unit 15 is made up, for example, of a line concentrator such as a hub, and a microcomputer, and plays a role of a relay between the imaging units 10 and main control unit 20 described later. The imaging units 10 and sub-control unit 15 are detachably attached to the mounting structure 11. This makes it possible to attach and detach the imaging units 10 and sub-control unit 15 in a simplified manner at the time of assembly or parts replacement, allowing working efficiency to be increased. Also, even if an electrical item such as an imaging unit 10 or the sub-control unit 15 fails or the like, normal conditions can be restored by simply replacing the failed imaging unit 10 or sub-control unit 15. Note that although in the example described in the present embodiment, the sub-control unit 15 is housed inside the mounting structure 11, i.e., installed in the refrigerator compartment left door 3, the present invention is not limited to this, and the sub-control unit 15 may be provided in the refrigerator body 1.

[0018]

Figs. 6(a) and 6(b) are schematic diagrams showing how the imaging units and sub-control unit are connected by cables in the refrigerator according to the embodiment of the present invention. As shown in Figs. 6(a) and 6(b), the two imaging units 10 and the single sub-control unit 15 are connected by separate cables 18a and 18b. Then, the sub-control unit 15 puts together the two cables 18a and 18b into a single common cable 17, and is connected to the main control unit 20 (described later) via the common cable 17. By putting together the two cables 18a and 18b into the single common cable 17 in this way, it becomes unnecessary to make extra cables run through insulating material in the refrigerator compartment left door 3, and thus possible to prevent degradation in heat insulation performance of the refrigerator compartment 2. Note that the cable 18a, cable 18b, and common cable 17 are made up, for example, of USB cables.

[0019]

Figs. 7(a) and 7(b) are state diagrams showing how cables are gathered together in the refrigerator according to the embodiment of the present invention. As shown in Figs. 7(a) and 7(b), the common cable 17 is connected with the cable 18a

CLAIMS

[Claim 1]

A refrigerator comprising:

a refrigerator body;

a storage compartment formed in the refrigerator body and provided with an opening in a front face;

a door configured to openably close the opening in the front face of the storage compartment;

a plurality of imaging units configured to photograph an interior of the storage compartment;

a sub-control unit connected with individual ones of the plurality of imaging units via separate cables, and configured to turn the separate cables into a common cable; and

a main control unit provided in the refrigerator body and connected with the sub-control unit via the common cable, and configured to control the plurality of imaging units

wherein the plurality of imaging units and the sub-control unit are housed in a same mounting structure provided in the door or the refrigerator body.

[Claim 2]

The refrigerator of claim 1, wherein the same mounting structure is provided on an inner surface side or in the door.

[Claim 3]

The refrigerator of claim 1 or 2, wherein the sub-control unit is configured to put together a plurality of wires having a same function into the common cable from among the respective separate cables.

[Claim 4]

The refrigerator of any one of claims 1 to 3, wherein the common cable is gathered into a single cable by being covered with shield wires for noise reduction.

[Claim 5]

The refrigerator of any one of claims 1 to 4, wherein the sub-control unit has a

capability for external communication.

[Claim 6]

The refrigerator of any one of claims 1 to 5, wherein when the plurality of imaging units are pieces of equipment of a same type and the separate cables contain a plurality of types of wires having different functions, the sub-control unit is configured to turn wires having a same function from among a plurality of the separate cables into common wires.

[Claim 7]

The refrigerator of any one of claims 1 to 6,

wherein the door is attached to the refrigerator body via a hinge,

wherein the mounting structure is installed in the door, and

wherein the common cable comes out of the mounting structure, passes through a hole in the hinge, and is connected to the main control unit.