March 15, 1955 A. E. NAVE 2,704,237

DRAWER INSTALLATION FOR REFRIGERATOR

Filed Nov. 27, 1951 3 Sheets-Sheet 1

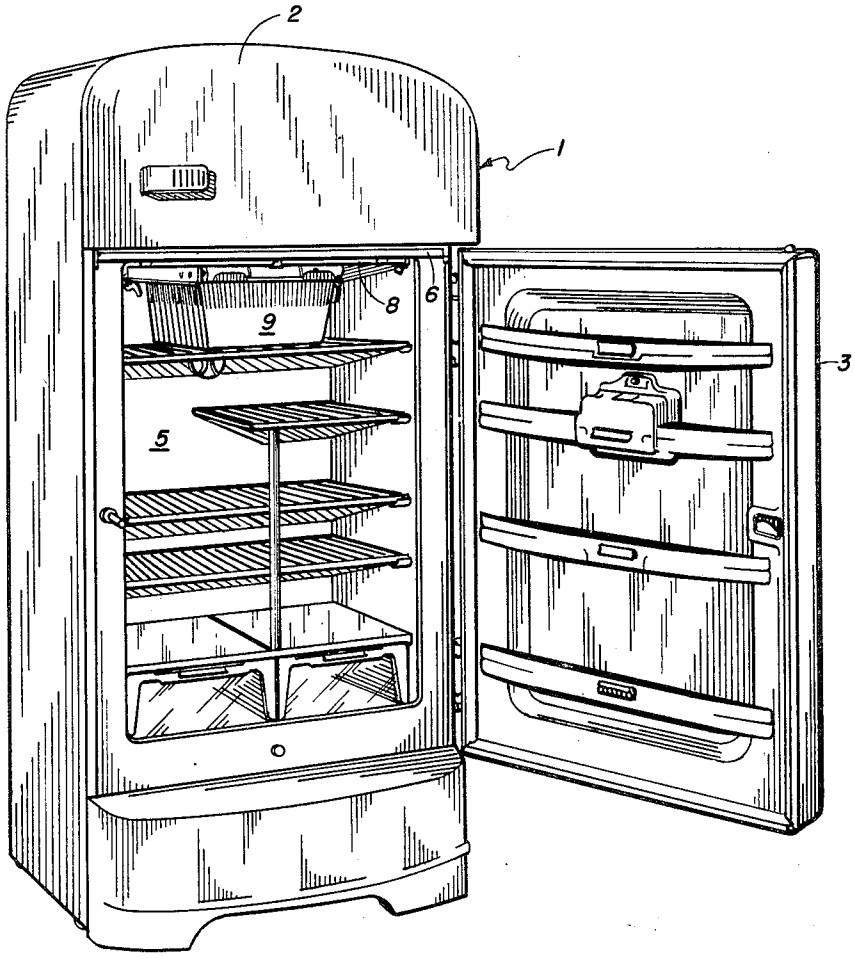


Fig 1

INVENTOR.
ALFRED E. NAVE.
BY Alden D. Redfield
ATTORNEY.

