Sept. 17, 1963 M. RADI 3,104,140

KIT ASSEMBLED KITCHEN FURNITURE

Filed Sept. 19, 1961 3 Sheets-Sheet 1

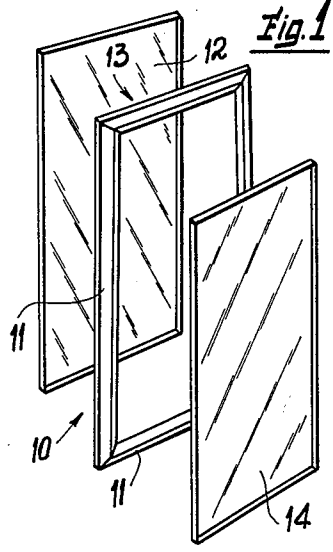



Fig. 1

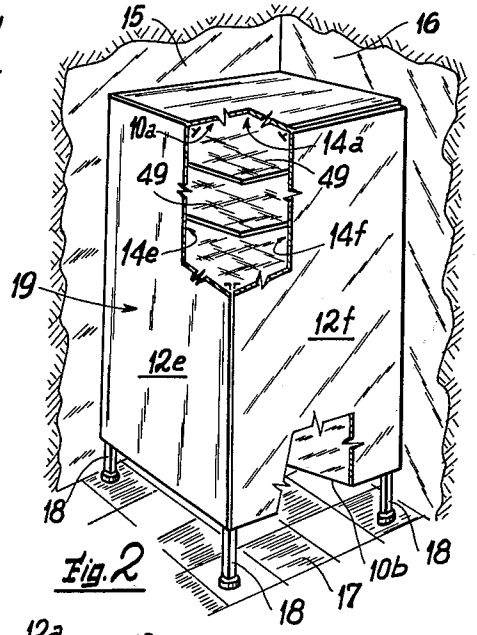



Fig. 2

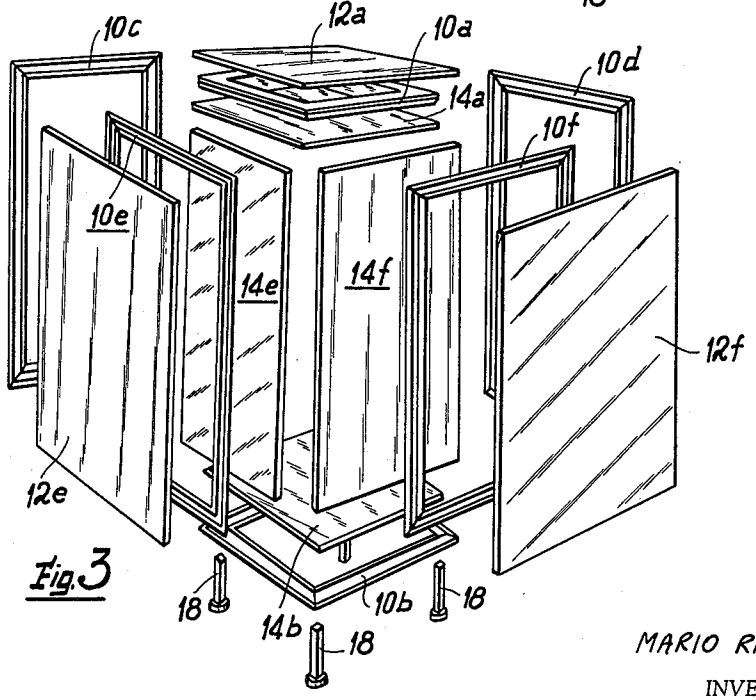



Fig. 3

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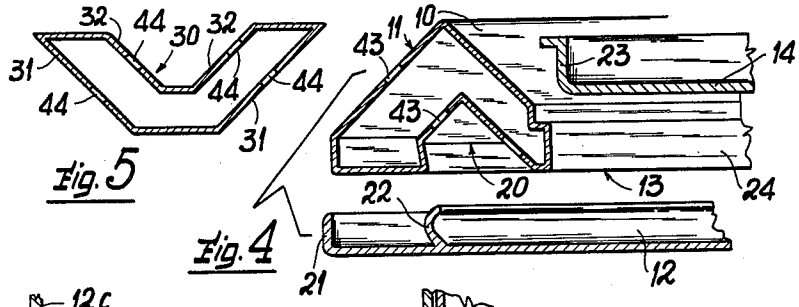



