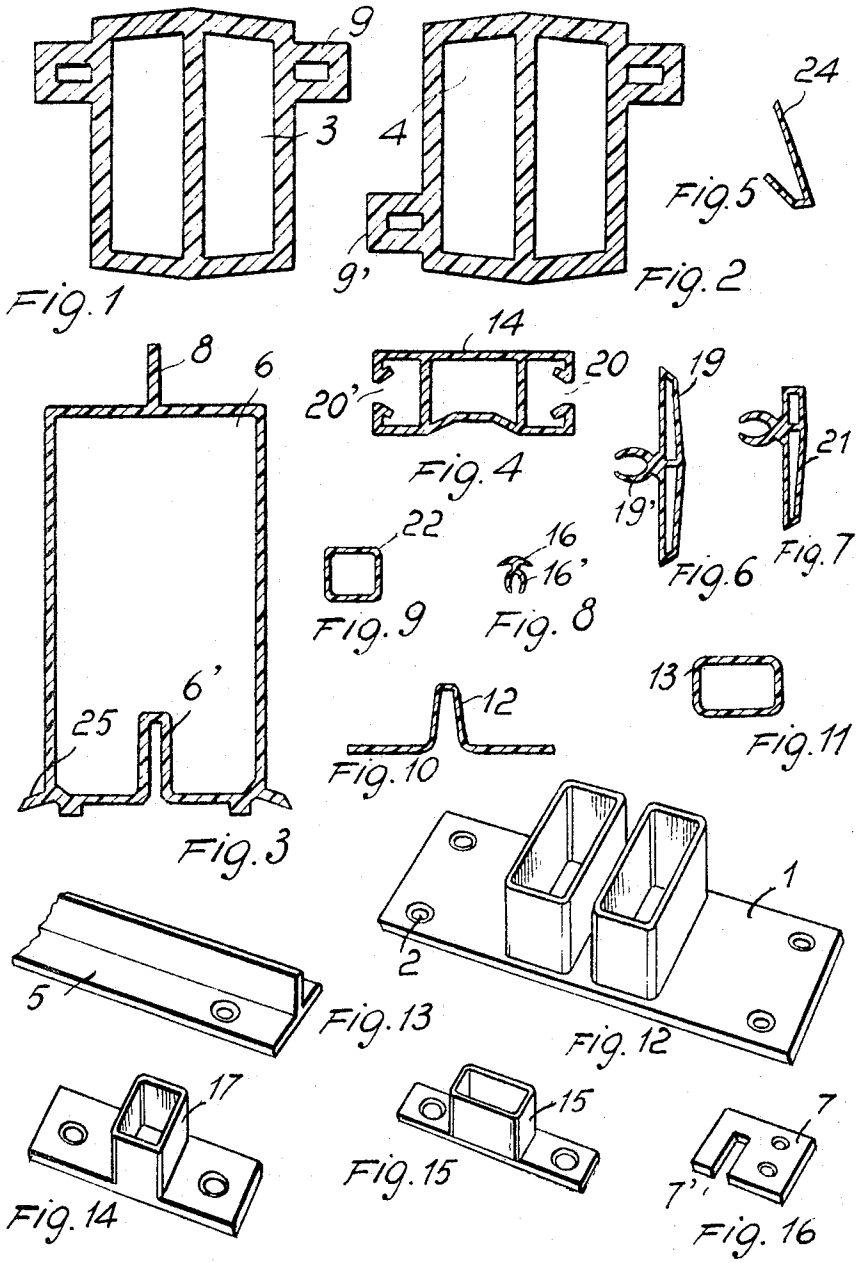
Sept. 27, 1966 R. NEAGLE 3,274,741

ASSEMBLABLE AND DISASSEMBLABLE PARTITION

Filed May 7, 1962 3 Sheets-Sheet 1



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Sept. 27, 1966 R. NEAGLE 3,274,741