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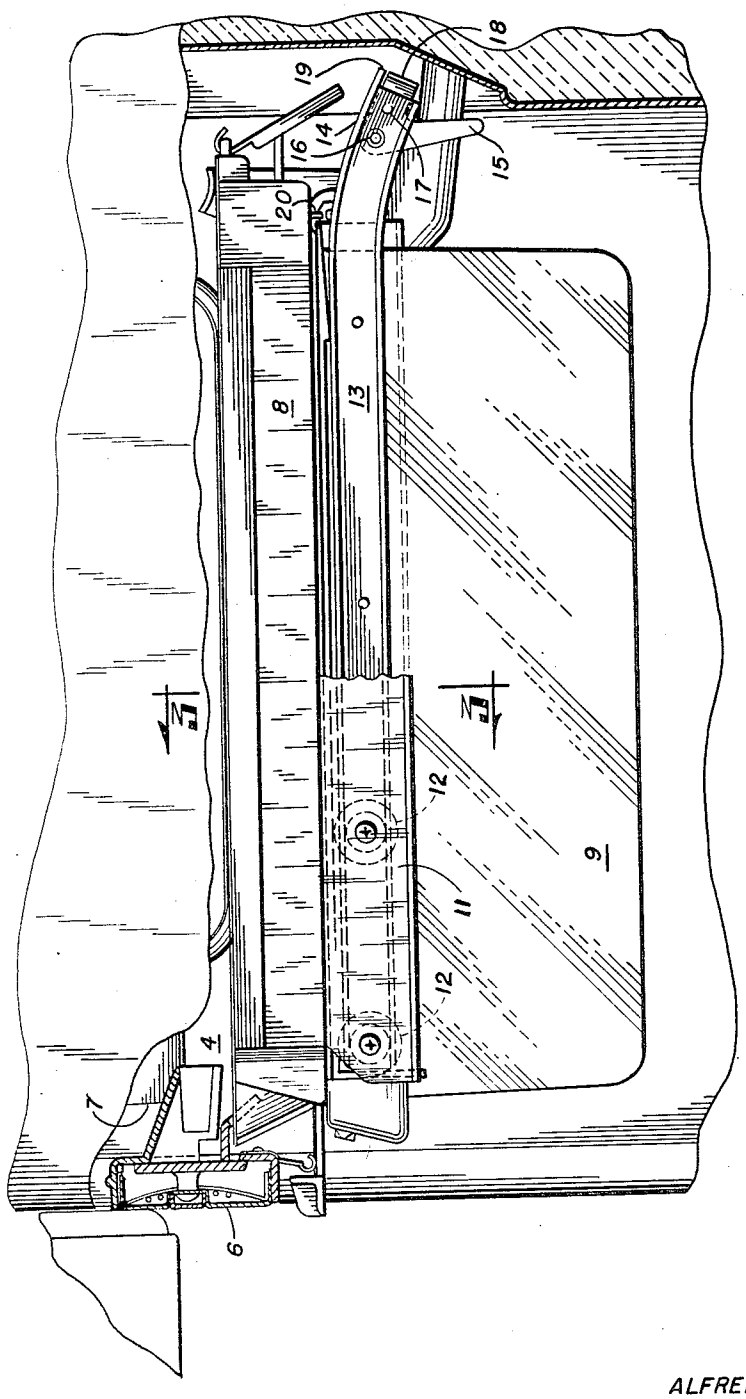


Fig. 2

INVENTOR.
ALFRED E. NAVE.
BY Alden D. Redfield
ATTORNEY.

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Filed Nov. 27, 1951 3 Sheets-Sheet 3