Fig. 5




Fig. 4

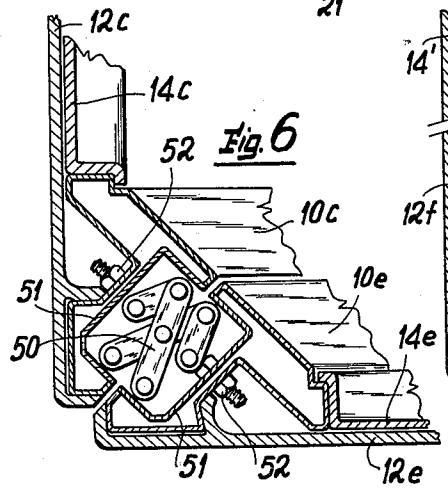



Fig. 6

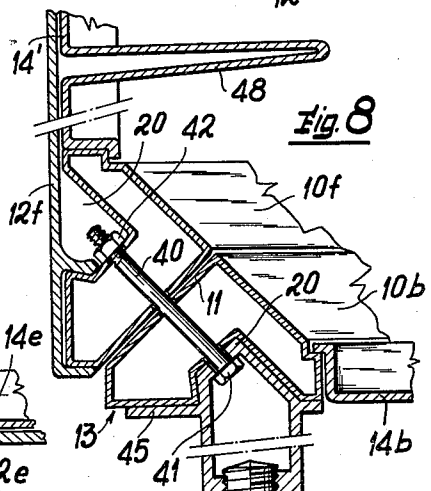



Fig. 8

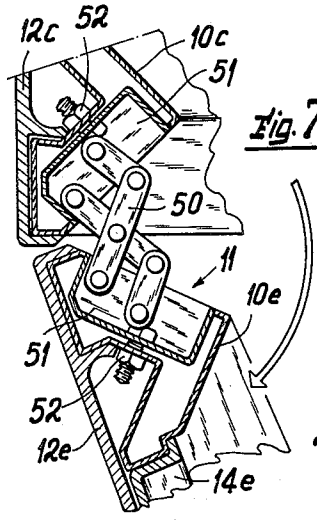



Fig. 7

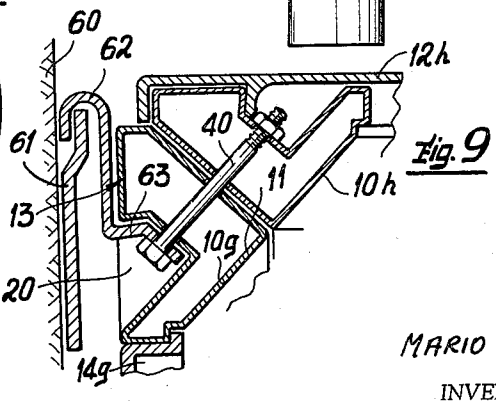



Fig. 9

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KIT ASSEMBLED KITCHEN FURNITURE

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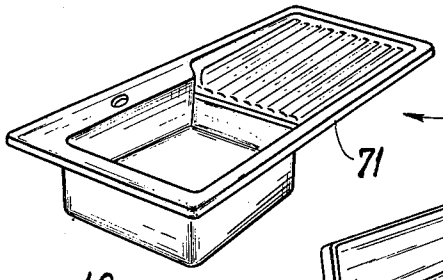



Fig. 10

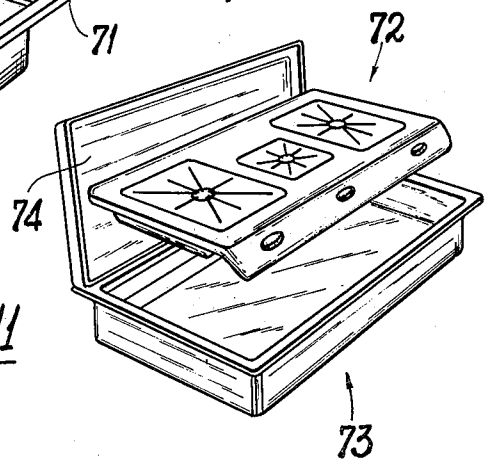



Fig. 11

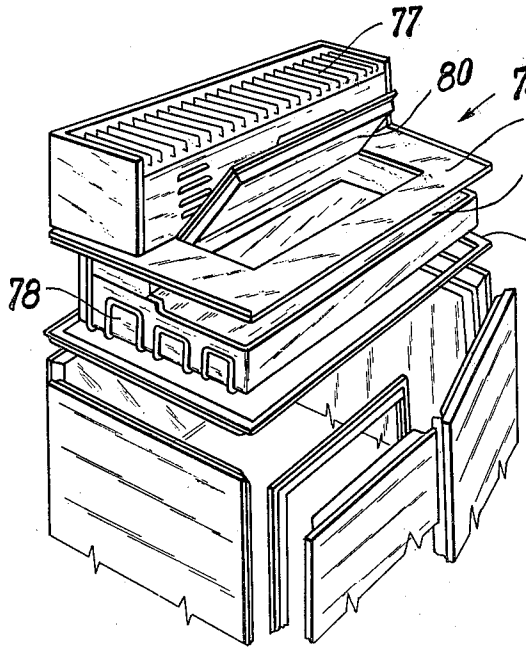



Fig. 12

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# 3,104,140 KIT ASSEMBLED KITCHEN FURNITURE

