



64
SUPERINTENDENCIA Y COMERCIO
Radicación : 00017013 00000003
Fecha (AMD): 2002-12-23 14:35:15 Folios: 2
Trámite : 003 PATENTES D : REGISTRO/ 538 PETICION
Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

MAURICIO PINZON PINZON
DANILO ROMERO RAAD
JUAN CARLOS MONROY RODRIGUEZ
RICHARD GALINDO SANCHEZ

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

División de Signos Distintivos

E. S. D.

Asunto	Número De Radicación	2000-017.013
Trámite	Modelo De Utilidad	003
Evento	Registro	001
Actuación	Pago Tasa Examen Patentabilidad	
Denominación	Sistema de Estructuras para Oficinas Abiertas	
Solicitante	Multiproyectos S.A..	

MAURICIO PINZON PINZON Abogado de la firma **PINZON ROMERO & ASOCIADOS** identificado como aparece al pie de mi firma, mediante el presente escrito allegó :

- Recibo de caja oficial No. 02-80,813 correspondiente al pago de la tasa de examen patentabilidad modelo de utilidad citada en la referencia.

Así mismo solicitamos respetuosamente a su Despacho se sirva continuar con el trámite previsto para este asunto.

Cordialmente,



MAURICIO PINZON PINZON
C.C. 79.145.527 de Usaquén
T.P. 37.230 del C.S. de la J.

MJC/gmb



65

Industria y Comercio

SUPERINTENDENCIA

SUPERINDUSTRIA Y COMERCIO
Radicacion : 00017010 00000001 Folios: 2
Fecha (AÑO): 2002-12-20 14:05:15
Tramite : 003 PATENTES D 1 REGISTRO/ SDA PETICION
Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

NIT : 800170087-2

RECIBO OFICIAL DE CAJA : 02 - 80,013
FECHA : DICIEMBRE 2 DE 2002

***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	Nº. PAGO	FECHA PGO	VP. PAGO
PINION PINION	CONSIGNACION	BANCO POPULAR	050-03110-6	7967697	02/12/2002	1,530,000.00

***** C O N C E P T O *****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-01	SOLICITUDES	
		113 PTC CAF-I EXAMEN DE PATENTIBILIDA	212,000.00
		TOTAL :	\$ 212,000.00

CON: DCCIENTOS DOCE MIL PESOS

RESPONSABLE :

RECIBO DE CAJA APLICADO AL EXPEDIENTE N°.

Carrera 13 No. 27-00 Pisos 5, 7 y 10
Conmutador 382 0840
Fax 350 5220
E-mail: info@sic.gov.co
www.sic.gov.co
Bogotá, D.C., Colombia

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
DIVISION DE NUEVAS CREACIONES

2020
Bogotá, D.C., 18 de febrero de 2004

Doctor (señor):
MAURICIO PINZON PINZON.

ASUNTO:	Radicación No.	00-17013
	Trámite	002
	Evento	001
	Actuación	430
	Oficio	02111
	Folios	19

Como resultado del examen de patentabilidad, realizado con fundamento en el artículo 45 de la Comisión de la Comunidad Andina, se notifica el siguiente concepto técnico:

1. Documentos estudiados:

Para el presente estudio se tuvo en cuenta el capítulo descriptivo comprendido en los folios 11 a 14, folios 47 a 54, el capítulo reivindicatorio conformado por 7 cláusula que se encuentra en los folios 55 a 57 y los dibujos comprendidos en los folios 22 a 36 y folios 58 a 61 de la solicitud en estudio.

2. Objeto de la invención:

El objeto de la presente solicitud de patente de modelo de utilidad es el de u sistema de estructuras para oficinas abiertas, el cual consiste en la combinación de varios sistemas para obtener una disposición de oficinas abiertas, de fácil acceso, estéticas y de desempeño, constituyendo un soporte para diferentes estilos en el mundo moderno y aumentando la versatilidad de cada uno de estos.

El modelo de utilidad proporciona una estera elaborada en material polimerico, liviana, fácil de transportar, para ser utilizada en la playa, piscina, etc. La cual está conformada por una pluralidad de módulos unidos entre sí por correas, que atraviesan unas asas situadas en la parte inferior de cada modulo.

De acuerdo con el modelo de utilidad titulado, "Sistema de estructuras para oficinas abiertas", el cual se lleva acabo de acuerdo con las características reivindicadas, donde la reivindicación 1 dice: "*Sistema de estructuras para oficinas abiertas, caracterizado porque consiste en: a) un sistema de conexión y nivelación de la estructura; b) un sistema de colocación de cables "sobre -puesto" a nivel horizontal y/o a nivel vertical; c) un chasis para tomas atornillable; d) un sistema de aislamiento eléctrico a nivel del zócalo o a una altura determinada; e) un sistema estructural a través de un marco; y f) un sistema de fijación de tableros*".

El objeto de la invención definido anteriormente se clasificó de acuerdo con el IPC así: F16S 1/14.

3. Determinación del estado de la técnica:

El artículo 16 de la decisión 486 de la comisión de la Comunidad Andina que establece que *“El estado de la técnica comprenderá todo lo que haya sido accesible al publico por una descripción escrita u oral, utilización, comercialización o cualquier otro medio antes de la fecha de presentación de la solicitud de patente o, en su caso, de la prioridad reconocida.*

Solo para el efecto de la determinación de la novedad, también se considerará dentro del estado de la técnica, el contenido de una solicitud de patente en trámite ante la oficina nacional competente, cuya fecha de presentación o de prioridad fuese anterior a la fecha de presentación o de prioridad de la solicitud de patente que se estuviese examinando, siempre que dicho contenido esté incluido en la solicitud de fecha anterior cuando ella se publique o hubiese transcurrido el plazo previsto en el artículo 40”.

Consultadas las bases de datos y los archivos con que cuenta la entidad se encontró que antes del 09 de marzo de 2000, fecha de radicación de la solicitud en estudio, un documento relacionado con la materia de la presente solicitud:

N°	Documento	Titulo	Fecha de publicación
D1	EP 0 788 575	MODULAR OFFICE FURNITURE PARTITION	13-08-1997

4. Evaluación de los requisitos de patentabilidad:

El artículo 85 de la Decisión 486 de la Comisión de la Comunidad Andina establece que *“Son aplicables a las patentes de modelo de utilidad, las disposiciones sobre patentes de invención contenidas en la presente decisión en lo que fuere pertinente, salvo en lo dispuesto con relación a los plazos de tramitación, los cuales se reducirán a la mitad. Sin perjuicio de lo anterior, el plazo establecido en el artículo 40 quedara reducido a doce meses”.*

En cumplimiento del artículo 85 de la Decisión 486, se procedió a evaluar el cumplimiento de los requisitos, con el fin de establecer la patentabilidad del modelo de utilidad reivindicado en la solicitud en estudio.

Evaluación de la novedad:

El artículo 16 de la decisión 486 de la comisión de la Comunidad Andina que establece que *“El estado de la técnica comprenderá todo lo que haya sido accesible al publico por una descripción escrita u oral, utilización, comercialización o cualquier otro medio antes de la fecha de presentación de la solicitud de patente o, en su caso, de la prioridad reconocida.*

Solo para el efecto de la determinación de la novedad, también se considerará dentro del estado de la técnica, el contenido de una solicitud de patente en trámite ante la oficina nacional competente, cuya fecha de presentación o de prioridad fuese anterior a la fecha de presentación o de prioridad de la solicitud de patente que se estuviese examinando, siempre que dicho contenido esté incluido en la solicitud de fecha anterior cuando ella se publique o hubiese transcurrido el plazo previsto en el artículo 40”.

