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(54) Furniture assemblage.

(57) An assemblage of unconnected freestanding office furniture comprises a plurality of desks, tables and storage units. These furniture components are designed so as to be selectively disposed in any one of a multiplicity of work station formations. The components are further adapted to be moved relative to each other to be selectively disposed in any other of the configurations. When so disposed, certain of the components are adapted to be positioned closely adjacent one another in predetermined complementary docking relationships to provide work sections.

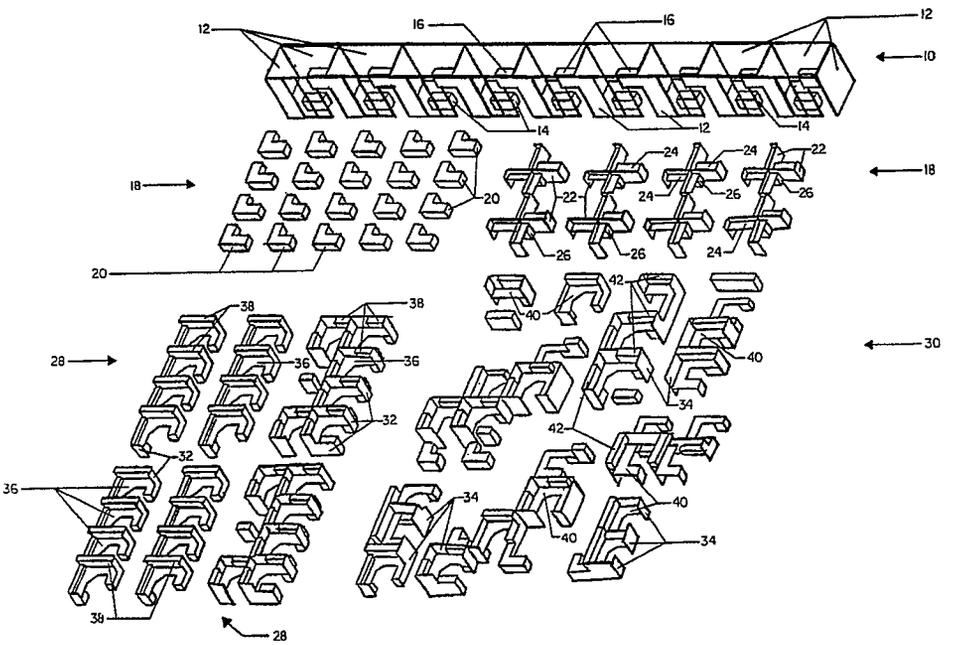

FIG. 1

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This invention relates to an office furniture assemblage, and, more particularly an assemblage of unconnected freestanding furniture components adapted to be arranged in a selected one of a number of work station configurations and selectively rearranged by movement of the components by the user to any other of the configurations to satisfy short-term and long-term user requirements.

Over the years, office work environments, including their furnishings, have evolved into what many recognize today as three general types of office models: the enclosed office model, the bull pen model and the open plan model. Many organizations today employ more than one of these office models.

In the past, enclosed offices have been furnished with conventional "freestanding" casegoods, components, including desks, credenzas, chairs, etc., "freestanding" connoting independent furniture components physically unconnected to one another.

Today, bull pen environments can be characterized by "systems" furniture, a series of physically interconnected furniture components, such as a network of low-height freestanding wall panels mounted together in end-to-end relationship and supporting work surface and storage accessories.

Open plan models are generally characterized by "systems" furniture: a network of interconnected wall panels supporting work surface and storage components, wherein the wall panels are relatively tall, in contrast to the low-height panels of bull pen environments, the relatively tall wall panels functioning to divide work space and afford some degree of privacy between work stations. Uniform open plan models have a uniform set 7 office modules aligned in a repeating pattern.

Free form open plan models have work stations designed for the particular functions and needs of the professionals and technical employees who use them; they are not uniform. Work stations may be individually planned or based on a half a dozen or more "typical" work stations. The work stations are then combined so that members of a department or team are positioned according to work flow, frequency of communication and project team assignments, rather than by similar function as in bull pen and uniform open plan environments.

In order to integrate a variety of office models and functions in a single organization, it has been found desirable to provide a single assemblage of office furniture which is capable of use in all four office models, that is, a furniture assemblage which not only is adapted for use in traditional enclosed offices and in open bull pen environments, but which is capable of providing the privacy required in the uniform open plan model and meeting the diverse needs of the free form open plan scheme. This need has not been heretofore met.

Team approach to problem solving has required that private offices become meeting places for teams of workers. Furnishings of such traditional space must therefore not only be sufficiently functional to meet the needs of a working manager, but they also must permit easy reconfiguration of the furnishings by the user himself/herself to accommodate a number of individuals. The massive desk and credenza are ill-suited to respond to these demands.

In addition, the shift to information based business has required office furniture to accommodate modern electronic work tools, e.g., computers, telephone systems, etc., as well as their wiring. The conventional freestanding desk has not effectively managed these work tools.

Similar flexibility is required in the free form open plan model. As stated above, management using the "team" approach to projects typically finds itself in the free form open plan environment because of the model's ability to provide the necessary privacy and to facilitate communication between team members. While working on a project, the furniture components in the environment must be moved about, reconfigured or "finely tuned" to meet the needs of the individual and the group. The environment, in a broader sense, may be altered to accommodate an increase or decrease in the size of the team as the project progresses. And, in an even broader sense, when the project is complete, it might be reconfigured to serve another function or tackle another project.

Like the heavy desk and credenza, "systems" furniture, that product characterizing today's free form environments, also lacks the flexibility required for rapid and convenient reconfiguration in response to changes in the number of workers and the type of work on both an individual and a team basis. Being characterized by multiple of physically interconnected components, work space defined by "systems" furniture is relatively permanent. Although the wall panels and the components supported thereon can be rearranged from one pattern of organization to another, such rearrangement cannot be done by the users themselves, without difficulty and without inconvenience to the users. Disassembly and reassembly of the components may require special tools and skills not familiar to the users, and to perform such reconfiguration is time consuming thereby rendering nonfunctional the furniture during the rearrangement. Thus, the systems furniture of today's open plan environments finds itself less suited to meet the dynamics now required of office furnishings in such environments.

Therefore, there is a need for office furniture with more flexibility than heretofore provided,

whether used within enclosed and free form office environments. The furniture components must have the capability of managing today's electrical work tools and meeting work surface and storage requirements of the working manager, but also must be capable of rapid reorientation by the user to adapt the work environment to the requirements of the user to accommodate different types of work and the number of users.

According to the invention, a novel technical advantage is achieved in an assemblage of office furniture comprises desks, tables and storage units adapted to be selectively and readily disposed in any one of a multiplicity of work station formations. All of the components have a top member with a horizontal surface, a leg structure for supporting the top member and feet on the leg structure in floor contacting relationship. The size, shape and construction of each of the components are selected to make each of the components user movable for configuration and ready reconfiguration of the components in a work space. The features of the components which facilitate user movability include a strong, yet lightweight construction and free edges on opposite sides of top surfaces for convenient gripping by a user to facilitate placement and movement of the components within a given work space. Further, the feet each have a relatively large floor contacting surface or a caster which facilitates movement of the components over the floor, including carpeted surfaces. The top members preferably each further have at least one edge forming a docking surface, the docking surface of one component being adapted to complement in interfitting relationship a docking surface of another component to make a coordinated work station formation when the components are in docking relationship to each other.

Each of the components of the assemblage is easily positionable and easily movable by users to configure and reconfigure the components in different work station configurations to adapt the components to long- and short-term requirements of the user.

In one embodiment of the invention, the docking surfaces of at least one component are plastic or resiliently deformable to protect the edges against damage by impact with each other. Further, the docking edges of some of the components are substantially identical in length to one another. Further, the docking surfaces of at least some of the top members have a color different than that of the remaining portions of the top members to indicate and encourage the docking function. Thus, the docking surfaces have a means for cueing or suggesting the docking function.

The feet of at least some of the components comprise glides having a support surface, the area of the support surface being relatively large with respect to the dimension and weight of the component supported thereby. Desirably, the glide support surfaces have a horizontal planar central portion and a peripheral bevel portion surrounding the central portion to facilitate movement of the components over carpeting. In one embodiment, the feet of at least some of the components comprise a swivel-mounted caster.

The glides are mounted to the body of the feet through an adjustable connection which is accessible from the top of the foot. A tool opening is provided in the upper surface of the foot and the opening is accessible to the adjustable connection between the glide and the body of the foot so that the glides can be vertically adjusted without removing the weight from the feet.

Preferably, the top member of at least one of the tables includes a pair of straight edges and a curved edge in shape of a quarter sector of a circle, the straight edges forming docking surfaces. In another embodiment, the top member of at least one of the tables has a piano shape with a pair of unequal straight edges and a curved edge, the straight edges forming docking surfaces and the table forming an end table. In another embodiment, the top member of at least one of the tables is D-shaped and has a straight edge and a curved edge. The straight edge forms a docking surface.

In still another embodiment, the top member of at least one of the tables has a square shape and the edges of the top member form docking surfaces. In still another embodiment, the top surfaces of at least some of the tables have circular configuration and have no docking surfaces.

In a preferred embodiment, the tops of at least some of the components have a front edge with a sloping waterfall shape and have an opposite edge with a bull nose shape.

In a preferred form of the invention, at least some of the tables are supported on bollards which comprise a single column with an expanded circular base at the bottom portion thereof to facilitate movement of the table over a support surface. Further, at least some of the supporting leg structures of at least some of the desks comprise pedestals which are mounted inwardly from the side edges of the desk to provide an overhanging work surface for gripping by the user to facilitate moving the desks. Further, the bottom portions of the pedestals extend forwardly and rearwardly with relatively large glides which form feet on the bottom of the pedestals.

In other embodiments, the top members of at least some of the desks are supported by four legs at the corners thereof, the legs having relatively large glides forming feet at the bottom thereof to facilitate movement of the desks over a floor sur-

face.

The docking surfaces in at least some embodiments of the invention are made of a soft material which comprises a plastic or elastomeric material to facilitate the docking process. Still further, the docking surfaces preferably have an undulating surface configuration. Further according to the invention, the top members of at least some of the desks have wire management grommets extending inwardly from the side edges thereof. Still further, a wire management trough is desirably mounted to the desk beneath the top member, the wire management trough being in communication with the wire management grommets.