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Filed Sept. 19, 1961, Ser. No. 139,136
3 Claims. (Cl. 312—245)

This invention relates to the manufacture of furniture and more particularly to the manufacture of kitchen cabinets, racks, boards, drawers and other storage facilities, including sink and range cabinets. Still more particularly, the present invention relates to the art and methods of producing and assembling pieces of furniture from prefabricated standard components to form kits which may be used in assembling pieces of household furniture.

It is known that various pieces of furniture may be factory produced as kits including a plurality of prefabricated components which are assembled to form a piece of furniture having the dimensions and/or other features meeting various requirements in a home. It is further known that various problems involved in the manufacture of kits for truly rigid, durable, efficient and neat pieces of furniture still remain to be solved.

One major problem to be solved in making such pieces of furniture, especially cabinets having front and side walls defining corner portions therebetween, with wall forming components of substantial thickness, is to construct standard components in such a way that the components may be assembled in co-planar or in angular or "corner" arrangement, without modifying the resulting total size of the assembled pieces, provided that such size must correspond to the sum of dimensions of the surfaces of each wall forming component or panel. In heretofore proposed kits, two panels arranged in co-planar relationship together form a section or wall whose length or width corresponds to the sum of the dimensions of the adjacent panels in their edge-to-edge abutting relationship. On the other hand, when two panels make right angles with each other the thickness of at least one panel must be added to the dimensions of the adjacent panels with resultant changes in the standard width-to-height ratio in the various portions of the assembly.

Further problems arise when it is necessary to conceal the connections and joints which secure the components to each other in co-planar or in angular arrangement, to produce smooth surfaced modern pieces of furniture and to provide joints which may be readily and safely applied to the panels.

It is an important object of this invention to provide an improved method of producing kits which may be assembled into differently dimensioned and shaped pieces of furniture such as will meet various requirements in a home.

It is also an object of this invention to provide improved kits including wall forming panel components with inner and outer panel members and frame members wherein the frame members are provided with slanting outer surfaces adapted to abut against similar surfaces of adjacent frame members which are set at right angles thereto so as to form a corner between the adjacent panel components and to define a corner line corresponding to the line defined by the adjacent edges of the outer surfaces of such components.

Another object of the invention is to provide a kit as above defined with novel frame members having symmetrically opposed slanting faces adapted to abut against slanting outer faces of frame members of adjacent panel components in co-planar arrangement.

These and other objects and advantages of the invention will be more readily apparent as this description proceeds, and the features which are believed to be new and characteristic of the invention will be set forth in particular in the appended claims. The invention itself and the method



of practicing the same will be best understood from the following detailed description of certain specific embodiments with reference to the accompanying drawings, in which:

FIGURE 1 is a diagrammatic exploded perspective view of a panel component;

FIGURE 2 is a perspective view of a simple cabinet which may be assembled of a number of panel components in combination with certain auxiliary components;

FIGURE 3 is an exploded perspective view illustrating the panel components and certain other parts of the cabinet shown in FIG. 2;

FIGURE 4 is a fragmentary exploded sectional view of a detail of a wall-forming panel component with inner and outer panel members and a frame member.

FIGURE 5 is a cross-sectional view of a filler member which is used to connect in co-planar relationship two panel components of the type shown in FIG. 4;

FIGURE 6 is a fragmentary sectional view of a corner portion of an assembled piece of furniture including a panel door which is hingedly secured to an adjacent stationary panel component;

FIGURE 7 illustrates the corner portion of FIG. 6 but with the panel door in open position;

FIGURE 8 illustrates another detail of an assembled piece of furniture including a side wall forming panel component which is rigidly secured to a bottom wall forming panel component and to an adjustable leg;

FIGURE 9 illustrates in section a detail of an assembled piece of furniture which constitutes a cabinet designed to be secured to a room wall by means of specially constructed auxiliary components;

FIGURE 10 illustrates a sink unit adapted to be assembled with the components of a kit which is produced in accordance with the invention to form an assembly including a sink and a sink cabinet therebelow;

FIGURE 11 illustrates a kitchen range unit which may be combined with a range cabinet; and

FIGURE 12 is an exploded perspective diagrammatical view of a refrigerating unit and of certain additional components and members (partially illustrated) designed to form a refrigerated storage means.

