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Perina

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[54] **ROOM STRUCTURE AND PANEL ASSEMBLY**

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[52] **U.S. Cl.** **52/241,** 52/483

[51] **Int. Cl.** **E06b 3/64**

[58] **Field of Search** 52/241, 483, 484, 280, 52/239

[56] **References Cited**

UNITED STATES PATENTS

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3,475,810	11/1969	Mates	52/483 X
3,550,338	12/1970	Satkin et al.	52/241
2,231,880	2/1941	Buelow	52/280 X
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[57] **ABSTRACT**

A partition assembly of structural members arranged to form a framework, and panels overlying that framework to form the partition facing. The assembly is adapted for quick assembly and disassembly, with the framework members being assembled to each other by releasable clamp means, and the panels being secured to the framework by separable hook-and-loop fasteners interposed between the panels and the framework.

7 Claims, 4 Drawing Figures

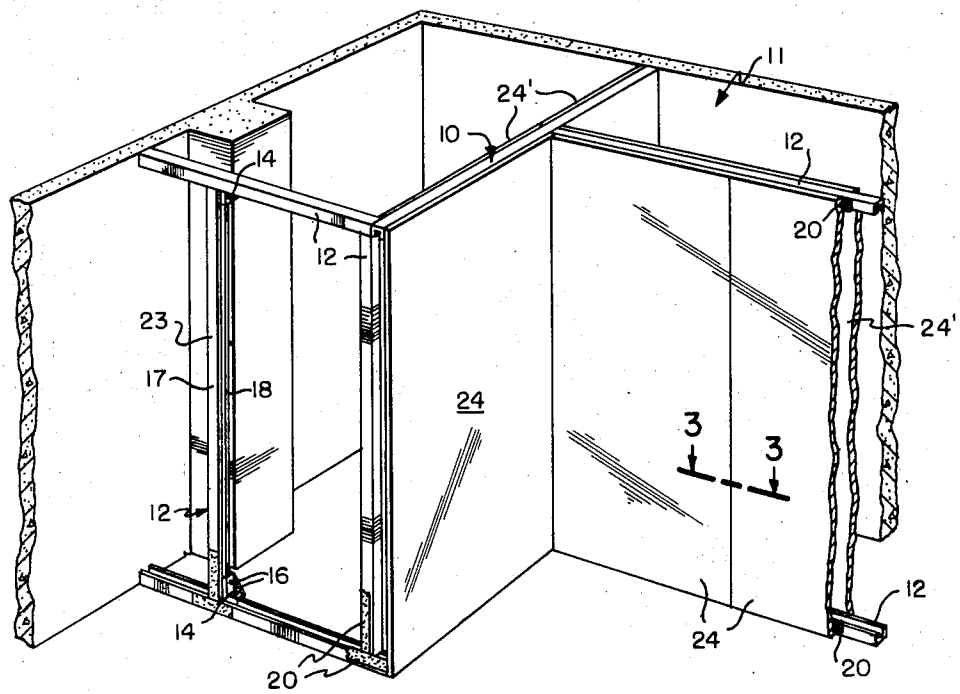


FIG. 1

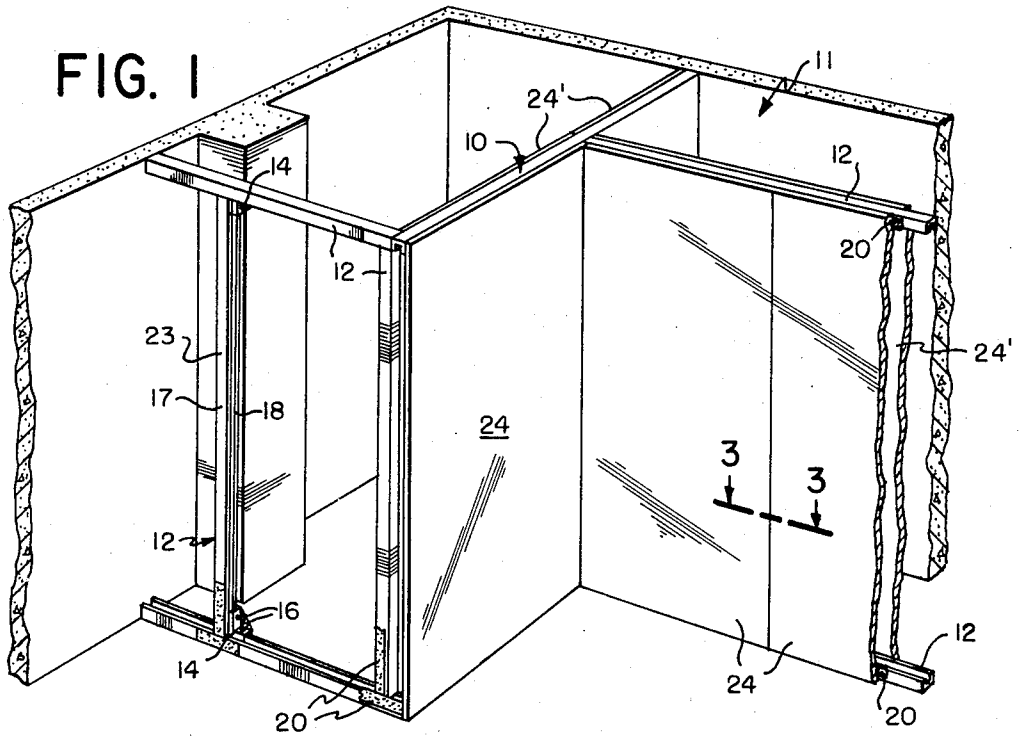


FIG. 2

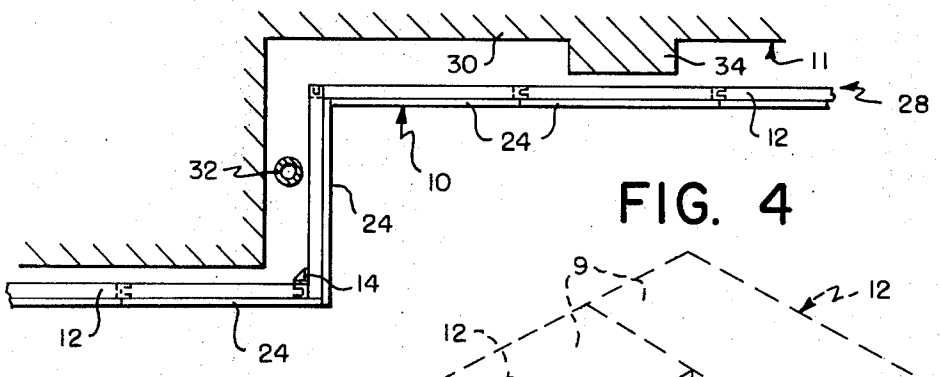


FIG. 4

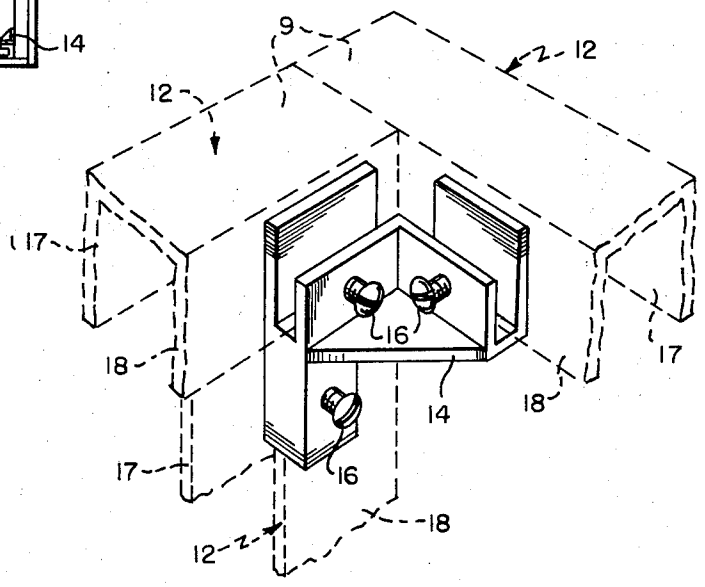
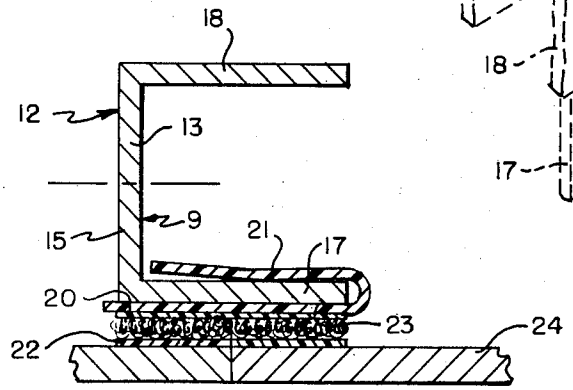


