

March 26, 1940.

D. ROBERTS
CABINET CONSTRUCTION

2,194,722

Filed July 14, 1937

3 Sheets-Sheet 1

Fig. 1.

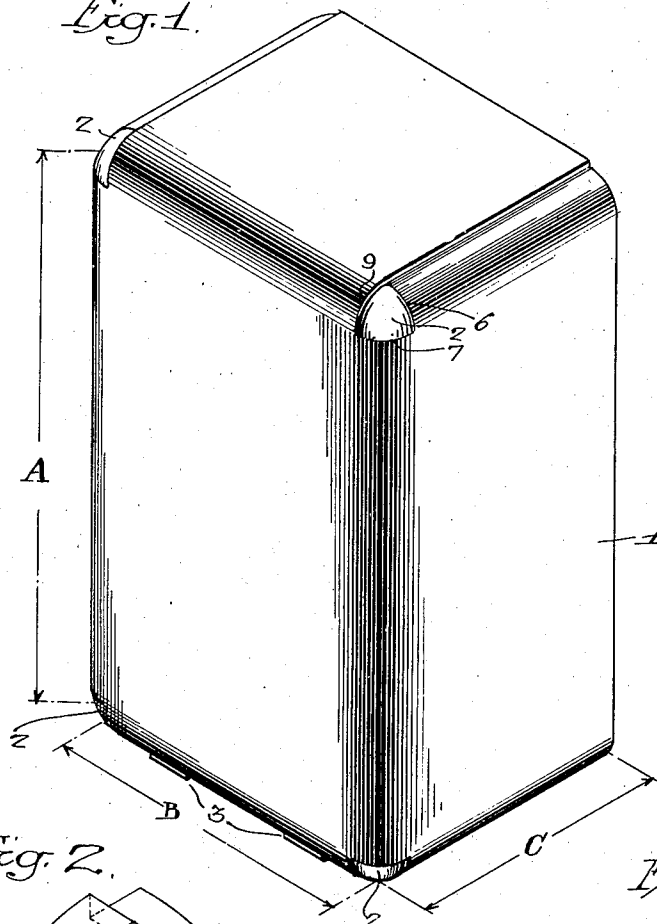


Fig. 2.

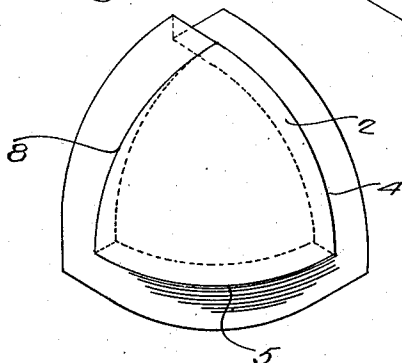
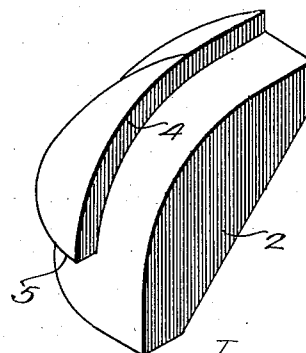


Fig. 3.



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3 Sheets-Sheet 2

Fig. 4

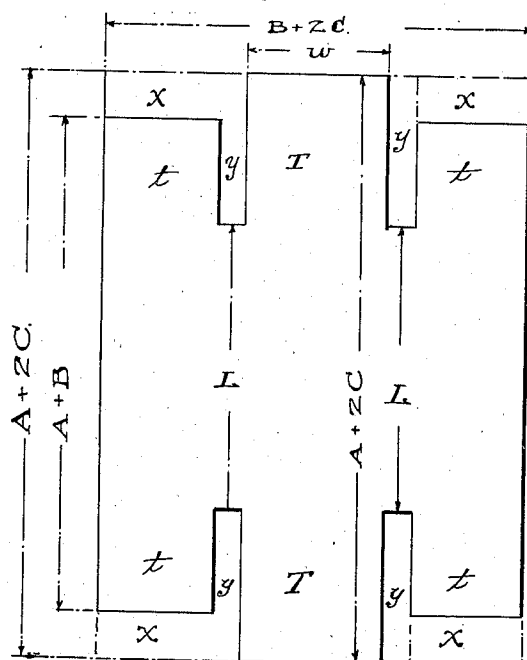


Fig. 5

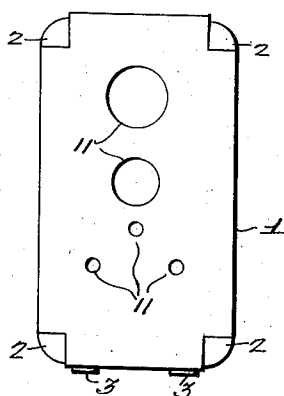
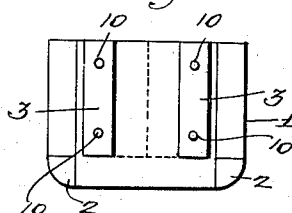