Referring now to the drawings, an important feature of the invention resides in the provision of panel components which may be constructed in different sizes having the same modular value, i.e., having a width and a height each of which is a precise multiple of a given value. In general, such panels have a standard width and a height which is equal to or which is twice said width. The members illustrated in FIG. 1 may be assembled into a panel component whose height is twice its width. Said members include a frame member, generally indicated by the numeral **10** and having a slanting outer face **11** inclined through 45° with respect to its plane, an outer panel member **12** adapted to fully cover said frame member **10** including the edge portion **13** of the latter member, and an inner panel member **14** adapted to fit within the said frame member.

While the frame member **10** is essential for assembling a piece of furniture according to the invention, the inner panel member **14** and/or the outer panel member **12** might be omitted in certain embodiments of the invention. The frame member **10** of each panel component not only constitutes the stress resisting element of a piece of furniture also that element to which the various connecting means and other parts may be secured.

The simple cabinet of FIG. 2 is located in a room corner between two adjacent walls **15** and **16**, and is supported at a level above the floor **17** by means of floor engaging legs **18**. This cabinet includes the parts which are shown in FIG. 3 and is provided with a hinged door

19 as well as with storage facilities, such as rack boards 49.

The cabinet includes two outer panel components (one of which includes the hinged door 19). These panel components respectively comprise frame members 10*e* and 10*f*, whose outer panel members 12*e* and 12*f*, and inner panel members 14*e* and 14*f*. The two inner or concealed walls which are adjacent to the walls 15 and 16 respectively comprise only frame members 10*c* and 10*d* of the spaces defined by such members are not to be closed. The upper or top wall of the cabinet is formed by a panel component including a frame member 10*a* and panel members 12*a* and 14*a*. The bottom panel component merely includes a frame member 10*b* and an inner panel member 14*b*. An outer panel member for the bottom panel component is deemed unnecessary.

The legs 18 are secured to the stress resisting structure of the cabinet which structure comprises frame members 10*a* to 10*f* and these frame members are fixedly and rigidly secured to each other in a manner to be described hereinafter.

The just described construction of panel components each of which normally includes a frame member and separated panel members is very advantageous in mass production because kits of such components will meet many customers' desires, even regarding the color and/or the surface finish of the pieces to be assembled. In fact, while the frame members which constitute the most expensive elements of a kit may be finished in standard colors and with standard finish, the panel members may be supplied in different colors and with different surface finish, namely with glossy or mat finish or the like.

FIG. 4 illustrates in greater detail the construction of a panel component. The frame member 10 is preferably made as a hollow body of metal having a slanting inner face, as at 11, and a stepped inner edge portion 24 at the outer side 13. The edge portion 24 abuts against an extension 23 provided along the edge portion of the inner panel member 14. The frame member 10 also includes a recess 20 which is provided at the outer side of this frame member and which may receive an inner extension 22 of the associated outer panel member 12. An outer extension 21 of the panel member 12 may be fitted snugly about the outer edge of the frame member 10 so as to surround the recess 20 and the inner face 11.

Aligned holes 43 are drilled through the frame member 10 from the slanting inner face 11 and the parallel outer face bounding the recess 20 to receive bolts 40 (FIG. 8) which connect adjacent panel components so that such components make right angles with each other.

The bolt heads 41 and the nut 42 are accommodated in the recesses 20 of the adjacent panels. As shown in FIG. 8, the bolts 40 may be used for securing auxiliary components, such as the legs 18, which comprise suitably shaped portions 45 fitting into the recess and abutting against outer faces of that frame member to which such auxiliary components are being secured. The legs 18 are provided with adjusting means to properly level the piece of furniture on the floor. The adjusting means of the leg 18 shown in FIG. 8 comprises a floor contacting head 46 which is integral with a threaded portion 47 mating with the lower end portion of the leg 18.

If a cabinet or other storage means is to be provided with superimposed or supporting boards such as the boards 49 in FIG. 2, oppositely located side wall forming panel components may be provided with modified inner panel members 14' one of which is shown in FIG. 8. The member 14' comprises inwardly projecting extensions 48 designed to act as shoulder means for supporting plates, racks, drawers and other storage facilities thereon.



