

[54] **FRAME STRUCTURE FOR BATHROOM CABINETS**

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[30] **Foreign Application Priority Data**

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[58] Field of Search..... 312/257, 111, 140, 312/263, 242, 245, 351

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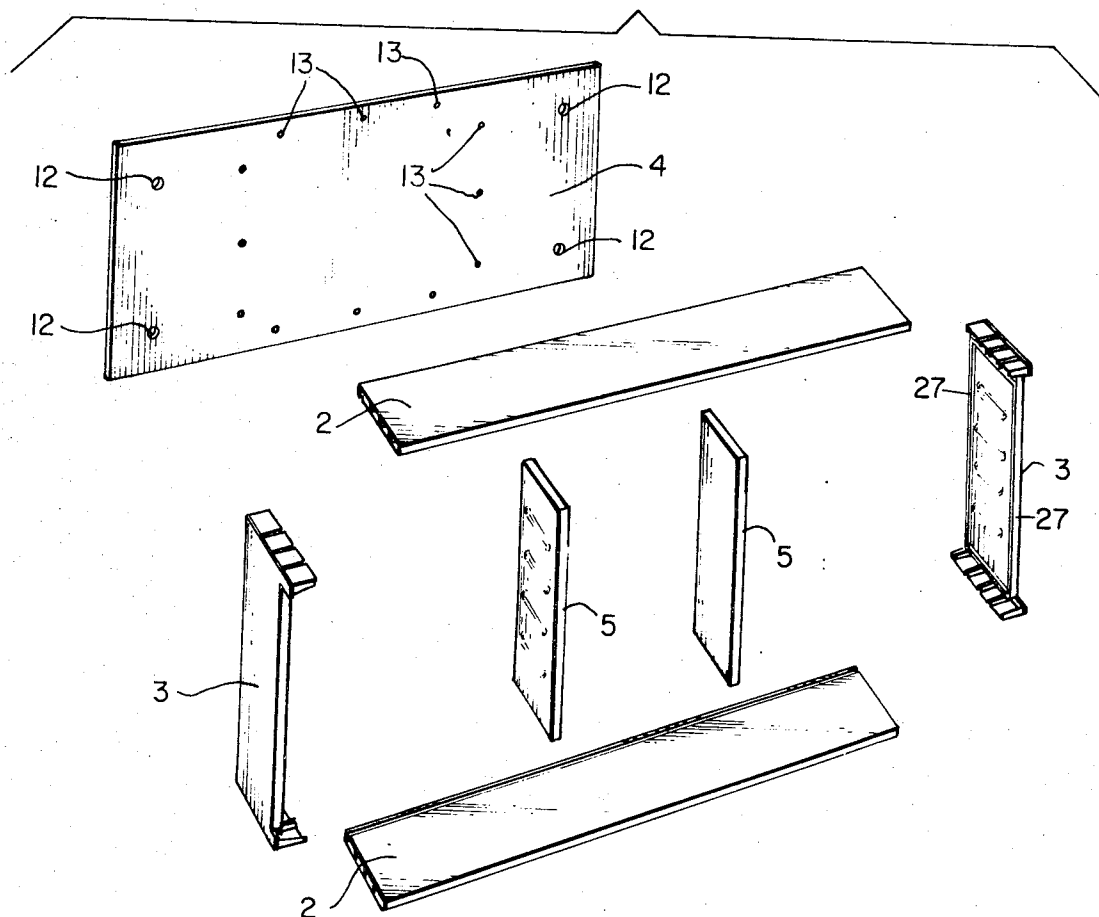
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[57]

ABSTRACT

A frame structured plastic bathroom cabinet, including at least two side profiles or components having arms extending at right angles at the lower and upper ends and two hollow upper and lower profiles or components with open ends to receive the arms of the side profiles so as to form a framed enclosure, said enclosure being capable of vertical and horizontal division into compartments.

