Apr. 17, 1923. 1,452,272

H. J. GWYER

REFRIGERATOR CONSTRUCTION

Filed July 30, 1920 3 Sheets-Sheet 1

Fig. 1.

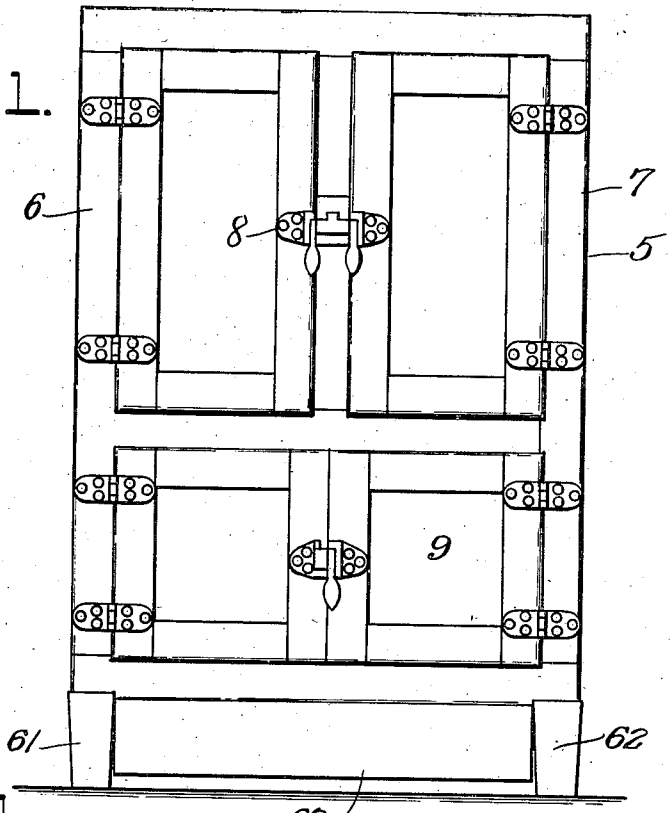


Fig. 11.

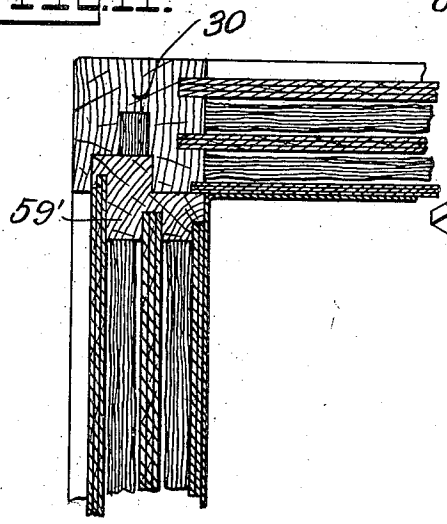
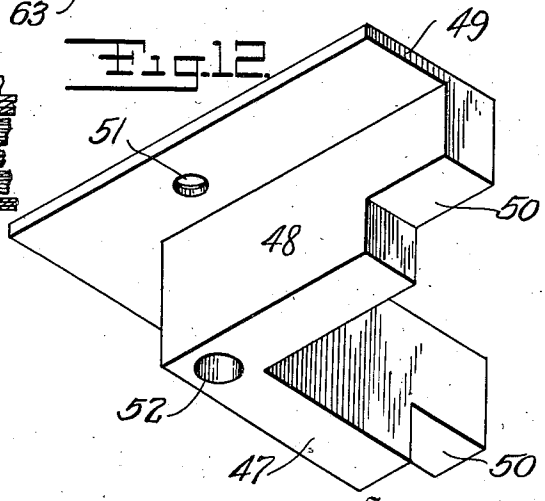


Fig. 12.



