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G. L. C. EARLE
L-SHAPED REFRIGERATOR

2,539,613

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Fig. 1.

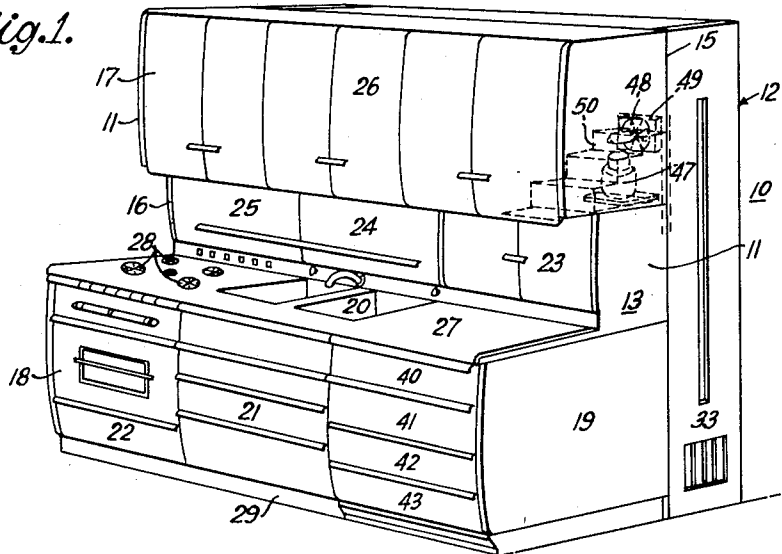


Fig. 2.

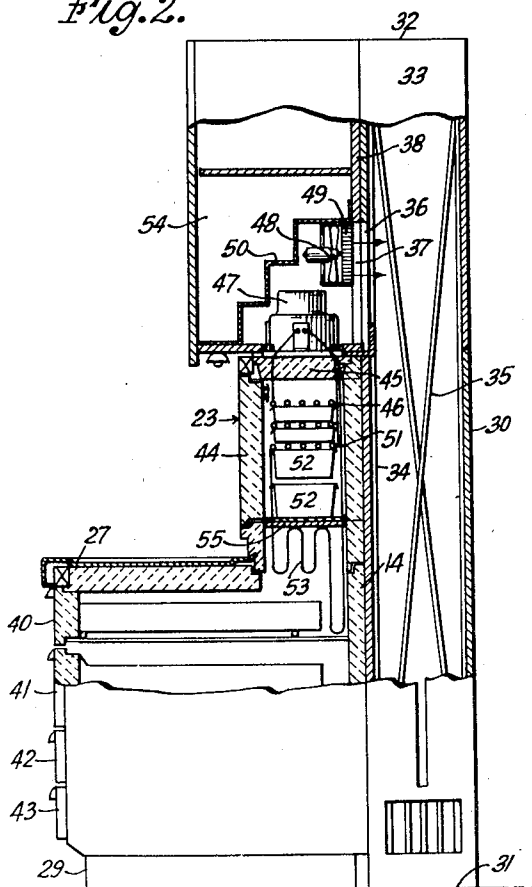
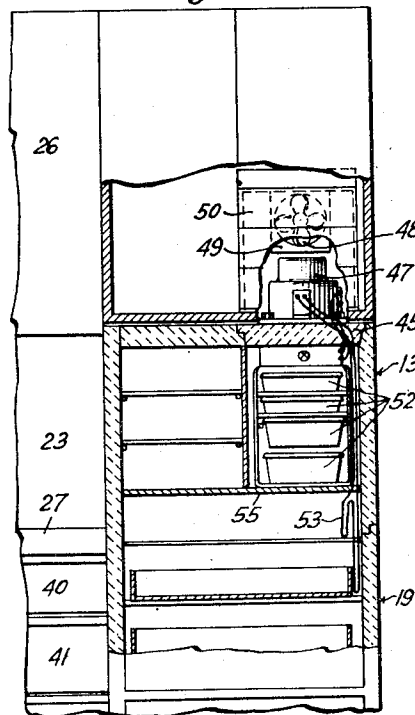


Fig. 3.



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L-SHAPED REFRIGERATOR

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9 Claims. (Cl. 62-89)

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This invention relates to refrigerators and more specifically to those adapted to form a part of a larger combination unit.