In accordance with other aspects of the invention, cabinets are mounted to the underside of at least some of the top members inwardly of the side edges so that each of the top members overhang the cabinet to provide gripping surfaces for user movement of the components. The support leg structures for at least some of the cabinets comprise tubular legs which extend downwardly from corners of the cabinets and the feet on the bottom of the legs comprise glides with expanded bottom surfaces wider than the legs.

Further according to the invention, a case is mounted to the top surface of the storage cabinets and means clamp the case to the top surface. Desirably, the clamping means extend through the wire management grommets at the sides of the top members.

Still further according to the invention, the assemblage comprises freestanding folding screens for providing privacy within the work area. The screens are reconfigurable and easily movable.

Still further, the invention contemplates one or more bollards which comprise a cylindrical member supported by an expanded base and having a height approximately the height of some of the desks, tables and storage units to define boundaries of the work space. The bollards preferably have a shape and size similar to the supporting leg structure of at least some of the tables.

In the embodiment in which the desks have pedestals, the feet on the bottom of the pedestals extend to a point substantially coterminous with the perimeter of the top surface supported by the feet and leg structure associated therewith.

In still another embodiment, the invention relates to an assemblage of coordinated, unconnected freestanding office furniture components comprising a desk having a top with an upper surface, a front edge, a back edge and side edges. The table has a top with an upper surface supported substantially at the height of the desk top upper surface and side edges. The side edges of the desk top form docking surfaces. The table top side edges have an arcuate portion forming a portion of a circle and a pair of linear portions which meet at an apex, are joined to the arcuate portion and form docking surfaces. The arcuate portions of the table top side edges form conferencing edges for at least two workers and the linear portions dock with the side edges of the desk.

The table is preferably supported on a base with feet to assist in the mobility of the table. Specifically, the feet have castors which roll on the floor. Advantageously, the base comprises a single pedestal support column with feet projecting outwardly from a bottom portion of the column. Preferably, the column is mounted to the table top at a center of the arcuate portion thereof. Preferably, there are at least three feet mounted to the support column with one of the feet longer in length than the other feet and extending beneath linear portions of the table top side edges.

In a preferred embodiment, the side edges of at least one of the desk top and linear side edges of the table top comprise a resilient deformable material different from the top surfaces of the desk top and the table top to protect the side edges thereof against impact. Preferably, both the side edges of the desk top and linear side edges of the table top are formed of a resilient deformable material.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be described with reference to the drawings in which:

FIG. 1 is a perspective view showing conceptually four office work environments furnished with prior art furniture components;

FIG. 2 is a plan view of six different arrangements of an assemblage of office furniture according to the invention;

FIG. 3A is a front side elevational view of a desk of the furniture assemblage;

FIG. 3B is a right end elevational view of the desk shown in FIG. 3A;

FIG. 3C is a top plan view of the desk shown in FIG. 3A;

FIG. 3D is a cross sectional view of an apron and a wire management trough of the desk taken along lines 3D-3D of FIG. 3A;

FIG. 4A is a front side elevational view of a second embodiment of the desk;

FIG. 4B is a right end elevational view of the desk shown in FIG. 4A;

FIG. 4C is a bottom plan view of the desk shown in FIG. 4A;

FIG. 5A is a front side elevational view of a third embodiment of the desk;

FIG. 5B is a right end elevational view of the desk shown in FIG. 5A;

FIG. 5C is a bottom plan view of the desk shown

in FIG. 5A;
FIG. 6A is an enlarged fragmentary top plan view of a support foot and a floor engageable glide in accordance with the invention;
FIG. 6B is a side elevational view of that shown in FIG. 6A;
FIG. 6C is a bottom plan view of that shown in FIG. 6A;
FIG. 6D is a side elevational view of an alternative embodiment of the glide;
FIG. 6E is a bottom plan view of that shown in FIG. 6D;
FIG. 7A is an enlarged fragmentary top plan view of a wire management grommet in accordance with the invention;
FIG. 7B is a side elevational view of that shown in FIG. 7A;
FIG. 7C is a partial sectional view taken along lines 7C-7C of FIG. 7A;
FIG. 8A is a front side elevational view of a fourth embodiment of the desk;
FIG. 8B is a right end elevational view of the desk shown in FIG. 8A;
FIG. 8C is a top plan view of the desk shown in FIG. 8A;
FIG. 8D is a front side elevational view of the desk shown in FIG. 8A, with a top of the desk shown in a standing position;
FIG. 8E is a left end elevational view of that shown in FIG. 8D;
FIG. 8F is a front side elevational view of the desk shown in FIG. 8A, with the desk top being shown in a sitting position and a rear half of the top being illustrated in an inclined position;
FIG. 8G is a right end elevational view of that shown in FIG. 8F;
FIG. 8H is an enlarged fragmentary end elevational view of a rail member of the desk shown in FIG. 8F;
FIG. 9A is a front side elevational view of a fifth embodiment of the desk;
FIG. 9B is a right end elevational view of the desk shown in FIG. 9A;
FIG. 9C is a rear side elevational view of the desk shown in FIG. 9A, with a rearward half of the desk top being illustrated in an inclined condition;
FIG. 9D is a right end elevational view of that shown in FIG. 9C;
FIG. 10A is a front side elevational view of a sixth embodiment of the desk;
FIG. 10B is a right end elevational view of the desk shown in FIG. 10A;
FIG. 10C is a rear side elevational view of the desk shown in FIG. 10A;
FIG. 10D is a top plan view of the desk shown in FIG. 10A;
FIG. 10E is a fragmentary view taken along lines 10E-10E of FIG. 10B.
FIG. 11A is an enlarged fragmentary top plan view of a support leg and floor engageable glide of the desk illustrated in FIGS. 10A-D and taken along lines 11A-11A of FIG. 10E;
FIG. 11B is a side elevational view of that shown in FIG. 11A;
FIG. 11C is a bottom plan view of that shown in FIG. 11A;
FIG. 11D is a side elevational view of an alternative embodiment of the glide illustrated in FIGS. 11A-C;
FIG. 11E is a bottom plan view of that shown in FIG. 11D;
FIG. 12A is a front side elevational view of a table of the furniture assemblage in accordance with the invention;
FIG. 12B is a right end elevational view of the table shown in FIG. 12A;
FIG. 12C is a top plan view of the table shown in FIG. 12A;
FIG. 12D is a bottom plan view of the table shown in FIG. 12A;
FIG. 13A is a right end elevational view of a second embodiment of the table;
FIG. 13B is an end elevational view of the table shown in FIG. 13A;
FIG. 14A is a front side elevational view of a third embodiment of the table;
FIG. 14B is an end elevational view of the table shown in FIG. 14A;
FIG. 14C is a bottom plan view of the table shown in FIG. 14A;
FIG. 15A is a side elevational view of a fourth embodiment of the table;
FIG. 15B is a bottom plan view of the table shown in FIG. 15A;
FIG. 16A is a top plan view of a fifth embodiment of the table;
FIG. 16B is a bottom plan view of the table shown in FIG. 16A;
FIG. 16C is a front side elevational view of the table shown in FIG. 16A;
FIG. 16D is a left end elevational view of the table shown in FIG. 16A;
FIG. 16E is a right end elevational view of the table shown in FIG. 16A;
FIG. 17A is a front side elevational view of a credenza of the furniture assemblage in accordance with the invention;
FIG. 17B is a right end elevational view of the credenza illustrated in FIG. 17A;
FIG. 17C is a rear side elevational view of the credenza illustrated in FIG. 17A;
FIG. 17D is a top plan view of the credenza illustrated in FIG. 17A;
FIG. 17E is a left end elevational view of the credenza shown in FIG. 17A with a breadboard

of the credenza being illustrated in an extended position;

FIG. 18A is a front side elevational view of a second embodiment of the credenza;

FIG. 18B is a right end elevational view of the credenza of FIG. 18A;

FIG. 19A is a front side elevational view of a third embodiment of the credenza;

FIG. 19B is a right end elevational view of the credenza shown in FIG. 19A;

FIG. 20A is a front side elevational view of a bookcase of the furniture assemblage, the bookcase being mounted on the credenza illustrated in FIGS. 17A-E;

FIG. 20B is an end elevational view of the bookcase of FIG. 20A;

FIG. 20C is a front side elevational view of a second embodiment of the bookcase;

FIG. 20D is a front side elevational view of a third embodiment of the bookcase;

FIG. 20E is a front side elevational view of a fourth embodiment of the bookcase;

FIG. 21A is a front side elevational view of a work organizer of the furniture assemblage;

FIG. 21B is an end elevational view of the work organizer;

FIG. 22A is a front side elevational view of a work shelf of the furniture assemblage;

FIG. 22B is an end elevational view of the work shelf shown in FIG 22A;

FIG. 23A is a front side elevational view of a work tool support fence of the furniture assemblage;

FIG. 23B is an end elevational view of the work tool support fence;

FIG. 24A is an enlarged fragmentary front side elevational view of a bracket and bolt connection between the bookcase and the credenza illustrated in FIGS. 20A and B;

FIG. 24B is an end elevational view of that shown in FIG. 24A;

FIG. 25A is a side elevational view of an end table of the furniture assemblage;

FIG. 25B is a top plan view of the end table shown in FIG. 25A;

FIG. 26A is a side elevational view of a second embodiment of the end table;

FIG. 26B is a top plan view of the end table of FIG. 26A;

FIG. 27A is a side elevational view of a third embodiment of the end table;

FIG. 27B is a top plan view of the end table of FIG. 27A;

FIG. 28A is a side elevational view of a fourth embodiment of the end table;

FIG. 28B is a top plan view of the end table of FIG. 28A;

FIG. 29A is a side elevational view of a fifth embodiment of the end table;

FIG. 29B is a top plan view of the end table of FIG. 29A;

FIG. 30A is a side elevational view of a bollard of the furniture assemblage;

FIG. 30B is a top plan view of the bollard;

FIG. 31A is a front side elevational view of a storage cabinet of the furniture assemblage;

FIG. 31B is an end elevational view of the storage cabinet of FIG. 31A;

FIG. 31C is a front side elevational view of a second embodiment of the storage cabinet;