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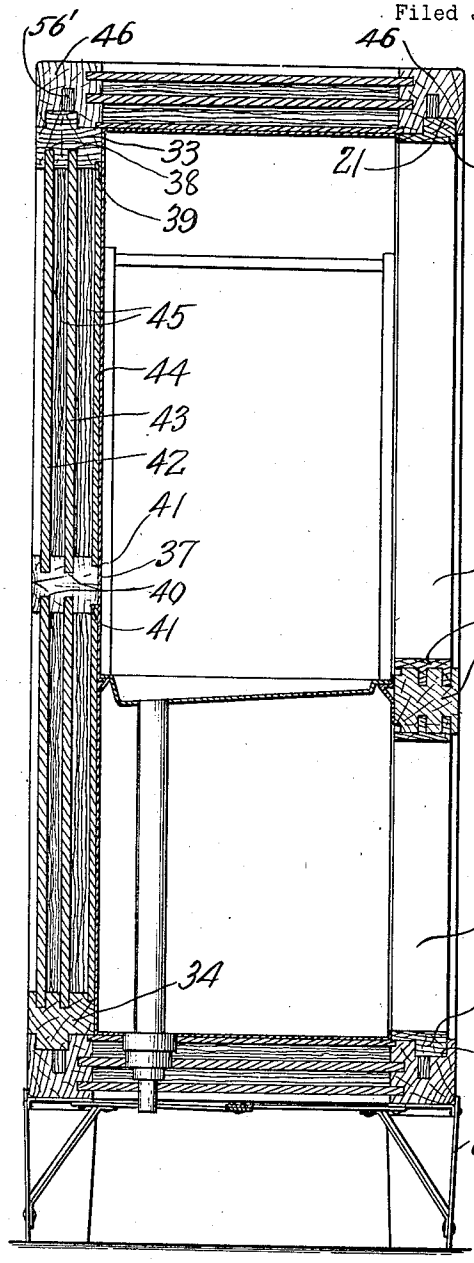


Fig. 2.

Fig. 7.

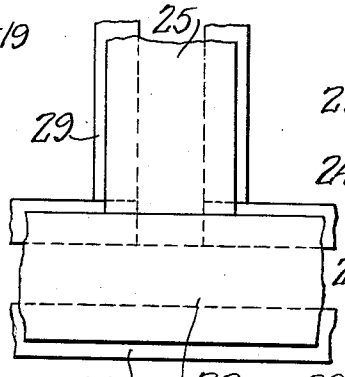


Fig. 8.

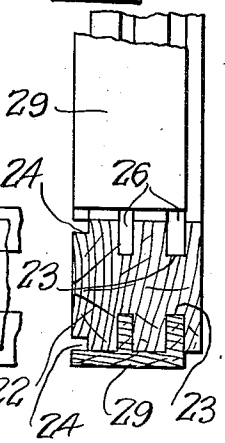


Fig. 9.

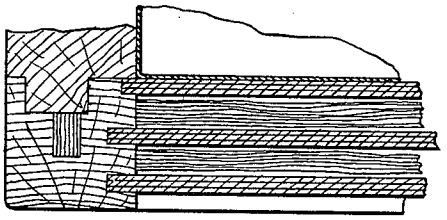
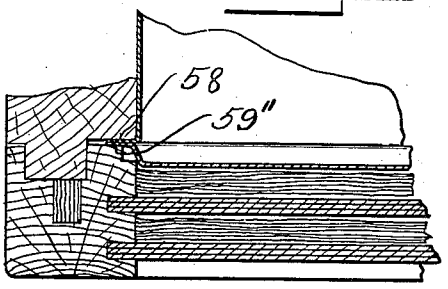


Fig. 10.



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REFRIGERATOR CONSTRUCTION

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Fig.4.

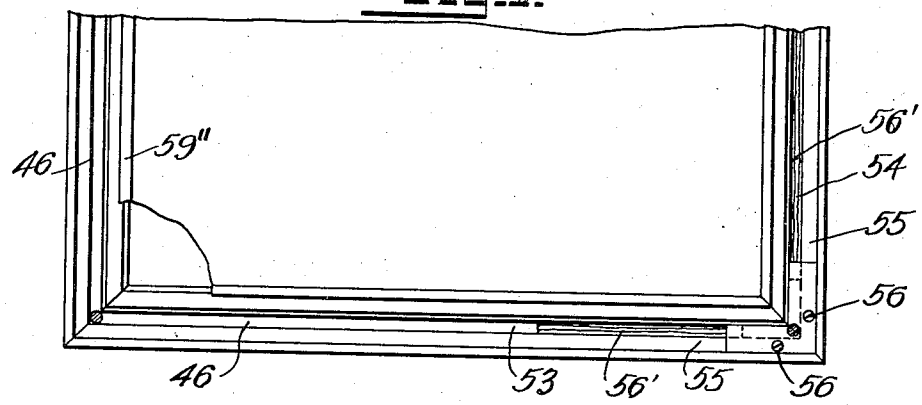


Fig.3.