3 Claims, 7 Drawing Figures



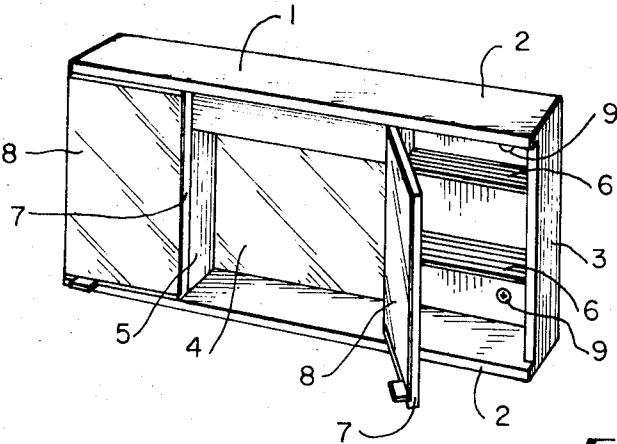
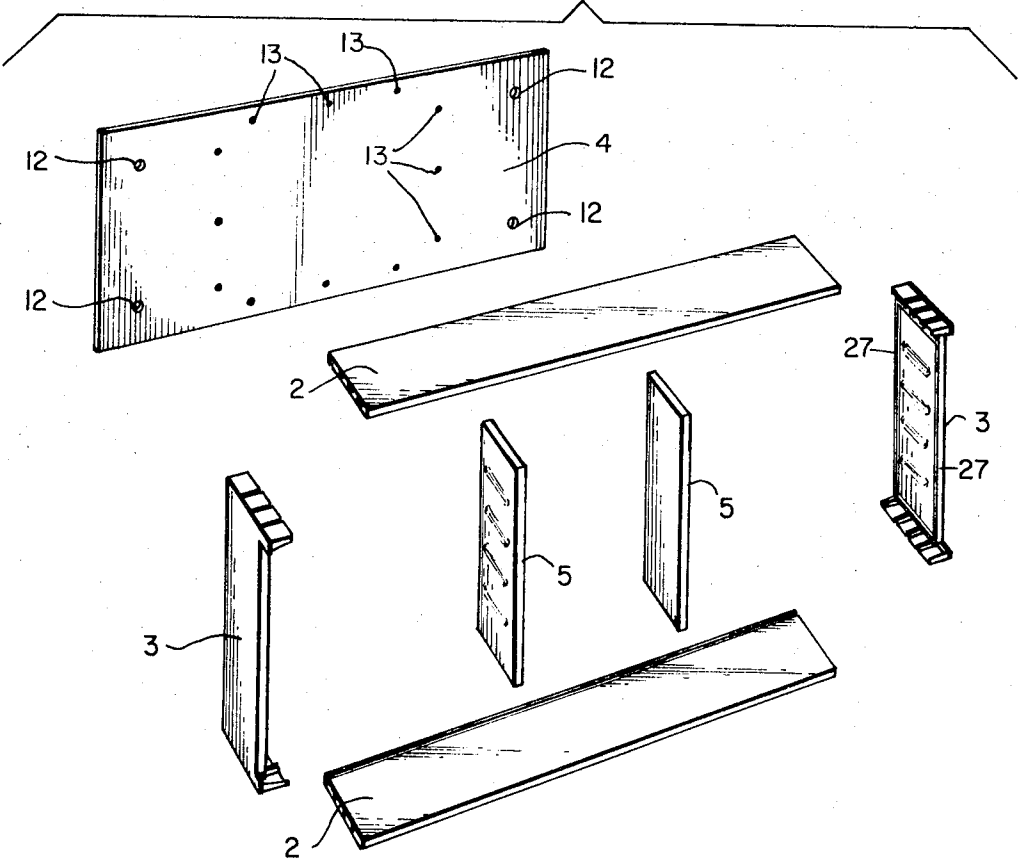