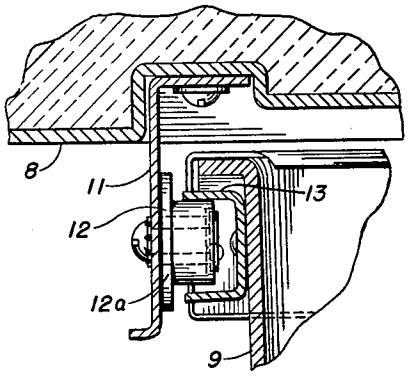


Fig 3

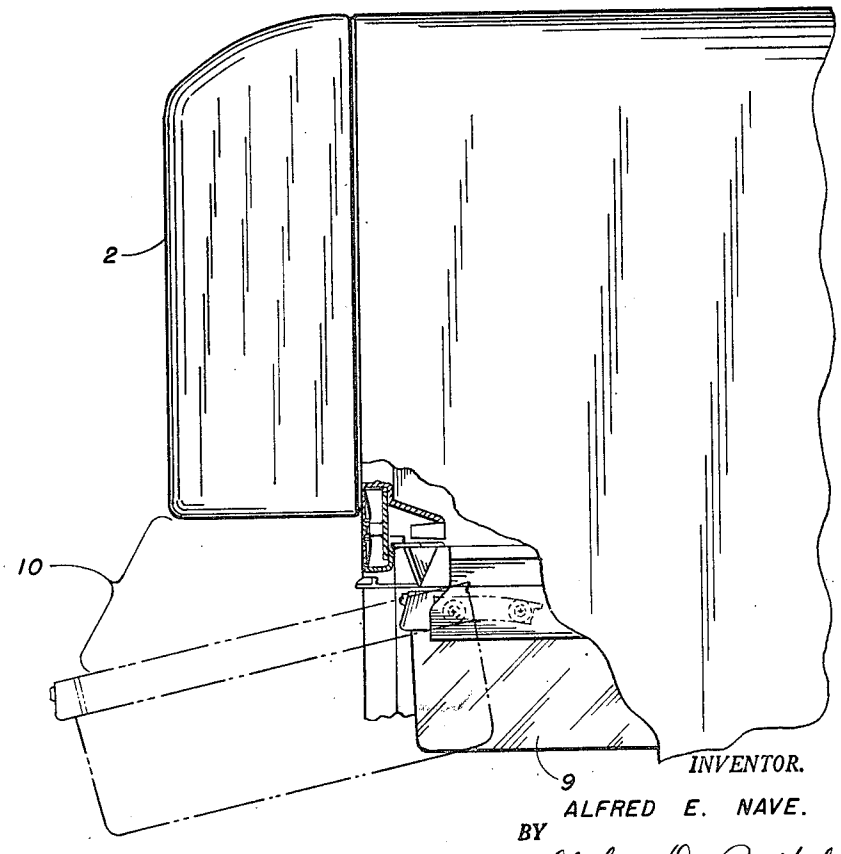


Fig 4

INVENTOR.
ALFRED E. NAVE.
BY
Alden D. Redfield
ATTORNEY.

United States Patent Office 2,704,237 Patented Mar. 15, 1955

2,704,237

DRAWER INSTALLATION FOR REFRIGERATOR

Alfred E. Nave, Cincinnati, Ohio, assignor to Avco Manufacturing Corporation, Cincinnati, Ohio, a corporation of Delaware

Application November 27, 1951, Serial No. 258,470

2 Claims. (Cl. 312—323)

The present invention relates to an improved drawer installation for a refrigerator, particularly a two door refrigerator. More specifically, the present invention concerns a means for mounting a drawer below a horizontal baffle within a two door refrigerator, the means being so arranged that the drawer can be withdrawn and simultaneously tilted to render its interior readily accessible to the user.

Two door refrigerators are becoming increasingly popular and it is now commonplace to build refrigerators with an upper access door permitting entry to a freezer compartment and a lower access door permitting entry to the main food storage compartment of the refrigerator. Cabinets of this type may be provided with a transverse mullion or barrier strip extending between the side walls of the cabinet and defining an area against which the adjacent edges of the doors may bear in sealing relationship when closed. In order to control convection currents and heat transfer within the refrigerator, it is desirable to provide a horizontal thermally insulated baffle directly behind the mullion.

The baffle may serve several functions in addition to controlling thermal conditions within the refrigerator. It is well-known to use the baffle to collect drip water from an evaporator located in the freezing compartment directly above the baffle. The baffle may also be used for slidably supporting a drawer, such as a meat drawer, within the food storage compartment.

In single door refrigerators, the drawer mounting on the baffle can be relatively simple, since the drawer may be withdrawn by a straight line motion through the main access opening of the refrigerator. In two door refrigerators the mounting of the drawer presents complications, since the drawer must be withdrawn far enough to clear the lower edge of the upper access door which normally remains closed during the time that the drawer is being used. This can be accomplished by providing extensible supports for the drawer which permit it to be withdrawn from the interior of the refrigerator by an abnormally great amount. This is a rather expensive solution, however, and is undesirable from the viewpoint of strength and rigidity.

By means of the present invention, the interior of the drawer is rendered accessible through a tilting motion imparted to the drawer by its supporting means as it is withdrawn from the interior of the refrigerator. By virtue of this tilting motion, the drawer assumes, when extended, an inclined position in which it is relatively far removed from the lower edge of the upper door and in which position the user can easily insert and remove food products from the drawer.

In view of the foregoing, it is an important object of the present invention to provide a mounting means by which a food storage drawer may be slidably supported beneath a refrigerator baffle in such a fashion that the drawer, when withdrawn, automatically moves into an inclined position.

