Aug. 11, 1959 R. W. FRASER 2,899,511

ELECTRICAL SWITCH

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FIG. 1.

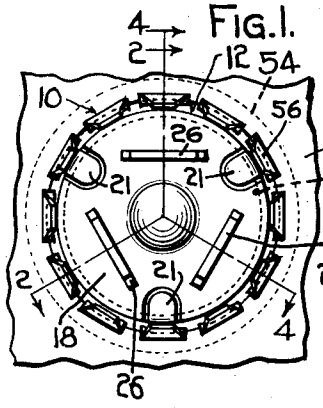


FIG. 3.

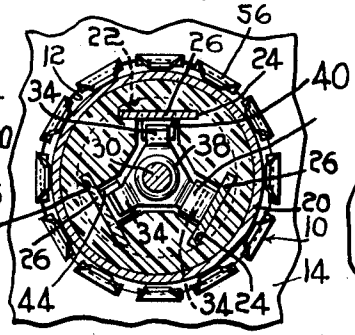


FIG. 5.

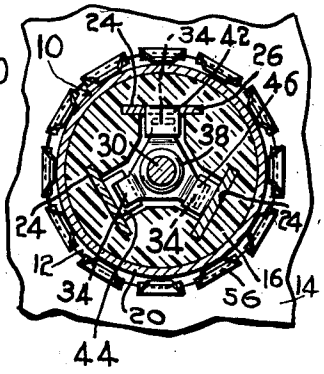


FIG. 2.

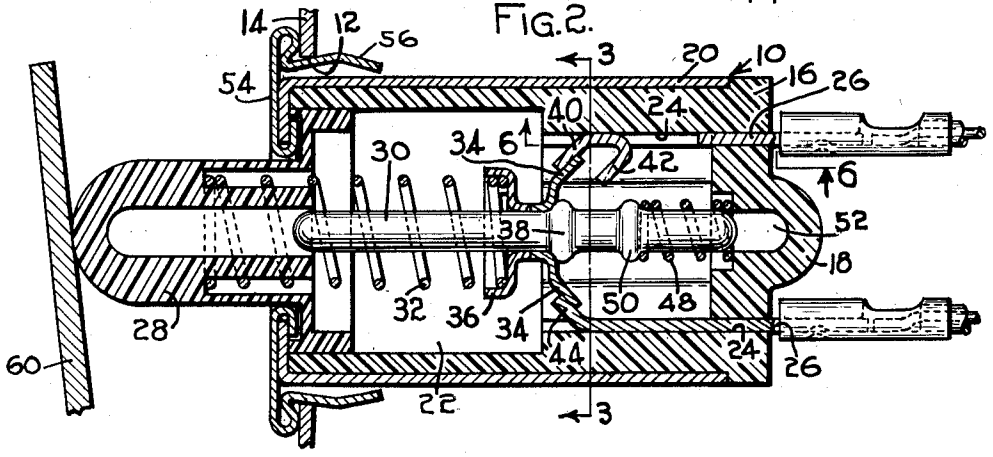


FIG. 4.

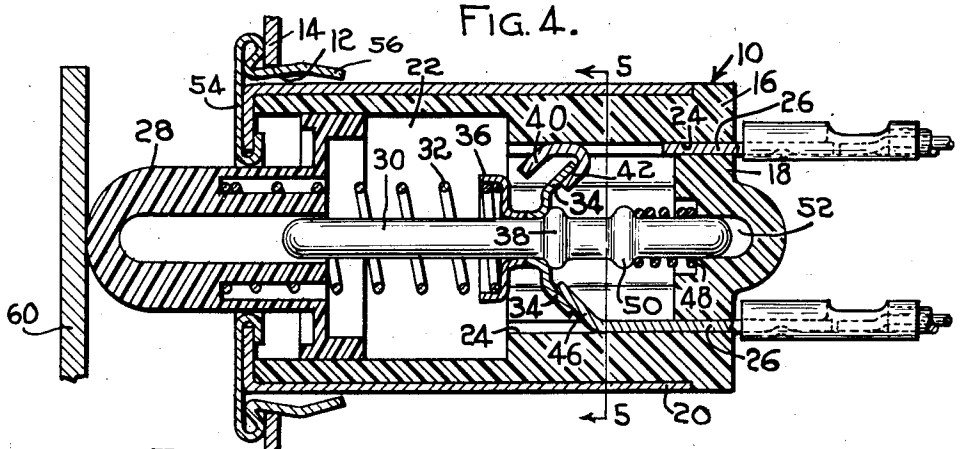
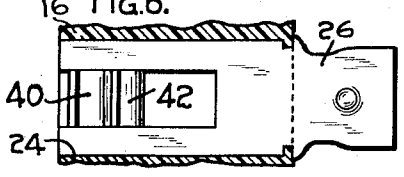