FIG. 31D is an end elevational view of the storage cabinet of FIG. 31C;

FIG. 31E is a front side elevational view of that shown in FIG. 31D, with doors of the cabinet being illustrated in open pocketed positions within the cabinet interior;

FIG. 32A is a front side elevational view of a privacy screen of the furniture assemblage shown in an extended position of the screen;

FIG. 32B is a top plan view the privacy screen of FIG. 32A, with the screen being shown in a partially folded condition;

FIG. 32C is a front side elevational view of a second embodiment of the privacy screen;

FIG. 32D is a front side elevational view of a third embodiment of the privacy screen;

FIG. 32E is an enlarged fragmentary view of a hinge between a pair of adjacent frames of either of the privacy screens illustrated in FIGS. 32A-D;

FIG. 33A is a perspective view of a mobile storage unit of the furniture assemblage, with a drawer and a top cover of the unit being shown in closed positions;

FIG. 33B is a perspective view of the mobile storage unit, with the drawer and the top being shown in open positions;

FIG. 33C is a perspective view of the mobile storage unit, with the drawer being shown in the open position and the top being illustrated in the closed position;

FIG. 34A is a top plan view of a plurality of furniture components of the assemblage arranged in a first work station configuration;

FIG. 34B is a top plan view of the furniture components illustrated in FIG. 34A, with the components being shown conceptually in a second work station configuration;

FIG. 34C is a top plan view of the furniture components illustrated in FIGS. 34A and B, with the components being shown conceptually in a third work station configuration; and

FIG. 34D is a top plan view of the furniture components illustrated in FIGS. 34A-C, with the pieces being shown conceptually in a fourth work station configuration.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the drawings, and in particular to FIG. 1, there is illustrated conceptually four office work environments or models: traditional enclosed offices, bull pens and uniform and free form open plan arrangements. Because these models have been discussed in some detail above, they will be reviewed below only by way of summary.

The enclosed office model, generally identified by reference numeral 10 is characterized by a number of full-height, i.e., floor-to-ceiling, space-dividing walls 12 defining work spaces furnished with traditional "freestanding" furniture; that is, a number of discrete furniture components which are not physically interconnected to one another, such as desks 14 and credenzas 16. The full-height walls of the enclosed offices offer the privacy and communicate the status required by their occupants.

Bull pen environments are also illustrated in FIG. 1. Traditional bull pen models 18 are furnished with "freestanding" desks 20 or the like. Bull pen environments 16 are characterized by "systems" furniture, i.e., a plurality of physically interconnected furniture components consisting, as illustrated, of a network of relatively short wall panels 22 rigidly secured together in end-to-end relationship and having securely mounted thereon work surface and storage accessories 24, 26, respectively. Whether furnished with "freestanding" components or "systems" components, the bull pen model is characterized by copies of nearly identical work stations without visual barriers between them. This model has the advantages of promoting open communication between clerical or technical worker users performing repetitive tasks, and further has economic advantages in that it is inexpensive to furnish and easily planned; specification is simply multiplying furniture product required for the typical work station by the number of workers.

FIG. 1 further illustrates the uniform and free form open plan environments generally indicated by reference numerals 28, 30, respectively. Both arrangements, like many of today's bull pens, are typically characterized by "systems" furniture, a network of interconnected freestanding wall panels 32 (uniform model), 34 (free form environment) having mounted thereon work surface and storage components 36, 38 (uniform), 40, 42 (free form). However, in contrast to the relatively short panels 22 of bull pens, the panels 32, 34 of the open plan environments are relatively tall, affording the privacy required by their users.

The uniform open plan arrangement, like bull pens, is characterized by rows of substantially similar work stations occupied by, for example, skilled technical workers, such as computer programmers and systems and financial analysts who engage in relatively long periods of concentration without interruption and thus benefit from the privacy afforded by the relatively tall wall panels 32.

Unlike the uniform open plan and the bull pen arrangements, the systems furniture of the free form model is configured to create disparity between work stations to accommodate individual user needs. And, being used often by inter-disciplinary project teams, such as marketing and product development groups, the systems furniture can be configured according to work flow and frequency of communication between team members. Thus, not only do the relatively tall wall panels 34 of the free form model provide privacy to individual team members, but the nonuniform configuration of the panels 34 facilitates user interaction.

As discussed above, while most organizations today employ a number of these office models, for a variety of reasons, they are experiencing a shift in use between the models. For example, the increasing number of organizations engaging in "participative" management seeking to integrate management into the areas they manage and those companies practicing the "team" approach to product management have seen a decrease in the number of enclosed offices and an increase in use of free form planning.

The concept of a free form open plan arrangement using a complicated network of rigidly connected freestanding wall panels securely mounting work surface and storage components immediately creates a problem if space must be reconfigured or rearranged on a daily, or even hourly, basis.

The office furniture assemblage of the present invention comprises a plurality of furniture components adapted for use within the various office models thereby to accommodate shifts in usage between the models. In addition, the furniture components of the assemblage are adapted to be arranged in a selected one of a variety of work station configurations, with certain of the components being adapted to be selectively disposed or "docked" closely adjacent one another in each of the configurations for use together therein. The components are further designed to be easily moved about the work environment to facilitate rearrangement of the components by the user himself/herself from one work station configuration to another to adapt the components to the immediate and the long-term requirements of the user. Such flexibility with respect to office furnishings is of particular advantage in enclosed offices and free form open plan arrangements where user control in the work environment is critical.

In addition, the furniture components of the

invention are provided with identifying means thereon for indicating to the user those components of the assemblage which are adapted to be disposed closely adjacent one another in complementary docking relationship. The identifying means further signals or cues the user as to appropriate relative orientation of the components which have been selected for disposition in such relationship.

The furniture pieces of the assemblage do not fall within the category of "systems" furniture, i.e. a number of physically interconnected components. Rather, they are an "assemblage," i.e., discrete "freestanding" components adapted to be easily moved to permit the above-stated reconfiguration of the work environment and interrelated through architectural design, artistic design and complementary docking edges.

Referring now to FIG. 2, there is shown an assemblage of components of furniture according to the invention in six different arrangements. The assemblage comprises the desk 44d, an end table 50c, a credenza 48a having a bookcase 376a mounted thereon, a table 46e and a screen 54. A guest chair 55 and a work chair 57 are shown in each arrangement for purposes of orientation and scale.

In the particular arrangements shown in FIG. 2, each grouping contains identical components but grouped in a different way to perform somewhat different functions by the user. Each of the arrangements can be easily configured by the user himself or herself by simply moving the components of the assemblage around to suit the particular needs of a task performed in the work area from time to time. In the particular arrangements shown, a high performance desk 44d has been illustrated. Other desks according to the invention will be described subsequently and can be used in lieu of the high performance desk 44d.

The end table shown has the shape of a baby grand piano and accordingly is designated a piano end table. End tables of other shapes will also be described hereinafter and can be used in this or other assemblages of furniture components according to the invention.

The table 46e is in the shape of teardrop. However, tables of other shapes, such as round and rectangular shapes, can be used according to the invention. Such tables will also be described subsequently hereinafter.

Credenzas of different sizes and shapes can be used in the furniture assemblage according to the invention. Other shapes of credenzas will be described also hereinafter.

The screens 54 can be of various sizes but are of a height to conform with the height of the bookshelf 376a above the table.

Various credenza-mounted accessories in lieu of the bookshelf 376a can be mounted on the credenza, or the credenza can be free of any accessories. Other accessories according to the invention will also be described hereinafter.

In the following specification, variations in the desks, end tables, tables, credenzas and accessories will be disclosed. For each of the components, the same general reference number, for example 44, will be used to describe each component, for example a desk. The number will be followed by a letter to designate a different embodiment of a desk component of the invention. Thus, desk 44d represents one embodiment of the various desks which can be used according to the invention.

The Desks

FIGS. 3A-D, 4A-C and 5A-C illustrate three embodiments 44a-c of the desk 44. These embodiments have in common a number of features with corresponding functional characteristics. For example, each of the desks 44a-c is characterized by a top 58 mounted on a pair of pedestals 60 spaced along a central longitudinal axis of the top to provide the top along such axis with a broad base of support. Each pedestal 60 comprises an elongated vertical member 62 mounting at an upper portion 64 thereof a pair of support arms 66, 68 extending forwardly and rearwardly, respectively, along a transverse axis of the top 58. The top is mounted at a lower surface 70 thereof on the support arms 66, 68 as by bolting. Mounted at a lower portion 72 of each pedestal 60 are a pair of floor engaging support feet 74, 76 also extending forwardly and rearwardly, respectively, relative to the top 58 and terminating substantially vertically beneath front and rear side edges 78, 80 of the top 58 below the support arms 66, 68 to provide the top, as well as work accessories (not shown) supported on an upper work surface 86 thereof, with a broad base of support from the floor. Such broad base of support facilitates movement of each of the desks 44a-c over the floor during reconfiguration of a work station of which the respective desk forms a part. In addition, the lower surface 70 of the desk top 58, at front and rear portions 82, 84 thereof, is free of obstruction to permit the user sufficient space adjacent to the front and rear side edges 78, 80 of the top to push or pull the desk to further facilitate such reconfiguration.

Preferably, the top 58 of the desks 44a-c is made of laminated particle board, the vertical members 62 of the pedestals 60 being formed of steel, and the support arms 66, 68 and the support feet 74, 76 being made of die cast aluminum.

The support feet 74, 76 are provided at their respective terminal ends 88, 90 with bosses 92

mounting identical floor-engaging glides 94. As illustrated in detail in FIGS. 6A-C, each glide 94 has a bottom surface 96 with a large floor engaging area relative to the geometric size and weight of the desks 44a-c to facilitate movement of the desks over the floor in a sledlike manner during reconfiguration of the work station.

In an alternative embodiment of the glide 94, illustrated in FIGS. 6D and E, the bottom surface 96 of the glide is provided with a ramped or beveled peripheral portion 97 and a central planar horizontal portion 99, both portions 97, 99 being adapted to rest on carpeted floors of many of today's work environments, the peripheral ramped portion 97 being particularly useful in facilitating movement of the respective furniture piece over such flooring.