FIG. 1

FIG. 2



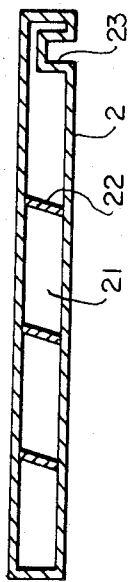


FIG. 3

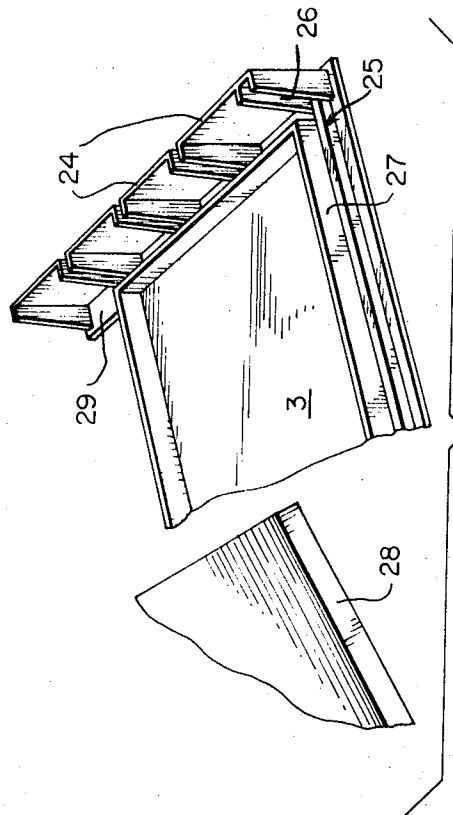


FIG. 4

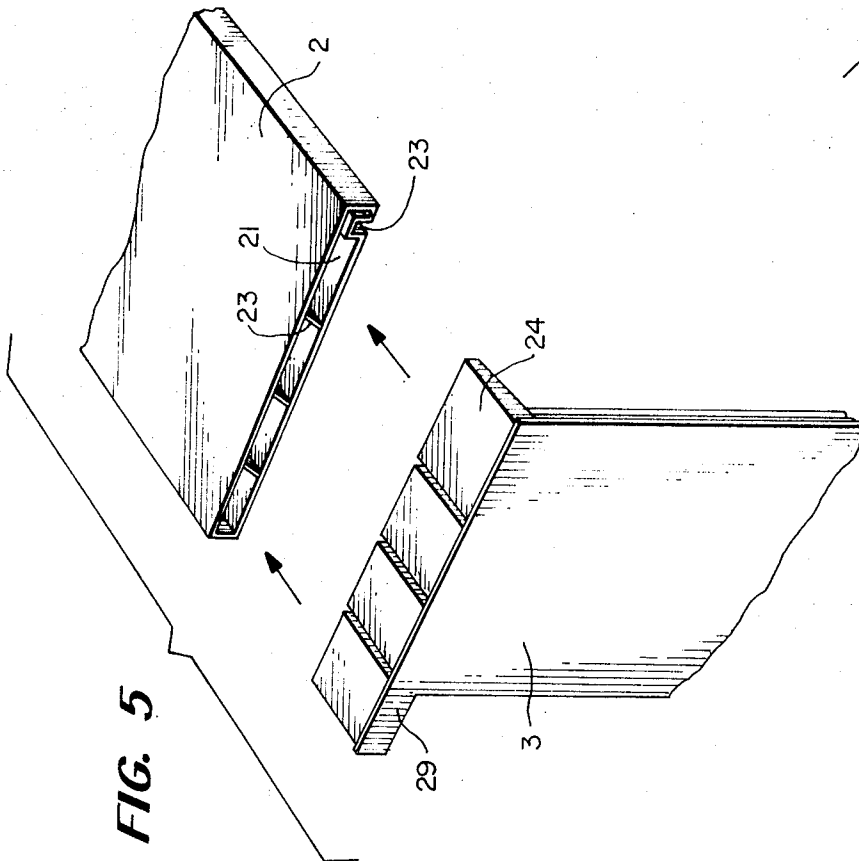


FIG. 5

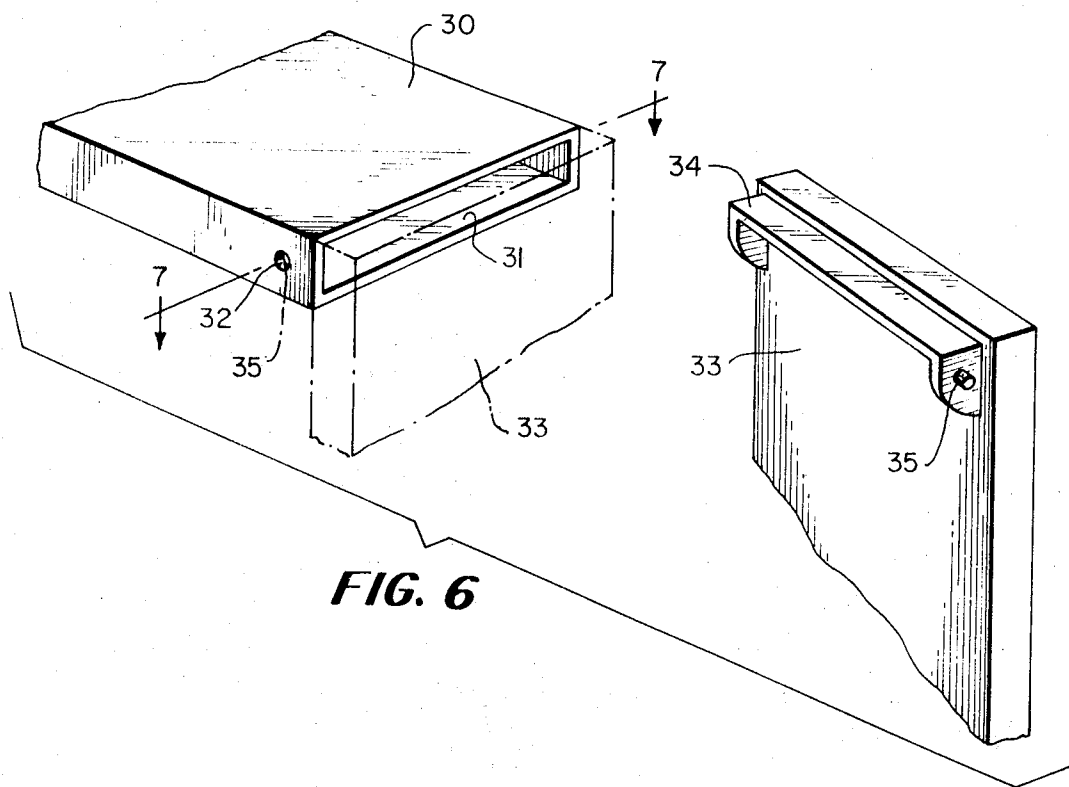


FIG. 6

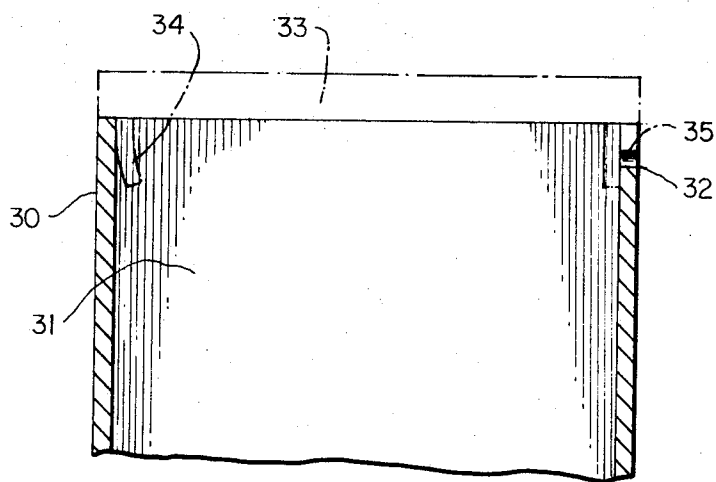


FIG. 7

FRAME STRUCTURE FOR BATHROOM CABINETS

BACKGROUND OF THE INVENTION

The present invention relates to a new frame structured plastic bathroom cabinet. The invention employs component frame members of a newly devised structure and by arranging these members in various orientations, a cabinet of any desired size can be produced easily and economically.

In the past, plastic bathroom cabinets of the type resembling wall-mounted shelves, have been molded as one complete cabinet or unit. However, these bathroom cabinets are also designed specifically to serve a decorative purpose, and for this reason various sizes and shapes are required to suit the particular room design into which they are to be placed. This requirement presents a serious problem, however, in that it is not practical or economical to produce cabinets of various structural arrangements in small lots. Large lots must be produced in order to justify the expensive molds employed for a particular size and shape of cabinet.

It has also been known in the past to connect component members by separate and distinct additional elements with protrusions for insertion into the open ends of adjacent members to be joined; but such a structure not only requires at least four additional components, but is severely inferior in strength to the present structure in which the protrusions are an integral part of one of the main component members.