FIG. 6.



INVENTOR:
ROBERT W. FRASER,
BY Walter S. Jones
ATTORNEY.

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FIG. 7.

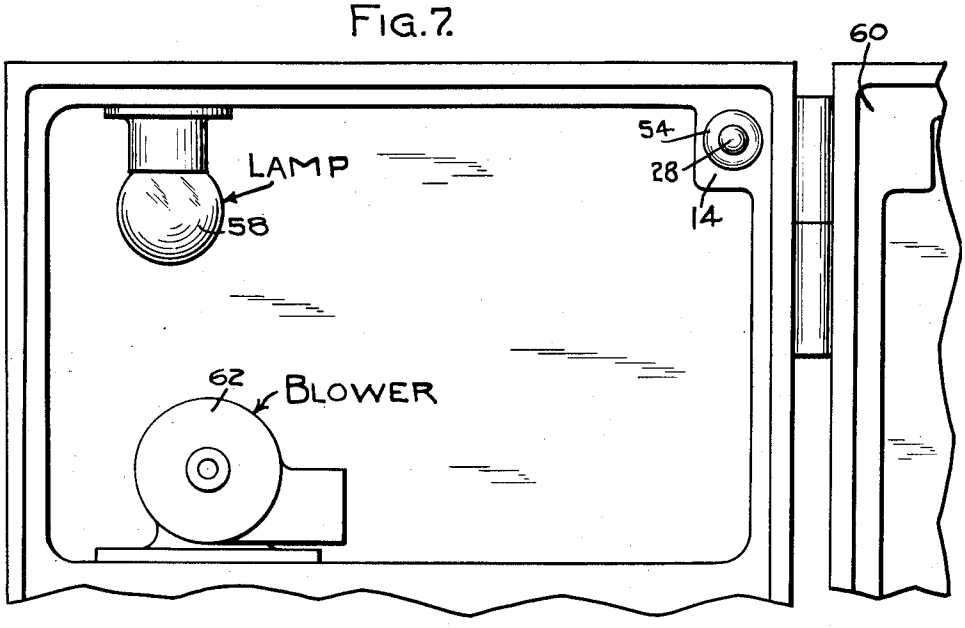


FIG. 8.

