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A. R. COSTANTINI ET AL
REFRIGERATOR CONSTRUCTION

3,122,005

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2 Sheets-Sheet 1

Fig. 1.

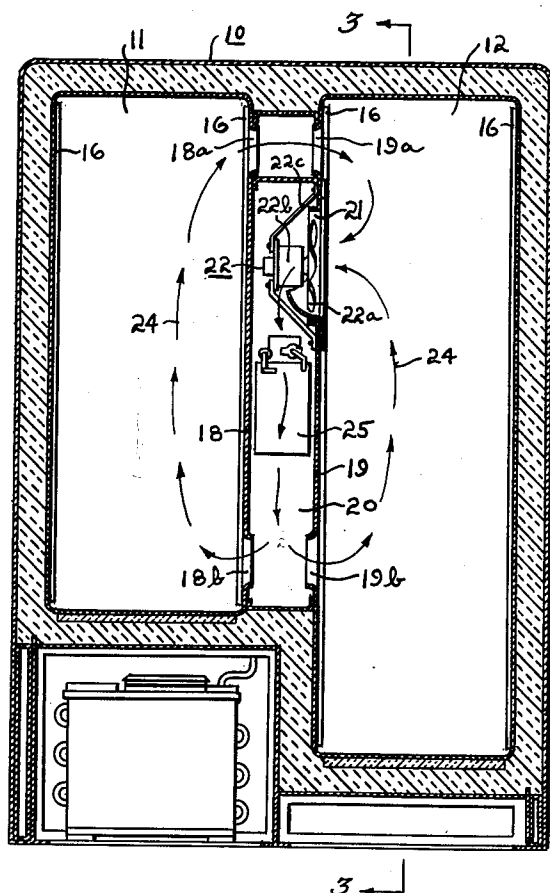
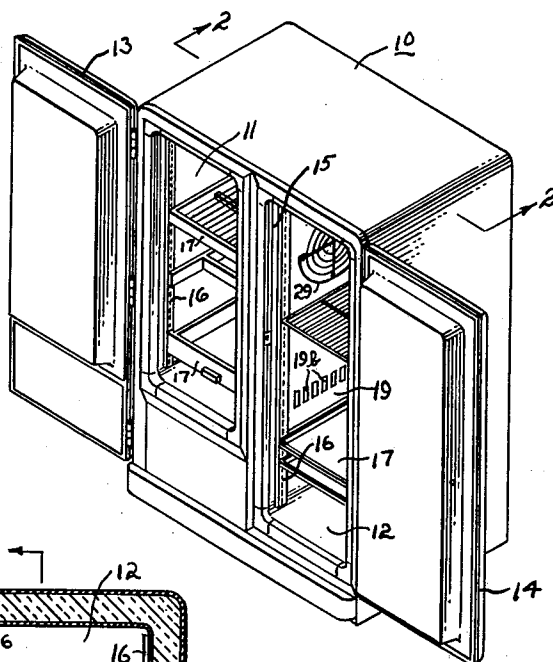


Fig. 2.

INVENTORS
ANTHONY R. COSTANTINI
BY ANTHONY DI ANGELUS

Leon Edelstein
ATTORNEY.