ASSEMBLABLE AND DISASSEMBLABLE PARTITION

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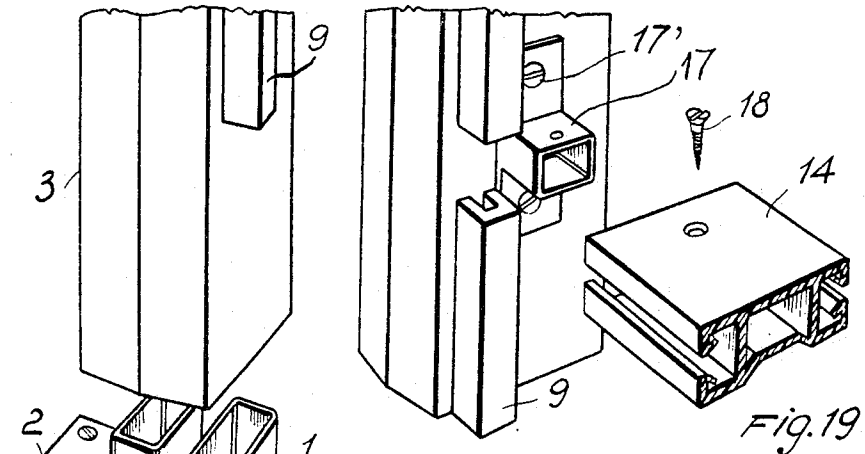


Fig. 19

Fig. 17

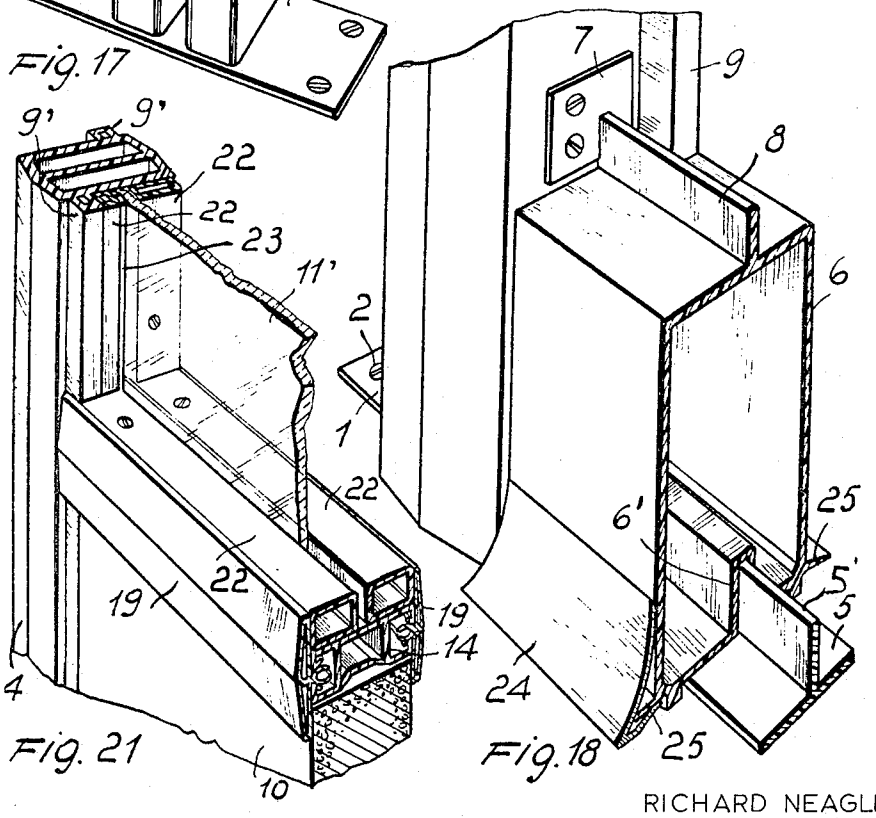


Fig. 21

Fig. 18

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ASSEMBLABLE AND DISASSEMBLABLE PARTITION

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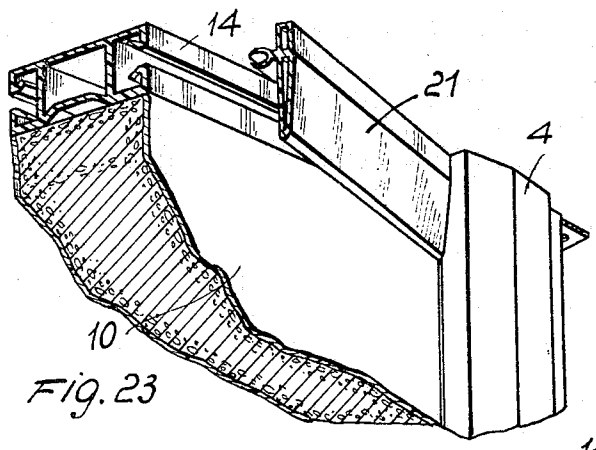
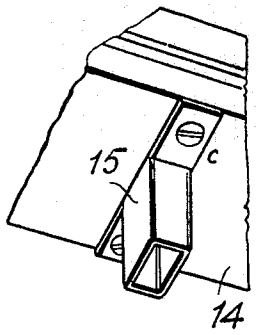