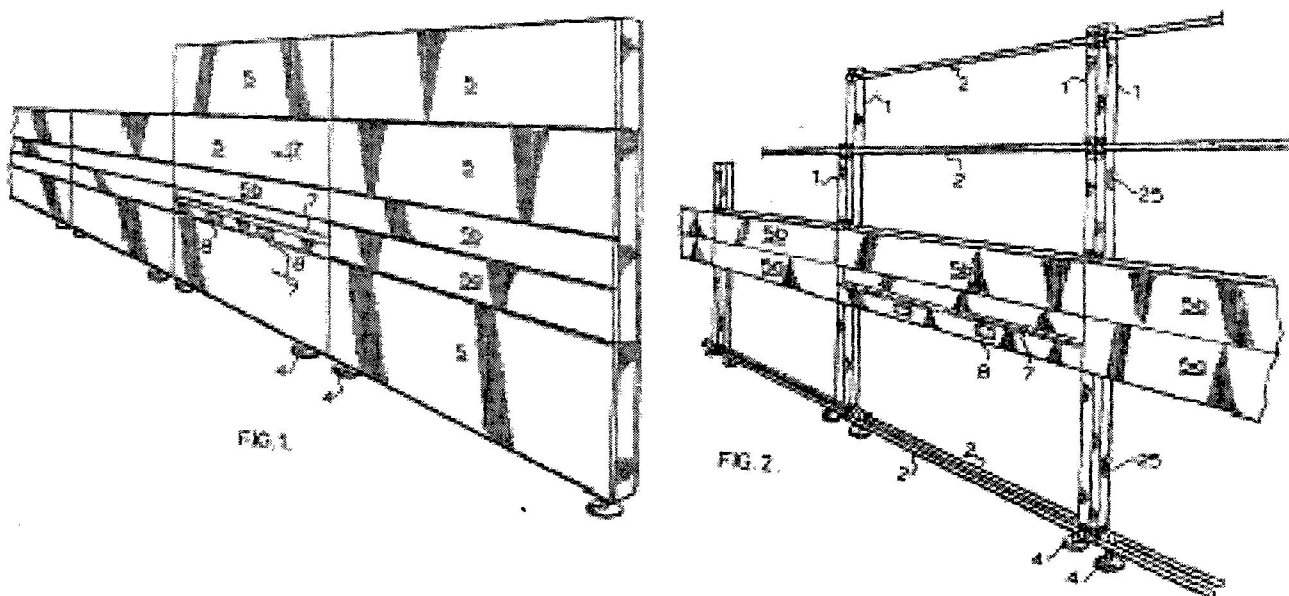
El presente modelo de utilidad, se lleva acabo de acuerdo con las características reivindicadas, donde la reivindicación 1 dice: “Sistema de estructuras para oficinas abiertas, caracterizado porque consiste en: a) un sistema de conexión y nivelación de la estructura; b) un sistema de colocación de cables “sobre –puesto” a nivel horizontal y/o a nivel vertical; c) un chasis para tomas atornillable; d) un sistema de aislamiento eléctrico a nivel del zócalo o a una altura determinada; e) un sistema estructural a través de un marco; y f) un sistema de fijación de tableros”.

De acuerdo con la definición de novedad del Artículo 16 de la Decisión 486 de la Comisión de la Comunidad Andina y basándonos en el objeto de la invención se realizó el siguiente análisis:

- 1) El documento **EP 0 788 575** (mencionado de ahora en adelante como **D1**) se refiere a un separador vertical para utilizarlo en un sistema modular de muebles de oficina, el cual incluye una estructura interior abierta hacia el interior de unos paneles de revestimiento desmontables dentro de los cuales pueden disponerse cables y conductos de suministro eléctrico.

Convencionalmente, un separador comprende una estructura rectangular hueca interior constituida por unos tramos de canal metálico laminado soldados entre sí formando un conjunto rígido. En el interior de los separadores se aloja el cableado eléctrico y cables de comunicación. Los separadores quedan conectados entre sí en sus elementos terminales verticales de la estructura siguiendo distintas configuraciones geométricas de laberinto de oficina y se cuelgan unos paneles de revestimiento en las estructuras para encerrar y ocultar las estructuras de soporte y cableado.

Fig. 1 y 2 del documento EP 0 788 575 (D1)



2) Al comparar la reivindicación 1 del presente modelo de utilidad en estudio con las características de los documentos D1, vemos que dicho documento contiene las características de la reivindicación; donde el documento D1 presenta un separador de muebles de oficina modulares (ver figuras; descripción), conformada por:

- Un sistema de conexión y nivelación de la estructura
- Un sistema de colocación de cables (ver columna 1, líneas 5 a 9; fig. 7)
- Un chasis para tomas atornillable (ver columna 11, líneas 50 a 61; fig. 2 y 7)
- Un sistema de aislamiento eléctrico en el nivel del zócalo o a una altura determinada (ver figura 7; columna 2, líneas 32 a 46)
- Sistema estructural a través de un marco (ver columna 1, líneas 5 a 9; fig. 2)
- Un sistema de fijación de tableros (ver figuras 1,2, 6 y 7; columna 1, líneas 23 a 33, toda la descripción)

3) La reivindicación 1 de la solicitud en estudio es demasiado general, no presenta en forma concisa lo nuevo que se está aportando a la tecnología, ni define las características que lo hace diferente de lo ya existente.

Cabe aclarar que las reivindicaciones tienen como finalidad determinar el alcance de la protección; deben estar redactadas en forma clara y precisa para que sin equivocaciones se pueda medir la extensión de la patente, la que se constituye en la parte más importante de la solicitud.

4) Realizada la comparación del documento D1 con el presente modelo de utilidad, se observa que dicho documento contiene las características del modelo de utilidad en estudio; por lo tanto, el objeto de la solicitud en estudio podría ser idéntico a lo comprendido en el estado de la técnica, con lo cual quedaría desvirtuada la novedad de esta.

No hay que olvidar que el tenor de las reivindicaciones es el que determina el alcance de la protección conferida por la patente (art. 51). Por ello, al analizar la novedad se deben interpretar las reivindicaciones tomando el sentido mas amplio de las definiciones empleadas.

En conclusión, los requisitos de patentabilidad de la presente solicitud se podrían ver afectados así:

Nº	Documento	Reivindicaciones afectadas	Requisito que afecta
D1	EP 0 788 575	1-7	Novedad

En cumplimiento del artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le indica que debe dar respuesta dentro del término de treinta días contados a partir de la fecha de la notificación de la presente comunicación. En

70

caso de no dar respuesta al presente requerimiento o si a pesar de la respuesta subsistieran los impedimentos para la concesión, se denegará la patente.

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal e), del capítulo quinto del título primero de la Circular Unica N° 10 de 2001.


ALIX CÉSPEDES DE VERGEL.
Jefe de la División de Nuevas Creaciones

El anterior requerimiento fue notificado por fijación en lista, de fecha 26 FEB. 2004

CONCEPTO TÉCNICO Número: 217		EXAMINADOR TÉCNICO Código:202018
---------------------------------	--	-------------------------------------

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11)

EP 0 788 575 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
13.02.2002 Bulletin 2002/07

(21) Application number: **94930130.3**

(22) Date of filing: **20.10.1994**

(51) Int Cl.7: **E04B 2/74**

(86) International application number:
PCT/CA94/00582

(87) International publication number:
WO 96/12856 (02.05.1996 Gazette 1996/20)

(54) **MODULAR OFFICE FURNITURE PARTITION**

MODULARE MÖBELTRENNWAND FÜR BÜRORAÜME

PAROI DE SEPARATION MODULAIRE POUR BUREAU

(84) Designated Contracting States:
AT BE CH DE DK ES FR GB IT LI NL SE

(43) Date of publication of application:
13.08.1997 Bulletin 1997/33

(73) Proprietor: **Inscape Corporation**
Newmarket, Ontario L3Y 4X3 (CA)

(72) Inventor: **EDWARDS, John, R.**
Nobleton, Ontario L0G 1N0 (CA)

(74) Representative: **Calderbank, Thomas Roger**
MEWBURN ELLIS York House 23 Kingsway
London WC2B 6HP (GB)

(56) References cited:
EP-A- 0 200 514 EP-A- 0 458 264
US-A- 5 020 290 US-A- 5 219 406

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

EP 0 788 575 B1

Description

FIELD OF THE INVENTION

[0001] The invention relates to an upright partition, for use in a modular office furniture system, having an open internal frame inward of removable cladding panels within which cables, wires and electrical power conduits may be enclosed.

BACKGROUND OF THE INVENTION

[0002] The use of modular office furniture systems is currently very wide spread in modern office interior design. The advantages of using partitions in a modular office system include increased efficiency in the use of space and individual offices with permanent walls may be largely eliminated in open office designs. As a result, a tenant of leased commercial space may minimize the cost of leasehold improvements, and may occupy and vacate premises rapidly through assembly and disassembly of modular components.