A primary object of the present invention is to overcome the problem of high cost related to producing numerous sizes and shapes of cabinets in small lots.

Another object of the present invention is to produce a cabinet which has a high simplicity of construction but with excellent strength and which consists of members that can be variously arranged to produce different sizes and shape of cabinets.

Another object is to produce a cabinet which may be simply assembled with or without cementing material or nailing and which, because it is constructed of component members can easily and economically be packaged and shipped to distant locations, and may also be sold in an unassembled condition as well as an assembled unit.

Another object is to produce a cabinet of simple frame structure in which the interconnecting members combine to form a product of unique and unusually high strength, especially at the joint and corners formed by the interconnection of the members.

Thus, this invention offers a solution for a variety of prior problems and disadvantages pertaining to single unit cabinets. In this invention, the components which constitute the four sides of the cabinet are made separately so that they may be constructed into cabinets of all sizes and various box shapes. The upper and lower components are of hollow profile having the same section lengthwise, while the left and right side components have protruding arms extending from the upper and lower ends and which are to be inserted to the upper and lower components at right angles.

SUMMARY OF THE INVENTION

In general summary, the invention is a frame structure consisting of two side profiles or components having arms extending at right angles at their lower and upper ends, and an upper and lower profile, each of which is hollow with open ends and has the same sec-

tion lengthwise. The four components or profiles are joined in angular relationship such that the side profile arms extend into the hollow part of the upper and lower profiles through their open ends. This forms an enclosure which is box-like in shape. In addition, the profiles may be grooved along their peripheries to receive a back member which would be rigidly supported in these grooves. Further additions can include vertical and horizontal subdividers to divide the frame into sections. Also, a means may be affixed opposite the back member to alternately expose and conceal the interior. A double wall unit can be formed by forming a ridge around the periphery of the side profiles and adjacent the interior extent of the arms, to receive a reinforcing unit.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of an assembled bathroom or vanity cabinet according to the invention;

FIG. 2 is a perspective view showing the basic elements of the cabinet in a disassembled state;

FIG. 3 is an end view showing the open-ended arm receiving section of the upper and lower profiles or components;

FIG. 4 is a perspective view showing the structure of a side profile or component;

FIG. 5 shows the joining of upper and side profiles or components;

FIG. 6 shows an alternate embodiment of the upper (or lower) component and the side component; and

FIG. 7 is a sectional view taken along line VI-VI of FIG. 6 showing the components of FIG. 6 in an assembled state.