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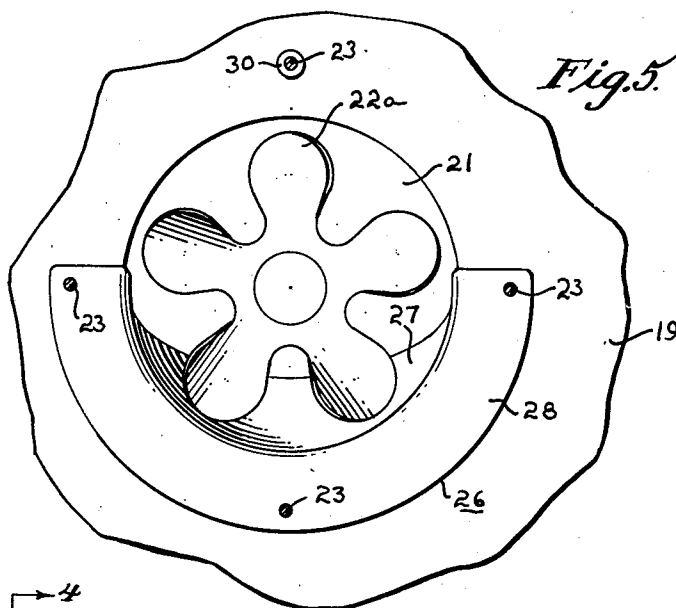
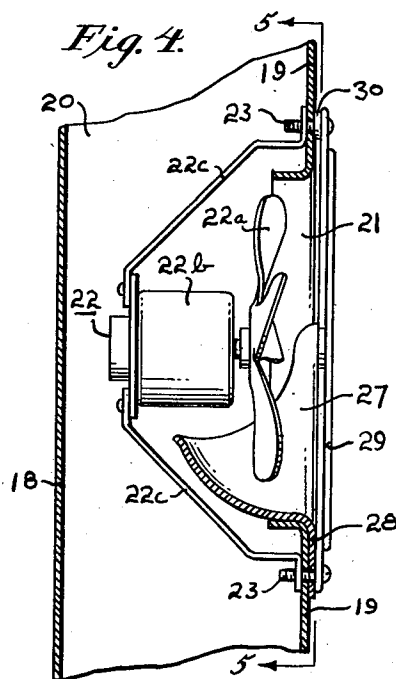
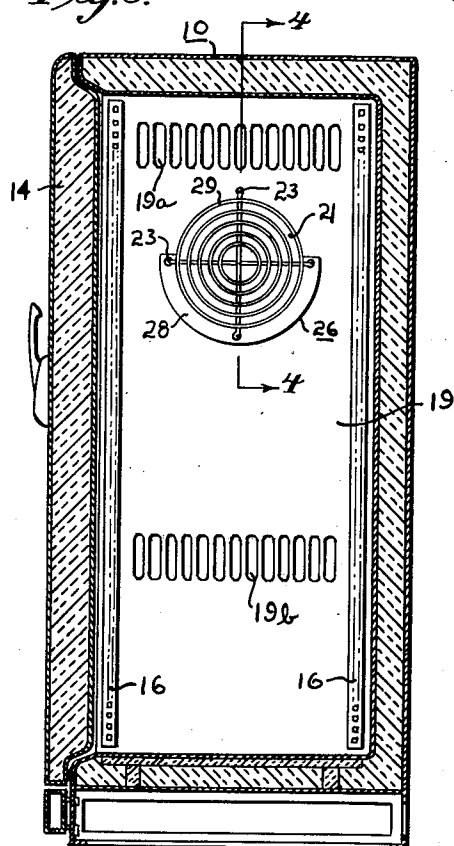


Fig. 5.



INVENTOR.

ANTHONY R. COSTANTINI
BY ANTHONY DI ANGELUS

Anthony Di Angelus
ATTORNEY.

1

3,122,005

REFRIGERATOR CONSTRUCTION

Anthony R. Costantini, Philadelphia, and Anthony Di Angelus, Manoa, Pa., assignors to Victory Metal Manufacturing Company, doing business as Victory Metal Manufacturing Corporation, Plymouth Meeting, Pa., a corporation of Pennsylvania

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5 Claims. (Cl. 62-419)

This invention relates generally to refrigerator constructions, and more particularly, relates to a refrigerator construction in which a fan or blower is utilized to circulate air throughout the interior of the refrigerator compartments and in which an opening is provided through one of the walls of the refrigerator as an air intake or exhaust for the circulating fan.