[0003] Conventionally a partition comprises an interior hollow rectangular frame constructed of roll formed sheet metal channel sections welded together in a rigid assembly. Electrical wiring and communication cables are accommodated in the hollow interior of the partitions, and are passed between partitions through holes punched in the webs of frame members. Partitions are connected together at their vertical end frame members into various geometric office maze patterns and cladding panels are hung on the frames to enclose and conceal the supporting frames and wiring.

[0004] Commonly the vertical frame members have a series of longitudinally spaced slots within which dogs extending from the cladding panels are engaged. In a like manner shelves, desktop brackets, filing cabinets and other components of the modular office furniture system are hung on the partitions to complete the modular furniture assembly.

[0005] The fabrication of conventional partition frames often involves several operations which require special tooling and machine setups. For example, where frame members are constructed of formed sheet metal channels, openings for wiring, notches for connections to other frame members and slots for hanging accessories are punched in a flat sheet metal blank. The blank is then bent into a channel shape in a rollforming operation, or on a brake press. The formed channels are then fitted together in a jig and welded at rigid connections.

[0006] It will be apparent that where different sized frame members are used and where the configuration of members vary, numerous machine setup modifications must be made. Production may involve the preparation of a number of different frame member configurations each of which may require separate inventory, machine setups, production scheduling and drawings.

Therefore it is desirable to simplify the design of frame members as much as possible to minimize production costs, inventory requirements, and provide maximum flexibility in manufacturing scheduling.

[0007] It is also desirable to minimize the use of welding as a means for connecting frame components. The heat from welding can distort metal frames, and a further manufacturing step may be required to straighten metal frames which have become twisted, or cambered through the welding process. In addition, welding thin sheet metal frames may require relatively highly skilled workers, and quality control supervision.

[0008] A welded metal frame is for all practical purposes, impossible to modify after fabrication. An improperly fabricated welded metal frame must be scrapped and very little of the material can be salvaged for reuse. If a purchaser of a partition system wishes to modify the furniture layout, whole partitions cannot be modified easily. Therefore modification plans are restricted to the rearrangement of existing partitions, or purchasing new partitions of different dimensions.

[0009] Despite the above disadvantages however, welded metal partition frames remain the most commonly used type since the strength is high and manufacturing cost is low compared to conventional alternatives.

[0010] A significant recent development in partition design relates to the increasing demands being put on office furniture to accommodate various communication devices such as computers, telephones, facsimile machines, printers and the like.

[0011] In order to accommodate the increasing number of electrical and communication wires required in most modern office environments, wire or cable raceways through the hollow interior of partitions have been provided. The common conventional location for such a raceway is at the base or cap of a partition.

[0012] The individual conventional partitions each have a raceway or several raceways which communicate with each other when assembled in a modular partition wall. The raceway also commonly communicates with the electrical system of the occupied building through vertical power poles which extend up through the drop ceiling of the building office space or through monuments and access openings in the floor of the office space.

[0013] United States Patent No. 4,133,153 to Hage describes a typical conventional partition raceway. The base portion of the Hage partition is essentially a hollow accessible beam within which electrical and communication wiring can be placed. The conventional partition frame is connected to the top of the hollow beam forming the cable raceway.

[0014] United States Patent No. 5,038,539 to Kelly et al describes another example of a partition system which may accommodate cables at the base and at the cap of a conventional partition system. The vertical frame members are not modified in such a system but

rather the cables are passed over the vertical frame members around their outward edges. This type of system may accommodate limited numbers of relatively thin cables retaining them within the space occupied by the cladding panels.

[0015] An alternative conventional method of passing wires between frames is described in United States Patent No. 4,535,577 to Tenser et al. In this conventional system openings are made in the web section of vertical frame members. The electrical and communication wiring are threaded through the web openings. Therefore wires are not visible but are entirely concealed by the cladding panels. An advantage of this system is that the outward edges of vertical frame members remain completely clear. Accordingly the attachment of other components of modular office furniture systems is not impeded by cables overlapping the openings upon which shelves and other components are hung.

[0016] A distinct disadvantage of such a system is the need to thread cables through the openings. When installing, moving or maintaining computers or other office equipment, it may become frequently necessary to install and remove the cables. Increased labour costs and wear on the cables results from such a system. However since the web portion of the frame member contributes minimally to the strength of the frame member, providing such openings does not reduce the strength of the frame significantly.

[0017] Since most office equipment is operated on the top of a desk or table, current partition designs often include what is known as a "waist-line" waist height cable raceway. Electrical receptacles and various wires are accommodated at waist height thereby eliminating wires which hang down from table top to "base-line" receptacles located at the bottom of a partition. Use of a waist-line raceways simplifies installation and maintenance of equipment by eliminating the need for the installer to crawl under furniture to access a base-line cable raceway and electrical receptacles. The use of a waist height raceway also generally reduces the length of cables required between devices all located at a table top elevation.

[0018] An open interior partition system is sold under the trade mark OPTIMA by Design Finish Studio of Israel. This conventional partition is constructed of vertical sheet metal channel posts with pairs of horizontal round tubes. The pairs of horizontal tubes at each of their ends are inserted into specially designed molded plastic end connectors. The plastic connectors are snap-locked into the interior throat of the vertical channel posts to complete a rigid connection. The partition accommodates wires and cables within its interior by threading wires etc between the pairs of tubes and through openings punched in the webs of the vertical post channels.

[0019] This type of partition remains at a disadvantage since special molded connectors must be used, and the wires must be threaded between partitions through openings in the web of the posts.

[0020] Threading of wires through openings increases the time and effort required to install, remove and maintain office equipment, and increases wear on the outer insulated surfaces of the wiring, thereby reducing its service life.

[0021] However in such a conventional partition, since the entire internal space is open, between pairs of horizontal tubes, wires and cables may be accommodated at any level within an individual partition in the interior behind removable panels. Additionally, the panels are coupled to the horizontal beams with resilient tabs, rendering the entire internal cavity easily accessible through removable panels.

[0022] Therefore it is desirable to provide a partition which may easily accommodate electrical and communication cables preferably at any height in a manner which simplifies the installation, removal and maintenance of such equipment.

[0023] Also it is desirable to protect and conceal wiring and receptacles as much as possible behind cladding panels while maintaining the structural integrity of the partition frame.

[0024] The simplification of frame construction may result in significant cost savings in respect of the type of fabrication machinery used in manufacturing, savings in inventory costs, and enhancement of production scheduling.

[0025] According to the present invention there is provided an upright partition for use in a modular office furniture system the partition comprising:

a frame comprising:

two vertical posts each having outward opposing faces defining spaced apart parallel forward and rearward planes;

a plurality of horizontal beams, each beam having an inward face and an outward face, wherein:

at least one beam in each said plane, the inward face of each beam being connected to one of said outward faces of each post in an overlapping moment resisting connection, whereby an internal cavity is defined inward of the outward faces of said beams, and at least one raceway is defined outward of said outward faces of the posts and inward of a plane in which the outward faces of the beams lie, a plurality of cladding panels each connected to one of said beams or said posts.

[0026] Therefore, it will be apparent that by simply cutting posts and beams to length, and connecting them with such brackets and screws, a partition frame may be quickly fabricated. Preferably the partitions are assembled in a factory environment and shipped to the customer. If desired however, the partitions may be shipped to the site in compact bundles reducing the bulk and cost of transportation. The partitions then may be

assembled and erected at their final location. The ability to disassemble and reassemble the partition frames also aids the purchaser in moving the partitions to new premises and adds flexibility in redesigning their office layout.

[0027] Preferably, the beams are paired together at spaced apart elevations with the post located between beams of the pair. Therefore, the wires may pass between paired beams within the interior of the partition and may be passed over the outward surface of the posts between adjacent partitions. The cladding panels are coupled to the beams with resilient clips such that all panels are easily removable to provide access to the interior of the partition. Wires may pass between adjacent partitions over the outward face of the posts and enclosed inward of the panels. The overlapping of the beams spaces the panels away from the posts thereby providing an adequately sized cable raceway bounded by the beams outwardly and at top and bottom, and bounded inwardly by the adjacent post.