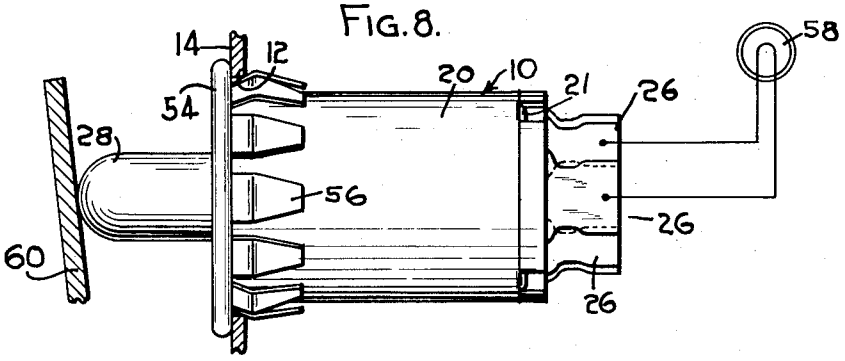
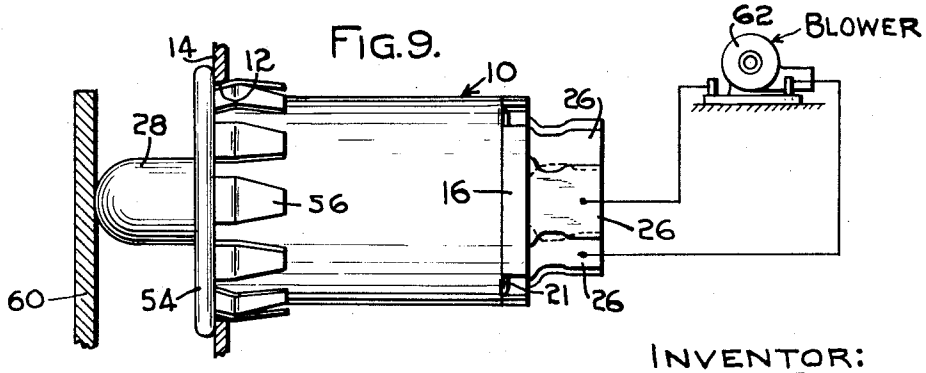


FIG. 9.



INVENTOR:
ROBERT W. FRASER,
BY Walter S. Jones
ATTORNEY.

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2,899,511

ELECTRICAL SWITCH

Robert W. Fraser, Waltham, Mass., assignor to United-Carr Fastener Corporation, Cambridge, Mass., a corporation of Delaware

Application July 23, 1957, Serial No. 673,724

4 Claims. (Cl. 200—61.81)

This invention relates generally to refrigerator assemblies, and has particular reference to an improved form of switch mechanism for use therein.

In the design of the modern refrigerator, no provision has been made for the proper air circulation within the refrigerated compartment. As a result, when most of the available space has been utilized, there are variations in temperatures existing within the compartment and some of the stored food is subject to spoilage. To overcome this difficulty, blower means are assembled within the refrigerator to maintain a constant circulation of air. However, when the door to the compartment is opened to provide access to the food, means must be provided to prevent the lower temperature air from being lost to the outer spaces.

Since a switch for energizing the illumination means is ordinarily provided in the door housing so as to be activated by merely opening the door, it is desirable to incorporate in the switch means for energizing the blower circuit, when the door is closed.

The object of this invention is to provide a refrigeration assembly in which a switch mechanism is provided for installation in the refrigerator housing to energize illumination means within the compartment when the door is open and to energize air circulating means when the door is closed.

Another object of this invention is to provide a single pole, double throw switch mechanism operable by a plunger in which said switch is provided with a plurality of contact means, the selection of which, is determined by the position of the plunger.

A further object of this invention is to provide a continuously energized switch mechanism having dual terminal contact means spaced within the housing and floating contact means actuated by the plunger adapted to alternately energize a blower and light circuit.

A further object of this invention is to provide a single pole double throw switch bridging between a common feed and two separate output contacts at the alternate ends of its structure.

Other objects of this invention will, in part, be obvious, and will, in part, appear hereinafter.

In the drawing:

Fig. 1 is an end view of the switch assembly embodying the features of the invention;

Fig. 2 is a sectional elevation taken on line 2—2 of Fig. 1, showing the lap circuit energized;

Fig. 3 is a view taken on line 3—3 of Fig. 2;

Fig. 4 is a sectional elevation taken on line 4—4 of Fig. 1 showing the blower circuit energized;

Fig. 5 is a view similar to Fig. 3 taken on line 5—5 of Fig. 4;

Fig. 6 is a sectional elevation taken on line 6—6 of Fig. 2;

Fig. 7 is a view in front elevation of the interior of a refrigerator compartment embodying the features of the invention and its application therein;

Fig. 8 is a plan view of the switch assembly with the push button in the extended position showing the lamp circuit energized;

Fig. 9 is a plan view of the switch assembly with the push button in a depressed position showing the blower circuit energized.

Referring to the drawing, there is a switch 10 which is adapted for mounting in an opening 12 of a panel 14.