In refrigerators of this general type, the air flow opening into the refrigerator interior is normally located so as to be proximate the refrigerator shelves. In such case, while solids or packages stored on the shelves are prevented from being inadvertently tumbled into the opening by an open grillework which covers the opening, it has been found that bottled articles such as milk or the like may sometimes be accidentally overturned so that the liquid contents may pour or splash into the opening through the open grillework. This, of course, creates an unsanitary condition within the refrigerator behind the particular wall in which the air opening is located because the spilled food falls downward behind the wall to the floor region of the refrigerator, is generally inaccessible, and eventually begins to decompose due to bacterial action, attended by the generation of offensive odors. In order to clean out any food which may have been so spilled, it is usually necessary to remove the interior wall liner of the refrigerator cabinet, necessitating turning off of the refrigerator and removal of all food and racks from the interior of the compartment. This is an extremely time consuming and annoying operation which the user is loath to undertake. Accordingly, it is the primary object of this invention to provide novel means for preventing food or other refrigerated substances from being accidentally passed through the air opening, whether such substances be of a solid or of a liquid nature.

Another object of this invention is to provide a novel guard or shield device associated with the air flow opening which acts as a catcher for any substances inadvertently spilled and prevents the discharge of such substances downward behind the wall of the refrigerator.

Yet another object of this invention is to provide a novel shielding device for the air flow opening of a refrigerator which traps any material passing inwardly through the air flow opening in the refrigerator interior wall and which redirects the flow of the material back into the storage compartment of the refrigerator, from which region it may be readily cleaned up.

The foregoing and other objects of the invention will become clear from a reading of the following specification in conjunction with an examination of the appended drawings, wherein:

FIGURE 1 is a front perspective view of a typical two door refrigerator shown with the doors open to disclose the refrigerated compartments thereof;

FIGURE 2 is an enlarged vertical sectional view through the refrigerator illustrated in FIGURE 1 and as would be seen when viewed along the line 2-2 thereof;

FIGURE 3 is a vertical sectional view through the right-hand compartment of the refrigerator as shown in FIGURE 2 looking toward the central partition of the refrigerator which separates the two compartments from

2

one another and as would be seen when viewed along the line 3-3 of FIGURE 2;

FIGURE 4 is an enlarged fragmentary view taken vertically through the refrigerator center partition as would be seen when viewed along the line 4-4 of FIGURE 3;

FIGURE 5 is an elevational view of the air circulator fan blade and novel shielding device according to the invention as would be seen when viewed along the line 5-5 of FIGURE 4.

In the several figures, like elements are denoted by like reference characters.

Referring now to the figures, and firstly to FIGURES 1 and 2, there will be seen a refrigerator generally designated as 10 having a left-hand compartment 11 and a right-hand compartment 12 each of which is closable by means of an associated door designated respectively as 13 and 14, the compartments 11 and 12 being separated by means of the partition 15. Secured to the side walls of the compartments at the front and rear thereof are vertically extending pilasters 16 to which are detachably secured a variety of racks, trays and shelves designated generally as 17. The central partition 15 between the compartments 11 and 12 is formed by left-hand and right-hand partition walls 18 and 19 respectively, these partition walls extending from top to bottom and front to rear within the refrigerator and being spaced laterally apart to form a central vertical duct 20 therebetween.

The partition walls 18 and 19 are respectively provided at their upper ends with a plurality of vent apertures designated as 18a and 19a respectively to allow air from the top of compartment 11 to flow horizontally through the vents into the top of compartment 12 through the partition 15. The partition walls 18 and 19 are also respectively provided proximate the bottom of the duct 20 with a set of blower vent apertures 18b and 19b so that air flowing downward through the duct 20 may emerge from the latter into the lower regions of the compartments 11 and 12. Additionally the partition wall 19 is also formed with an inwardly flanged circular aperture 21 behind which is mounted a circulator fan designated generally as 22, the fan being fitted with a blade 22a rotatably drivable by an electric motor 22b. The fan 22 is mounted to the partition wall 19 and within the duct 20 by means of the fan brackets 22c and bolts or screws 23 so that the fan blade 22a is centrally disposed within the inwardly flanged circular opening 21 also formed in the partition wall 19. When the fan 22 is placed in operation, the air flow through the compartments 11 and 12 follows the paths indicated by the arrows 24, the air being cooled during downward flow through the duct 20 by means of the evaporator 25 disposed within the duct below the fan 22.