In a prior patent of the present inventor, Patent 2,349,541 issued May 23, 1944, there is disclosed a kitchen unit of the "Set-back" or L-shaped type. This unit has a lower portion including the lower parts of a refrigerator and of a stove, a towel drier and a sink, an intermediate portion including the upper parts of the stove and refrigerator and a dish drier, and an upper portion comprising cabinets. A long table-top member is located on top of the lower portion and in front of the intermediate portion of the kitchen unit. In another application of the same inventor, Serial No. 652,545, filed March 7, 1946, now abandoned, there is disclosed a clothes drier adapted to be positioned behind a kitchen unit of the type disclosed in this patent. The present invention, in one of its primary aspects, relates to the improvement of refrigerators adapted to be used with other elements of a kitchen unit and/or with a clothes drier.

It is, accordingly, an object of the invention to provide an improved refrigerator of the "set-back" or L-shaped type.

It is another object of this invention to provide a refrigerator which has a sealed operating unit which can be easily installed after shipping and later removed for servicing.

It is a further object of this invention to provide a refrigerator of the "set-back" or L-shaped type in which the liquefying portion of the refrigerating unit is placed on top of the upper set-back intermediate portion of the kitchen unit under a stepped shelf in the upper portion of the kitchen unit.

It is still another object of this invention to provide a refrigerator and clothes drier combination in which the fan of the refrigerating unit is positioned to dry clothes placed in the drier.

Other objects and features will be apparent as the description proceeds.

These objects are attained in accordance with the invention by providing, by way of example, a refrigerator unit of the L-shaped or "set-back" type comprising a large insulated base cabinet having drawers therein and adapted to be refrigerated either by a cooling coil or plate placed in the cabinet or by circulation from an evaporator located in an upper, set-back portion of the refrigerator which is provided with shelves and ice cube trays. The liquefying portion of the refrigerating (operating) unit, which is preferably of the sealed type, is placed in the upper cabinet

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on top of this upper set-back portion under a stepped shelf. This top of the set-back portion of the refrigerator serves as a base for the liquefying portion of the refrigerating unit. The fan of the refrigerating unit is placed near an opening in the rear of the upper cabinet space above the upper set-back portion of the refrigerator in such a position that it coincides with an opening in a clothes drier positioned behind the refrigerator and causes a circulation of air therein. For ease in shipping, the sealed refrigerating unit and the upper set-back portion of the refrigerator can be shipped as a separate entity and installed in the kitchen unit at the site where it is to be used. If, after the refrigerator has gone into service and trouble occurs, the stepped shelf can be removed and the entire upper set-back portion of the refrigerator and its attached refrigerating unit can be taken out and repaired or replaced by new ones without disturbing the base cabinet of the refrigerator (which may be an integral part of a kitchen unit and thus be difficult to move) or the refrigerating unit and the top of the upper set-back portion removed as a unitary element.

The invention will be more readily understood by referring to the following description taken in connection with the accompanying drawings forming a part thereof, in which:

Fig. 1 is a perspective view of a kitchen unit, including a set-back refrigerator in accordance with this invention, and a clothes drier associated therewith, some of the operating portion of the refrigerator being shown in dotted lines to indicate its position in the kitchen unit;

Fig. 2 is a side view, with parts broken away to show portions in cross-section, of the combination of Fig. 1, taken from the right; and

Fig. 3 is a front view, partially in section, of the right hand portion of the arrangement of Fig. 1.

Referring more specifically to the drawing, Fig. 1 shows, by way of example and in perspective, an assembly 10 in accordance with the invention comprising a kitchen unit 11 and a clothes drier 12, the unit 11 including a refrigerator 13 of novel arrangement. The back 14 of the kitchen unit 11 is positioned adjacent the side wall 15 of the drier. The kitchen unit 13 is of the L-shaped or "set-back" type, that is, one in which the front surfaces of the intermediate portion 16 thereof and of the upper portion 17 thereof are placed to the rear (or "set-back" from) the front surface of the lower portion 18 of the unit. The lower portion 18 comprises the lower part 19 of a "set-