The switch 10 comprises a molded insulating body 16 having a base 18 with external metal sheathing 20 provided with the lugs 21 to retain the body firmly in position.

The body 16 is provided with a front aperture 22 and suitable internal recesses 24 adapted to receive the prongs 26 which are connected by lead wires to external circuits to initiate the operation of apparatus controlled by the switch. Extending from the aperture 22 is a push button 28 actuating a drive pin 30 disposed entirely within the body 16 biased normally toward the aperture 22 by a spring 32. Positioned within the body are a set of floating contact members 34 disposed axially around the drive pin 30 and held in position by the spring retaining cap 36 and an axial projection 38 and are adapted to alternately cooperate with fixed contact members 40 and 42, longitudinally spaced from contact members 44 and 46 in direct proportion to the throw of the drive pin 30. Spring means 48 are positioned around the drive pin 30 at the end opposite the aperture 22 to normally exert pressure against a second axial projection 50 to normally maintain the floating contact members 34 against one set of fixed contact members 40 and 44. The base 18 of the body 16 has a drive pin receiving recess 52 formed therein to allow proper positioning of the drive pin within the body.

To provide means for retaining the switch assembly in the opening 12 of the panel 14, a mounting ring 54 having a series of resilient shouldered attaching finger 56 is assembled onto the external metal sheathing 20 for snapping engagement into the apertured panel.

As shown in Figs. 2 and 3 when the door 60 to the compartment is open, the spring 32 normally bias the drive pin 30 toward the aperture 22 and the spring means 48 exerts pressure on the axial projection 50 forcing the axial projection 38 to carry the floating contacts 34 into contact with the fixed contact members 40 and 44 completing the circuit to the lamp 58 while the blower circuit consisting of contacts 42 and 46 is open.

In Figs. 4 and 5 the door 60 is closed and the pressure exerted on push button 28 is transmitted through the drive pin 30 forcing the floating contacts 34 to open the lamp circuit at fixed contact members 40 and 44 and energize the blower 62 at fixed contact members 42 and 46.

By the use of a single pole double throw switch, one of the two circuits remains energized and eliminates the necessity of providing separate switch mechanisms for each circuit.

Since certain other obvious modifications may be made in the device without departing from the scope of the invention, it is intended that all matters contained herein be interpreted in an illustrative and not in a limiting sense.

I claim:

1. In a refrigerator assembly comprising a refrigerated compartment having access thereto by a door, means to be energized when the door is open for illuminating said compartment, and blower means for circulating air within said compartment, said blower means energized when the door is closed; an improvement comprising a continuously energized switch mechanism having a switch body, said switch having an actuating plunger disposed entirely within said body, alternate contact means positioned within said body for completing circuits to illuminating means

or blower means said contact means alternately responsive to the door actuated linear motion of said plunger.

2. A switch assembly for operation by a plunger, said switch comprising a body having an aperture at one end thereof, a pair of floating contact members within the body, a plurality of fixed contact members spaced linearly and adapted to alternately cooperate with said floating contact members, said floating contact members being movable in the body away from the aperture by depressing a plunger, spring means normally urging said contacts toward the aperture energizing one pair of said fixed contact members, and second spring means operated by said plunger to resiliently bias the floating contact members into engagement with the opposed fixed contact member, said fixed contact members being served by a common feed.

3. In a switch assembly as set forth in claim 2 in which said plunger is entirely within the housing and being responsive to a push button extending outwardly through said aperture.

4. In a refrigerator assembly which comprises a refrigerated compartment having access thereto by a door, means to be energized when the door is open for illuminating said compartment, circulating air means associated with said compartment to be energized when the door is closed, the improvement comprising a continuously energized switch mechanism mounted in the door housing having a one piece molded body with an aperture at one end thereof, plunger means entirely within said body adapted to resiliently urge floating contact members into contact with a pair of fixed contact members, spring means normally biasing said plunger toward a second pair of fixed contacts for cooperation therewith, said plunger responsive to linear movement of push button means inserted through said aperture and actuated by said door.

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