary cabinet member, a movable drawer member, and an intermediate member movable relative to said drawer member and said cabinet member, means interconnecting said drawer member, said intermediate member, and said cabinet member, for movably supporting said drawer member and said intermediate member, said means including a downwardly facing track surface carried by one of said members and a roller engageable with said track surface and carried by another of said member, and means for raising the member carrying the roller relative to the member carrying the track surface for raising the drawer, said track surface being interrupted to accommodate said roller during such upward relative movement.

9. A suspension, as defined in claim 8, wherein said means for raising the member carrying the roller includes an upwardly inclined means mounted on the member carrying said downwardly facing track surface, and a second roller carried by the member carrying said first mentioned roller and engageable with said inclined means.

10. A suspension for drawers and the like adapted to be moved into and out of a cabinet, comprising a stationary cabinet track having vertically spaced upwardly and downwardly facing track surfaces, a movable drawer track disposed adjacent said cabinet track, an intermediate member disposed between said tracks and adapted to ride on said upwardly facing track surface and to support said drawer track, said intermediate member including a roller disposed for engagement with said downwardly facing track surface, and means for raising said intermediate member relative to said stationary track to a raised position, said downwardly facing surface having an interrupted portion for receiving said roller when the intermediate member is in said raised position.

11. A suspension, as defined in claim 10, wherein said means for raising said intermediate member includes an inclined member extending from the upwardly facing track surface and a second roller carried by said intermediate member and engageable with said inclined member.

12. A suspension, as defined in claim 10, wherein said means for raising said intermediate member includes an upward deflection in said upwardly facing track surface, and a second roller carried by said intermediate member, said upward deflection being located at an inner end portion of said upwardly facing track surface and being engageable with said second roller when said intermediate member has reached substantially the end of its inward travel into the cabinet.

13. A suspension for drawers and the like adapted to be moved into and out of a cabinet, comprising a stationary cabinet member, a movable drawer member, an intermediate member movable longitudinally of said drawer member and said cabinet member, means interconnecting said drawer member, said intermediate member, and said cabinet member for movably supporting said drawer and intermediate members, said means including an upwardly facing track surface, a downwardly facing track surface spaced above said first mentioned surface, said surfaces being carried by certain of said members, a roller carried by another of said members and being disposed between and for engagement with one of said surfaces, and means for raising some of said members relative to each other and above their normal operating level for raising the drawer, said roller having a diameter less than the distance between said surfaces to provide clearance to allow such upward relative movement.

14. A suspension for drawers and the like adapted to be moved into and out of a cabinet, comprising a stationary cabinet track having a downwardly facing track surface, a movable drawer track having an upwardly facing track surface spaced below said downwardly facing track surface, an intermediate member movable relative to said tracks, a roller carried by said intermediate member and disposed between said track surfaces and for normal engagement with said upwardly facing track surface, means for raising said intermediate member above its normal operating level and relative to said cabinet track for raising the drawer, said roller having a diameter less than the distance between said surfaces to provide clearance to allow said upward relative movement.

15. A suspension, as defined in claim 14, wherein said means for raising said intermediate member comprises an upwardly facing track surface on said stationary cabinet track, an upward deflection in said last mentioned track surface adjacent an inner end portion thereof, and a second roller carried by said intermediate member, said upward deflection being engageable with said second roller when said intermediate member reaches substantially the end of its inward travel into the cabinet.

16. A suspension for drawers and the like adapted to be moved into and out of a cabinet, comprising a movable drawer member, a stationary cabinet member, an elongated intermediate member movable longitudinally relative to said drawer and cabinet members, means interconnecting said drawer member, said intermediate member, and said cabinet member for movably supporting said drawer and intermediate members, said means including track surfaces carried by certain of said members and rollers engageable with said surfaces and carried by other of said members, and means on said track surfaces engageable with said rollers for raising some of said members relative to the cabinet member and above their normal operating level to move the drawer carried by said suspension to a raised position.

17. A suspension for drawers and the like adapted to be moved into and out of a cabinet, comprising a stationary cabinet track having upwardly and downwardly facing track surfaces, a movable drawer track also having upwardly and downwardly facing track surfaces, an intermediate member disposed between said tracks and movable relative thereto, at least two rollers mounted on said intermediate member and disposed for engagement with the upwardly facing surface of the cabinet track and the downwardly facing surface of the drawer track, at least a third roller mounted on said intermediate member and disposed for engagement with the upwardly facing surface of said drawer track, at least a fourth roller mounted on said intermediate member and disposed for engagement with the downwardly facing surface of said cabinet track, means for raising one of said first mentioned rollers relative to said cabinet track which roller in turn raises one end of the drawer track, and means for raising the other end of the drawer track relative to said intermediate member, said upwardly facing surface of said drawer track having an interrupted portion adapted to receive said third mentioned roller when the drawer track is raised relative to the intermediate member, said downwardly facing surface of said cabinet track having an interrupted portion adapted to receive said fourth mentioned roller to allow the relative vertical movement between said intermediate member and said stationary track.

18. A suspension, as defined in claim 17, wherein the means for raising said one roller comprises an upstanding member on the upwardly facing surface of said cabinet track which upstanding member is engageable with said one roller.

19. A suspension, as defined in claim 17, wherein said means for raising the other end of the drawer track includes a member depending from the downwardly facing surface of said drawer track which depending member is engageable with another of said first mentioned rollers.

20. A suspension for drawers and the like adapted to be moved into and out of the cabinet, comprising a stationary cabinet track, a movable drawer track, and an intermediate member disposed between said tracks and adapted to ride on said stationary track and to support said drawer track, said intermediate member including a roller mounted thereon and disposed to ride on an upwardly facing surface of said drawer track, means for raising said drawer track relative to said intermediate member, said drawer track including a pair of superimposed angle irons disposed with their outwardly extending flanges in back-to-back relationship, the upper angle iron having an opening in its outwardly extending flange to provide a recess for said roller to allow said upward relative movement.

21. In a suspension for drawers and the like movable into and out of a cabinet, in combination, a cabinet member, a drawer member, and an intermediate member, said members including first connecting means for supporting said intermediate member on said cabinet member and second connecting means for supporting said drawer member on said intermediate member, each connecting means including a track on one member and means on the other movable relative to the track toward one end thereof as said drawer moves in, and away from said one end as said drawer moves out, and means for lifting said drawer at the end of its inward travel comprising deflections in each of said tracks at said one end of each of said tracks.

22. The combination of claim 21, wherein said cabinet member includes an upward-facing track having an upward deflection at its inner end, said drawer member includes a down-facing track having a downward deflection at its outer end, and said intermediate member comprises rollers engaging said tracks and said deflections.

23. A suspension for drawers and the like adapted to be moved into and out of a cabinet, comprising a movable drawer member, a stationary cabinet member, an intermediate member movable longitudinally relative to said drawer and track members, means interconnecting said drawer member, said intermediate member, and said cabinet member for movably supporting said drawer and intermediate members, said means including track surfaces on certain of said members, and support elements engageable with said track surfaces and carried by other of said members, and means on said track surfaces engageable with said support elements for raising some of said members relative to the cabinet member and above their normal operating level to move the drawer carried by said suspension to a raised position.

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