[0028] Accordingly the invention specifically provides: an upright partition for use in a modular office furniture system, the partition comprising: a frame comprising: two vertical posts each having outward opposing faces defining spaced apart parallel forward and rearward planes; a plurality of horizontal beams, at least one beam in each said plane, each beam having an inward face and an outward face, the inward face of each beam being connected to one said outward face of an associated post in an overlapping moment resisting connection; and a plurality of cladding panels each connected to one said beam; whereby an internal cavity is defined inward of the outward faces of said beams, and a raceway is defined outward of said outward post faces and inward of the outward faces of said beams.

[0029] Further aspects of the invention will become apparent upon review of the following detailed description of the preferred embodiment of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0030] In order that the invention may be readily understood, a preferred embodiment of the invention will be described by way of example with reference to the accompanying drawings in which:

Figure 1 shows a frontal perspective elevation view of an assembled modular office furniture partition wall including multiple vertical partitions, with a central partition having a modified utility access panel;

Figure 2 is a frontal perspective view, of the wall of Fig. 1, with the upper and lower cladding panels removed to reveal the internal partition frame;

Figure 3 illustrates an elevation view of adjacent vertical posts, of the wall of Fig. 1, showing two abutting partitions with their supporting feet and

horizontal beam frame members;

Figures 4, and 5 are sectional plan views along lines 4-4 and 5-5 of Fig. 3;

Figure 6 is a sectional elevation view along line 6-6 of Fig. 5;

Figure 7 is a sectional elevation view along line 7-7 of Fig. 1 showing the structure of the utility access panels with electrical power bus, and cable hanger;

Figure 8 is a sectional plan view along line 8-8 of Fig. 7;

Figure 9 is a sectional plan view along line 9-9 of Fig. 7;

Figure 10 is an isometric detail view of a typical saddle bracket connection joining a horizontal beam to a vertical post in an overlapping rigid connection;

Figure 11 is a perspective view of the connection between four adjacent partition frame posts in an X-shaped configuration;

Figure 12 is an exploded view of the component parts of the connection shown in Fig. 11;

Figure 13 is an exploded perspective view of the toggle clamp used to connect adjacent frames together; and

Figure 14 is a detail elevation view of an installed toggle clamp.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS OF THE INVENTION

[0031] Office partition walls are assembled from adjacent rectangular partitions as shown in Figure 1. A partition is generally clad with panels 5 and 7. The panels 5 and 7 are constructed of a painted sheet metal cover which may be filled with sound absorbing insulation and covered with sound absorbing fabric or other materials. Upper and lower panels 5 may be fitted with windows, or screens if desired. Adjustable legs 4 are provided to level the partition wall along its length.

[0032] The novel construction of the partition frame is illustrated in Figure 2. Upper and lower panels 5 have been removed leaving only the central panels 5 and 7 behind which electrical conduits, communication wires etc. are housed. Accordingly, upper and lower panels 5 may be wholly eliminated, or in part, from the partition frames if the interior designer wishes to present a more open office atmosphere. Furniture components such as desk tops, shelves, and cabinets can be suspended from the posts 1 of the partition frame independently

75

whether or not a design includes the uppermost and lowermost cladding panels 5.

[0033] The frames of the partition are very simply constructed of two vertical posts 1 and horizontal beams 2. The beams 2 are preferably arranged in parallel pairs on both sides of the posts 1. Pairing of the beams 2 strengthens the frame and allows use of standard panel dimensions.

[0034] The beams 2 are connected to outward opposing front and rear faces of each post 1 in an overlapping moment resisting connection.

[0035] Figure 10 shows the preferred means by which the posts 1 and beams 2 are connected in an overlapping rigid manner. The beams 2 are shown as tubular in transverse section having a "racetrack" sectional shape. The tubular beams 2 have an arcuate upper portion and an arcuate lower portion with a straight intermediate portion between. The arcuate upper and lower portions are preferred by semicircular. This section is advantageous in that the section is easily drawn or extruded from metals such as steel and aluminium or from plastic. The section has a relatively high moment of inertia to resist torsion and flexure, and can be easily connected to the posts 1 and panels 5, as shown.

[0036] The beams 2 and posts 1 are connected, as shown in the typical connection detail of Fig. 10, with brackets 3 having a saddle portion 20 of internal profile mating the external profile of the beams 2. The brackets 3 also include flange portions 21 above and below the saddle portion 20. The flange portions 21 lie over and are connected to the outward forward or rearward face 22 of the associated posts 1. In the embodiment shown in Figure 10, the flange portions 21 are perforated and the bracket 3 is connected to the post 1 with self tapping screws 23. Other conventional means may also be used such as rivets, bolts, spot welding or puddle welding (not shown).

[0037] The cladding panels 5 include resilient clips (26 and 27 in Fig. 6) for releasably coupling each panel 5 between associated parallel upper and lower pairs of beams 2. In the preferred embodiment illustrated, the cladding panels 5 are positioned outward of, overlying and coupled to the beams 2. Due to the thickness of the saddle portion 20 of the brackets 3 shown in Figure 10, a gap is present between the beams 2 and the adjacent top or bottom edge of the panels 5.

[0038] The partition is formed from an open gridwork of posts 1 and beams 2. As a result, the partition has an open interior cavity which advantageously permits the passage of wires and cables generally indicated as 32.

[0039] As seen in Figure 6 the cavity is made up of a vertically extending central post space 40 together with horizontally extending raceways 41 adjacent and open to the central post space 40.

[0040] The central post space 40 is defined between the posts 1, that is between a forward plane including the forward face of each post 1 and a rearward plane including the rearward face of each post 1. The central

post space 40 extends vertically between the spaces, parallel forward and rearward planes and between interior faces of the posts 1. The central post space 40 extends continuously vertically throughout the height of the partition and is open upwardly to above the top of the partition and is open downwardly to below the lowest beam 2 of the partition.

[0041] A plurality of raceways 41 extend horizontally between the beams 2 outward of and respective of the forward or rearward planes. The raceways 41 extend the full width of each partition and are open at each end to beyond the exterior end faces of the posts 1.

[0042] The raceways 41 are inward of the panels (5 and 7) and preferably extend forwardly and rearwardly from the respective forward or rearward plane at least the thickness of the beams 2.

[0043] The raceways 41 are open on their inner sides to the central post space 40 over the entire distance between the posts 1. Whereas the central post space 40 ends at the interior end faces of the posts 1, the raceways 41 provide for a passageway for cables 32 horizontally past the posts 1 outward of the posts 1 inward of the panels 5, 7.

[0044] Similarly the central post space 40 provides a passageway for cables 32 vertically past the beams 2 inward of the beams 2 and inward of the panels 5, 7. With the raceways 41 and central post space 40 in communication, the cavity permits cables 32 to be passed vertically through the portion between the posts 1 inside the beams 2 and horizontally across a partition and between adjacent partitions in the raceways outside the posts 1, between the beams 2 and inside the panels 5, 7. In the context of Figure 2, with a plurality of corresponding panels 5 removed, a continuous raceway 41 will extend along the entire width of the three joined partitions into which cables 32 may easily be laid.

[0045] Referring to Figures 3 through 9, the details of construction of the partition frame are illustrated. In the embodiment illustrated the posts 1 are hollow structural square steel tubes. The posts 1 include a vertical series slots 24 in their outward forward and rearward faces. The slots 24 are used to adjustably and removably support hanger means for suspending various furniture components upon the posts 1 of each partition.

[0046] Adjacent posts 1 of adjacent partition frames are connected with releasable securing means in the form of toggle clamps 25 as shown in Figure 3.

[0047] Adjustable height legs 4 are provided at the base of each post 1 to support the partition frame, and level the assembled partition wall on the supporting floor surface.

[0048] Preferably the beams 2 are arranged in parallel pairs, with one beam 2 of each pair being connected to the outward opposing faces of each vertical post 1. The pairs of beams 2 are vertically spaced from other pairs of beams 2 at uniform vertical intervals.

[0049] The panels 5, as shown in Figure 6, are releasably coupled between associated parallel upper and

76

lower beams 2 with resilient clips 26 and 27. The lower resilient clip 26 rests upon the upper arcuate curved surface of the lower beam 2. The upper resilient clip 27 has an inward leading lip 28 which guides the upper clip 27 over the lower semicircular rounded surface of the upper beam 2 in order to resiliently engage the upper beam 2.