DETAILED DESCRIPTION

Referring now to FIG. 1, there is shown a completed vanity or bathroom cabinet 1 having upper and lower profiles or components 2 cojoined with side components 3. Back plate 4 is slidably and frictionally interconnected with components 2 and 3 and the cabinet is subdivided by vertical dividers 5 and horizontal dividers or shelves 6. Cabinet 1 is enclosed by doors 7, which may have attached thereto decorative or functional elements, such as mirrors 8. The cabinet is secured to a wall by means of bolts or fasteners 9.

In the assembled state, the corner structure of the cabinet of the invention is sufficiently strong so that the cabinet may be held together by frictional fit and the action of the rivets or fasteners used to secure back plate 4 and subdividers 5. However, because bathroom vanity cabinets are subjected to continuous and prolonged daily use, it is preferred that adhesive or cementing material be applied to the various components on the contiguous surfaces prior to assembly.

FIG. 2 shows the basic elements of the cabinet in a disassembled state: the elements including upper and lower profiles or components 2, side profiles 3, back plate 4, and vertical dividers 5. Back plate 4 is provided with large holes 12 for receiving bolts or fasteners 9 to attach the cabinet to a wall or other surface and small holes 13 adapted for receiving plastic rivets or other fasteners (not shown) to provide for the attachment of back plate 4, vertical subdividers 5 and horizontal subdividers or shelves 6.

FIG. 3 shows an end view of an upper (or lower) component or profile 2 comprising arm receiving spaces 21 which extend over the length of the profile

and are formed by the side walls thereof and sectional dividers 22, and recess 23 which serves both to receive the corresponding recessed portion of profile 3 and also to receive back plate 4. Profile 2 is conveniently made by continuous extrusion of a suitable plastic such as ABS resin and can be cut to any length to provide for cabinets of varying size. The opposite end of the profile is, of course, a mirror image of the end shown in FIG. 3.

FIG. 4 shows a side profile 3 of single wall thickness comprising a plurality of extending arms 24, spaced and arranged to be frictionally received by arm receiving spaces 21, back plate support ridge 25, recess 26 into which back plate 4 is slidably and frictionally positioned, and frame 27 which adds structural strength to the side walls and the corners of the cabinet after assembly and is also designed for frictional engagement with cover 28, thereby providing a double wall for side profile 3. The plurality of engaging arms 24 terminate in extended portion 29, which, when received by the corresponding portion of profile 2, provide a recessed space for positioning doors 7, as shown in FIG. 1. The number of extending arms 24 is varied to correspond with receiving spaces 21, as shown in FIG. 3. Arms 21 have a length of at least twice the thickness of profile 2 (or twice the thickness of a double wall of profile 3), thereby providing mechanical strength to the corners of the assembled cabinet. Additional strength is also provided by the walls of frame 27, which extend lengthwise and widthwise around the periphery of component 3. The lengthwise extending walls of frame 27 serve as struts which provide additional strength and support. Further strength and improvement in esthetic appearance are provided by frictional engaging cover 28 and frame 27 as shown in FIG. 4. Side profile 3 is conveniently made by injection molding. The end shown by FIG. 4 is opposite the profile end shown in FIG. 5 and corresponds to the mirror image of upper or lower component shown in FIG. 3.

FIG. 5 shows the joining of components 2 and 3. The arms 24 of component 3 are received by receiving spaces 21 of component 2 in secure frictional relationship. Prior to engagement the surfaces of arms 24 can be coated with a suitable adhesive or cementitious material to provide permanent joints for the four frame components of the cabinet.

The joining of the components 2 and 3 with back plate 4 in the area of the corresponding recesses 23 and 26 provides a dense corner structure equivalent to five contiguous single walls, thus providing great structural strength to the corners of the cabinet. When assembled, these corners would be equivalent to a solid block or mass of material due to the overlapping of portions of the interconnecting components. This provides added structural strength to the arrangement. Further, this arrangement is superior in simplicity and strength to that previously mentioned where component members are connected by a separate and independent component having protrusions designed for insertion into the open ends of the component members to be joined.