FIG. 3



ROOM STRUCTURE AND PANEL ASSEMBLY

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to interior structure and panel arrangements adaptable to quick and convenient installation and removal due to their unique pre-cut and modular construction. In particular, the invention relates to forming at least a portion of a relatively portable room within a room utilizing such a structure and panel assembly.

2. Description of the Prior Art

Modern day construction techniques require a maximum of pre-fabrication or structural packaging as opposed to conventional piecemeal fitting by a mechanic. Skilled and unskilled labor costs in the construction field have far out stripped the cost of materials. Perhaps the greatest disproportion of labor to material expense exists in modifying existing structures, as for example, in the case of finishing or partitioning basements, apartments, offices, attic rooms, business establishments and the like. In many cases such facilities are in possession of a tenant and the owner is under no obligation to improve the existing structure. Occasionally, the occupant would prefer to improve the existing structure by extensive repairs, but is discouraged by the cost of such repairs.

On the other hand, a property owner is often discouraged against such extensive repairs which generally involve prohibitive costs. Such repairs generally require the removal of older surfaces and structures, and replacement by permanently attached new structures with the addition of suitable finishing materials such as plaster, wall panels and the like. Where permanent structural property improvements are made, such as by replacing wall, ceiling or floor surfaces with new structures, or partitioning present structures, the modifications usually do not readily adapt themselves to subsequent changes of the room decor without requiring additional costly modifications.

While earlier developments include modifying structures which use removable panels for covering wall, ceiling, or floor surfaces, those developments lacked the modular and convenient assembly aspects which characterize my structure and panel assembly whereby a person having limited skills can obtain structural components and panel members in kit form, pre-cut to the required sizes, and then assemble them within a portion of a building such as a room, thereby substantially improving the room by providing at least a portion of a new room within said room.

Separable fasteners such as those described in U.S. Pat. Nos. 2,717,437 and 3,009,235 which are marketed under the registered trademark VELCRO brand hook and loop fasteners by Velcro Corporation, 681 Fifth Avenue, New York, N.Y. have gained wide acceptance because of the properties of the mating hooks and loops which permit their attachment by merely placing a surface defined by at least one of upstanding hook and loop type hooking elements in face-to-face relationship with a surface defined by complementary hooking elements so that a large number of hooking elements will engage and resist separation forces parallel to the interfacial plane of engagement but are readily separable by peeling forces applied substantially normal to this interfacial plane. These fastening devices,

which may be woven, knitted or molded, for example, have had wide application in many fields of art. U.S. Pat. No. 3,475,810 to Mates relates to a method of separating rigid members which are joined together at an interface by inserting a device between the mating surfaces. U.S. Pat. No. 3,452,696 to Mates utilizes the hook and loop fastener of the VELCRO type to hold a necktie by securing a separable fastener to a clip device. My co-pending application ser. No. 180,669 filed Sept. 15, 1971, and assigned to the same assignee as the present invention, is a continuation-in-part of my earlier U.S. patent application Ser. No. 853,657 filed Aug. 28, 1969, now abandoned. It discloses an integral and modular grid arrangement for supporting a series of modular panels, such as wall or ceiling panels or tiles.