Fig. 6



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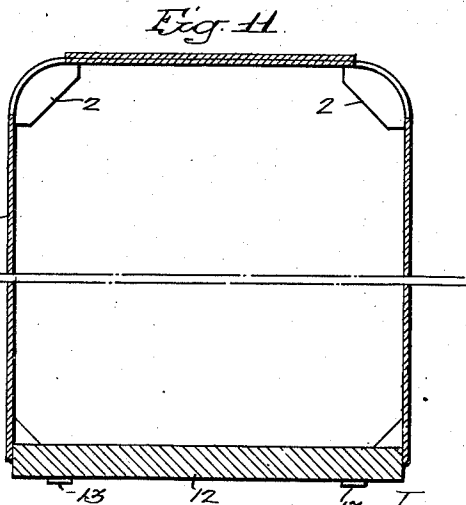
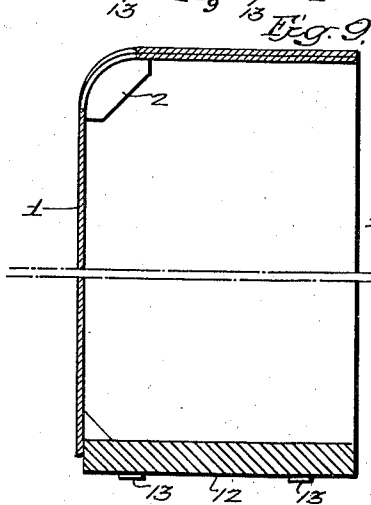
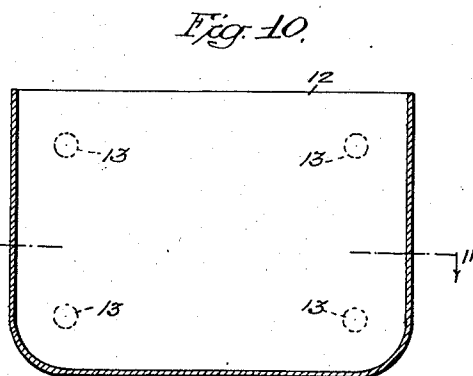
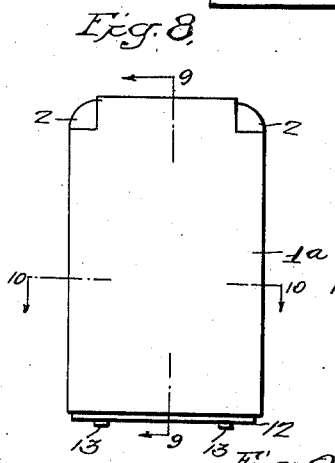
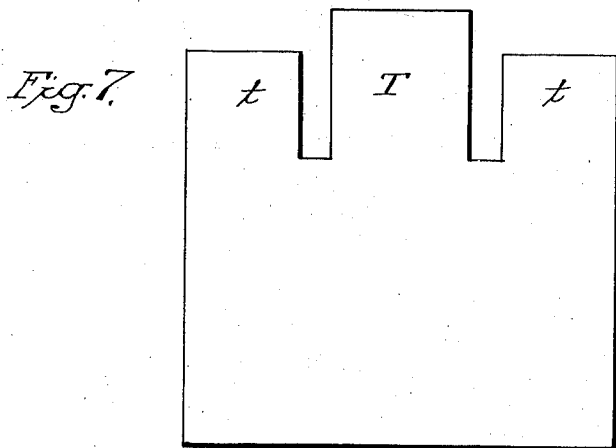
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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

2,194,722

CABINET CONSTRUCTION

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Application July 14, 1937, Serial No. 153,665
In Great Britain July 22, 1936

6 Claims. (Cl. 217-2)

This invention relates to cabinets and their manufacture, and more particularly to five sided cabinets, such as those employed as radio cabinets for radio sets. Such a cabinet is in the form of a rectangular box having a front, a bottom, two sides, and a top, the back of the cabinet being open.