Preferably, in both embodiments of the glide 94, the bottom surface 96 thereof has a surface area in the range of 3 to 5 square inches. The preferred size of the desks 44a-c can range from 48 to 72 inches in length, to 28 to 29 inches in height, to 30 to 36 inches in width. The weight of the desks is preferably in the range of 75 to 200 pounds.

The glides 94 are removably mounted on the bosses 92 of the support feet 74, 76 by bolts 101 in registry with aligned bores (not shown) in the bosses and the glides. The glides 94 are preferably made of injection-molded plastic. Because of the threaded connection between the glides 94 and the support feet 74, 76, the glides are height-adjustable, specifically the glides are adjustable when mounted on the feet within a range of 3/8 inch. And such adjustment can be effected without lifting the respective desk. The adjustment is made from the top of the glides by inserting an appropriate hex wrench in the hexagonal bolt socket 93 in opening 91 (see FIG. 6A). Thus, the glides are vertically adjustable with respect to the support foot 74 by rotating the hexagonal socket bolt with respect to the support foot boss 92.

In addition, as shown in detail in FIGS. 7A-7C, each of the desks 44a-c is provided at each of the ends 98, 100 of the respective top 58 with a pair of identical grommets 102 formed, in part, by a pair of U-shaped notches 104 extending inwardly from end edges 108, 110 of the top along a longitudinal axis thereof at the top rear portion 84.

The grommets 102 are adapted to manage or organize and route electrical cables or wiring (not shown) of electronic work accessories, such as telephones, computers and the like (not shown). To this end, each grommet 102 includes a U-shaped sleeve 114 in registry with the respective notch 104 in the desk top 58. The sleeve 114 has legs 120 which have a lower flange 119 and include a central opening 115 in the bight portion thereof. Flange 119 of the sleeve 114 extends along the underside of core 58A of the top 58. A staple 121 is driven through the bottom flange 119 to fasten the sleeve to the core 58A. The sleeve 114 is preferably made from a rigid molded plastic such as polypropylene. The top of sleeve 114 lines up with a laminate 580 for the top 58. A liner has nubbins 118 which project through the opening 115 in the sleeve legs 120 and has retaining flanges 118A and 118B which respectively extend vertically above and below the nubbins 118 to retain the liner within the sleeve 116. The liner is made from a flexible molded plastic such as soft polyvinyl chloride. The nubbins 118 are adapted to organize and retain the electrical wiring between the pairs of oppositely disposed nubbins, each of two pairs of the nubbins defining a slot 122 between the two pairs to accommodate passage of the wiring. The nubbins 118 are provided with rounded cam surfaces 124 which assist in placement of the wiring over the nubbins to rest within the selected slots 122.

As will be discussed below in detail, the grommets 102 of the desk embodiments 44a-c, as well as identical grommets on the other desk embodiments, and embodiments of the table 46 and the credenza 48, are not only adapted to manage electrical wiring, but they also function in connection with securely mounting work accessory components, including bookcases and work organizers, on the respective top, such as the desk top 58, the work accessory components to be discussed below in detail.

As indicated above, with respect to certain of the furniture components of the assemblage, each one of such components is adapted to be disposed closely adjacent to another of such components in paired complementary "docking" relationship within a selected work station configuration to form a work unit in the work station. Certain edges of such furniture components, called "docking edges," include features (hereinafter sometimes "identifying means") which identify each of such components as being adapted to be so paired together with another of the components. Further, when so paired in such complementary "docking" relationship, the components are adapted to be disposed in a selected one of a number of predetermined orientations of the components with the edges associated with the identifying means being disposed or "docked" closely adjacent one another. The identifying means further indicates to the user during reconfiguration of the work station such predetermined orientations.

Each of the desks 44a-c is adapted to be disposed in close "docking" relationship with at least one of other furniture components of the assemblage. Accordingly, the desks 44a-c have in common edge features on the respective desk tops

58 comprising the above-described identifying means. Such features relate to shape, material composition, size and color of edges of the tops 58.

With respect to edge shape, the end edges 108, 110 of the tops 58 desks 44a-c are square, such shape suggesting to the user that the edges are "unfinished" or "segmented." Other components of the assembly also include tops with similar unfinished or segmented edge treatment. In this manner, the unfinished or segmented end edges 108, 110 of each of the desks identify the desks during reconfiguration of the work station as being adapted to be selectively disposed in paired complementary "docking" relationship with at least one other furniture piece of the assemblage, such as one embodiment of the end table 50, with the desk and the other piece being disposed in at least one predetermined relative orientation, wherein the "unfinished" or "segmented" edges of the identifying means are disposed closely adjacent one another to provide a "finished" or "whole" appearance to the components.

To further suggest that the end edges 108, 110 of the desks 44a-c are unfinished or segmented thereby to facilitate disposition of other components of the assembly adjacent the desks, with "docking" edges of the respective components positioned adjacent to one another, the end edges 108, 110 can be provided with end edge strips 126 having undulated outer surfaces 128. These end strips 126 are particularly suitable when the tops are laminated with a high-pressure laminate. In other instances where the tops have a wood veneer, the side edges can be wood veneered as well. The coarse appearance of the undulated outer surfaces further suggests that the end edges 108, 110 are unfinished or segmented and thus cues the user during rearrangement of the components as to proper pairing of the components and appropriate orientation thereof. The end edge strips 126 are preferably formed of extruded and embossed plastic and securely mounted on the desk top 58 by an adhesive bonding material, such as PVAC (polyvinylacetate). Specifically, the plastic is first extruded into rectangular strips and during the extrusion process while the plastic is still relatively malleable, strips are embossed to form the undulated surface.

Also, with respect to edge shape, the upper working surface 86 of each of the desks 44a-c, at the front side edge 78 of the respective top 58, gradually slopes to provide a comfortable resting surface for a user's arms. Moreover, the sloping front side edge 78 of the top 58 functions to assist the user during orientation of each of the desks with a selected one of a predetermined number of other components. Only the front side edge 78 of each desk is provided with a sloping upper surface, the end edges 108, 110 being square and the rear side edge 80 having a bull nose configuration. The sloping side edge 78 identifies such edge as the user or front side of the desk and thus cues the user against "docking" such other furniture components adjacent such user side edge 78.

With respect to material composition of the "docking" end edges 108, 110 of the desks 44a-c, as indicated above, the strips 126 at the end edges 108, 110 of the desks are formed of a soft plastic material, preferably rigid polyvinyl chloride, although it is contemplated that the strips may be made of rubber. The front and rear side edges 78, 80 of the desk top 58 are not provided with elastomeric strips. The elastomeric material of the strips 126 creates "soft" docking surfaces at the end edges 108, 110 which function as bumpers to protect the desk top 58 and the other furniture piece to be docked adjacent thereto from damage during rearrangement of the components should accidental contact of the same occur. The elastomeric material of the end edges 108, 110 also indicates to the user that such end edges are "docking" bumpered edges adjacent to which complementary "docking" edges of other furniture components of the assembly are adapted to be disposed.

In addition, with respect to edge size, the full length of each of the end edges 108, 110 of the desk top 58, i.e., the distance between the front and rear side edges 78, 80 along an end edge, or a shorter length defined by the distance between the front side edge 78 and the grommet 102 along an end edge, is equal or substantially equal to the length of certain "docking" edges of other furniture components, such as the end table 50, adapted to be disposed adjacent to the desks 44a-c. Thus, the length of the "docking" end edges 108, 110, being equal to the length of the "docking" edges of certain other furniture components of the assemblage, identify the components as being adapted to be disposed adjacent one another and further indicates proper relative orientation of the components so disposed, with the "docking" edges of the components being positioned closely adjacent one another.

Further, the "docking" edges of the desks 44a-c, and those of other components of the assembly adapted to be disposed in close "docking" relationship therewith, preferably are provided with the same color. Thus, for example, while the desk top front and rear sides edges 78, 80 can take on the color of the top material composition, such as wood veneer, the end edges 108, 110 of the top can be colored black, along with the complementary "docking" edges of other furniture components, such as the end table 50. In this manner, the

matching color of the end edges 108, 110 of the desk tops 58 and edges of tops of other furniture components adapted to be disposed adjacent the tops 58 also cue the user as to "docking" of the furniture components, with the color "coordinated" edges thereof being disposed adjacent to one another.

In addition to the above-described common features of the desk embodiments 44a-c, each embodiment further includes an apron 130 mounted to and between the pedestals 60. The apron 130 functions as a modesty panel to shield from view articles or users at the desk. The apron 130 also supports a wire management trough 132 to be discussed below in detail. The apron is preferably made of laminated particle board and mounted to and between the pedestals 60 by conventional clips and screws, sold under the mark MOD-EEZ® clips which are commercially available from Modular Systems, Inc. of Fruitport, Michigan.

Although the apron 130 is mounted directly to and between the pedestals 60, it is spaced vertically below the top 58 to create a rectangular opening 133 between the top and the apron. The opening 133 functions to permit the channeling of electrical wiring (not shown) of work accessories (not shown) supported on the desk top 58 over the rear edge 80 of the top and into the trough 132 and/or through the grommets 102.

Each of the desks 44a-c further includes a support member 137 mounted to and between the apron 130 and the top 58. The support member 137 provides support to the top between the pedestals 60.

The wire management trough 132 is securely mounted as by bolting on a front surface 134 of the apron 130. As shown in FIG. 3D, the trough 132 is configured to provide a bay 136 to carry electrical wiring. The trough 132 extends longitudinally of the apron 130 and is thus adapted to channel or route the wiring in the bay 136 between ends 98, 100 of the desk. The trough 132 is open at end portions 140 thereof and sufficient space is provided between such ends and the pedestals 60 or drawers of the desks, the drawers to be discussed below, to permit, for example, routing of the wiring from a grommet 102 to the bay 136 through an open end 140 thereof.

Referring specifically to FIGS. 4A-C and 5A-C, the desk embodiments 44b and c illustrated therein are identical to the embodiment 44a shown in FIGS. 3A-D, with the exception that the desks 44b and c include drawer units 142, one unit in the case of the desk 44b and two units in the case of embodiment 44c, securely mounted on and extending downwardly from the respective desk top 58 at one or both ends 198, 100 thereof. Each drawer unit 142 includes a casing 144 slidably mounting a number of vertically stacked drawers 146. The drawers have mounted thereon handles 147 to facilitate opening and closing of the drawers.