Fig. 23



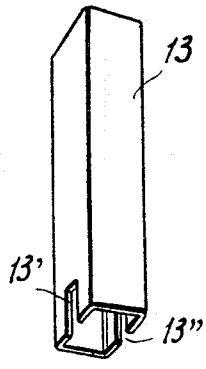


Fig. 20

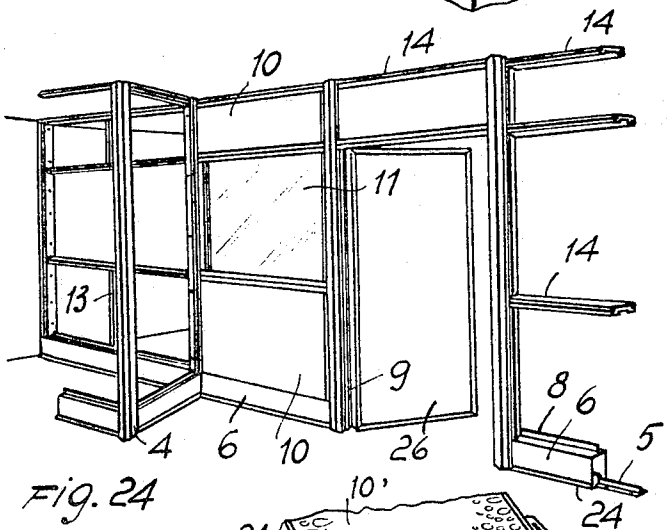


Fig. 24

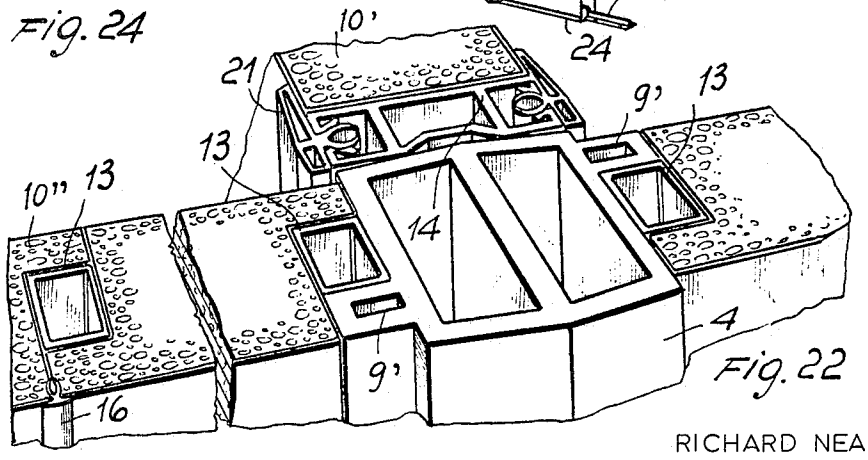


Fig. 22

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United States Patent Office 3,274,741 Patented Sept. 27, 1966

3,274,741

ASSEMBLABLE AND DISASSEMBLABLE PARTITION

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Filed May 7, 1962, Ser. No. 192,865
Claims priority, application Italy, May 9, 1961, 8,577/61
5 Claims. (Cl. 52—242)

The present invention relates to a system of shaped members which can be joined together so as to form a partition wall made entirely of plastic material and particularly suitable, because of the ease with which it can be dismantled and reassembled, for offices, stands, dwellings and the like.

Several types of partition walls which can be partially or wholly dismantled and reassembled, are already known, and these consist for the most part, of metal frameworks adapted to support panels of wood or other material and panes of glass at various heights.

In general, such types of partition walls involve complex shaping of the several parts and are by no means easy to erect and/or dismantle; furthermore, they are somewhat costly and their total weight is rather high.