FIGS. 6 and 7 show a preferred form of hinge means which may be used to connect adjacent movable and stationary panel components to each other. Such hinge means is designed to permit pivotal movement of a movable panel component about an axis which is external to the interconnected panel components to make sure that the movement may be carried out notwithstanding the shaping of the panel components. The hinge means includes a series of links 50 hingedly connecting members 51 which may be secured to the adjacent frame members of the panel components. The frame members, such as 10*c* and 10*e*, are recessed to accommodate the members 51 which are secured thereto by means of nuts 52.

The connection between the frame member 10*b* of the bottom panel component of the cabinet and the frame member 10*f* of a side panel component of the cabinet (see FIG. 8), normally corresponds to any other connection between any pair of panel components. As shown in FIG. 9, bolts 40 are used for securing a frame member 10*h* of a top panel component of another form of cabinet to the frame member 10*g* of the adjacent back or rear panel component.

In FIG. 9 the bolt 40 is used for securing to the frame member 10*g* a supporting or suspending hook member 62 having at 63 a suitably shaped end portion fitted into the recess 20 of the frame member 10*g*. By means of two or more hooks such as the hook 62 of FIG. 9, a cabinet or other piece of kitchen furniture may be suspended on a wall 60 which is provided with a mating hook 61.

FIG. 9 illustrates further that some of the inner and/or outer panel members may be omitted in certain instances. In this example the panel component including the frame member 10*g* is designed to face the wall 60 of the room, and therefore, an outer covering for this panel component is not essential and such panel component may be provided only with an inner panel member 14*g* which forms a neat and clean covering at the inner side of the cabinet. The top panel component, including frame member 10*h*, may be likewise provided with an outer panel member 12*h* only.

Prefabricated panel components and panel members of the above described type may be used for producing cabinet-type pieces of furniture designed to support various kitchen implements, such as a sink 70 (FIG. 10) having an outer edge portion 71 adapted to abut from above against the frame member of the top panel component of the cabinet. In such constructions, the top panel component need not be provided with panel members at all. Likewise a range such as indicated at 72 in FIG. 11 may be supported by a cabinet which is assembled in a manner as described above. Preferably the range 72 will be supported and protected by a casing 73 which has an outer edge portion adapted to abut against the upper frame member of the cabinet structure and having a cover 74 to conceal and to protect the range when the latter is not used.

The interior of a cabinet which embodies the present invention may be cooled to form a refrigerated enclosure for storage of foods and beverages. A refrigerating unit 75 which is shown in FIG. 12 may be mounted on and may extend into the upper frame member 10*h* of a cabinet 81. The unit 75 has an upper plate 76 whose outer edge portion is adapted to abut against the frame member 10*h*, and a heat exhausting apparatus 77 is located above the plate 76. Heat adsorbing means 78 are located below the plate 76 to be accommodated in the cabinet when the various components of the cabinet are assembled. A freezer 79 may be placed below the plate 76, and this freezer may be provided with an upwardly directed passageway provided with a hinged door 80 for giving access to the interior of freezer.

FIG. 5 shows a filler member 30 which is used to connect two frame members in coplanar relationship by means of bolts, such as the bolts 40 of FIG. 8. This filler

member is formed with aligned openings **44** which are provided in its inner and outer walls **32, 31.**

Without further analysis, the foregoing will so fully reveal the gist of this invention that other can, by applying current knowledge, readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claims.

Having thus described the invention and the mode of carrying out the same, what is claimed as new and desired to be protected by Letters Patent is:

1. A piece of furniture comprising a plurality of prefabricated panel components which constitute wall portions thereof, each of said panel components comprising a frame member having an inner face inclined through 45 degrees with respect to the general plane thereof and an outer face which is substantially parallel with said inner face, each frame member further having a recess adjacent to said outer face and spaced holes extending from said inner face to said outer face and substantially perpendicular to said faces, a plurality of bolt means connecting pairs of such frame members to each other so that the inner faces of the thus connected frame members abut against each other and that the planes of such frame members make right angles with each other, said bolt means extending through the holes of interconnected frame members and having heads and nuts received in the recesses of interconnected frame members, and an outer panel member for one of said interconnected frame members, said outer panel member having an outer extension surrounding the inner face and a inner extension received in the recess of said one frame member to conceal the bolt means.



2. A piece of furniture as set forth in claim 1, further comprising a floor engaging leg having a portion extending into the recess of the other of said interconnected frame members, said portion having a hole receiving one of said bolt means so that said one bolt means secures said leg to said other frame member.

3. A piece of furniture as set forth in claim 1, further comprising a suspending member having a portion extending into the recess of the other of said interconnected frame members, said portion having a hole receiving one of said bolt means so that said one bolt means secures said suspending member to said one frame member.


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