FIGS. 8A-G illustrate the desk embodiment 44d, comprising a top 148 having both height adjustable and tilting features. These features of the desk 44d provide the user with additional flexibility or control over his/her work environment.

The top 148 of the desk 44d is mounted on a supporting base 150 which in turn is mounted on a pair of spaced legs 152 at opposite ends 154 of the supporting base 150. The legs 152 are telescopically adjustable to raise and lower the desk top 148 vertically to a variety of sitting and standing positions. To this end, each leg 152 comprises a lower outer column 156 and a telescoping inner upper column 158 for vertical adjustment relative thereto. The desk top supporting base 150 is securely mounted on the upper columns 158. The desk 44d is also provided with suitable mounting mechanism (not shown) for guiding the telescoping movement of the lower and upper columns 156, 158 and with means (not shown) for counterbalancing the weight of the upper columns 158 and the top 148 so that the top 148 is easily movable to preselected vertically adjusted positions relative to the lower columns 156.

The mounting mechanism for guiding the relative telescoping movement of the upper and lower columns 158, 156 and the counterbalancing mechanism can be any suitable mechanism for performing these functions. Suitable mechanisms are disclosed in the U.S. Patent to Amthor, Jr. et al., 3,273,517, issued September 20, 1966, the U.S. Patent to Gibson, 1,881,475, issued December 17, 1930 and West German Offenlegundschrift to Hornlein, 26 18 558.

The desk embodiment 44d is preferably further provided with brake means (not shown) for locking the desk top 148 in a vertically adjusted position relative to the floor. The brake means is operated by a hand paddle 149 mounted under the top 48, the paddle 149 being biased in a lower position by a spring. The Amthor U.S. Patent 3,273,517 discloses a suitable brake mechanism.

As stated above, the desk top 148 is adapted to be adjusted vertically to any one of a variety of selected sitting and standing positions. In the preferred form of the desk 44d, the top 148 thereof is adjustable within a range of 27 inches to 43 inches above the floor. It has been found that at a height of approximately 27 to 35 inches above the floor the top 148 is suited to accommodate users of normal stature sitting in conventional chairs or on low stools. At a height of 35 to 43 inches, the top 148 is adapted to accommodate such users in standing positions or seated on high stools.

As stated above, not only does the desk em-

bodiment 44d incorporate means for adjusting the height of the top 148, but the desk also provides for tilting adjustment of the top. To this end, the top 148 is split into front and rear halves 162, 164. While the top front half 162 is fixably mounted on the supporting base 150 and thus cannot be moved relative thereto, the top rear half 164 is hingeably mounted on supporting base 150, at a front edge 166 of the top rear half 164, adjacent to a rail member 168 which extends longitudinally of the top between the front and rear halves thereof. The top rear half 164 is infinitely adjustable between a lower horizontal position (shown in FIGS. 8B and 8E) and an inclined upright position where the top is disposed at an acute angle relative to the horizontal as illustrated in FIG. 8G. In the latter inclined position, the rear half 164 of the top 148 is adapted for use as a stand for documents and the like.

The desk 44d further includes means for retaining the top rear half 164 in its upright position. The retaining means includes a friction lock (not shown) for a pivot mounting of the top rear half to the top supporting base 150 and a spring (not shown) to counterbalance the weight of the top rear half 164.

As shown in detail in FIG. 8H, an upper surface 169 of the rail member 168 has formed therein a plurality of horizontally spaced, shallow channels 171 adapted to hold pencils, paper clips and the like. A forward surface of the rail member 168 has an elongated concavity 173 which receives the bull nose rear edge of the top front half 162. The rear portion of the rail member 168 has a rear sloping surface 175, an elongated lip 176 and an elongated concave surface 177. The rear sloping surface 175 provides a paper or book support for papers or books which rest on the rear half 164 when it is in the raised position shown in FIG. 8G. The lip 176 provides a catch or stop for papers resting on the sloping surface 175. The concave surface 177 provides a nesting location for the front bull nose edge of the top rear half 164.

The desk 44d has in common with the desks 44a-c features which have been described above in detail and illustrated in FIGS. 3D, 6A-E and 7A and B. These features of the desk embodiment 44d are identical functionally to corresponding elements of the embodiments 44a-c and therefore have been given the same reference numerals. In addition, because many of these common features have been illustrated in FIGS. 3D, 6A-E and 7A and B in connection with the desks 44a-c they have not been illustrated in detail in the figures illustrating the desk embodiment 44d.

These common features include, the support feet 74, 76 extending forwardly and rearwardly, respectively, from the spaced legs 152, the support feet terminating substantially vertically below front and rear edges 170, 172 of the top front and rear halves 162, 164, respectively, to provide a broad base of support for the desk 44d to facilitate movement of the same over the floor during reconfiguration of the work station. In addition, the terminal ends 88, 90 of the feet 74, 76, respectively, carry the floor engaging glides 94 with the above-described relatively large bottom surface area to facilitate movement of the desk 44d over the floor during rearrangement of the work space. Also, like the desk embodiments 44a-c, the desk top 148 of the desk 44d is, for the most part, free from obstruction below the top 148, at front and rear edges 170, 172 of the top, to provide the user with sufficient space adjacent such edges to push or pull the desk 44d for movement during reconfiguration of the work space.

Although the desk 44d does not include the apron 130 heretofore described in connection with the desks 44a-c, it is provided with the housing 161 mounted to and between the lower columns 156 of the legs 152 of the desk 44d. Like the apron 130 of the desks 44a-c, the housing 161 functions as a privacy screen.

The desk embodiment 44d of FIGS. 8A-H further includes the wire management features discussed above with respect to FIGS. 7A and B. Desk 44d includes, at end edges 174 of the top front half 162 of the desk top 148, the wire management grommets 102, including the grommet sleeves 114 in registry with the notches 104 in the desk top rear half 164 and the sleeve nubbins 118. Also, the desk 44d includes a trough 132a forming a removable trough cover wire management bay built into height-adjusting mechanism housing 179 below the grommets 102. A removable cover 181 is mounted to the top of the trough 132a.

Also, the top 148 of the desk embodiment 44d is preferably characterized by the identifying means discussed above in detail in connection with the top 58 of the desk embodiments 44a-c. Specifically, the front edge 170 of the desk top front half 162 is provided with a sloping surface, with the rear edge 172 of the top rear half 164 being bull nose in shape and the end edges 174 of the top rear half and end edges 178 of the top front half being square in configuration. The end edges 174, 178 are preferably further provided with the elastomeric end edge strips 126 having the undulated outer surfaces 128. In addition, the combined lengths of the end edges 174, 178 of the top rear and front halves 164, 162 at one of the opposite ends 154 of the top 148, or the shorter distance between the front sloping edge 170 of the top front half 162 and a grommet 102 on the top rear half 164 at an end 154 of the top, are essentially equal to the length of each of "docking" edges of other furniture components adapted to be disposed adjacent the desk

44d. Further, the color of the "docking" end edges 178, 174 of the top front and rear halves 162, 164, like the end edges 108, 110 of the desks 44a-c, can be provided with the same color as the "docking" edges of such other furniture components of the assemblage. In this manner, the end edges 174, 178 of the desk embodiment 44d and the "docking" edges of such other furniture components are complementary to thereby identify the components as being adapted to be "docked" adjacent one another and further to indicate proper orientation of the components when so disposed, with the complementary edges being positioned adjacent one another.

FIGS. 9A-D illustrate the embodiment 44e of the desk having a top 180 supported by a pair of spaced legs 182 at opposite ends 184 of the desk top. The desk embodiment 44e is similar to the desk embodiment 44d illustrated in FIGS. 8A-H in that a rear portion of the top 180 of the desk 44c is tiltable. However, in contrast to the desk 44d, the top 180 of the desk 44e is not vertically adjustable with respect to height. The supporting legs 182 of the desk embodiment 44e are not extensible to adjust the relative height of the desk top 180, in contrast to the legs 152 and their telescoping columns 156, 158 of the desk embodiment 44d.

Specifically, the supporting legs 182 of the desk embodiment 44e mount at upper portions 186 of the legs a top supporting base 188 which in turn mounts the top 180. The top 180, like the top 148 of desk 44d, is split and has a fixed forward half 190 and a tilting rearward half 192 hingeably mounted at a forward edge 194 of the rearward half adjacent to an elongated rail member 195 which in turn is mounted on the supporting base 188. The rail member 195 is substantially identical to the rail member 161 of the desk 44d, described above. The hinged mounting of the rearward half 192 on the rail member 195 permits selected adjustment of the rearward half relative to the forward half to an infinite number of inclined positions of the rearward half. The desk 44e further comprises friction lock means for fixing the position of the rearward half 192 relative to the forward half 190 in the selected inclined position desired in the same manner as described above with respect to rear half 164 of desk 44d in FIGS. 8A-8G. In an upper inclined condition of the top rearward half 192 illustrated in FIG. 9D, it functions to support documents and the like in a position for convenient review by the user. In the lower substantially horizontal position of the rearward half 192, it functions as a work surface.

Further, like the desk embodiment 44d, the desk 44e has many features in common with the desks 44a-c. Because these features of the desk 44e are identical functionally to corresponding elements of the desks 44a-d, they have been given the same reference numerals in regard to the desk 44e. In addition, because these features have been illustrated in FIGS. 3D, 6A-E and 7A and B, they have not been shown in FIGS. 9A-D with respect to the desk 44e.

To briefly review, these common features include the floor engaging support feet 74, 76 terminating substantially vertically below forward and rearward edges 198, 200 of the forward and rearward top halves 190, 188, respectively, to provide a broad base of support for the desk 44e from the floor thereby to facilitate movement of the desk over the floor during reconfiguration of the work station. In addition, the terminal ends 88, 90 of the support feet 74, 76, respectively, mount the floor engaging glides 94 having the above-described relatively large bottom surface area to facilitate sledlike movement of the desk 44e over the floor during rearrangement of the work space. Also, the desk top 180, below the forward and rearward edges 198, 200 thereof as well as the side edges thereof, are sufficiently unobstructed to provide the user with sufficient handholds to push, pull or lift the desk 44e during rearrangement and reconfiguration of the various pieces.