One object of the invention is to provide a novel cabinet of this type in which three or more sides are formed from a single piece of plywood, consisting of two or more plies, and to provide a novel method of bending and forming the said sides from the single piece in one machine.

Another object of the invention is to provide a novel cabinet in which at least three mutually perpendicular sides thereof are formed using a single piece of plywood by providing tabs or extensions on two of the sides and folding and overlapping these extensions to form the third side.

A further object of the invention is to provide a novel cabinet in which the top, or both the top and bottom, of the cabinet are formed by providing tabs or extensions on the front and sides, and folding the tabs or extensions into overlapping relation with the edges of the side tabs in abutting relation.

Other objects and features of the invention will be apparent hereinafter.

In the accompanying drawings:

Fig. 1 is a perspective view of one form of the cabinet constructed in accordance with the invention;

Figs. 2 and 3 are perspective views of one of the corner pieces employed;

Fig. 4 is a face view of the cut piece or blank from which the cabinet of Fig. 1 may be formed;

Fig. 5 is a front view of the cabinet;

Fig. 6 is a bottom view of the same;

Fig. 7 is a face view of a cut piece or blank which may be used to construct an alternative form of the cabinet;

Fig. 8 is a front view of the alternative form of cabinet;

Fig. 9 is a sectional view taken along line 9-9 of Fig. 8;

Fig. 10 is a sectional view taken along line 10-10 of Fig. 8; and

Fig. 11 is a sectional view taken along line 11-11 of Fig. 10.

Referring to the drawings, in Fig. 1 there is shown one form of the cabinet which comprises the cabinet body 1 formed of plywood material, corner pieces 2, and supporting pieces 3. The corner pieces 2 are shown on enlarged scale in

Figs. 2 and 3. The construction of these pieces and their manner of use will be explained more fully hereinafter.

In the manufacture of the cabinet of Fig. 1 according to the present invention, the first step is to provide a piece of plywood material of predetermined shape, such as shown on a reduced scale in Fig. 4. Such a piece of plywood material may be cut from a piece of stock in such a way as to minimize waste or loss of material. For the purpose of explanation, it may be assumed that it is desired to construct a cabinet having a height A, a width B, and a depth C, as designated in Fig. 1. A rectangular piece of plywood material having a length approximately equal to $A+2C$ or $A+B$, whichever is greater, and a width approximately equal to $B+2C$, as indicated in Fig. 4, is first cut from the stock material. Assuming that $A+2C$ is greater than $A+B$, as will usually be the case, the four corners of the piece are cut symmetrically so that the length of each longitudinal edge is approximately equal to $A+B$, as shown in Fig. 4, and so as to leave central longitudinal tabs T slightly greater in width than B. The corner pieces which are thus cut away are shown in broken-line outline and designated x in Fig. 4. Longitudinal strips y are then cut away on each side of the tabs T, leaving the tabs of width w slightly less in width than B, and leaving longitudinal portions L slightly less in length than A. There are thus formed smaller tabs t on each side of the central tabs T and spaced therefrom. The cut piece or blank which is thus formed comprises a central section carrying the tabs T, and side sections or wings carrying the tabs t. The approximate relative dimensions given above are somewhat too large and give sufficient allowance for ordinary shrinkage in the forming process. The exact dimensions may be determined for any particular type of wood by consideration of its shrinkage and the particular shape of the cabinet edge.

The piece of plywood material which is thus formed is thoroughly moistened and is then folded and glued, as will now be described, to form the cabinet body. The process described below is preferably carried out in a single machine. The moistened piece is placed in a suitable hot press or mold heated by steam or other heating medium. The piece is folded longitudinally on each side of the central tabs T along the longitudinal portions L so that the side portions or wings carrying the small tabs t extend substantially at right angles to the central portion carrying the large tabs T. Preferably, the small tabs t

are then folded inwardly substantially at right angles to the sides or wings carrying them so as to bring the ends of the small tabs adjacent one another or into abutting relation. The inside

5 surfaces of the central tabs T are covered with glue and then these tabs are folded over the small tabs substantially at right angles to the central portion of the piece carrying the large tabs. In this position, the inside surfaces of the
10 tabs T are in contact with the outside surfaces of the smaller tabs t. The hot press holds the several sides in their respective positions until the wood and glue have had time to dry and set. It will be apparent, of course, that the order of
15 folding the tabs may be reversed. While any type of glue may be used, preferably a water-proof glue of the resinous type should be employed. The form of the folds will be determined by the shape of the mold and curved form.