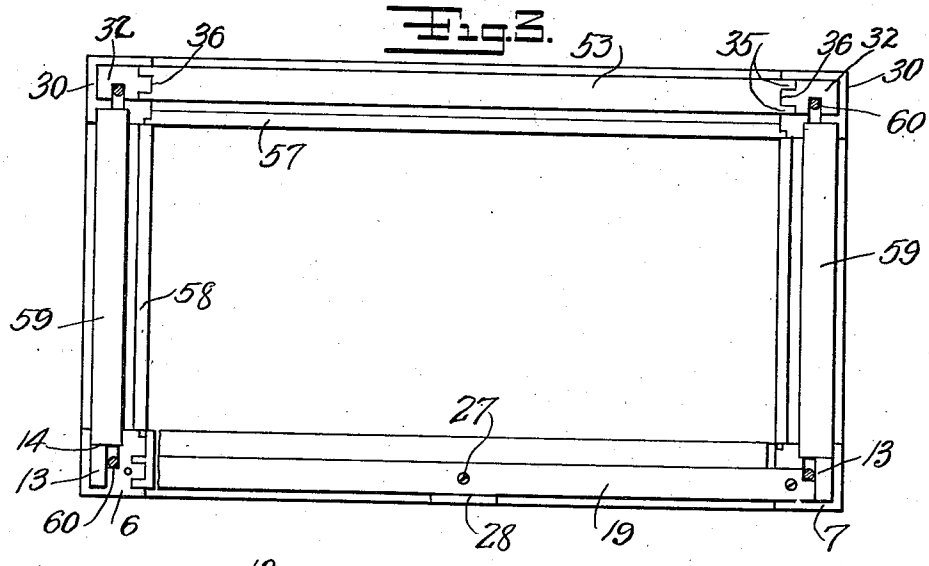


Fig.5.

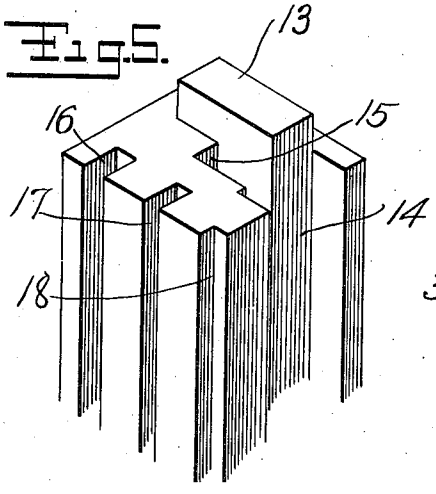
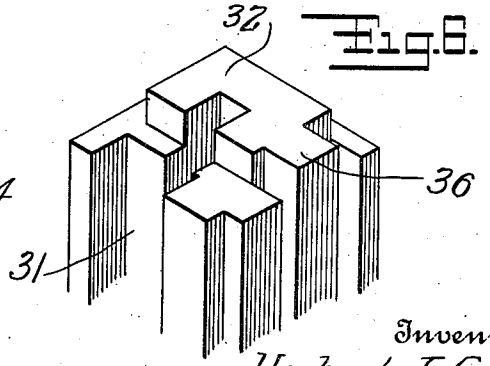


Fig.6.



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UNITED STATES PATENT OFFICE.

HERBERT J. GWYER, OF YONKERS, NEW YORK.

REFRIGERATOR CONSTRUCTION.

Application filed July 30, 1920. Serial No. 400,208.

To all whom it may concern:

Be it known that I, HERBERT J. GWYER, a citizen of the United States of America, residing at Yonkers, Westchester county, New York, have invented a new and useful Refrigerator Construction, of which the following is a specification.

My invention relates to a refrigerator construction.

It is an object of my invention to provide a knock-down refrigerator having highly insulated walls.

It is a further object to provide a refrigerator in which the parts can be made of standardized cross-section for reducing the cost of construction.

It is a further object to provide a simple and efficient corner fastening means.

Invention resides further in the details of construction hereinafter described, and specified in the claims.

