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W. H. WHITTIER ET AL

FLUE CONSTRUCTION FOR REFRIGERATORS

Filed Dec. 17, 1923

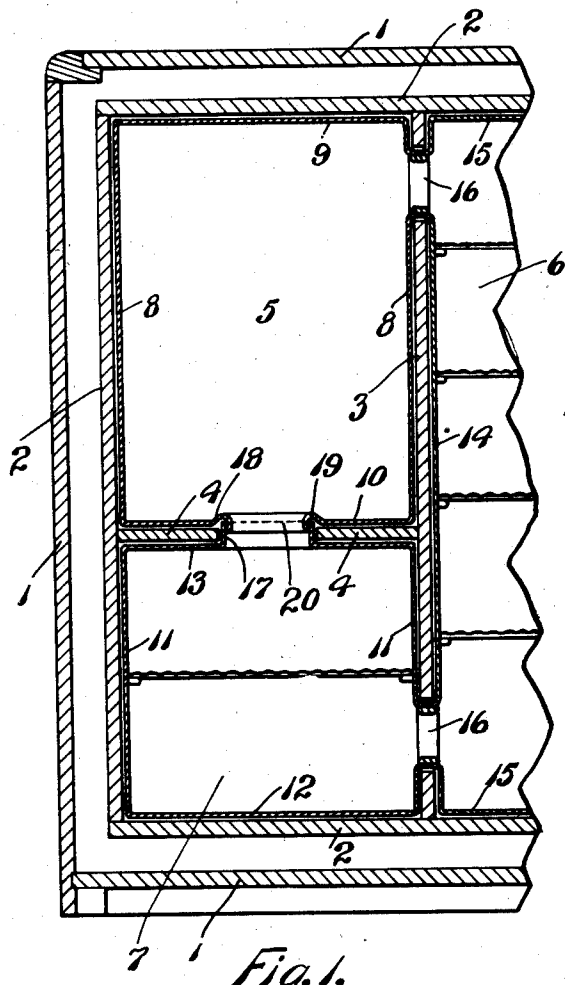


Fig. 1.

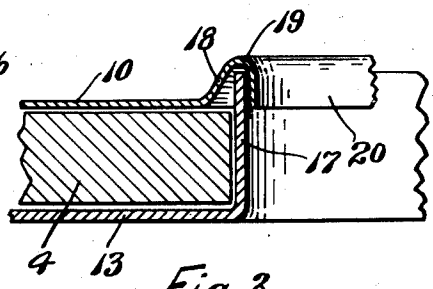


Fig. 3.

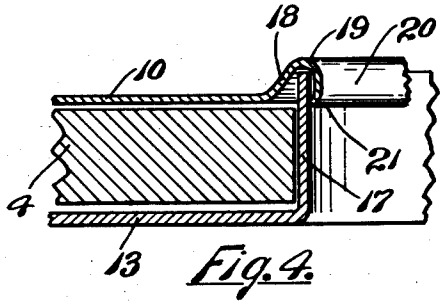


Fig. 4.

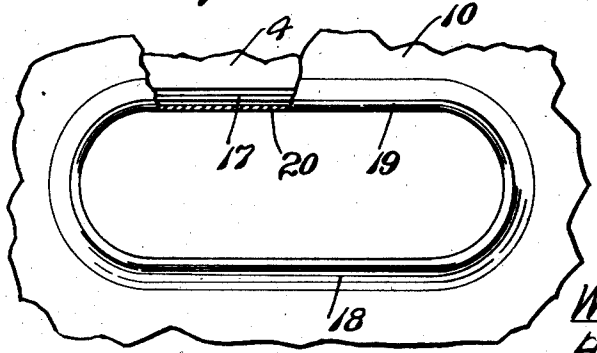


Fig. 2.

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UNITED STATES PATENT OFFICE.

WALTER H. WHITTIER AND HARRY C. LEONARD, OF GRAND RAPIDS, MICHIGAN, ASSIGNORS, BY MESNE ASSIGNMENTS, TO ELECTRIC REFRIGERATION CORPORATION, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

FLUE CONSTRUCTION FOR REFRIGERATORS.

Application filed December 17, 1923. Serial No. 681,071.

This invention relates to a novel construction of flue to be used between the ice chamber and the lower provision chamber directly below the ice chamber in a refrigerator and through which an air circulation is provided in connection with other flues connecting with the side provision chamber of the refrigerator. It is a primary object and purpose of the present invention to provide a flue of this character which is of the simplest possible construction, with an elimination of parts and avoidance of the necessity of using solder to connect the parts, as was necessary in the construction shown in my Patent No. 970,672, granted Sept. 20, 1910, the present construction being an improvement thereover which greatly reduces the cost of manufacture and at the same time provides a simpler and better construction.