20 When a piece of material, such as shown in Fig. 4, is thus folded, there is formed a five-sided cabinet of the type shown in Fig. 1. It has been found that satisfactory cabinets may be made in this manner, using plywood of 3 to 5 or more ply
25 veneer. It has been found also that when such cut piece is moistened and formed in a hot press, or mold under pressure, a permanent deformation of the laminated structure will occur, the wood showing no tendency to return to its original
30 shape when released from the press. Moreover, the gluing together of the tabs or flaps and the abutment thereof serve to markedly improve the strength and rigidity of the structure and are advantageous for that reason, while of course,
35 assisting in maintaining the desired shape of the cabinet. The forming and folding process, which may be done with the use of steam pressure and heat, may economically be performed by a machine in a single operation resulting in an economy in manufacturing cost.

40 Preferably, the corners and edges of the finished cabinet should be rounded and should have a reasonably large radius of curvature, for example, a radius of curvature of one inch is very
45 satisfactory. This gives to the cabinet a pleasing appearance. The cutting out of the pieces y, as above described, permits bending along a cylindrical form. Rounded corners may be provided by employing corner blocks which may be shaped
50 as desired, before or after assembling them in the cabinet.

The corner blocks or pieces which are employed to fill the spaces at the corners of the cabinet and to provide the desired rounded corners are
55 preferably shaped as illustrated in Figs. 2 and 3. It will be noted that these blocks or pieces are of the general shape of a portion of a spheroid but the curved surface of the block or piece is irregularly formed so as to provide shoulders 4
60 and 5 which abut against the edges 6 and 7 of the plywood, and to provide a tapering shoulder 8 adjacent the edge 9, as shown in Fig. 1. The said shoulders define an exposed corner surface
65 of the cabinet adjacent the edges 6 and 7. This provides a pleasing appearance in the finished cabinet. The corner pieces may be formed of any suitable material such as wood, Bakelite or metal, and they may be formed in any convenient man-
70 ner such as by cutting or molding. These pieces may be preformed in a standardized mold and will then fit in any cabinet made in a companion machine. This eliminates the necessity of forming a corner piece specially to fit a particular
75 cabinet and reduces the cost of manufacture of

the cabinet. The corner pieces may be inserted in the cabinet during the formation thereof or after the cabinet body has been formed.

The supporting pieces 3 may comprise strips of wood extending parallel to one another along
5 the bottom of the cabinet, as shown in Fig. 6, and secured to the bottom of the cabinet in any suitable manner, as by glue or screws. The size and shape of these strips may be varied to suit the designer's taste. They may be attached to
10 the cabinet during or after the formation thereof as above described. Small resilient feet 10 (see Fig. 6), which may for example comprise felt covered brads, may be attached to the support-
15 ing strips 3 so as to raise the cabinet above any polished surface upon which it may be placed, thus preventing marring or scratching of such surface.

The holes 11 which must be provided in the cabinet to accommodate control knobs, tuning
20 dial, loud speaker, etc., may be formed by punching out or die-cutting the plywood in the manner that sheet metal is punched or die cut. If desired, this may be done at the same time that
25 the cabinet is being formed so as to provide the finished cabinet by means of a single operation. This will insure standardization of the positions of the several openings in the cabinet.

In Figs. 7 to 11, there is illustrated an alter-
30 native form of the cabinet which may be formed from a cut piece or blank such as shown in Fig. 7. This piece of plywood material is similar to that of Fig. 4 except that in this instance only one
35 end of the piece is cut to provide a central large tab T and smaller side tabs t. After moistening and heating the cut piece of plywood, the piece is folded in the manner above described to provide a cabinet body 1a, the back and bottom of
40 which are open. It will be understood that the top of this cabinet will be constructed in the same manner that the top of the previously described cabinet is constructed. The corner pieces
45 2 are inserted in the upper front corners as previously described. In this instance, however, there is provided a rigid piece 12 which also forms the bottom of the cabinet and serves to rig-
50 idify the cabinet body. This bottom piece may comprise a relatively thick piece of wood or other material and may extend below the edge of the plywood body as shown in Figs. 9 and 11. This
55 bottom piece is preferably embodied in the box structure during the formation of the body thereof by folding the plywood about the bottom piece. Alternatively and less desirably, the said
60 piece may be inserted in the lower part of the plywood body after the formation thereof. The bottom piece may be secured to the plywood body by means of glue or in any other suitable man-
65 ner. In this instance also, there are provided small feet 13 which raise the bottom piece above the surface on which the cabinet is to be supported.