[0050] Figure 9 shows a sectional view in the plan which illustrates further details of the clips 26 and 27. Advantageously the clips 26, 27 are formed of plastic together with a panel bulkhead 29 which closes and masks both ends of the panel 5.

[0051] Figure 9 shows that between ends of adjacent panels 5 there is a vertical gap of width "g" provided. The gap "g" enables the insertion of the hanger means 30. The hanger 30 has an inward end which has inward facing dogs 31 to co-act with selected slots 24 in the outward face of the posts 1. The inward end of the hanger 30 is bent in an offset S-shape in order that the cladding panels 5 cover over the slots 24 and the inward end of the hanger 30. As a result, the slots 24 and associated offset parts of the hanger 30 are not visible when the panels 5 are installed. The hangers 30 extend outwardly from the posts through gap "g" and may be used in known manner to support furniture components such as desktops, shelves, cabinets and the like.

[0052] A particularly advantageous feature of the partition according to the invention relates to the capacity to accommodate cables and wires 32 in a novel fashion having regard to the interior cavity comprising the central post space 40 and the raceways 41 described earlier. While many different configurations may be adopted to pass cables and wires 32 between partitions and into and out of the interior cavity, one preferred embodiment is illustrated. Referring to Figure 7, Figure 7 shows a portion of a raceway indicated and referred to as raceway 41b, underneath an upper panel indicated as 5b, adapted to carry horizontally extending communication wires 32b and another portion of the same raceway indicated and referred to as raceway 41a, underneath recessed panel 7 adapted to carry horizontally extending electrical cables 32a. As shown in Figure 7, in a preferred embodiment, the intermediate panels 5 may be used to house communication wires 32b for computers and other office equipment. Intermediate panels 5a maybe used to house electrical power outlets 8, an associated electrical power bus 33 and associated electrical power cables 32. Since such wires 32b, cables 32a and power bus 33 are commonly required to be hidden, the embodiment of Figure 2 shows the intermediate panel 5b and recessed panel 7 remaining installed, whereas the other panels 5 are removed.

[0053] In Figure 7 in dotted outline, an optional cladding panel 5a is shown installed over recessed panel 7. The recessed panel 7 has an upper portion 7a which is inwardly upwardly recessed so as to not extend forwardly beyond the faces of the post 1 in order to provide space for vertical passage of the wires 32b from the raceway 41b to equipment which is external to the par-

tion panels 5. Passing the wire 32b in raceway 41b downward adjacent the upper portion of recessed panel 7 and then out under the panel 5b effectively and simply masks the entry of wires 32b into the partition.

[0054] Above the recessed panel 7, wires 32b are accommodated within a cable support tree 34. The cable support tree 34 is attached with screws to an inner end face of an adjacent post 1. The tree 34 comprises a vertical member with vertically spaced apart series of laterally extending cable support arms 35. As drawn, the tree 34 has support arms 35 extending into raceway 41b on the right side only, for clarity. However, it will be understood that arms 35 may advantageously be provided on the left side as well. A modified cable support arm 36 includes an outward extension to engage supporting rods 37 secured to the rear of the removable cladding panel 5b. The removable panel 5b may be removed by pushing the bottom edge inward, which pivots the panel 5 about the boss 44 below the panel centre line to snap the top rod 37 out of engagement with the top modified arm 36. While the cable support trees are shown attached to each post, depending on the width of a panel 5, additional support trees 34 may be provided inserted between the posts 1 supported by the beams 2.

[0055] Advantageously, as best illustrated, in Figure 7 wires 32b pass along the entire width of each partition and between adjacent partitions via horizontal cable raceway 41b. The raceway 41b as illustrated is of depth "d₁" is bounded by the outward face of the post 1 and panel 5b, and of height "h₁" bounded vertically by the horizontal beams 2 of two vertically spaced apart pairs of beams 2.

[0056] The lower portion 7b of the recessed panel 7 covers an electrical bus 33. Electrical power cables 32a are shown to pass horizontally to buses 33 in adjacent panels via raceway 41a. Raceway 41a is illustrated as having depth "d₂" and height "h₂". The buses 33 are fixed to the posts 1 or beams 2 and include electrical outlets 8 on each side. To ensure the safety of the installation, the recessed panel 7 is connected to the posts 1 and the bus assembly with screws or other relatively permanent connectors. Accidental access to live electrical components is avoided therefore.

[0057] Electrical outlets 8 are accommodated by merely punching holes in the appropriate locations through the lower portion of the recessed panel 7. If access to the electrical bus 33 and electrical outlets 8 is not required, an optional cladding panel 5a (as shown in dotted outline in Figure 7) may be installed over the recessed panel 7 in order to provide an uninterrupted finished appearance. Alternatively, the power bus 33 component may be eliminated entirely from that partition.

[0058] The optional cladding panel 5 may be conveniently stored within the cavity of the partition, behind an upper panel 5 for example, if access to the electrical outlets 8 and recessed panel 7 is desired.

[0059] The central post space 40 provides vertical passage throughout the entire height of the partitions

27

other than where blocked by the bus 33. Figure 7 schematically illustrates a length of electrical cable 32a extending to one end of bus 33, past the bus 33 up the central post space 40 from below the lowermost beams 2, to up to the height of the cable tree 34. As illustrated, between the panels 7 the central post space 40 has been narrowed to a vertical duct 40a of depth at least as great as the thickness of cable 32. Panels 7 need not be recessed inside the forward and rearward faces of the posts 1. When electrical power is accessed at floor level, the central post space 40 may be used to pass cables 32a upwardly from a power source in the floor and the bus 33. When electrical power is accessed from ceiling level, conventional power poles may be used which communicate with upper portions of the central post space 40 downwardly to the bus 33.

[0060] Electrical cables 32a are preferably armored in metal, and pass across the entire width of a partition and between adjacent partitions through the horizontal raceway 41a. Commercially available modular buses 33 are preferably used having outlets on both sides with pigtail conduits 32a for interconnection in lengthwise series along the length of the assembled partition wall.

[0061] Therefore the specific combination of the upper raceway 41b and the lower cable raceway 41a, and central post space 40 of the partition provide convenient means to house cables 32a and wires 32b hidden from view behind removable panels 5b and recessed fixed panel 7. All cables 32a and wires 32b may pass easily between adjacent partitions within the cable raceways 41a or 41b between the vertical posts 1 and exterior cladding panels 5 and 7.

[0062] Preferably the intermediate panel 5b which covers the cable supporting tree 34 is positioned immediately above desktop height. The recessed panel 7 is positioned immediately below desktop height. Since the raceways 41a and 41b pass on the outward surface of the posts 1, slots 24 which support hanger brackets 30 cannot be accessed in the immediate area of the raceways 41a or 41b when cables or wires 32 are to be housed within the raceways. However, this feature is not particularly disadvantageous, since in general, hanger brackets 30 are positioned above desktop height for shelves and filing cabinets, whereas hangers 30 are positioned below desktop height to support desks, and filing cabinets.

[0063] Therefore hangers 30 in the immediate area above desk top height are not generally required. If a design calls for hangers 30 in that specific location, it is a very simple matter to position the cable tree 34 at a higher or lower panel 5 location. Since the entire internal cavity 40 of the partition is open, wires 32b and cables 32a may be relocated anywhere within the interior cavity 40 of the partition to meet the requirements of a specific design.

[0064] Figures 11 and 12 show the details of the connection between four adjacent partitions in an X-shaped pattern. It will be apparent that connections of two or

three adjacent panels in L-shaped or T-shaped patterns or between panels in other than 90° orientation can be accomplished in an analogous manner.

[0065] The leading hook-shaped ends of the toggle clamps 25 extend through slots in the posts 1 and engage a slotted opening 13 in the X-shaped connector 14. Upturned legs 15 are pressed against the lateral surface of the posts 1 and clamped securely. Further securing of the connection may optionally be provided by bolting arrowhead-shaped connectors 16 to connector 14 with the end inserts 16a of each connectors telescopically received within the interior of the open ends of the associated tubes 2. The arrowhead connectors 16 include mating apertures in order to bolt them to the X-shaped connector 14.