An example of a panel room structure which utilizes a framework consisting of slotted channel members against which panels are held in position is described in U.S. Pat. No. 2,082,314 to Venzie. Other prior art includes U.S. Pat. Nos. 1,308,083 to Lachman, 1,643,318 to Ruppert, 2,910,574 to Attwood, 3,104,834 to Lipscomb, 3,121,977 to Bersudsky, 3,207,057 to Brown et al., 3,321,879 to Purdy, 3,305,772 to De Claire et al., and 3,362,122 to Schmitt. While these disclosures relate generally to surface modifying sructures, panels and the like, they do not provide an alternative to the complex structures which require substantial time, skill and expense to install them properly.

It is the purpose of the present invention to disclose a structural framework and panel arrangement with which at least a portion of an existing room can be renovated by forming at least a portion of a new room within said room.

It is a further aspect of this invention to provide a low cost means to renovate and improve at least a portion of an existing room without permanently attaching said improvements to the property.

It is furthermore an aspect of the present invention that the average person unskilled in the art may erect the disclosed structure and panel arrangement within a room in a short period of time and with ease.

It is also an aspect of this invention that a person of limited skills may renovate a portion of a building structure in his possession, such as a room within the building structure, by erecting a structure within said room and releasably attaching panel members to the structure and further permitting removal of the structure and panel members when the property is vacated.

It is another aspect of this invention to provide a structural framework with removable decorative panel members to form at least a portion of a room within an existing room whereby said panel members may be quickly removed and replaced with panel members having different decorative designs to thereby effect a variety of room decorations.

SUMMARY OF THE INVENTION

An assembly including at least two of walls, ceiling, and floors which form at least a portion of a new room within an existing room. The existing room may comprise a portion of a building structure. The assembly may comprise at least two portions of a room such as two walls, two walls and one floor etc.; however, it is preferred that it comprises an entire new room within

an existing room. The elongated structural members are releasably connected to each other to form a framework which substantially defines the configuration of the new room. At least one modular panel member is held in position against the structural framework by at least one separable fastening device wherein one member of said fastening device is attached to the structural framework and a mating member is attached to the panel member such that the panel member may be releasably attached to the framework.

The framework substantially defines the basic configuration of the new room, or portion thereof, within the existing room. In a preferred form a flange member is positioned at the outward portion of at least one of said structural members. The flange member has a forward surface portion substantially facing the central portion of the new room and a rearward surface portion substantially facing rearwardly toward corresponding surface portions of the existing room and is positioned along an outward portion of the elongated structural member. At least one modular panel member having outward and rearward surface portions is positioned against the framework such that the rearward surface portion of the panel member faces substantially rearwardly toward the forward surface of at least one flange member of at least one of the structural members of the framework. The panel member is held in position by at least one separable fastening device preferably of the hook and loop type, one member of said fastening device being attached to the forward surface portion of the flange member and a mating member attached to a corresponding rearward portion of the panel member. The fastening members are releasably attached to each other in face-to-face relation thereby securing the panel in position against the structural framework and facilitating convenient detachability of the panel member from said framework.

The panel members may actually be held in position by any suitable separable fastening devices such as those having engaging elements other than hooks and loops, or even those having adhesive surfaces. However, in the preferred embodiment it is intended that separable hook and/or loop type fastener means such as are described in U.S. Pat. Nos. 2,717,437 and 3,009,235 are used to releasably secure the panel member in position. Such fastening devices have particular utility for retaining the panel members of the present invention in position such that a person of limited skills may remove or replace them. In the preferred embodiment such separable fastening devices are located at the corners of the panel member and intermediate corners; however, in practice it will be found that such fastening devices as will sufficiently secure the panel member in position will be determined by the requirements in each case.

In another embodiment the structural members are provided in pre-cut sizes in kit form so that they may be assembled within a room of a building structure and held in contact with one another by clamping devices which are hidden from view. One member of a separable hook and/or loop type fastening device is held in position on the flanges of the structural members by a clip to which it may be attached such as by adhesive bonding. A corresponding member is attached to the corresponding rear portion of a panel member by any suitable means including pressure sensitive adhesive. The panel members are thereby releasably attached to the structure formed within the room thus providing an entire new room within the original room, or at least a portion of a new room within said existing room. Thus at least a combination of either two walls, ceiling or floors may be quickly covered and substantially improved without the necessity of extensive alterations and permanent attachments to the property are thus avoided. A person having only possession of the property may in most cases, remove the structure and panel assembly when he vacates the property. The structure and panel assembly may then be adapted for use in another location.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a view of a portion of a room formed by connecting elongated structural members together showing the releasably attached panel members;