An object, therefore, of the present invention is to provide a partition wall for a very wide variety of uses, which can easily be erected and taken down, is light in weight and costs appreciably less than the known types.

Another object of the invention is particularly to exploit certain types of plastic material so that all the component members can be rapidly and cheaply made, and also to provide manifest aesthetic advantages.

A further object of the invention is to avoid the need to use special tools for assembling and dismantling the several members forming the wall, and to enable the wall to be easily and conveniently adapted to a variety of requirements, including special modes of subdividing rooms.

These and yet other objects which may appear more clearly from the detailed description which follows, are in practice attained by a partition wall provided by the removable combination of a plurality of elements, all made of plastic material, which wall, according to the invention, is characterized in that it comprises a plurality of spaced tubular prismatic uprights having at least at their ends cavities or socket portions receiving plug-like anchoring elements forming tongue and groove joints with the uprights and adapted to be removably fastened onto the floor, ceiling or other supporting surface of the room to be furnished with the partition wall; panels disposed between the uprights; longitudinal ribs or flanges rigid with said uprights for the removable fixing of the panel sides to their respective adjacent uprights; rod-shaped transverse section members delimiting the transverse sides of the end panels; rod-shaped vertical section members delimiting the vertical sides of the panels; and strip sections with fins that can be jammed into at least one longitudinal interstice existing between the parts making up the partition wall.

The partition wall may with advantage be formed of a framework of extruded plastic sections, consisting of an assembly of uprights, transverse shaped members or ribs and/or hollow members for joining the component parts of the partition walls and of panels, also of plastic material, preferably of light-weight type, e.g. expanded material or the like, alternating with panes of glass or the like. The uprights and/or at least some of said ribs and joining members, which are also of plastics, are at least in part hollow and can be removably connected respectively between the ceiling and the floor and between one upright and the next by means of plug supporting members which can be rabbet jointed. The rabbet-joint means are provided both on the uprights and on the members

adapted to join the uprights and the rib members together and to lock said panels and/or glass panes therebetween, while other joining and finishing sections, which can be force-fitted between the various joint surfaces, are provided to eliminate sharp corners and/or interstices which might form undesirable receptacles for dust and other dirt.

The invention, in a preferred but not exclusive embodiment thereof, will now be described in greater detail with reference to a preferred embodiment thereof shown in the accompanying drawing wherein:

FIG. 1 and FIG. 2 show, in cross-section, two types of extruded plastic section constituting the uprights;

FIG. 3 shows, in vertical section, an extruded plastic section constituting the supporting socle for the panels and/or for the glass panes;

FIG. 4 shows also in cross-section, an extruded plastic section forming the transverse and vertical connecting rib members between the various parts of the wall;

FIGURES 5, 6, 7 and 8 show cross-sectional views of plastic sections serving as joining and finishing members between the various parts which are in contact with each other or with the ceiling or floor;

FIGURES 9, 10 and 11 show cross-sections of other extruded sections serving as connecting members between the several parts of the supporting framework;

FIGURES 12, 13, 14, 15 and 16 show in perspective views several members of plastics or metal, for locking in rabbet joints particularly the sections making up the supporting frame;

FIGURES 17, 18, 19 and 20 show perspective views of some joints, during the assembling stage respectively between an upright and a plug supporting member, between an upright and a socle member forming a corner of the framework, between an upright and a transverse rib-member forming a support for the panels, glass panes and so forth, and finally between a plug member fixed to the ceiling and a section forming an intermediate support between the panels;

FIG. 21 shows in perspective part of the wall already erected, particularly a corner with a glass pane fixed between an upright and a stringer rib member running on a plastic panel;

FIG. 22 shows a perspective view of a T-shaped wall, i.e. the assembly of two walls at 90° to each other with a single upright in the corner position;

FIG. 23 shows an angular zone of the partition between the ceiling and an upright; and finally

FIG. 24 shows, in perspective, a complete partition wall provided according to the invention.

The various hollow sections and the individual coupling members and anchoring members are made, according to the invention, of plastic material having suitable mechanical strength, and they are obtained very rapidly and cheaply by means of the usual operations of extrusion.