In either of the cabinets above described, the free edges of the plywood may be reinforced in
70 any conventional manner, if desired, but generally speaking, this has not been found necessary. Likewise, conventional glue blocks 12, as shown in Figs. 9 and 11, may be used if desired.

While the invention has been described with
75 reference to certain forms of embodiments, it will be understood that other modifications of the invention are possible and may be employed without departing from the general principles involved. It will be understood, therefore, that the

present disclosure imposes no limitation upon the invention. .

I claim:

1. In a plywood cabinet structure, two sides with a rounded surface joining them, a third side comprising overlapping tabs or extensions of the said two sides, the said tabs being bent so as to provide rounded surfaces between said third side and each of said two sides, and a corner piece inserted within the corner formed by the three sides and filling the space at the corner, said corner piece being formed to provide two shoulders thereon abutting against the respective edges of two of the said rounded surfaces and a tapering shoulder on the corner piece engaging the edge of the other rounded surface, said shoulders defining a corner surface which fits snugly within the corner space defined by the said rounded surfaces and blends into said rounded surfaces.

2. In a plywood cabinet structure, two sides with a rounded surface joining them, a third side comprising a bent tab or extension on one of said two sides and an overlapping bent tab or extension on the other of said two sides, the said tabs being bent so as to provide rounded surfaces between said third side and each of said two sides, and a corner piece inserted within the corner formed by the three sides and filling the space at the corner, said corner piece being formed to provide a shoulder thereon abutting against the edge of said first-mentioned rounded surface, a second shoulder on the corner piece abutting against the edge of the rounded surface of said first-mentioned bent tab, and a third tapering shoulder on the corner piece engaging the edge of the rounded surface of said overlapping bent tab, said shoulders defining a corner surface which fits snugly within the corner space defined by the said rounded surfaces and blends into said rounded surfaces.

3. In a plywood cabinet structure, a pair of opposed sides, a third side joined to said opposed sides by rounded surfaces, a fourth side comprising overlapping tabs or extensions of said first three sides, the said tabs being bent so as to provide rounded surfaces between said fourth side and each of said first three sides, and a pair of corner pieces inserted respectively within the corners formed by the said four sides and filling the spaces at the corners, each of said corner pieces being formed to provide three shoulders defining a corner surface which fits snugly within the corner space defined by three of the said rounded surfaces and blends into said

rounded surfaces, two of said shoulders abutting respectively against the edges of two of the said three rounded surfaces, and the third shoulder being tapered and engaging the edge of the other of said three rounded surfaces.

4. In a plywood cabinet structure, a pair of opposed sides, a third side joined to said opposed sides by rounded surfaces, a fourth side comprising bent tabs or extensions on said first two sides and a bent tab or extension on said third side overlapping the other tabs, the said tabs being bent so as to provide rounded surfaces between said fourth side and each of said first three sides, and a pair of corner pieces inserted respectively within the corners formed by the said four sides and filling the spaces at the corners, each of said corner pieces being formed to provide three shoulders defining a corner surface which fits snugly within the corner space defined by three of the said rounded surfaces and blends into said rounded surfaces, one of said shoulders being tapered and engaging the edge of the rounded surface between said third and fourth sides, and the other two shoulders abutting the corner edges of the other rounded surfaces.

5. In a cabinet structure, two sides with a rounded surface joining them, a third side adjacent to each of said first two sides with rounded surfaces between said third side and the first two sides, the said rounded surfaces extending toward a corner opening, and a corner piece inserted within the corner formed by the three sides and filling said opening, said corner piece being formed to provide three curved shoulders thereon conforming in curvature and depth to the respective edges of the said rounded surfaces and adapted to engage said edges, an outer curved surface on said piece within the confines of said shoulders fitting snugly within said opening and blending into said rounded surfaces, and curved surfaces adjacent to said shoulders outside the confines thereof and engaging the inner surfaces of the cabinet adjacent to said opening.

6. A corner piece adapted to be inserted within a cabinet and to fill a corner opening of the cabinet, said piece having three curved shoulders formed thereon in intersecting relation with one another, two of said shoulders being of substantially constant depth and the third being of varying depth, a curved corner surface within the confines of said shoulders, and curved surfaces adjacent to said shoulders outside the confines thereof.

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