FIG. 2 is a top view of a portion of a room which has been improved using the structure and panel assembly of the present invention;

FIG. 3 is a cross-section taken along lines 3—3 of FIG. 1 showing the preferred means to secure one member of a separable fastener device to the flange of the elongated structural member; and

FIG. 4 is a perspective view of a typical three-way connection of the elongated structural members in the preferred embodiment.

In the following description, "outward" means toward the central portion of the new room and "rearward" means toward the surface portions of the existing room.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the drawings, there is shown in FIG. 1 a portion **10** of a room which is formed within an existing room **11** by connecting the elongated structural members **12** with connecting clamps **14.** The clamps **14** are preferably of the adjustable type in which the dimension between the clamping members may be adjusted as shown in greater detail in FIG. **4.** Screws **16** are adjusted by turning them either clockwise or counterclockwise to grip or release the rearward flange **18** of the elongated structural member **12.** In the embodiment shown in FIG. **3** the elongated structural member **12** is a U-shaped lightweight-aluminum alloy channel having a side member **9** extending from the rearward portion **15** toward the central portion of the new room and including the outward portion **13** of the side member **9.** The rearward portion **13** is spaced apart from the corresponding surface portions of the existing room **11.** The forward flange members **17** are positioned along the outward portion **13** of the side member **9.** The flange members are used to position the hook and/or loop member **20** of a separable fastening device by attaching it to the forward surface **23** as is shown in FIG. **3.** The mating member **22** of the fastening device **19** is held in position to a corresponding rearward surface portion of a panel member **24** by a suitable means such as pressure sensitive adhesive **26.** The rearward surface portion **25** of the panel member **24** thus faces the outward surface portion **23** of the flange member **17.**

The hook and loop type fastening device is shown in FIG. **3** whereby a member of upstanding hook and loop type engaging elements is attached to the outward flange member **23** of the elongated structural member **12** by a resilient plastic clip **21** having a space between

its two gripping portions less than the thickness of the flange member such that the resilient material facilitates resilient gripping attachment of the clip to secure it in position on the flange.

A particular advantage of my invention is illustrated in FIG. 2 which shows a portion of an existing room **28** which may be part of a building structure (not shown). The walls **30** of the existing room **28** as shown are in need of repair and also have their appearance marred by external conduits such as water or heating pipes **32**, for example, or by protrusions **34**. According to my invention, a room having such distractive features can be quickly improved by a person of limited skills. The elongated structural members **12** may be obtained in kit form having pre-cut sizes pre-determined to fit a particular room, or they may be cut to the proper size on site.

In addition, a portion of a new room may be arranged to function as a dual surfaced partition which divides an existing room into several sections. In such an application, at least one portion of the structural assembly may have panel members releasably attached to the flange members on the rearward as well as the outward portions of the elongated structural members. An example showing the utilization of panel members in such manner is shown in FIG. 1 whereby panel member **24'** is attached to the rearward flanges **18** of the elongated U-shaped structural members by separable fastening devices similar to those previously described.

The panel members **24** may be conveniently removed for cleaning, replacement and the like. In some installations such as in business establishments, it may be desirable from time to time to replace panel members having a particular decorative pattern by another set of panel members having a varied decorative pattern or colors. In such cases panel members may be stored for periodic use. The replacement of the panel members can be quickly completed

It will be understood that the foregoing description is of preferred embodiment of the invention and is therefore merely representative. In order to appreciate more fully the spirit and scope of the invention, reference should be made to the appended claims.