The partition wall which is the subject of the invention is removably secured to the floor, the ceiling and the opposing walls, and the erection thereof, particularly the erection of the supporting framework, is made according to reference lines previously drawn on the floor, ceiling and walls.

The several elements of the embodiment shown have in common the characteristic of presenting or being capable of forming grooves and ribs which permit flexible, removable, matching dap jointing between the several members, which can thus be easily replaced and rearranged to form partition walls of different configurations. The configurations of the individual elements can be readily grasped from the drawing and have no need of further description of their structure as this will emerge from the description of the functions and assembly of the individual parts which will now be given.

The stages of assembly follow each other, with reference to the accompanying figures, preferably in the order here given.

On the lines drawn on the floor and in the position determined in advance, are arranged the anchoring elements **1** (FIG. 12), consisting of rabbet-joint plugs, which are then secured with screws or the like through holes **2**. One of uprights **3** or **4** is forced onto or slipped over this double plug member as shown in FIG. 17, to form a rabbet joint. A similar plug member is inserted in the top end of each upright **3** (or **4**) and secured to the ceiling. When the selected uprights have thus been set up, on the plate extensions of the double plug **1** (see FIG. 18), the T-shaped members or flanged elements **5** are secured to the floor, said elements **5** extending in such a manner as to connect the base of one upright with those of the others, either along a straight line or on lines at right angles to each other, as in the case of T-walls or the like. The socle members **6**, consisting of hollow plastic members having a cross-section as shown in FIG. 3, are placed on the elements **5**; they are fitted on to the elements by rabbet jointing, the vertical fin **5'** of the monorail element being inserted in the vertical guide slot **6'** formed longitudinally in the base of the socle **6** (see FIGURES 3 and 18).

The socle **6** is locked firmly in position by means of the small plate **7** (FIGURES 16 and 18) screwed on the upright, and the transverse slit **7'** of plate **7** which is coupled with the longitudinal fin **8** running on the top of the socle **6** (FIG. 18). In order to have the socles **6** running flush with the uprights, the ribs or flanges **9'** and **9** (FIGURES 1, 2 and 18) are removed from the uprights for the whole height of the socle **6**.

Between one upright and another, above the socle **6** (however the latter be arranged, e.g. in a straight line or at an angle as in FIGURES 22 and 24), are fitted the panels proper **10**, **10'**, or **10''** etc. (FIGURES 21 and 22) which can extend so as to complete the wall up to the ceiling or (as in FIG. 24) can reach a certain height and support a pane of glass **11**. **11'**, etc. which may also be of any size (FIGURES 21–24). The panels are preferably made of plastic expanded or porous material (e.g. expanded polystyrene or polyvinylchloride, by themselves or associated with wood, some other plastic material, rock wool or the like) and are rabbet-jointed to the socle **6**, i.e. by fitting a longitudinal slot not shown formed in the central zone of their bottom side, reinforced, if need be, by the metal or plastics element **12** (FIG. 10) over the longitudinal fin **8** of the socle **6**. Since panels **10**, **10'**, **10''** etc. have fixed and predetermined dimensions, they are fitted on to the socle **6** side by side and are then locked at their vertical sides (as shown in the sectional view of FIG. 22) by means of hollow extruded sections **13** (FIGURES 11, 20 and 22) which are formed at their bottoms with longitudinal slots **13'**, and **13''** (FIG. 20) adapted to fit on to fins **8** of the socles **6**, and, at their tops, are secured to the transverse rib members or stringers **14**, whereof more will be said hereinafter) situated at selected heights in transverse positions between the uprights, by means of the frontal joint plugs **15** (FIG. 15 and FIG. 20). The various panels **10**, **10'**, etc. are formed with L-steps FIG. 22) resting on the opposite sides of the hollow members **13**, whilst at the uprights (see FIG. 22 still), member **13** is associated with a rib projection (**9'**) **9** of the upright and L-step of the panel is made to match the member **13**. The several panels are kept exactly in the same vertical plane by the T-sections **16** (FIGURES 8 and 22) which are jammed between the continuous sides of the panels by deformation of their fins **16'**. These sections also have the function of providing a finished appearance to the whole wall of panels.