[0066] It has been found by experimentation that only one X-shaped connector 14 need be used at the mid-height level to securely connect four adjacent frames. Additional strength may be achieved if necessary in specific circumstances by providing additional X-shaped connectors 14 as shown in Figure 11. Preferably though, only one X-shaped connector 14 need be used, and for additional stability and strength arrow-head connectors 16 may be used without connector 14. In this case disks 42 are used as a vehicle to which to secure adjacent arrow-head connectors 16 inserted into the interior of each pair of beams 2 throughout the height of the partition. The use of relatively expensive toggle clamps 25 therefore can be minimized without sacrificing the strength of the connection.

[0067] In order to secure abutting partitions together in a straight run, a single toggle clamp 25 may preferably be used. As shown in Figures 3 and 9, the pairs of beams 2 at the top and bottom of the abutting partitions may be joined together with inserts 43 which are force fit within the open ends of abutting beams 2 and span across between abutting beams 2.

[0068] The individual partitions in accordance with the present invention have been found to have surprisingly great strength and rigidity on an individual basis. When partitions are joined together end to end with inserts 43 received in the open ends of abutting beams 2 the combined partitions have yet increased and surprising strength and structural integrity.

[0069] In order to fabricate partitions, and assemble partitions in accordance with the invention, the following method of production is followed.

[0070] The posts 1 and beams 2 are cut to length from mill stock lengths according to the desired finished dimensions of the partition. Elongate slots 24 are cut into each of the two outward faces of each post 1. Elongate slots 46 to accommodate toggle clamps 25 are also cut in the side faces of each post 1. Holes for screws to attach the saddle brackets 3 are drilled in the outward face of each post 1, and holes are drilled in the side faces of each post 1 near their base to receive self-tapping screws which secure the legs 4 in place.

[0071] Beams 2 and posts 1 are then electrostatically

coated. The painting operation is carried out by painting posts 1 and beams 2 hung side by side in parallel within an electrostatic painting booth. Compared to the painting of a relatively open welded frame, the painting of posts 1 and beams 2 before assembly is more efficient.

[0072] In general, it is more efficient to assemble the partitions in a high production factory environment using jigs, workstations, specialized tools, and handling equipment. The assembled frames may then be shipped to a site for erection.

[0073] However, an advantage of the partition design is that, if desired, the frames of the partitions may be constructed on site using simple tools and relatively unskilled labour. The posts 1, beams 2, saddle brackets 3, feet 4, panels 5 and 7, and other components may be packaged in cartons or compact bundles for transport to a site.

[0074] Two posts 1 are laid down on one outward face parallel to each other. A jig is preferably used in factory assembly to speed up assembly however it will be understood that a jig is not necessary since the predrilled holes for the saddle brackets 3 will ensure proper spacing and alignment of beams 2 and posts 1 when assembled on site. Beams 2 are overlapped upon the outward face of the posts 1. Saddle brackets 3 are positioned over the ends of the beams 2 and are secured in place with self-tapping screws 23 using a power screwdriver. The partially assembled frame is then turned over and the second beam 2 of each parallel pair of beams 2 is secured to the opposite outward face of each post in a like manner.

[0075] As shown in Figures 3 and 5, legs 4 have a cast metal body 4a with a slotted clip 4b upon which the bottom edge of the post 1 is positioned and an upper flange 4c through which self-tapping screws are driven to secure the leg body to the side face of each post 1 base. The cast body also includes a vertical threaded bore to house a threaded shaft 4d. The lower end of the shaft 4d is pivotally connected to a foot base, thereby providing height adjustment to level the partition on uneven floor surfaces.

[0076] The assembled frames are erected and connected together in the desired pattern through the use of toggle clamps 25. When X-shaped, T-shaped, L-shaped or other frame connections are desired, as shown in Figures 11 and 12, slotted connectors 14 and arrowhead connectors 16 are used to complete a rigid assembly.

[0077] To join posts of two partitions together in a straight run, as best shown in Figure 14, the arm 44 and hook 45 of the toggle clamp 25 is inserted through aligned elongate slots 46 in the side faces of the posts 1. The hook 45 engages the side face 47 of the second post 1 remote from the remaining body of the clamp 25. From the exploded view of Figure 13, it will be apparent that when the clamp handle 48 is rotated 90 degrees, the abutting cam faces 49 and 50, and 51 and 52 coast to clamp the posts 1 between the hook 45 and the shoulder face 53.

der face 53.

[0078] The cable trees 34 are installed throughout the length of partition wall to be served by office equipment.

[0079] Modular electrical buses 33 is installed in the desired locations. Electrical power cables 32a are run from a power source vertically up or down the partition of one interior cavity to one bus 33 location and the horizontally through the raceway 41b across the width of that partition and to adjacent partition. Recessed panels 7 are secured to the cable trees 34 with self-tapping screws.

[0080] Furniture components, such as desktops, shelves, filing cabinets etc., are suspended from the posts 1 upon hanger brackets 34 by inserting the dogs 31 of the hangers 34 into the slots 24 of the posts 1. Panels 5 are then resiliently coupled to the beams 2 where desired, covering over the slots 24 and the inward ends of the hangers 30.

[0081] Office equipment such as computers, facsimile machines, telephones, printers, modems, ICU servers etc. are installed within the office space often supported upon the shelves or desktop components. Wires are passed between equipment external to the partition panels 5 and the cable tree 34 housed within the internal cavity 40 of the partition frame.

[0082] Wires 32b and cables 32a, are passed between adjacent partitions through the raceway 41b and supported at intervals along the length of the partition wall upon the cable trees 34. The armored electrical power cables 32a are passed through the raceway 41a. When all wires 32a have been installed, the rods 37 of cover panel 5b are engaged upon the modified support arms 36 of the cable trees 34 to enclose the wires 32b within the interior cavity of the partitions.

[0083] The partition described above therefore provides a simple construction for a partition. Rigid connections between the posts 1 and beams 3 are readily provided by the simple means attaching brackets 3 at the appropriate levels. The partitions may be substantially fabricated by simply cutting beams 2 and posts 1 to the appropriate length. The partitions may be shipped to the site in knocked-down bundles, and erected on site using simple tools and relatively unskilled labour. The customer may easily disassemble and reassemble the partitions during moving or when rearranging the office layout.

[0084] Cables 32a and wires 32b and electrical bus 33 are conveniently housed within the hollow interior cavity of the partition. Wires 32b and electrical power cables 32a are readily accessible behind removable panels 5a and 5b. The need to thread such wires and cables 32 through openings in the posts 1 is eliminated by the provision of two outward raceways 41a and 41b. As a result the installation, removal and maintenance of office equipment is simplified, and wires and cables 32a and 32b are not subjected to the level of wear occasioned through use of conventional partition designs.

[0085] Only the intermediate cladding panels 5a and

79

5b are required in most cases, as shown in Figure 2, to cover the electrical bus 33 and wires and cables 32a and 32b. The remaining upper and lower panels 5 may optionally not be provided if desired, thereby further reducing the cost of the partition wall. The surface finish and connection detail design may be undertaken to result in an exposed structural "high tech" look which is relatively inexpensive and is currently popular in architectural and interior design.

[0086] A very simply constructed partition is provided which meets the increasingly onerous requirements for accommodating the numerous electrical and communication cables 32 of modern office equipment.

[0087] In the preferred embodiments, as shown in Figure 6, the panels 5 have an end cap, indicated as 100, with an inner edge 102 such that raceway 41 is defined between edge 100 and the outer face of the posts 1. The panels 5 need not have such end caps 100. Avoidance of the end caps 100 can increase the depth of the raceways 41.

[0088] In the preferred illustrated embodiment, the cladding panels 5 have been shown to overlap and be outward of the beams 2. It is to be appreciated that the cladding panels 5 may be provided to not overlap the beams 2 but to be between the beams 2 with the panels 5 being open at their ends and in effect hollow to define the horizontal raceways within the panels 5 between the beams 2.

[0089] Although this disclosure has described and illustrated certain preferred embodiments of the invention, it is to be understood that the invention is not restricted to these particular embodiments. For example, the beams 2 and posts 1 may be constructed of any commonly available section, or of specially fabricated sections through extrusion, such as: hollow rectangular tubes, square tubes, round tubes, oval tubes, extruded members, drawn tubes, channel members, I-beam members, and angle members. The panels 5 as well may be constructed having an external cover made of various commonplace materials such as: roll formed sheet metal; extruded aluminium; extruded plastic; fibreboard; and fabric. Therefore, the invention includes all embodiments which are functional or mechanical equivalents of the specific embodiments and features that have been described and illustrated herein.