I claim:

1. An assembly including at least two of walls, ceilings and floors which form at least a portion of a new room within an existing room comprising:

a. elongated structural members positioned with respect to each other to form a structural framework which substantially defines the configuration of the portion of the new room, each structural member having a backing member and at least one flange member connected to the backing member and extending outwardly therefrom;

b. clamping means for releasably securing adjacent portions of the flange members so as to releasably secure the structural member together to form said framework, said clamping means having means for gripping said flange members with means for releasably tightening the grip of said clamping means so as to facilitate quick assembly and disassembly of said framework;

c. at least one modular panel member having a forward surface portion and a rearward surface portion positioned against the structural framework and

d. at least one separable hook and loop-type fastening device positioned between at least one structural member and said panel member, one member of the separable fastening device secured to the structural member, and the corresponding mating fastening member secured to the rearward surface portion of said panel member such that said panel member is releasably attached to said framework with the hook and loop-type fastening members in face-to-face engagement and said panel members may be detached from said framework by peeling the separable fastening members apart thereby providing improved, readily-detachable surface portions of said new room within said existing room.

2. The assembly according to claim **1** wherein each of said elongated structural members comprises:

a. a side member defined by an extension having a first rearward portion spaced apart from a corresponding surface portion of the existing room and extending outwardly toward the central portion of the new room; and

b. a flange member positioned along the outward portion of at least one of the elongated structural members, said flange member having an outward surface portion substantially facing toward the central portion of the new room and a rearward surface portion substantially facing rearwardly toward corresponding portions of the existing room.

3. The assembly according to claim **2** wherein:

a. said elongated structural members comprise lightweight aluminum channel members having a substantially U-shaped cross section with outward and rearward flange members, the outward flange member positioned along the outward portion of the side member and having an outward surface portion substantially facing toward the central portion of the new room and a rearward surface portion substantially facing rearwardly toward the corresponding portion of the existing room;

b. each of said modular panel members having an outward surface portion facing the central portion of the new room and a rearward surface portion facing the outward surface portion of the flange member; and

c. the separable fastening device being positioned between an outward surface portion of the outward flange member and the rearward surface portion of the modular panel member, one member of the separable fastening device being attached to the outward surface portion of said flange member and a mating member attached to a corresponding rearward portion of said panel member, to releasably attach said panel member to said structural framework.

4. The assembly according to claim **3** wherein said engaging elements comprise hooks and loops.

5. The assembly according to claim **4** wherein a resilient clip attachment device having spaced apart gripping portions and having hook and loop type fastening means on its outward surface is attached to at least one outward flange member of said structural members by resilient gripping action to provide a cooperating hook and loop fastening type member on the outward surface of said flange member.

6. The assembly according to claim **5** wherein said separable fastening members are attached to the rear-

ward flange members of at least one of said U-shaped channel member and at least one panel member having corresponding mating members on its rearward surface is positioned against said rearward flange member thereby permitting at least a portion of said assembly to be used as a dual surfaced room partition.

7. An assembly including at least two of walls, ceilings and floors which form at least a portion of a new room within an existing room in a building structure comprising in combination:

a. elongated U-shaped channel members positioned with respect to each other to form a structural framework which substantially defines the configuration of said new room, said channel members each having a backing member spaced apart from a corresponding surface portion of the existing room and extending outwardly toward the central portion of said new room;

b. flange members positioned along the backing member of each of said channel members and extending outwardly therefrom, said flange members having a forward surface portion substantially facing the central portion of the new room and a rearward surface portion substantially facing rearwardly toward corresponding portions of the existing room;

c. clamping means for releasably securing adjacent portions of the flange members together so as to releasably secure the structural members together to form said framework, said clamping means having an anvil-type backing member and a threaded releasable tightening means threadedly positioned within said clamping means for releasably gripping said flange members so as to facilitate quick assembly and disassembly of said framework;

d. at least one modular panel member having rearward surface portions positioned against the structural framework; and

e. at least one hook and loop-type separable fastening device positioned between at least one structural member and said panel member, one member of said fastening device being adhesively secured to the forward surface of at least one flange member, and a mating member of said separable fastening device being adhesively secured to a corresponding rearward surface portion of said panel member, said fastening members being releasably secured to each other in face-to-face relation so as to releasably secure said panel member in position against said framework, said panel member thereby being separable from said framework by forces which result in peeling said separable fastening members apart, thereby facilitating convenient attachability and detachability of said panel members with respect to said framework.

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