Turnig now to the showings of FIGURES 3, 4, and 5, there will be seen the splash guard device according to the invention generally designated as 26 which comprises a cup shaped portion 27 disposed within the lower region of the flanged circular opening 21 and extending into the duct 20 from the partition wall 19 beneath the fan 22. The forward edge of the cup shaped portion 27 of the guard 26 extends through the circular opening 21 and turns radially outward to form a flange 28 disposed flatwise against the surface of the partition wall 19 which faces into and forms a sidewall of the compartment 12. A conventional type of circular grille 29 covers the circular fan opening 21, and the guard 26 and grille 29 are commonly secured to the partition wall 19 by the bolts or screws 23 previously described as securing the fan bracket 22c to the same partition wall 19. In order to maintain the grille 29 in a planar condition, the spacer 30 is disposed between the partition wall 19 and the grille 29 at the upper securing bolt or screw 23. It will be

3

observed that the contour of the cup shaped guard 26 is such that liquids tending to spill through the grille 29 are intercepted by the cup 27 and diverted back into the interior of compartment 12 instead of being permitted to fall downward into the duct 20. Because of the smooth cup contour and the normal air flow path established by the rotating fan blade 22a, the guard 26 while being effective as an intercepting device introduces very little resistance into the path of the circulating air. Moreover, while the guard 26 is shown as a separate element secured to the partition wall 19 by means of the screws or bolts 23, it is not necessary that the guard take the form of a separate element, but may if desired be formed integrally with the partition wall 19.

Having now described our invention with respect to a particularly illustrated embodiment thereof, it will be understood that variations and modifications of the same may now occur from time to time to those persons normally skilled in the art without departing from the essential scope or spirit of our invention, and accordingly it is intended to claim the same broadly as well as specifically as indicated by the appended claims.

What is claimed as new and useful is:

1. In combination with a refrigerator having a storage compartment and a compartment wall, said wall having an aperture therein and means for circulating air through said storage compartment along an air flow path having a portion which lies external to the compartment and which external portion communicates with the compartment through said aperture, a splash guard disposed substantially completely within the air flow path portion external to the compartment and positioned adjacent to the said compartment wall aperture whereby substances passing through the latter from the compartment are intercepted by the splash guard and prevented from falling downward behind the apertured wall.

2. In combination with a refrigerator having a storage compartment and a compartment wall, said wall having an aperture therein and means for circulating air through said storage compartment along an air flow path having a portion which lies external to the compartment and which external portion communicates with the compartment through said aperture, a splash guard having a cup shaped portion extending from the apertured compartment wall inwardly and upwardly within the air flow path

4

portion external to the compartment with the bottom and sides of the cup shaped portion extending respectively from the bottom and sides of the perimetral region of the compartment wall aperture, whereby any substances passing through the aperture from the compartment are intercepted by the splash guard and prevented from falling downward behind the apertured wall.

3. In combination with a refrigerator having a storage compartment and a compartment wall, said wall having an aperture therein and means for circulating air through said storage compartment thereof along an air flow path having a portion which lies external to the compartment and which external portion communicates with the compartment through said aperture, a splash guard having a cup shaped portion extending from the apertured compartment wall inwardly and upwardly within the air flow path portion external to the compartment with the bottom and sides of the cup shaped portion respectively forming and defining the bottom and side edges of the compartment wall aperture as viewed from the compartment interior, whereby any substances passing through the aperture from the compartment are intercepted by the splash guard and discharged back into the compartment.

4. The combination as defined in claim 3 wherein said splash guard is an element physically separable from the refrigerator and includes support means extending from said cup shaped portion for securement to the apertured wall of said compartment.

5. The combination as defined in claim 3 wherein said splash guard includes a radially outwardly turned flange portion merged into smooth continuation with the bottom and sides of the cup shaped portion disposed adjacent to the apertured compartment wall, said flange portion being disposable flatwise against the apertured compartment wall and securable thereto by fastening means.

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