back" refrigerator, sink 20, a towel drying compartment 21 and the lower portion 22 of a "set-back" stove. The intermediate portion 16 comprises the intermediate portion 23 of the refrigerator, a dish drying compartment 24 and the upper portion 25 of the stove. The upper portion 17 of the unit comprises shelved cabinets 26. A table-top member 27, having cut-out portions for the sink and for the burners 28 of the stove, is placed above the lower portion 18 and in front of the intermediate portion 16. The whole unit 11 preferably rests on a recessed base 29. A complete kitchen unit of the type briefly described above is disclosed in the above-identified Earle patent. For convenience in shipping and installation, the upper portion 17 of the unit 11 is not fastened to the intermediate portion 16 but is supported from the side wall 15 or from trusses of the drier 12, and preferably hangs on brackets or wall-hangers (as disclosed in greater detail in copending Earle application Serial No. 698,030, filed September 19, 1946).

Behind the unit 11 is a space occupied by the clothes drier 12. This comprises (see also Fig. 2) a compartment formed by the side member 15 (preferably having height and length equal to those of the kitchen unit 11 and which may be attached to the back 14 of this unit) a similar side member 30, the floor or a bottom member 31, top member or ceiling 32, and end walls 33 (the one shown in Fig. 1 being sliding). The side members 15 and 30 can be of heat insulating and fireproofing material and preferably are of sound-deadening material as well. They have holes pre-cut to accommodate the various pipes and conduits for the unit 11. They are braced by means of rectangular braces 34 and the X-shaped trusses 35. Supported from the right hand end member 33 are various clothes-supporting members (not shown in this application but shown in the above-identified Earle application Serial No. 652,545). The side wall 15 of the clothes drier has an opening or window 26 therein opposite a corresponding opening 37 in the back wall 38 of the upper portion of the refrigerator section of the kitchen unit 11 for a purpose which will be described below.

Referring now to the refrigerator 13 for a more detailed description thereof, the lower portion 21 of this unit comprises a base cabinet 19 having a plurality of drawers 40, 41, 42 and 43 and an intermediate cabinet 23 having doors 44. The top 45 of the cabinet 23 is removable and it supports either entirely or partially the evaporator 46 and also the liquefying apparatus 47 or a portion thereof (in the upper cabinet 26 of the refrigerator section). The fan 48 and the condenser 49 of this liquefying apparatus are positioned adjacent the openings 37 and 36 and help to cause a circulation of air in the clothes drier 12. A stepped condiment shelf 50 is placed in the upper cabinet 26 of the refrigerator and it serves also to hide from view the compressor, condenser and fan of the refrigerating unit. The evaporator 46 comprises coils 51 for cooling ice cube trays 52 and also coils 53 for cooling the lower cabinet 19.

In assembling the refrigerator, the base cabinet is placed in position and then the upper portion 23 of the refrigerator (the intermediate portion of the refrigerator unit as a whole) (with the condiment shelf 50 removed) is swung into position over it and fastened thereto by any suitable means. The refrigerating unit (preferably of the sealed type) fastened to the top member 45

is then put in through the front opening 54 of the upper cabinet 26, the top or plug member 45 secured to the top and sides of the intermediate cabinet 23 and the fan and condenser fastened to the back wall 38. The condiment shelf 50 is then put in and fastened into place. If for some reason it is desired to repair the refrigerating unit, all that it is necessary to do is to remove the shelf 50, unfasten the plug member 45 and the fan and condenser from their supports and take the entire refrigerating unit (and the plug member 45) through the opening 54, all without removing the base cabinet 19 and the intermediate portion 23 from the kitchen unit 11. The advantages of this are marked and many. By removing the stepped shelf 50, the addition of gas to the sealed unit or repairs to the fan and other parts can be made without disturbing the compressor.

The refrigerator may have a partition 55 between the lower and intermediate cabinets or this partition may be removed and circulation between the intermediate and lower cabinets relied upon for cooling both cabinets. With the partition, one cabinet may be made much colder than the other if desired. The partition may be of insulating material or of metal and it may be removable.

If desired, the entire intermediate portion and the sealed refrigerating unit can be put in and removed as one entity.

By forming an air passage between the dish drier 24 and the cabinet containing the fan 48 (by properly placed holes or air ducts) and by allowing fresh air to enter the kitchen unit in the base thereof (as disclosed in Earle Patent 2,328,129 issued August 31, 1943) and pass up into the dish drier 24, a continuous circulation prevents recirculation of moist air in the kitchen unit.