The desk embodiment 44e further includes the apron 130 heretofore described in connection with the desk embodiments 44a-c, the apron being mounted to and between the legs 180 of the desk 44e in vertically spaced relationship to the top 180 to create a passthrough between the top and the apron for electrical wiring or the like (not shown).

In addition, the desk 44e includes other wire management features discussed above in connection with the desk embodiments 44a-d. Specifically, the desk 44e includes, at end edges 202 of the top rearward half 192 thereof, the wire management grommets 102, including the grommet sleeves 114 in registry with the notches 104 in the desk top rearward half 192 and the sleeve nubbins 118. Also, the desk embodiment 44e includes the wire management trough 132 mounted on the front surface 134 of the apron 130.

Further, the desk embodiment 44e is preferably characterized by the identifying means or edge treatment on the top 180 as that provided on the tops 58, 148 of the desk embodiments 44a-d. That is, the forward edge 198 of the top forward half 190 is provided with a sloping surface, with the rear edge 200 of the top rearward half 192 being bull nose in shape and end edges 202, 204 of the top forward and rearward halves 190, 142, respectively, having a square configuration. The end edges 202, 204 are preferably further provided with the elastomeric end edge strips 126 having undulated outer surfaces 128. In addition, the length of the end edge 202 at each of the opposite ends

184 of the top 180 is essentially equal to the length of "docking" edges of other furniture components of the assemblage adapted to be disposed adjacent the desk 44e in complementary "docking" relationship thereto. Further, the "docking" end edges 202, 204 of the top 180 of the desk 44e are preferably provided with the same color as the complementary "docking" edges of such other furniture components of the assemblage. The foregoing identifying means or "docking" edge treatment of the desk 44e facilitates selected reconfiguration of the work station by cuing the user as to proper relative "docking" of the desk with one of a number of predetermined other components as well as appropriate relative orientation of the components so docked, with the "docking" edges thereof disposed adjacent one another.

FIGS. 10A-D and 11A-E illustrate the desk embodiment 44f. The desk 44f is substantially enclosed at a back side 206 and at opposite ends 208 of the desk. In contrast, the desks 44a-e are substantially open at such side and ends.

Specifically, the desk 44f comprises a substantially rectangular base frame 210 formed by pairs of front and rear castings 212, 214, respectively, and a rear rail 216 and a pair of end rails 218 joined at the castings. The end rails 216 are securely mounted, as by bolting, to and between the respective rear and front castings 212, 214. The rear rail 216 is bolted to and between the rear castings 214. The castings 212, 214 are preferably made of die case aluminum. The rear and end rails 216, 218 are preferably formed of roll formed steel.

The base frame 210 mounts thereon, as by bolting, a carcass 220 comprising a rear panel 222 joining a pair of identical end panels 224. The rear panel 222 and the end panels 224 forming the carcass 220 are preferably made of wood and securely mounted together by a dowel-and-clamp connection.

The carcass rear panel 222 functions like the apron 130 heretofore described in connection with the desk embodiments 44a-c and e, in that the panel 222 serves as a shield or privacy curtain for the user.

The desk 44f further includes a pair of identical drawer units 226 substantially similar to the drawer units 142 of the desk embodiments 44b and c. Each drawer unit 226 includes a rectangular boxlike casing 228 slidably mounting a number of vertically stacked drawers 230. The drawer units 226 are preferably mounted on the carcass 220 through drawer slides mounted between the drawer itself and the carcass end panels 224.

The desk 44f also includes a pair of identical reveal frames 232. The reveal frames 232 are mounted, as by bolting, on and above the drawer unit casings 228.

The reveal frames 232 function, in part, to mount, as by bolting, a top 234 of the desk 44f and do so in spaced relationship to the carcass 220 to provide a relatively small "reveal" space 236 between the carcass and the top. The reveal frames 232 also function to create an elongated rectangular pass-through 238 at the back side 206 of the desk, the height of the pass-through being defined by and between the carcass rear panel 222 and the top 234, the length of the passthrough being defined by and between the reveal frames 232 mounted on the drawer units 226. The pass-through 238 functions in connection with the wire management features of the desk 44f as will be discussed below.

Further, the desk 44f includes a wire management rail 231 mounted on and extending along each reveal frame 232 at the back side 206 of the desk. The rails 231 include a pair of vertically stacked horizontal shelves 233 for supporting electrical wiring (not shown). The rails 231 function in connection with the pass-through opening 238 and other wire management features of the desk 44f as discussed below in greater detail. It should be noted that rails substantially identical to the rails 231 can be provided on the desks 44b and c along each of the drawer units 142 of the desks at rear sides thereof, although such rails are not illustrated in the figures showing these desks.

In contrast to the floor engaging support feet 74, 76 of the desk embodiments 44a-e, the desk embodiment 44f is supported from the floor by four identical tubular support legs 240 mounted on and below the castings 212, 214 of the desk base frame 210. To this end, the castings 212, 214 are each provided with a keyed hole 215. A threaded rod 217 having a hexagonal head 219 is mounted nonrotatably in the keyed hole 215 with the threaded lower portion of the rod 217 extending through a through bore 215a in the casting 214. A cup 221 with an open top mounts within the interior of the leg 240 and seats against the upper portion thereof. A lock washer 223 and a nut 225 are mounted on the rod 217 within the cup 221. The nut is threaded onto the rod 217 to hold the rod onto the casting 214. The glide 242 has a threaded bore 243 through which the glide 242 is secured to the bottom of the threaded rod 217, and thus onto the bottom of the support leg 240.

The glides 242 of the desk embodiment 44f are illustrated in detail in FIGS. 11A-C. Each of the glides 242, like the glides 94 of the desk embodiments 44a-e, has a bottom surface 244 with a relatively large floor engagable surface area relative to the geometric size and weight of the desk 44f to facilitate movement of the same over the floor in a sledlike manner. In an alternative embodiment of the glide 242, shown in FIGS. 11D and E, the bottom surface 244 of the glide is provided with a

ramped peripheral portion 238 and a central horizontal portion 245, both portions being adapted to rest on the carpeted floors of many of today's work environments, the ramped portion 238 being particularly useful in facilitating movement of the furniture piece over such flooring.

Preferably, each of the glides 242 has a bottom surface area in the range of 3 to 5 square inches. The preferred size of the desk 44f ranges from 60 to 84 inches in length, to 28 to 29 inches in height, to 30 to 36 inches in width. The weight of the desk 44f is preferably in the range of 150 to 250 pounds.

In addition to the above-discussed features of the desk 44f, the same shares features in common with the desk embodiments 44a-e previously described. These features of the desk 44f are identical functionally to corresponding elements of the desks 44a-e and therefore have been given the same reference numerals in FIGS. 10A-D as provided previously. In addition, because these features have been illustrated in FIGS. 3D and 7A and B, they are not specifically illustrated in connection with the desk 44f of FIGS. 10A-D.

Specifically, the desk 44f below the top 234, at front and rear edges 246, 248 thereof, is free from obstruction to permit the user to pull or push the desk 44f to facilitate movement of the same over the floor during reconfiguration of the work space. To this end, the top 234 further includes a rear portion 250 extending outwardly of the carcass rear panel 22 in a cantilevered fashion to provide visitor knee space when conferencing.

The desk embodiment 44f is also characterized by the wire management features discussed above in connection with the desk embodiments 44a-e. As shown generally in FIGS. 10A-D and more specifically in FIGS. 7A and B, the desk 44f includes at end edges 252 of the rear portion 250 of the desk top 234 the wire management grommets 102, including the grommet sleeves 114 in registry with the notches 104 in the desk top and the sleeve nubbins 118. In addition, the desk 44f further includes the trough 132 with the wire management bay 136 described above in connection with the desk embodiments 44a-e and illustrated in FIG. 3D. The desks 44a-e each mount the trough 132 on the front surface of the apron 130 of the desks. In the desk embodiment 44f, the carcass rear panel 222 functions to support the wire management trough 132 as by bolting. As indicated above, the pass-through 238 between the carcass rear panel 222 and the desk top 234 and the wire management rails 231 function in connection with the grommets 102. For example, wiring from a computer printer (not shown) supported on the top 234 at the rear portion 250 thereof can be channeled over the rear edge 248 of the top forwardly through the pass-through 238 along one of the rails 231 and into the wire management bay 136 of the trough 132 as desired.

Further, the desk 44f, in its preferred form, is characterized by the identifying means of the top 234 as discussed above in detail in connection with the desk tops 58, 148, 180 of the desk embodiments 44a-e. Accordingly, the front edge 246 of the top 234 is provided with a sloping surface, the rear edge 248 being bull nose in shape and the end edges 252 being square in configuration. The end edges 252 are preferably provided with the elastomeric end edge strips 226 or veneer. The full length of each end edge 252, i.e., the distance between the front and rear edges 246, 248 of the top 234 along the end edge, or a shorter length of the end edge defined by the distance between the top front edge 246 and the respective grommet 102, is essentially equal in length to each of the "docking" edges of certain other furniture components of the assemblage adapted to be disposed adjacent to the desk 44f. Further, the "docking" end edges 252 of the top 234 are, like the end edges of the desks 44a-e, preferably identical in color to the "docking" edges of such other furniture components. Alternately, the docking edges can be veneer when the top surface is veneer.

Each of the desk embodiments 44a-f is adapted for use in the various office models discussed above and illustrated in FIG. 1. For example, the desks can be repeated in numbers and placed into rows for use in bull pen environments. In addition, any one or more of the desks 44a-f may be useful in designing free form open plan arrangements or used in enclosed offices. The desks 44d and e are particularly useful in free form open plan environments where some degree of privacy between work stations is required. In the upper standing positions of the height adjustable desk 44d, with the top rear half 164 of the desk set in either its upper inclined or lower horizontal position, the desk 44d creates a visual barrier between the work station it defines and a neighboring work station. In lower sitting positions of the desk 44d, with the top rear half 164 in its inclined condition, and in the case of the desk 44e with its top rearward half 192 set in an upper inclined position, visual barriers are also created. The grommets 102, the trough 132 as well as other wire management features of the desks 44a-f are adapted to accommodate wiring and cables of modern electronic work accessories, such as computers and the like, and thus provide advantages not associated with traditional desks found in enclosed offices and some bull pens.