My invention in its preferred form includes a cabinet comprising six units, namely, top and bottom and four sides. These units with the possible exception of the front are insulated in a very efficient manner without unduly increasing the wall thicknesses. The corners of the top and bottom units are secured together by means of an improved corner fastening, and all of the units are held together in cabinet formation by means of four rods. The cabinet may be provided with a solid or sectional lining.

In the drawings which show merely a preferred form of my invention.

Fig. 1 is a front elevation of a refrigerator embodying features of my invention.

Fig. 2 is a vertical sectional view of the construction shown in Fig. 1.

Fig. 3 is a top plan view of Fig. 1 having the top removed.

Fig. 4 is a bottom plan view of the top showing an improved corner fastening in one corner.

Fig. 5 is a fragmentary detail perspective view of one end of a front corner post.

Fig. 6 is a similar view of a rear corner post.

Fig. 7 is a fragmentary detail view of a portion of the front unit.

Fig. 8 is a sectional view of the details shown in Fig. 7.

Fig. 9 is a fragmentary detail view of a section of the bottom and one side showing a solid lining in place.

Fig. 10 is a view similar to Fig. 9 but showing a slightly modified construction with a sectional lining.

Fig. 11 is a cross-sectional view through one corner of the cabinet.

Fig. 12 is a detail perspective view of the improved corner fastening.

In said drawings, 5 indicates the front panel unit as a whole. The front panel unit includes the two posts 6—7 which are secured together as will be later described. Any desired or suitable number of doors such as 8—9 may be provided, and these doors are preferably hinged to the corner posts 6—7. Suitable abutments or jambs to be hereinafter described are provided for the doors.

In the form shown, the doors substantially fill the spaces between the posts and therefore no insulated panels have been shown in the front unit. It is, however, to be understood that should a different arrangement of doors be provided, the space not filled by doors would be filled by suitable insulated panels.

Each of the front corner posts shown in detail in Fig. 5, is substantially rectangular in general outline. Each post is provided with an upstanding projection 13 to be engaged by the top or bottom panel unit, as will be later described. In one side of each front corner post is a relatively wide shallow groove 14 for receiving one of the side units. Extending inwardly and preferably from the same side is a relatively narrow groove 15 to accommodate the tie-rod for holding the parts together. On the other inner side of each front corner post are two grooves 16—17. The inside corner of the post is rabbeted or cut away as at 18.

The two front corner posts 6—7 may be secured together by means of tie beams 19—20 which are of substantially duplicate cross-section. The tie beams may be provided with upstanding projections 21 which fit into corresponding grooves in the top and bottom frames. These tie beams may be secured as by means of screws to the upper and lower ends of the front posts, and the projections 21 of these tie beams come substantially flush with the upstanding projections such as 13. Secured between the corner posts at a suitable distance between the ends, there may be a cross beam 22 which is preferably provided with tongues and grooves to fit the grooves 16—17—18 formed in the

corner posts. The cross beam 22 may be provided with a series of longitudinal grooves 23, and the inside corners may be rabbeted or cut away as at 24. Between one tie beam 19 and cross beam 22, there is provided a vertical beam 25. This vertical beam is provided with tongues 26 which fit into the grooves 23 in the cross beam. The opposite end of the vertical beam is secured to a tie beam 19 as by means of a screw 27 (see Fig. 3) and an upstanding flange 28 may abut the side of the tie beam 19. The vertical beam 25 is of the same cross section as the cross beam 22. Fillet members 29—29 are fitted into the grooves in the cross and vertical beams and serve as jambs or abutments for doors. Similar fillets such as 29′ may be secured to the corner posts and act as abutments for the doors.

The back panel unit includes two posts 30—30. These posts are of the same cross section as the front corner posts and are so arranged that the relatively wide groove 31, corresponding to the groove 14 on the front corner post, faces the groove 14 when the cabinet is assembled. An upstanding projection 32 is provided upon each end of each back corner post. Top and bottom cross beams 33—34 are secured to the back corner posts and have tongues and grooves 35—36 as shown in Fig. 3 for engaging and interlocking with corresponding parts on the back corner posts. The top and bottom beams 33—34 are provided with grooves 38—38 and the inner corners are rabbeted or cut away as at 39 at the edges.

