W. L. HUMMEL.

REFRIGERATOR.

APPLICATION FILED FEB. 26, 1921.

1,404,961. Patented Jan. 31, 1922.

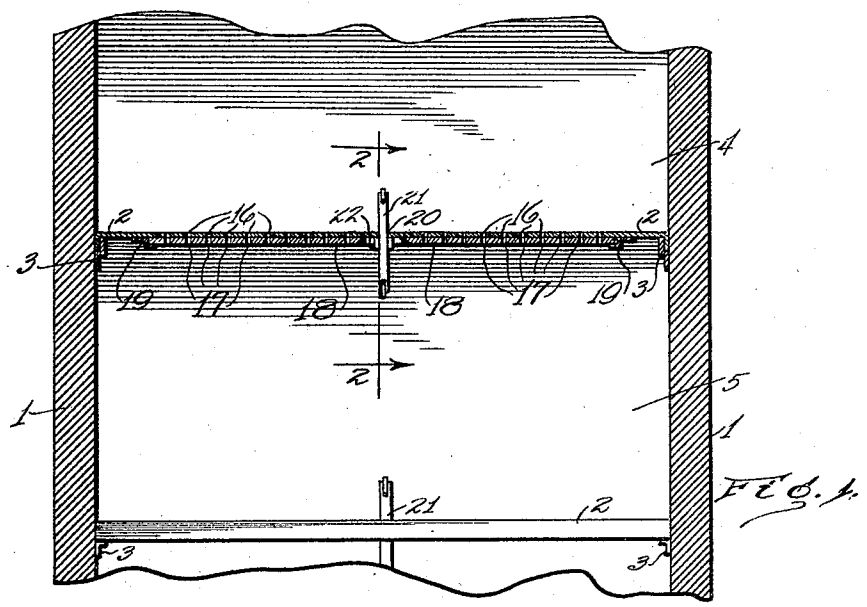


FIG. 1.

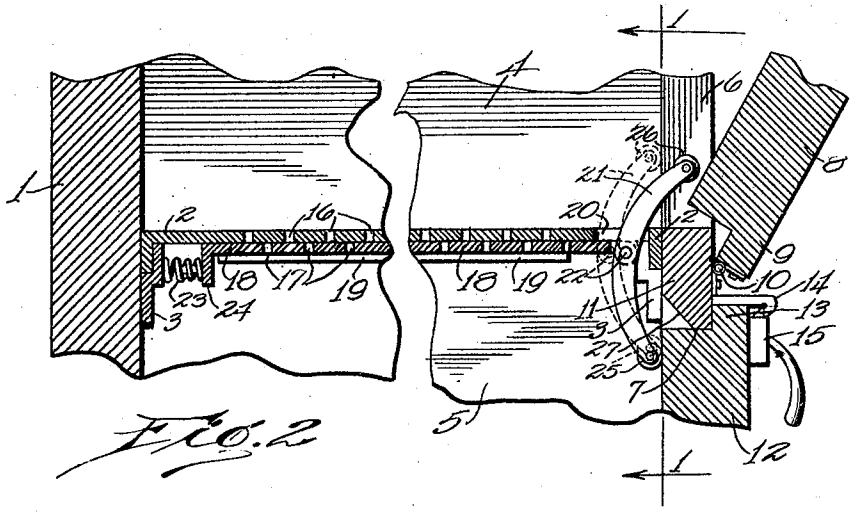


FIG. 2

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REFRIGERATOR.

1,404,961. Specification of Letters Patent. Patented Jan. 31, 1922.

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To all whom it may concern:

Be it known that I, WILLIAM L. HUMMEL, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Refrigerators, of which the following is a full, clear, and exact description.

My invention relates to improvements in refrigerators, and it consists in the combinations, constructions and arrangements herein described and claimed.

An object of my invention is to provide a refrigerator having a plurality of compartments and provided with means operable to permit air to circulate freely from compartment to compartment when the compartments are closed and to prevent the passage of air from any compartment therein to the adjacent compartments when the door of that particular compartment is opened.

A further object of my invention is to provide a device of the type described having means operated by the operation of a closure of a selected compartment to close the air passages leading from the compartment to the adjacent compartments.

A further object of my invention is to provide a device of the type described that is relatively simple in construction and operation, not likely to get out of order easily, and thoroughly practical commercially.

Other objects and advantages will appear in the following specification, and the novel features of the invention will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings forming part of this application, in which—

Figure 1 is a vertical section, through a fragmentary portion of the casing of a refrigerator embodying my invention along the line 1—1 of Figure 2, a portion thereof being broken away and shown in section, and

Figure 2 is an enlarged sectional view along the line 2—2 of Figure 1.