In addition, of particular importance in enclosed offices and free form open plan arrangements, where user control over furnishings is critical, the desks 44a-f, characterized by the glides 94 (desks 44a-e) and the glides 242 (desk 44f), both having

relatively large floor-engagable surface areas, are easily moved within the work environment. However, when used in the various office models, the desks 44a-f typically remain relatively stationary, with lighter weight more mobile components of the assemblage, such as the end table 50, the privacy screen 54 and the mobile storage component 56 being adapted to be more readily moved relative to the desks pursuant to reconfiguration of work stations as will be discussed in greater detail below.

The Tables

As illustrated in FIGS. 12A-D, 13A and B, 14A-C, 15A and B and 16A-E, the furniture assemblage of the invention includes five preferred embodiments 46a-e of the table.

FIGS. 12A-D and 13A and B illustrate the tables 46a and b which differ only with respect to height. Whereas, the table 46a preferably stands approximately 28.5 inches above the floor, the table 46b has a height of approximately 26 inches. Both tables accommodate users of normal stature in sitting positions. The shorter height of the embodiment 46b is specifically adapted to accommodate the user of electronic equipment, such as typewriters, computers, keyboards and printers (not shown) supported by the table 46b.

Referring again to FIGS. 12A-D and 13A and B, each of the tables 46a and b comprises four identical tubular legs 254 mounting at upper ends 256 of the legs a rectangular top 258 at the four corners 260 thereof. Specifically, four castings 262 are mounted, as by bolting, to a bottom surface 263 of the top 258 at its four corners 260. The castings 262, like the castings 212, 214 of the desk embodiment 44f, are provided with keyed holes (FIG. 10E) within the surfaces of the castings. In addition, like the legs 240 of the desk embodiment 44f, the legs 254 of the tables 46a and b house elongated threaded rods (FIG. 10E) engaging at upper portions of the rods the keyed holes of the castings 266. A glide 265 is threaded onto a lower portion of each rod to removably mount the glide to a lower end 264 of the respective leg 254. The glides 265, like the glides 242 of the desk 44f, have relatively large floor-engaging surface areas to facilitate sled-like movement of the tables 46a and b over the floor pursuant to reconfiguration of the work environment.

The table embodiments 46a and b further have wire management features including a wire manager 266 mounted on the bottom surface 263 of the table top 258 and extending along a longitudinal axis of the top at a rear portion 268 thereof. The wire manager 266 extends substantially the full length of the table top 258 between ends 270 of the same and is open at opposite ends 272 of the wire manager 266 to expose a wire management channel 274 extending therethrough from one end 270 of the desk top to the other end 270. The wire manager 266 is adapted to store electrical wiring (not shown) of electronic work accessories, such as computers, typewriters and the like (not shown), supported by the top 258.

The table embodiments 46a and b also have features in common with certain of the desk embodiments 44a-f heretofore described. These features are identical functionally to corresponding elements of the desks 44a-f and therefore have been given the same reference numerals provided in connection with the desks.

Like the desk embodiments 44a-f, the top 258 of each of the tables 46a and b is free from obstruction below the top, at front and rear side and opposite end edges 276, 278, 280, respectively, of the top to provide the user with sufficient space adjacent such edges to push or pull the tables pursuant to movement of the same during reconfiguration of the work station.

In addition, as shown in detail in FIGS. 7A and B, like the desks 44a-f, the table embodiments 46a and b include the wire management grommets 102, including the sleeves 114 in registry with the notches 104 in the table top 258 and the nubbins 118. The wire manager 266 of each of the table embodiments 46a and b is adapted to be used in connection with the grommets 102, the grommets being in registry with the opposite open ends 272 of the wire manager to permit channeling of electrical wiring between the grommets 102 and the wire manager 266. In this manner, electrical wiring (not shown) of a work accessory, such as a computer (not shown), supported on one end 270 of the desk top 258 can be channeled from the grommet 102 at the one end of the top to the other end 270 thereof through the wire manager 266 and subsequently to an electrical receptacle at the floor.

Further, the top 258 of each of the table embodiments 44a and b is characterized by the identifying means or same edge treatment provided the tops 58, 148, 180 of the various desk embodiments 44a-f. Thus, the front edge 276 of the top 258 is preferably provided with a sloping surface, with the rear edge 278 of the top being bull nose in shape and the opposite end edges 280 having a square configuration. The end edges 280 are preferably further provided with the elastomeric end edge strips 126 having the undulated outer surfaces 128. In addition, the full length of each end edge 280, i.e., the distance between the front and rear side edges 276, 278 along the end edge, or a shorter length of the end edge defined by the distance between the front side edge 276 of the top 258 and the grommet 102 along the end edge, is essentially equal to the length of each of the "docking" edges

of certain other furniture components, such as the end table 50, adapted to be disposed adjacent the respective tables 46a or b. Further, the "docking" end edges 280 of the top 258 are preferably color coordinated with the "docking" edges of such other furniture components. Alternately, the docking edges of the top 258 can be veneer if the top surface is veneer.

Although the table embodiments 46a and b may be employed in any of the various office work environments or models, they are particularly useful in the bull pen and the uniform open plan models where it is desirable to create U-shaped or L-shaped work station configurations. Thus, for example, two tables 46a and/or 46b can be disposed normal to opposite end edges 252 of the desk embodiment 44f to create a U-shaped work station. Although in such work station desks and/or credenzas may be used in lieu of the tables, the cost of furnishing the work station is lower with the use of tables rather than through the employment of the more expensive desks and/or credenzas. In addition, it has been found that the storage capacity of, for example, the desk embodiment 44f is sufficient so that the use of additional furniture components with storage features, such as other desks and the credenzas, is unnecessary. Rather, all that is required is additional work surface area which is provided by the table tops 258 of the tables 46a and/or b.

FIGS. 14A-C and 15A-B illustrate the table embodiments 46c and d, both of which are particularly adapted for use as conference tables in free form open plan office environments where members of work groups or teams occupying such space can convene, although these embodiments may also be employed in other environments, such as enclosed offices.

Referring specifically to FIGS. 14A-C, the table embodiment 44c comprises a pair of spaced pedestals 282 substantially similar to the pedestals 60 of the desk embodiments 44a-c. The pedestals 282 support a rectangular top 284 at opposite ends 286 of the top. Specifically, two pairs of identical supporting arms 288 are secured, as by welding, to upper ends 290 of the pedestals 282, the table top 284 being securely mounted, as by bolting, to the arms, the arms extending forwardly and rearwardly of the top.

Like the table embodiments 46a and b, the table embodiment 46c has certain features in common with certain of the desk embodiments 44a-f. For example, the desk embodiment 44c includes the forwardly- and rearwardly-extending support feet 74, 76, respectively, shown in connection with the desk embodiments 44a-e. The support feet 74, 76, being connected to lower ends 292 of the pedestals 282, mount the floor engaging glides 94 having the above-described relatively large bottom surface area to facilitate sledlike movement of the table 46c over the floor during rearrangement of the work space.

In addition, the top 284 of table 46c, in its preferred form, includes the above-discussed identifying means or edge treatment of the desk embodiments 44a-f and the table embodiments 46a and b. End edges 294 of the top 284 are preferably square and provided with the elastomeric end edge strips 126 having the undulated outer surfaces 128 or can be veneered. Further, the length of each end edge 294 is preferably essentially equal to the length of each of certain of the "docking" edges of other furniture components, such as the end table 50, adapted to be docked adjacent the table 46c should the user require such rearrangement of the work environment. Further, the color of the "docking" end edges 294 of the table 46c is preferably the same as that of the "docking" edges of such other furniture components of the assembly. The front and back edges 287 are bull nose in shape to suggest conferencing.

FIGS. 15A and B illustrate the table embodiment 46d comprising a round top 296 supported by a single central pedestal 298. The pedestal 298 mounts at an upper end 300 thereof a multi-arm spider 302 securely supporting, as by bolting, the top 296. A lower end 304 of the pedestal 298 securely mounts four identical support feet 306 which are substantially identical to the support feet 74, 76 previously described. The support feet 306 are positioned in equidistantly spaced relationship about the pedestal 298. Each support foot 306 mounts the floor-engageable glide 94 previously described, the glide 94 having the relatively large bottom floor engaging surface to facilitate sledlike movement of the table 46d over the floor.

FIGS. 16A-E illustrate the table embodiment 46e, one of the most versatile furniture components forming the assemblage of the present invention as will be revealed below. The table 46e comprises a pedestal 308 supporting a top 310 through a multi-arm spider 312 mounted to and between the top and the pedestal at an upper end 314 of the same.

The top 310 of the table 46e is substantially teardrop in shape, having a semicircular edge portion 316 and a pair of opposite straight edge portions 318 meeting at apex 320 of the top. Preferably, each of the edge portions 316 and 318 is formed of a resiliently deformable plastic or rubber material to protect the edges against impact during docking functions as discussed below. These edges are further tapered like front edge 78 of desk top 58 to encourage use as a work surface as well as conferencing. The spider 312 is mounted to and between the top 310 centrally thereof with respect to the semicircular edge portion 318, the

apex 320 therefor being disposed outwardly of the pedestal a distance greater than any other point on the perimeter of the top defined by the edge portions 316, 318. The teardrop shape of the top 310 permits great flexibility with respect to placement of the table 46e relative to other furniture components of the assembly in the work environment as will be discussed below.

The table 46e is supported from the floor by three relatively short feet 322 and one relatively long foot 324, the feet 322, 324 being mounted on a lower end 326 of the pedestal 308. The feet 322, 324 are equidistantly spaced about the pedestal, with the long foot 324 extending along a central longitudinal axis of the top intersecting the apex 320 to provide a broad base of support for the top in the area of the apex. The feet 322, 324 are identical in construction to the support feet 74, 76 heretofore described in connection with the desk embodiments 44a-e. Each of outer ends 326, 328 of the feet 322, 324, respectively, mounts a relatively large floor-engaging caster 330 through a conventional friction fit member (not shown) on the caster and a bore (not shown) within a boss 332 on the respective outer end of the respective foot. The caster 330 is freely rotatable 360° relative to the respective foot. The table 46e, being supported by the casters 330, may be easily moved about the work space by the user himself/herself with relatively little effort.