More specifically, it is an object of the present invention to provide an improved drawer mounting for slidably supporting a drawer within a two door refrigerator so that it may be withdrawn and automatically tilted to an accessible position despite the fact that the upper door of the refrigerator remains closed.

An ancillary object of the present invention is the provision of guide rails on a drawer which are so designed as to permit a sizeable extension of the drawer from

the interior of the refrigerator while simultaneously guiding the drawer into an inclined position.

Another object of the invention is to provide a releasable stop to prevent the drawer from becoming disengaged from its supporting baffle.

The novel features that are considered characteristic of the invention are set forth in the appended claims; the invention itself, however, both as to its organization and use, together with additional objects and advantages thereof, will best be understood from the following description of a specific embodiment when read in conjunction with the accompanying drawings, in which:

Figure 1 is a perspective view of a two door refrigerator with the lower access door in its open position, the figure showing the food storage drawer fully disposed within the food storage compartment;

Figure 2 is an enlarged side elevational view of the refrigerator, the side wall being broken away to show the drawer and its mounting means secured to a horizontal baffle behind the mullion of the refrigerator;

Figure 3 is a vertical cross sectional view taken on plane 3—3 of Figure 2 showing structural details of the mounting means and its association with the baffle and drawer; and

Figure 4 is a side elevational view of the upper portion of the refrigerator showing in full lines the drawer fully disposed within the refrigerator and showing in phantom lines the drawer in its fully extended, inclined position.

Figure 1 illustrates a refrigerator, generally designated 1, with which the present invention finds particular utility. This refrigerator may incorporate upper and lower access doors 2 and 3, respectively, permitting entry to a freezer compartment 4 (see Figure 2) and a food storage compartment 5. It is desirable in a refrigerator of this type to provide a transverse mullion or barrier strip 6 extending between the side walls of the refrigerator and providing a sealing area for cooperation with the adjacent edges of doors 2 and 3.

Refrigerators of this type are freqeuntly cooled by a single evaporator, such as evaporator 7, which is provided within the freezer compartment 4. In order to control the convection currents and the heat transfer within the refrigerator, it has been found effective to provide a thermally insulated transverse baffle 8 between the freezing compartment and food storage compartment 5. In order to use the volume of the refrigerator effectively, this baffle should preferably be located behind mullion 6 as indicated in Figures 1 and 2. The specific details of the baffle and the means for adjustably supporting it behind the mullion constitute no part of the present invention having been fully described and claimed in pending application Serial Number 258,665 disclosing a Baffle Mounting Means for Refrigerator invented by Robert Alexander Jansen and filed in the Patent Office on November 28, 1951.

For the purposes of the present invention, it is sufficient to understand that the baffle is mounted behind the mullion at the top of the food storage compartment 5.

For the convenience of the user, it is considered desirable to provide a food storage drawer 9 within compartment 5. It is further desirable to position the drawer at the upper end of the compartment and, in the past, such drawers have usually been slidably supported by the baffle.

As illustrated in Figure 4, two door refrigerators of the type with which the present invention is particularly concerned present a problem for such drawer installations. When a drawer of this type is withdrawn from the refrigerator for the insertion or removal of food, it is normal to leave the upper door of the refrigerator closed. This door may have a substantial depth and as a result the drawer may have to be withdrawn from the refrigerator a substantial distance in order to clear the door sufficiently to be accessible.

Figure 4 illustrates the effect produced by the present invention and the improvement in accessibility that it accomplishes. With reference to this figure, drawer 9 is shown in full lines in its closed position within the food storage compartment. The drawer is also shown in phantom lines fully withdrawn from the refrigerator and

downwardly inclined to provide a sizeable clearance space **10** rendering the drawer accessible. By virtue of the present invention, the drawer moves into its inclined position automatically as it is withdrawn; when it is reinserted in the refrigerator it automatically assumes its horizontal position closely beneath the lower surface of the horizontal baffle.