At the top of the panels is disposed a transverse rib member **14** (FIGURES 4 and 21) with its opposite ends fixed to the walls of the uprights as shown in FIG. 19. For this purpose a portion of rib flange **9** of the height equal to the thickness of the transverse rib member **14** is taken away, a plug-like connecting member **17** (FIGURES 14 and 19) is secured to the wall of the upright by means of screws **17'** and the cavity of the transverse rib member is fitted on to member **17**, the rib member **14** being then locked to the upright with transverse screw **18**. This operation is carried out in the same manner to secure rib members **14** in contact with the ceiling (FIGURES 14 and 23).

To keep the panels **10**, **10'** etc. in line, above all with the transverse rib members **14** (FIG. 21), T-shaped sections **19** (FIGURES 6 and 21) are jammed by deformation of fins **19'** between the elastic longitudinal slits and apertures **20** and **20'** (FIGURES 4 and 21) of the plastics rib members **14**. In this case too, sections **19** serve as covering members to give a finished appearance to the wall.

In the case where a panel is provided in contact with the rib member **14** secured to the ceiling (FIGURES 23 and 24), a section **21** (FIGURES 7 and 23) is also inserted between the rib member **14** and the panel, its top wing being narrower than its bottom one and running along the ceiling.

The fitting of one or more glass panes **11** between the lower and upper panels (FIG. 24) is achieved as shown partially in FIG. 21.

The horizontal side of the glass pane is rested on rib member **14** and, in contact with the opposite sides of the pane there are horizontally placed the hollow members **22** (FIG. 9 and FIG. 21) which are in turn locked to rib member **14** by means of screws and are fitted with side finishing members **19**. The side of the pane which is in contact with the uprights (FIG. 21) is held in position on one side by rib projection **9'** of the upright with the interposition of a section member **22** and, if need be, of an elastic gasket **23** of rubber or the like, and on the other side by another section member like **22** or **13**, secured to the upright with screws.

If the wall consists entirely of plastic panels, there will be no transverse rib members **14** (referring to FIG. 21) nor section members **22**, **23** and/or **13** in contact with the panes.

The wall is then completed by angular sections **24** (FIGURES 5 and 18), one of the flanges of which are inserted by elastic deformation between the lower fins or lateral wing-like projections **25** of the socle **6**, having the function of sealing members to prevent dead corners which easily collect dust and other refuse, and also of providing a finished appearance.

The formation of T-walls and double-T-walls is shown in FIG. 22 wherein the assembly of the several elements is clearly visible.

If there are any doors (FIG. 24) in order to provide a suitable rabbet for the door **26**, sections like the ones shown in FIG. 9 are associated with rib projections or ledges **9** (or **9'**) of the uprights.

Still according to the invention, the several sections forming the wall can be strengthened with other sections of various materials.

It is manifest that, in practice, the invention hereinbefore described according to a preferred but not exclusive embodiment thereof, can be modified and varied in its details without departing from the scope of the invention; furthermore, the dimesions of the several elements and the type of plastic material employed can be varied according to need.

From the foregoing description it will be further understood that substantially all joints, such as the shown kind of rabbet joints or tongue and groove joints of the various component parts of the partition wall are actually snap joints which, while providing a fast connection of the component parts allow a rapid disassembling of same.

In fact the cooperating surfaces of the various joints are elastically pressed one against the other and the fric-

tion between these surfaces provides a good and safe hold. This cooperation is on the one hand due to the shown configuration and shape of the component parts of the various joints and on the other hand to the suitably exploited characteristics of the plastic material in combination with the functional shape give to the various parts. It will be observed that in the shown joints the engaging surfaces are slightly inclined so as to create a kind of wedge action elastically attracting the mating parts one towards the other.

What is claimed is:

1. A readily assemblable and disassemblable partition comprising:

at least two spaced tubular plug-like outwardly extending synthetic-resin anchoring elements adapted to be secured to a supporting surface;

respective tubular prismatic uprights of synthetic-resin material having socket portions of a configuration corresponding to that of each of said elements and fitting removably thereover while being resiliently held thereon under the elasticity of said material, said uprights each having a pair of respective flanges extending longitudinally therealong on opposite faces of the upright adjacent diagonally opposite corners thereof, at least a first one of said flanges on each of said uprights extending in the direction of the other of said uprights;

a pair of plug-like tubular connecting members of synthetic-resin material, each mounted upon one of said uprights and extending in the direction of the other upright;