An alternate embodiment of the invention is shown in FIGS. 6 and 7. In FIG. 6, top (or bottom) profile or component 30 is provided with arm receiving space 31 and hole or aperture 32 on one side. The side component 33, having a double wall thickness, is provided with single continuous arm 34 having on one side end

thereof knob 35. When components 30 and 33 are joined, knob 35 is pressed into hole 32, thus tightly securing together the upper and lower side frames. This junction may be further reinforced by an adhesive or cementitious material.

FIG. 7 is a cross-section taken along line VI—VI of FIG. 6 showing the joining of components of 31 and 32 by means of arm 34 and knob 35. After the insertion of knob 35 into hole 32, the opposite side end of arm 34 engages in close frictional relationship with the side wall of component 30. In this embodiment arm 34 extends into receiving space 31 for a distance at least equal to the thickness of either of the double wall components 30 and 33.

The elements of the cabinet frame can be made of any suitable rigid plastic which is capable of being extruded or injection molded. The back plate and auxiliary parts can be made of plastic or wood or metal, such as aluminum alloy. The basic cabinet structure can be augmented with decorative and functional elements, such as mirrors, handles, and the like, as desired.

Other variations of the foregoing embodiments of the invention will be apparent to those skilled in the art.

What is claimed is:

1. A frame structure comprised of two side profiles or components having arms extending at right angles at their lower and upper ends, and an upper and lower profile or component each of which is hollow and has the same section lengthwise, these four components or profiles being joined in an engaging relationship such that the arms of the side profiles extend into the hollow part of the upper and lower profiles at each end respectively to form an enclosure, wherein a wall extends around the longitudinal and lateral periphery of the side profiles and adjacent the interior extent of the protruding arms and is adapted to receive in frictional engagement a reinforcing unit cover to produce a double unit wall, and wherein, further, the said arms are adapted to cooperatively extend into the said hollow parts of said upper and lower profiles and to be frictionally joined thereto.

2. A frame structure comprised of two plastic side profiles having a plurality of arms separated by spaces and extending at right angles at the lower and upper ends of said side profile, and a plastic upper and lower profile each of which is hollow and has the same section lengthwise, the upper and lower profiles having open ends divided into spaced openings by dividing elements with the spaced openings corresponding to the extended arms of the side profiles and the dividing elements corresponding to the spaces separating the extending arms, the open ends of the upper and lower profile having a recess extending longitudinally along the profile near one edge for receiving the periphery of a back plate, the side profile having a receiving space extending longitudinally along its entire length near one edge for receiving another portion of the periphery of a back plate with the space extending to the underside of the protruding arm and corresponding to the recess in the open ends of the upper and lower profile, a ridge extending adjacent the outer limit of the space in the side profile and longitudinally along its length to give added support to the back plate, and a wall extending perpendicular to the side profile interior surface and continuing around the longitudinal and lateral periphery of the side profile and adjacent to the extending arms and the receiving space and designed to receive

5

in frictional engagement a cover, the two upper and side profiles being joined in angular relationship such that the arms of the side profiles extend into the corresponding spaces in the open ends of the upper and lower profiles and the recess or space extending around the near edge of all profiles slidably and frictionally engaging the periphery of a back plate member to form an enclosure with four walls and a back, said enclosure having substantially solid rectangular back corner sections formed by the frictional engagement of said pro-

6

files and said back plate member.
3. The frame structure according to claim 2 wherein the enclosure is divided into compartments by horizontal and vertical divider units, and the farthest longitudinal edge of the arm protruding from the side profile on the portion of the profile opposite the recess extends beyond the lateral boundary of the side profile a sufficient distance to permit affixing a door to the base of the arm.

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