Secured to the corner posts intermediate their ends in a cross beam 37. This cross beam is secured to the posts by tongue and groove connections similar to that described for the top and bottom cross beams. The beam 37 between the back corner posts is of the same cross section as the beam 22 between the front corner posts. The cross beam 37 is provided upon opposite sides thereof with grooves 40 corresponding to the grooves 38—39 in the top and bottom beams, and the opposite inner edges are rabbeted or cut away as at 41—41. It will be seen that the grooves in the cross beams in the back panel unit correspond in number and spacing with the grooves in the back corner posts.

Secured in the grooves in the cross beams and back corner posts are spaced panel members 42—43 and in the rabbeted or cut away portions is held a panel 44. These panels may be of any suitable material, but are preferably of the so-called "Compoboard" or other similar laminated structure. Between the panel members just described and preferably slightly spaced therefrom are insulating panels 45 of felt or other suitable material. It will be seen that due to the laminated structure of the panel members and the insulating members and the air spaces that a very efficient insulated wall will result.

The top and bottom members are of substantially the same construction, and therefore only one of these members will be described. The top member is made up of a frame consisting of parts such as 46—46 preferably mitered at the corners. The members of this frame are of the same cross section as the corner posts, and therefore need not be further described. Panel and insulating members similar to those described for the back unit are provided in the top and bottom units.

The frame members are preferably secured together by means of an improved corner fastening as shown in Figs. 4 and 12. This corner fastening may be conveniently made of cast iron but any other suitable material may obviously be used. The corner fastening consists of a substantially angular portion 47—48 and a flange 49 is formed at one edge of the body portion. Each corner of the body portion may be rabbeted out or cut away as at 50 for a purpose to be hereinafter described. Suitable apertures such as 51 may be provided in the fastening for securing the same to the frame members. An aperture 52 preferably extends through the flange or body portion for a purpose to be described. The corner fastening is applied to the frame and the body portion 47—48 extends down into the deep grooves 53—54 while the flange portion 49 rests in the relatively wider groove 55. Suitable means such as screws 56 secure the corner fastening to the frame members and securely hold the latter rigidly together. In the drawings, but one corner fastening has been shown, but it is obvious that duplicate fastenings would be provided in each corner.

In the grooves such as 53—54, I prefer to place sealing members 56′ of felt or similar material. The ends of the felt strips fit beneath the rabbeted or cut away portions of the corner fastening, and when the latter is screwed down to the framing pieces the sealing strips are securely held in place in the grooves. Side units such as 59 are provided. These units preferably comprise grooved frames, one frame member being shown at 59′ in Fig. 11. The other frame members are of the same cross section as the one shown, and it is therefore unnecessary to show a complete frame. The side, back, top, and bottom are all insulated in a similar manner, and the description given for the back unit insulation construction will suffice for all.

The cabinet may be lined in any suitable manner. In Figs. 2, 9, and 11, I have shown a solid or seamless lining. In Figs. 3, 4, and 10, I have shown a sectional lining. If a sectional lining is to be used the same will

preferably comprise separate sections for each panel unit. The lining sections as shown in Figs. 3, 4, and 10 will lap over the edges of the panel units as shown at 57—58—59″ and be securely held in place by the panel units when the latter are assembled in cabinet formation. As shown in Fig. 10, the bottom lining section may be made in the form of a pan so that any moisture will remain in the pan and not leak into the joints. As shown in Fig. 10, the upper panel in the bottom section may be omitted and the pan or lining section will then come in proximity to the felt.

When the parts are to be assembled, the bottom unit is set in place. The front and back units are next placed on the bottom unit with the cross beams and tie beams and projections on the corner posts, all fitting in the grooves in the bottom frame. The side units are next slid down the grooves in the corner posts and into the grooves in the bottom frame. The top is then placed over the thus far assembled units and the grooved frame fits over the ends of the corner posts and the ends of the units in a manner similar to that described for the bottom unit. Four rods such as 60—60 may then be passed through apertures in the top through the hole 52 in the corner fastening, through the corner posts, through the bottom frame, and a nut may then be screwed on to the rod to hold the parts securely in place. A similar means for securing the parts together has been disclosed in my co-pending application, Serial No. 383,346, filed May 22, 1920. When the parts are assembled, it will be seen that the inner panels of the top and bottom sections abut against the cross beams and tie beams on the back and front sections and will be securely held in place.