a longitudinally extending tubular stringer of synthetic-resin material bridging said uprights and having socket-forming extremities of a configuration conforming to that of said connecting members and removably fitting thereover while being resiliently held thereon under the elasticity of said material; and

a panel of synthetic-resin material abutting said stringer and said first flanges of said uprights, said uprights having confronting faces resiliently sandwiching said panel between them, at least one of said anchoring elements comprising a plate abutting said supporting surfaces and two symmetrical hollow parallelepipedal upright formations spaced from one another on said base, the upright mounted upon said one of said anchoring elements having a central internal reinforcing web subdividing the interior thereof into two compartments having contours corresponding with those of said formations, said web having a thickness corresponding substantially to the distance between said formations and being receivable therebetween.

2. A readily assemblable and disassemblable partition comprising:

at least two spaced tubular plug-like outwardly extending synthetic-resin anchoring elements adapted to be secured to a supporting surface;

respective tubular prismatic uprights of synthetic-resin material having socket portions of a configuration corresponding to that of each of said elements and fitting removably thereover while being resiliently held thereon under the elasticity of said material, said uprights each having a pair of respective flanges extending longitudinally therealong on opposite faces of the upright adjacent diagonally opposite corners thereof, at least a first one of said flanges on each of said uprights extending in the direction of the other of said uprights;

a pair of plug-like tubular connecting members of synthetic-resin material, each mounted upon one of said uprights and extending in the direction of the other upright;

a longitudinally extending tubular stringer of synthetic-resin material bridging said uprights and having socket-forming extremities of a configuration conforming to that of said connecting members and removably fitting thereover while being resiliently held thereon under the elasticity of said material; and

a panel of synethic-resin material abutting said stringer and said first flanges of said uprights, said uprights having confronting faces resiliently sandwiching said panel between them, said partition further comprising a T-shaped member intermediate said upright having a vertically extending web portion, and a hollow socle member of synthetic-resin material provided with a groove releasably receiving said web with resilient engagement thereof, said panel abuttingly engaging said socle member and being disposed between the latter and said stringer, said socle member being provided with a pair of longitudinally extending ribs adapted to rest against said supporting surface laterally outwardly of said T-shaped member and a pair of downwardly and outwardly extending longitudinal wing-like projections adjacent said supporting surface, said partition being provided with respective cover members having a pair of flanges forming an acute angle disposed between the respective wing-like projection and said supporting surface with one of the flanges of each of the cover members overlying the respective projection and the other flange of each cover member underlying the respective projection.

3. A readily assemblable and disassemblable partition comprising:

at least two spaced tubular plug-like outwardly extending synthetic-resin anchoring elements adapted to be secured to a supporting surface;

respective tubular prismatic uprights of synthetic-resin material having socket portions of a configuration corresponding to that of each of said elements and fitting removably therover while being resiliently held thereover while being resiliently held thereon under the elasticity of said material, said uprights each having a pair of respective flanges extending longitudinally therealong on opposite faces of the upright adjacent diagonally opposite corners thereof, at least a first one of said flanges on each of said uprights extending in the direction of the other of said uprights;

a pair of plug-like tubular connecting members of synthetic-resin material, each mounted upon one of said uprights and extending in the direction of the other upright;

a longitudinally extending tubular stringer of synthetic-resin material bridging said uprights and having socket-forming extremities of a configuration conforming to that of said connecting members and removably fitting thereover while being resiliently held thereon under the elasticity of said material; and

a panel of synthetic-resin material abutting said stringer and said first flanges of said uprights, said uprights having confronting faces resiliently sandwiching said panel between them, said panel having a pair of flanges along its faces confronting said uprights at diagonally opposite edges of said panel.

4. A partition as defined in claim 3 wherein said panel is composed of a plurality of continuous panel sections each having a pair of flanges at diagonally opposite edges of the section, said sections forming a channel between them and a longitudinally extending tubular member received in said channel for reinforcing said panel.

5. A partition as defined in claim 3 wherein said stringer is provided with a pair of longitudinal recesses along faces of the stringer extending generally parallel to said panel, said partition further comprising a longitudinal extending cover member overlying an edge of said panel adjacent said stringer and resiliently receivable with one of said recesses.

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