For an understanding of the invention, reference may be had to the following description, taken in connection with the accompanying drawing, in which,

Fig. 1 is a fragmentary transverse vertical section through a refrigerator having flue construction in accordance with my invention.

Fig. 2 is a plan, with parts in section and broken away, showing the flue construction as used between the ice chamber and lower provision compartment.

Fig. 3 is an enlarged vertical section taken through one side of the flue construction, and

Fig. 4 is a like view showing the lower edge of the inner member of the flue construction bent and formed to engage against the adjacent flue member, this being the finishing operation in the construction and assembly of the flue.

Like reference characters refer to like parts in the different figures of the drawing.

In the construction of the refrigerator, conventional construction is followed, there being an outer casing, indicated at 1, within which is an inner casing 2, having its walls spaced from the walls of the outer casing, the space, in practice, being filled with heat insulating material of any desired kind. A vertical partition 3 divides the inner casing, and a horizontal partition 4 between one of the sides of the inner casing and said vertical partition divides one of the compartments of the refrigerator at one side of the vertical partition. With this construction, the refrigerator is divided into three chambers or compartments 5, 6 and 7, the chamber 5 above the partition 4 being the ice chamber, the chamber 6 making a relatively large provision compartment extending the full height of the inner casing, and the chamber 7 a lower and smaller provision compartment directly below the ice chamber.

All of the chambers or compartments are lined with sheet metal or metal covered on the inner sides with porcelain baked thereon. The ice chamber 5 has a sheet metal lining having sides 8, a top 9 and a bottom 10. Of course there is a back to the lining also. The lower provision chamber has a porcelain covered lining with vertical sides 11, a bottom 12 and top 13, the back thereto not being indicated by any reference character. And the larger side provision chamber has a similar lining having vertical sides 14 and top and bottom 15, the back not being indicated. Two openings are made through the vertical partition 3 adjacent the upper and lower edges thereof and the lining sides are provided with openings and turned to pass partly therethrough, rings 16 being used to cover the joints, this being old structure as shown in my patent above noted. The construction so far described is old and the new construction comes in connection with the opening made through the horizontal partition 4, the three openings, one in the horizontal partition 4 and two in the vertical partition 3 being necessary with this three compartment refrigerator construction for the proper circulation of air in the refrigerator.

The opening made through the partition 4 may be of any desired outline but, preferably it is elongated from front to back and has rounded ends. The top 13 of the lining to the lower provision chamber has a similar opening and the metal is turned upwardly to make a vertically projecting flange 17 which passes entirely around the opening in the lining and extends through the partition 4 and a short distance above the same. The bottom 10 of the lining to the ice chamber has a similar opening therethrough and the metal around and adjacent the opening is first pressed upwardly and inwardly at an angle to the vertical,

as indicated at 18, then curved inwardly and downwardly, as at 19 and terminates in a downwardly extending portion 20. In the assembly of the refrigerator, the flange 17 passes between the inclined portion 18 and the portion 20, the latter extending downwardly inside of the flange 17, as shown. After the parts are put together with the portion 20 located inside of the flange 17, the lower edges of said portion 20 may be turned outwardly so as to bear against the inner sides of the flange 17, as indicated in Fig. 4 to make a tighter fit of the parts and obviate open spaces between the flange 17 and said portion 20. This last operation may be readily performed by any suitable tool bearing on the rounded portion 19 and run around on the same with a part to engage against the edge of the portion 20 and bend and form it from the shape shown in Fig. 3 to that shown in Fig. 4.

With the construction as described, the flange 17 on the lining to the lower provision chamber is very readily formed and the covering portions therefor on the bottom of the ice chamber lining are as readily produced by means of suitable dies, while their assembly is accomplished without the use of solder, the parts fitting together and making a practical flue in the simplest and most economical manner. These are the salient features of the invention and are of great importance in the quantity production of refrigerators. The invention is defined in the appended claim and is to be considered as comprehending all forms of structure coming within the scope of said claim.

We claim:

A refrigerator having a cooling compartment and a food storage compartment, a horizontal partition between said compartments, said partition having an opening therethrough, and separate linings for said compartments, the lining for said food storage compartment being provided with an upwardly flanged opening, the flange extending entirely through the opening in said partition and closely adjacent the edges thereof, the lining for said cooling chamber having a downwardly flanged opening, the flange extending into the opening in said partition and over the flange of said food storage compartment lining, the edge of the flange on said cooling compartment lining being curved inwardly to engage the flange on the opening of said food storage compartment lining in a substantially air tight relation.

In testimony whereof we affix our signatures.

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