The cabinet is supported upon legs such as 61—62, and an apron such as 63 may be provided for closing the space between two of the legs to hide the pan usually provided under a refrigerator. This apron 63 may be swung upwardly to permit the removal of the pan. The leg and apron construction just described forms no part of my present invention, but is made the subject matter of a separate application, Serial No. 398,976, filed July 26, 1920.

While I have shown specific embodiments of my invention, I wish it to be understood that various changes and modifications may be made all coming within the scope of the appended claims.

I claim:

1. In a construction of the character described, a front panel unit comprising corner posts, top and bottom tie beams secured to the upper and lower ends of said posts, a cross beam secured to said posts intermediate the ends thereof, a vertical beam secured to said cross beam and to one of said tie beams, fillet pieces secured to said cross and vertical beams and forming with said tie beams jambs for doors, a back panel unit including corner posts, side panel units, and top and bottom panel units fitting over the ends of and securing said panel parts together to form a cabinet.

2. In a construction of the character described, a back panel unit comprising two grooved corner posts having projections on the ends, top and bottom cross beams having tongues thereon fitting in grooves in said corner posts, insulating panels between said posts and cross beams, a front panel unit, side panel units, top and bottom panel units including last mentioned insulating panels and fitting over said first mentioned units for holding them together and forming a cabinet, one of said insulating panels abutting against one of said cross beams when the parts are assembled.

3. In a construction of the character described, a front panel unit including two corner posts and tie beams, a back panel unit including two corner posts and end cross beams, top and bottom units including frames, said frames fitting over and securing said front and back units together, a grooved cross beam between said back corner posts and intermediate their ends, panel members fitting in said grooves and between said posts, a cross beam secured to one of said front corner posts, a vertical beam secured to said last mentioned cross beam and to one of said tie beams, said grooved cross beam in the back unit and said cross beam secured to one front post being of the same cross section.

4. In a construction such as set forth in claim 3 and a fillet piece having tongues thereon fitting into the grooves in said cross beam secured to the front post and forming a jamb or abutment for a door.

5. In a construction of the character described, a front panel unit including two corner posts, top and bottom tie beams secured to said corner posts for securing the same together, a back panel unit including corner posts, top and bottom cross beams secured to said last mentioned posts, panel members between said cross beams and posts, a pair of side panel units engaging said posts and fitting between said front and back units, top and bottom frames fitting over and securing said units together, said frames having grooves on the inside thereof and cut away portions at the inner edges, panel boards in said grooves and cut away portions, the panel boards in said cut away portions abutting said tie beams and cross beams when the units are assembled.

6. In a construction such as defined in claim 5, said top and bottom frames having grooves in another side which fit over said side units.

7. In a construction such as defined in claim 6, said frames having grooves in the bottoms of said last mentioned grooves and adapted to carry sealing members.

8. In a construction of the character described, a front panel unit including corner posts, top and bottom tie beams permanently secured to the upper and lower ends of said posts for permanently securing the latter together, a cross beam secured to one of said posts intermediate the ends thereof, a vertical intermediate post secured to one of said tie beams and to said cross beam, said posts and cross beam defining door openings, fillet pieces secured to and having tongue and groove connections with one of said corner posts and with one of the other members defining a door opening and serving as jambs for a door, a back panel unit including corner posts, side panel units, and top and bottom panel units having tongue and groove connection with and securing said front, back and side panels together, and rods for securing said top and bottom units to each other at the corners, whereby all the units will be held together in rigid cabinet formation.

9. In a construction of the character described, a sectional frame having a groove in one side and another groove in the bottom of said first mentioned groove and a corner fastening fitting in said last mentioned groove, and having a flange fitting in said first mentioned groove, and secured to said sectional frame for holding the parts together.

10. In a construction such as set forth in claim 9, said corner fastening, having a cut away portion for receiving a sealing member between the fastening and the bottom of the groove.

11. As an article of manufacture, a corner fastening comprising an angular body and a lateral flange extending therefrom, said angular body being cut out at the ends.

12. In a construction of the character described, four side units, grooved top and bottom units receiving said side units, each of said top and bottom units including a sectional frame, corner fastenings in the grooves in said top and bottom units and having apertures therethrough and rods passing through said apertures and through some of said side units for securing the top and bottom together and securing the side units thereto.

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