Various obvious modifications can be made in the embodiment described above without departing from the spirit of the invention, the scope of which is indicated in the appended claims.

What is claimed is:

1. A mechanical refrigerator and cabinet unit comprising a lower or base cabinet with insulated walls and a plurality of drawers therein, an intermediate set-back cabinet positioned above and to the rear of said base cabinet, a table-top member above the portion of said base cabinet in front of said intermediate cabinet, an upper cabinet above said intermediate cabinet, and a refrigerator unit for cooling said base cabinet and said intermediate cabinet, at least a portion of said refrigerating unit being positioned in said upper cabinet.

2. A mechanical refrigerator and cabinet unit comprising a lower or base cabinet with insulated walls and a plurality of drawers therein, an intermediate set-back cabinet positioned above and to the rear of said base cabinet, a table-top member above the portion of said base cabinet in front of said intermediate cabinet, an upper cabinet above said intermediate cabinet, and a refrigerating unit for cooling said base cabinet and said intermediate cabinet, the liquefying apparatus of said refrigerating unit being positioned in said upper cabinet.

3. A mechanical refrigerator and cabinet unit comprising a lower or base cabinet with insulated walls and a plurality of drawers therein, an intermediate set-back cabinet positioned above and to the rear of said base cabinet, a table-top member above the portion of said base cabinet in

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front of said intermediate cabinet, an upper cabinet above said intermediate cabinet, and a refrigerating unit for cooling said base cabinet and said intermediate cabinet, the liquefying apparatus of said refrigerating unit being positioned in said upper cabinet, said liquefying apparatus including a fan adapted to be positioned adjacent an opening in the wall of said upper cabinet for circulation of air.

4. A mechanical refrigerator and cabinet unit comprising a lower or base cabinet with insulated walls and a plurality of drawers therein, an intermediate set-back cabinet positioned above and to the rear of said base cabinet, a table-top member above the portion of the base cabinet in front of said intermediate cabinet, an upper cabinet above said intermediate cabinet, and a refrigerating unit for cooling said base cabinet and said intermediate cabinet, the liquefying apparatus of said refrigerating unit being positioned in said upper cabinet, at least a portion of said liquefying apparatus being supported by the insulated top of said intermediate set-back cabinet and part of the upper cabinet being removable without disturbing the refrigerating unit.

5. A mechanical refrigerator and cabinet unit comprising a lower or base cabinet with insulated walls and a plurality of drawers therein, an intermediate set-back cabinet positioned above and to the rear of said base cabinet, a table-top member above the portion of the base cabinet in front of said intermediate cabinet, an upper cabinet above said intermediate cabinet, and a refrigerating unit for cooling said base cabinet and said intermediate cabinet, the liquefying apparatus of said refrigerating unit being positioned in said upper cabinet, and evaporator means thereof being positioned in said intermediate cabinet.

6. A mechanical refrigerator and cabinet unit comprising a lower or base cabinet with insulated walls and a plurality of drawers therein, an intermediate set-back cabinet positioned above and to the rear of said base cabinet, a table-top member above the portion of the base cabinet in front

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of said intermediate cabinet, an upper cabinet above said intermediate cabinet, and a refrigerating unit for cooling said base cabinet and said intermediate cabinet, the liquefying apparatus of said refrigerating unit being positioned in said upper cabinet, and evaporator means thereof being positioned in both said intermediate cabinet and said base cabinet.

7. The combination of elements as in claim 2 in which there is a partition between the intermediate and base cabinets to prevent the flow of cold air therebetween.

8. A mechanical refrigerator and cabinet unit comprising a lower or base cabinet with insulated walls and a plurality of drawers therein, an intermediate set-back cabinet positioned above and to the rear of said base cabinet, a table-top member above the portion of the base cabinet in front of said intermediate cabinet, an upper cabinet above said intermediate cabinet, and a refrigerating unit for cooling said base cabinet and said intermediate cabinet, the liquefying apparatus of said refrigerating unit being positioned in said upper cabinet, and a stepped shelf in said set-back cabinet above said portion of the refrigerating unit therein.

9. The combination of elements as in claim 2 in which said refrigerating unit is of the sealed type.

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The following references are of record in the file of this patent:

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