Claims

1. An upright partition for use in a modular office furniture system the partition comprising:
 - a frame comprising:
 - two vertical posts (1) each having outward opposing faces defining spaced apart parallel forward and rearward planes;
 - a plurality of horizontal beams (2), each beam (2) having an inward face and an outward face,

characterized by:

- at least one beam (2) in each said plane, the inward face of each beam (2) being connected to one of said outward faces of each post (1) in an overlapping moment resisting connection, whereby an internal cavity (40,41) is defined inward of the outward faces of said beams (2), and at least one raceway (41) is defined outward of said outward faces of the posts (1) and inward of a plane in which the outward faces of the beams (2) lie, a plurality of cladding panels (5,7) each connected to one of said beams or said posts.
2. A partition as claimed in claim 1 wherein said cladding panels include cladding panels (5) removably coupled to one of said beams (2) or posts (1).
3. A partition as claimed in claim 1 or 2 wherein each of the cladding panels (5) is connected to one of said beams (2).
4. An upright partition as claimed in claim 1, 2 or 3 in which each cladding panel (5) having an inner surface, the raceway (41) is defined outward of said outward faces of the posts (1) and inward of the inner surfaces of the cladding panels (5).
5. A partition according to any one of claims 1 to 4 wherein each cladding panel (5) includes resilient clips (26,27) releasably coupling each cladding panel (5) to at least one said beam (2).
6. A partition according to any one of claims 1 to 5 wherein each panel (5) is coupled between an upper beam and an associated parallel lower beam (2).
7. A partition according to any one of claims 1 to 6 wherein the posts (1) include a vertical series of slots (24) in each of their outward faces, the partition further comprising a plurality of hanger means (30) for suspending furniture components upon the posts (1), the hanger means (30) including an inward end having inward facing dogs (31) co-acting with selected slots of said series, and wherein the cladding panels (5) overlie the slots (24), and said inward end of the hanger means (30).
8. A partition according to any one of claims 1 to 7 wherein the panels (5) have an external cover constructed of materials selected from the group consisting of: roll formed sheet metal; extruded aluminium; extruded plastic; fibreboard; and fabric.

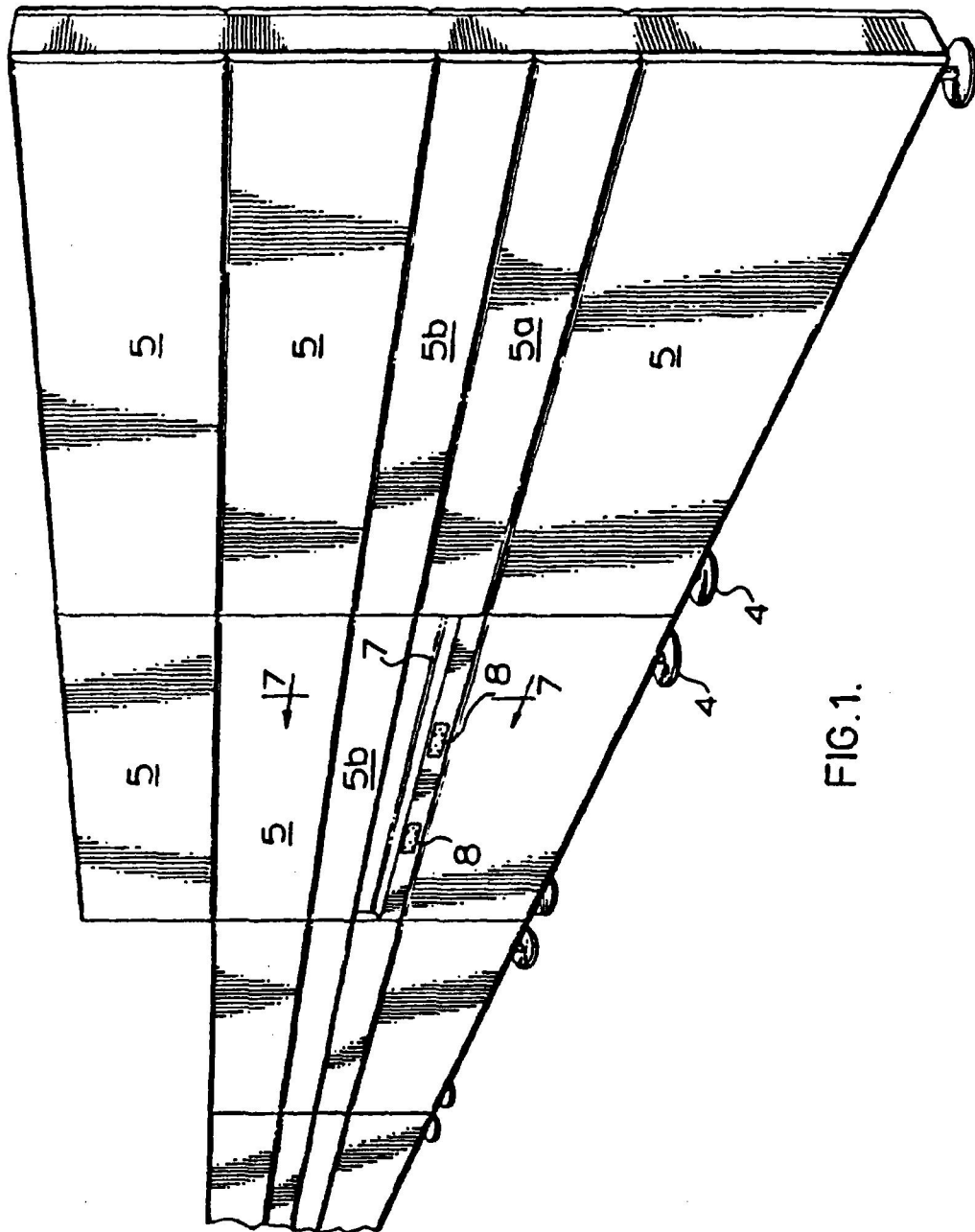


FIG. 1.