The structural details of the drawer mounting can be understood from a study of Figures 2 and 3. With reference to these figures, it will be noted that a pair of parallel roller brackets **11** are secured in depending relationship to the lower face of baffle **8**. A pair of flanged rollers **12** are rotatably secured to the forward end of each bracket adjacent the doors of the refrigerator. As indicated in Figure 3, the rollers extend inwardly from the brackets and engage a pair of channel-shaped guide rails **13** which are riveted or otherwise fixedly secured to the side walls of drawer **9**. The outwardly facing rails **13** simultaneously engage all four of the rollers **12**, the flanges **12***a* of the rollers acting as thrust faces to centralize the drawer between the brackets at all times.

With special reference to Figure 2, it will be noted that each rail **13** is straight throughout most of its length but is arcuately and downwardly curved at its rear end **14**. The shape of both rails is identical so that as the drawer is withdrawn the arcuate portions of the rails are brought into the guiding relationship with the rollers with the result that the drawer is gradually guided into an extended, downwardly inclined position. As described with reference to Figure 4, this inclination increases clearance space **10** and greatly facilitates use of the drawer.

Special releasable stop members **15** are swingably secured to the rear end of each rail **13**. Each stop is shaped approximately like a bell-crank and is pivotally secured to its associated rail, as at **16**, a detent **17** being provided to resiliently hold the stop member **15** in locked engagement with the guide rail. When in this position, a lateral projection **18** on each stop extends across the channel opening of the rail to engage the rearmost roller **12** when the drawer is fully withdrawn. The upper portion of the guide rails may be extended, as at **19**, to provide stops limiting movement of the stop members into their roller engaging positions.

Should it be desirable to remove the drawer completely from the refrigerator, it is merely necessary to swing the stop members about their pivot points until projections **18** are no longer in a position to engage the guide rollers.

It has been found convenient to make the flanged rollers **12** from nylon or comparable plastic materials which are quiet in operation and have a very low frictional resistence. Obviously, other materials could be used without affecting the nature of the present invention.

A feature of the present invention is the extension of the guide rails **13** rearwardly beyond the rear of the drawer **9**. This rearward extension, combined with the arcuate formation of the guide rails assures full withdrawal and accessibility of the drawer when it is withdrawn from the refrigerator.

When the drawer is fully inserted into the refrigerator, it is moved into bearing engagement with an integral stop **20** formed beneath baffle **8**. While engaged with stop **20**, drawer **9** is held closely adjacent the bottom side of the baffle thereby preventing circulation of air into and out of the drawer. This prevents dehumidification of the food stored within the drawer. In this regard, it is to be noted that the mounting means of the present invention does not in any way interfere with this sealing relationship of the drawer with the baffle.

In view of the foregoing description of a preferred embodiment of the present invention, it will be readily appreciated by those skilled in the art that an improved mounting means is provided for a drawer which makes possible increased accessibility without danger of the drawer becoming disengaged from its support while, at the same time, assuring that the drawer, when inserted within the refrigerator, is maintained in sealing relationship beneath its supporting baffle.

Having described a preferred embodiment of the invention I claim:

1. In combination, a two door refrigerator including upper and lower access doors, a horizontal baffle within the refrigerator at the level of the adjacent edges of the doors, parallel brackets secured to and depending from the baffle, said brackets extending in a generally fore and aft direction in the refrigerator, a food storage drawer positioned between said brackets, a pair of guide rollers secured to the forward end of each of said brackets, each of said rollers including a thrust flange, said rollers extending toward said storage drawer, a pair of similarly formed guide rails of channel-shaped cross section secured one to each side of said drawer in guiding relationship with said rollers and thrust flanges, each guide rail including a straight section joined integrally with a downwardly curved section at its rear end, and a swingable bracket pivotally secured to the rear end of each guide rail, each swingable bracket including a lateral projection which can be swung into position opposite the end of its associated guide rail, said lateral projections engaging the rearmost guide rollers for limiting forward movement of said drawer whereby said drawer when extended from said refrigerator is downwardly inclined to facilitate accessibility.

2. Apparatus as defined in claim 1 in which each of said swingable brackets has a bell-crank formation with said lateral projection formed integrally at one end of one arm of said bell-crank.

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