In carrying out my invention, I make use of a refrigerator casing 1 that may be of any approved construction and is provided with a plurality of horizontal shelves or partitions 2 supported in any suitable manner, as by means of brackets 3 to provide a plurality of compartments, such as denoted at 4 and 5. The casing 1 is fashioned to provide an opening 6 to afford access to the compartment 4 and is formed with a similar opening 7 for the compartment 5. A closure 8 is formed with a flange 9 hinged at 10 to a common frame member 11 that may be an integral part of the casing 1. It is to be noted that the inner wall of the closure 8 is flush with the inner wall of the frame member 11 when the closure 8 is in closed position. A similar closure 12 for the opening 7 is hinged to a frame member (not shown) that is identical to the frame memmer 11 so that the flange 13 at the upper end thereof abuts against the frame member 11 and the inner wall of the closure 12 is also flush. When in closed position with the inner wall of the frame member 11, the closures may be each releasably maintained in closed position by cooperating catch members denoted by 14 and 15, carried by the frame members and the closure and which may be of any suitable construction.

The upper of the shelves or partitions 2 shown, is preferably arranged substantially flush with the upper wall of the frame member 11. Each of the shelves or partitions 2 is fashioned with a plurality of vertically extending spaced apart openings 16 adapted to normally register with a like number of correspondingly positioned openings 17 through a slide or shutter 18 that is maintained in slidable contact with the under surface thereof by means of parallel guiding and retaining members 19—19. The latter are secured to the shelves or partitions 2 by any suitable means, none being shown.

Each partition is fashioned with a guide slot 20 intermediate its side edges in which works a double acting curved lever 21 that is intermediately pivoted at 22 to the shutter or slide 18.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. A compression spring 23 disposed between a flange 24, that is integral with the shutter or slide 18 along its rear edge, and the adjacent bracket 3, tends to force the slide or shutter 18 toward the front wall of the casing 1 so that the openings 17 no longer register with the openings 16 and consequently the passage of a fluid, such as air, from one compartment to the adjacent compartment is prevented. Movement of the shutter 18 in response to the pressure of the spring 23 is prevented when the closures 8 and 12 are

in closed position, on account of the stress to which the double acting lever 21 is subjected at the opposite ends thereof. When the closures 8 and 12 are in closed position, air or like fluid can circulate freely through the compartments as the openings 16 and 17 are then in registry. The curved lever 21 is substantially semi-elliptical in form and carries rollers 25 and 26 which, as hereinbefore stated, are normally maintained in constant contact with the inner surface of the closures 8 and 12 by the action of the spring 23. The frame member 11 is cut away at 27 along its lower inner edge to receive the adjacent portion of the lever 21 when the closure 12 is moved into open position.

While I have illustrated an embodiment of my invention in which the compartments of the refrigerator are formed by the provision of horizontal partitions and the closures are hinged at their lower edges to the casing, it is obvious that I may construct the device with vertical partitions therein and with closures hinged to the casing along side edges thereof without departing from the spirit and scope of the invention, as set forth in the foregoing disclosure and outlined more particularly in the appended claims.

The utility of the device is at once apparent, since it makes for economy. As each compartment is opened, the communicating passages leading from that compartment to the adjacent compartments are closed and consequently the temperature within the adjacent compartments can be uniformly maintained. When all the compartments are closed, the air from the compartments containing ice or other means for lowering the temperature within the refrigerator is permitted to circulate freely through all the compartments.

I claim:

1. In a refrigerator having a perforated partition arranged therein to divide the casing into compartments, each of said compartments having an opening in its front wall and a closure for said opening, a shutter arranged to slidably contact with said partition and for movement thereacross, said shutter being formed with a plurality of openings therethrough adapted to register with the openings through said partition when said shutter is in a certain position relative thereto, a spring arranged to engage said shutter to tend to move the latter toward the front wall of the casing, and a double acting lever intermediately fulcrumed on the shutter and having its ends bearing against the closures when the latter are in closed positions, whereby movement of the shutter on account of the action of the spring is prevented when the closures are closed and permitted when the closures are opened.

2. A refrigerator comprising a perforated partition removably disposed therein, a door disposed above and below said partition, a perforated shutter slidably disposed below said partition, yieldable means for moving said shutter towards said doors, a lever fulcrumed to said shutter, rollers disposed at each end of said lever and being adapted to engage said doors when said doors are closed, the openings in said partition and said shutter being disposed in alinement when said doors are closed and being disposed out of alinement when either one of said doors is opened.

WILLIAM L. HUMMEL.