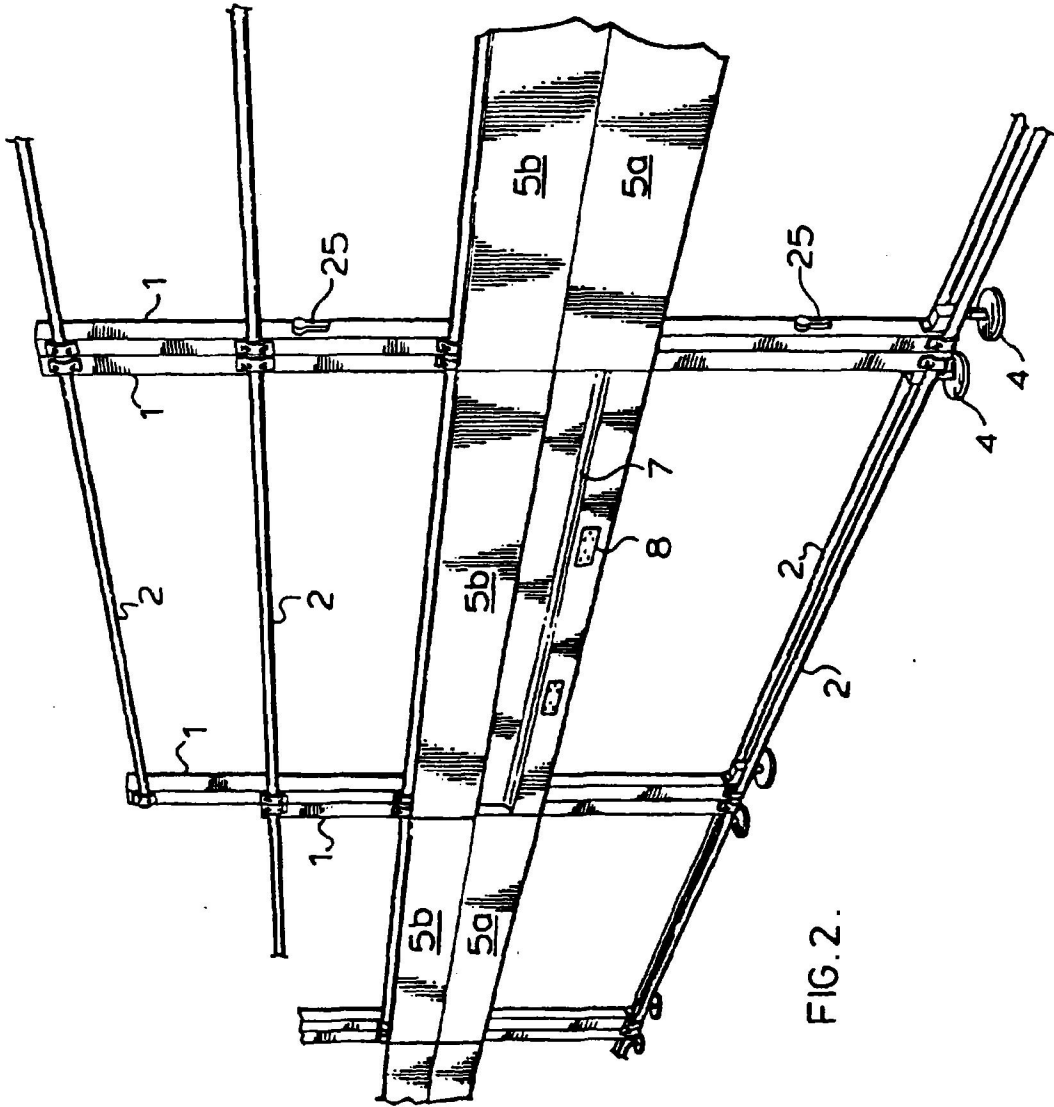
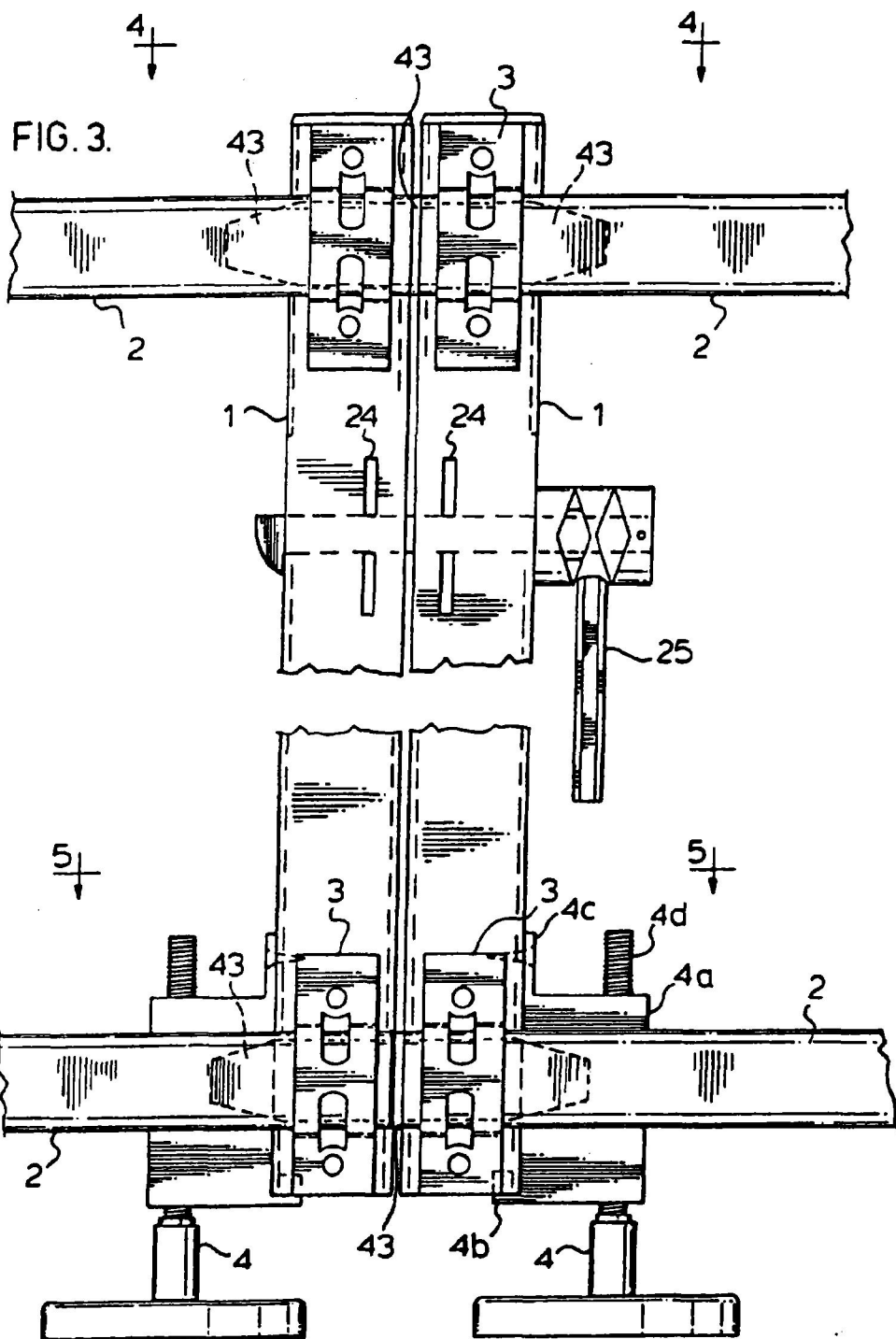
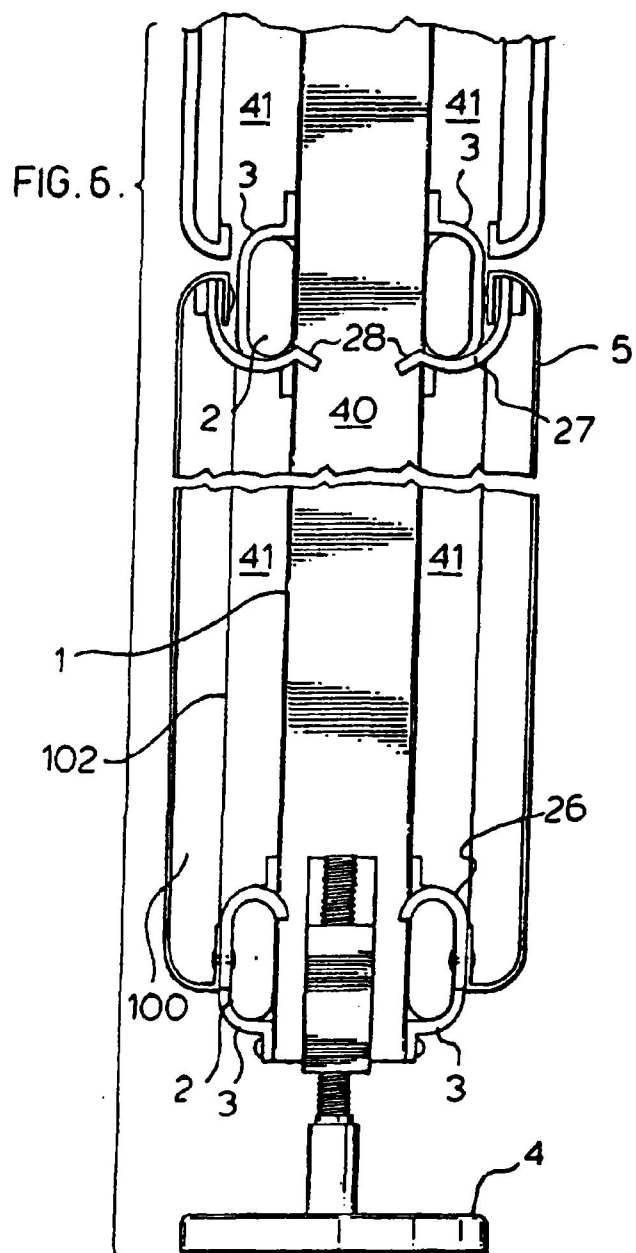


FIG.2.

82



83



84

FIG. 7.