Although the table 46e has been shown with three relatively short feet 322, two or four relatively short feet can be used so long as all feet are equally angularly spaced from each other. As indicated above, the table 46e imparts great versatility to a work station of which it forms a part. This versatility is most appreciated in enclosed office environments and free-form open plan arrangements where user control over furnishings is most critical. For example, in an enclosed office defined by four permanent interior walls, the office being furnished with a desk 44f and tables 48b and e, the table 46e can be disposed adjacent one of the walls, with one of the straight edge portions 318 of the table 46e being "docked" in substantially parallel relationship to an interior wall. In such position of the table 44e, the top 310 thereof is usable as an auxiliary work surface to surfaces provided by the desk top 234 and the table top 258. Should the user then require additional work surface area adjacent the desk 44(f), the user need only move the table 44e adjacent a selected end edge 252 of the desk top 234 such that one of the straight edge portions 318 of the table 44e is "docked" adjacent the end edge of the desk. In such position of the table 44e, the top 310 thereof functions as an extension of the work surface provided by the desk top. Further, should the user at another moment require that the table 44e be used as a conference table by the user and one or more fellow workers, the table 44e need only be moved centrally of the work space a sufficient distance from the other furniture components and the interior walls to provide sufficient space around the table 44e for the meeting. The table 46e has substantially similar versatility in free form open plan office arrangements.

To assist the user in the above-described reconfiguration of the work station, the table 46e is also provided with the above-discussed identifying means. As stated above, the full length of each of the end edges of the 108, 110, 174, 178, 202, 204, 252 of the desks 44a-f and each of the end edges 280, 294 of the tables 46a-c, or the shorter length of each of such edges defined by and between a front edge of the respective furniture piece and a grommet 102, is essentially equal in length to each of certain "docking" edges of other more mobile components of the assemblage, such as the table 46e, adapted to be disposed adjacent the respective furniture piece. Thus, for example, the length of each straight edge portion 318 of the table 46e can be essentially equal to the full length of each of the end edges 108, 110 of the desk embodiments 44a, i.e., the distance between the desk top front and rear side edges 78, 80, or a shorter length of each of the end edges 108, 110 defined by the distance between the desk top front side edge 78 and a grommet 102. Accordingly, if rearrangement of the work station is required through movement and redocking of the table 46e, the straight edge portions 318 of the table top and the end edges 108, 110 of the desk top 148, being coordinated in length, identify the components as being adapted to be disposed in complementary docking relationship and further indicate to the user appropriate orientation of the components, with a selected one of the edge portions 318 being "docked" adjacent a selected one of the edges 108, 110 of the desk 44a.

The Credenzas

Referring to FIGS. 17A-E, 18A and B and 19A and B, there is shown three embodiments 48a-c of the credenza. Like the various desk embodiments 44a-f and the embodiments 46a-d of the table, the credenzas 48a-c are preferably relatively stationary components within a work environment. Thus, although features of the credenzas 48a-c facilitate movement of the same in the work space during reconfiguration of the same, other furniture components of the assembly, such as the table 46e, having greater mobility, are adapted to be moved relative to the credenzas during such reconfiguration.

Each of the credenza embodiments 48a-c is characterized by a rectangular base frame 334 formed by pairs of front and rear castings 336, 338, respectively, a pair of front and rear side rails 440 and a pair of end rails 442. The front, rear and end rails are mounted to and between the castings 336, 338, as by bolting. The castings 336, 338 are preferably made of die cast aluminum. The rails 340, 342 are preferably formed of roll formed steel.

The base frame 334 supports a carcass 344 comprising a rear side panel 346 joining a pair of identical end panels 348 of the carcass, the carcass being open at a front 349 thereof. The carcass is preferably bolted to the rectangular base frame 334. In addition, the rear side and end panels 346, 348 forming the carcass are preferably made of wood and securely mounted together by a cam fastener connection.

The credenza embodiments 48a-c each further include a rectangular reveal frame 350 mounted on the carcass, as by bolting, at upper portions of the rear side and end panels 346, 348 of the carcass. The reveal frame 350 has substantially the same general geometric configuration as the supporting frame 334. The reveal frame 350 functions, in part, to mount the credenza top 352 in spaced relationship to the carcass 334 to provide a "reveal" space 354 between the carcass and the top.

In addition, each of the credenza embodiments 48a-c is provided with any one of a variety of combinations of drawers, cupboards or the like. Specifically, as illustrated in FIGS. 17A-E, the credenza embodiment 48a has a relatively large lower file drawer 358 and an upper relatively shallow utility drawer 360. FIGS. 18A and B illustrate the credenza embodiment 48b as comprising pairs of horizontally spaced lower and upper file and utility drawers 358, 360, respectively, with a plurality of vertically stacked "shoe box" drawers 364 positioned between the pairs of drawers 358, 360. FIGS. 19A and B illustrate the credenza 48c as having at one end 357 thereof a storage area (not shown) covered by a pair of hinged doors 359 and a utility drawer 360 above the doors, another end 361 of the credenza being characterized by a pair of vertically stacked utility and file drawers 358, 360. A plurality of vertically stacked shoe box drawers 364 are disposed between the opposite ends 357, 359 of the credenza 44c. Although not illustrated in the drawings, the drawers 358, 360, 364 of the credenza embodiments 48a-c are slidably mounted to the carcass 344. The doors 359 are hingeably mounted on the carcass.

Each of the credenza embodiments 48a-c is further provided with one or more sliding bread boards 366 mounted for movement in registry with openings (not shown) in the respective reveal frame 350 at the front side 356 of the respective credenza between an inner hidden position below the top 352 and an extended position outwardly relative to a front 356 of the credenza. The bread boards 366 provide the user with additional flexibility in adapting the work environment to user needs. Should the user need additional work surface area, he/she need only dispose the respective bread board 366 in the extended position.

The credenza embodiments 48a-c also have features in common with the desks 44a-f and the tables 46a-c and e. Because these features of the credenzas 48a-c are identical functionally to corresponding elements of such other furniture components of the assemblage heretofore described, the features have been given the same reference numerals in connection with the credenzas as provided with respect to the other furniture components.

For example, like the desk embodiment 44f, each of the credenzas 48a-c include the four identical tubular support legs 240 mounted on and below the castings 336, 338 of the base frame 334. To this end, the castings are each provided with a keyed hole (FIG. 10E) and the support legs 240 each have securely mounted therein the elongated threaded rod (FIG. 10E) engaging at the upper end of the rod the keyed hole of the respective casting. The lower end of each rod mounts the floor engaging glide 242 heretofore described in connection with the desk 44f. As illustrated in FIG. 11A-E, the glides 242 of the credenzas, like the glides 94 of the desk embodiments 44a-e and the glides 242 of the desk embodiment 44f, each have a bottom surface 244 with a large floor engagable area relative to the geometric size and weight of the respective credenza to facilitate movement of the same over the floor in a sledlike manner. The relatively broad bottom surfaces 244 of the glides 242 permit convenient placement of the credenza by its user should rearrangement of the work space be desired.

Further, in the preferred form, each of the credenzas 48a-c is characterized by the identifying means or edge treatment of the respective top 352 as discussed above in detail in connection with the desk embodiments 44a-f and the tables 46a-c and e. Specifically, for each of the credenzas 44a-c, a front side edge 368 of the credenza top 352 is provided with a sloping surface, with a rear side edge 370 being bull nose in shape and end edges 372 of the top having a square configuration. The end edges 372 are further provided with the elastomeric end edge strips 126 having undulated outer surfaces 128. Alternatively, the end edges 372 can be veneer. In addition, the full length of each end edge 372, i.e., the distance between the front and rear side edges 368, 370 at the end edge 372, or a shorter length of the end edge defined by

the distance between the front side edge 368 and a grommet 102 at the end edge, the grommet to be discussed below, is essentially equal to the length of each of certain "docking" edges of other furniture components of the assemblage, such as a straight edge portion 318 of the table embodiment 46e, adapted to be docked adjacent the respective credenza. Thus, the similar lengths of the "docking" edges of the credenzas and such other furniture components function to identify the components as being adapted to be disposed closely adjacent one another and further cue to the user as to proper orientation of components with such edges of the same being set in complementary "docking" relationship. Further, the color of the "docking" end edges 372 of the credenzas 48a-c is the same as that of the "docking" edges of such other furniture components of the assemblage adapted to be docked adjacent the credenzas.

In addition, ends 374 of the credenza top 352 extend outwardly relative to the carcass end panels 348 in a cantilevered manner. Thus, the top 352, below the end edges 372 thereof, is free from obstruction to permit the user with sufficient space adjacent such edges to push, pull or lift the desk pursuant to movement of the respective credenza should configuration or reconfiguration of the work space be required.

As indicated above, the credenza embodiments 48a-c further include the wire management grommets 102 heretofore described in detail in connection with the desk embodiments 44a-f and certain of the table embodiments 46a-e. Specifically, each of the credenzas 48a-c, at the end edges 372 of the respective top 352 thereof, includes the grommet sleeves 114 in registry with the notches 104 in the top 352 and the sleeve nubbins 118. Each of the credenzas 48a-c also includes a wire management trough 362 mounted on the reveal frame 350 in registry with the reveal space 354 above the rear panel 346 of the carcass 344. The wire management trough 362 extends between the ends 374 of the credenza top to channel wiring (not shown) from, for example, one grommet 102 to the other. The trough 362 includes a pair of vertically spaced shelves 363 for supporting the wiring.

As previously indicated, the furniture components of the assemblage described above having a top characterized by the wire management grommets 102 are each adapted to securely mount on the respective top a selected one of a variety of work accessory components, four general embodiments 376a-d of the components being illustrated in FIGS. 20A-E, 21A and B, 22A and B and 23A and B. Specifically, the desk embodiments 44a-c and f, the table embodiments 46a and b and the credenzas 48a-c, by virtue of the respective grommets 102, are each adapted to selectively support and securely mount on the respective tops 58, 234, 258, 352 one of the work accessory components 376a-d. Although the desks 44d and e having the tops 148, 180 with the grommets 102 are adapted to have mounted thereon the work accessory components, in the preferred form of the invention, these desks do not support the components. To so mount the components on the tops of these desks would interfere with tilting adjustment of the respective top rear and top rearward halves 164, 192.

Figures 20A and B illustrate the work accessory component in the form of one embodiment of a bookcase $376a^1$ securely mounted on the top 352 of the credenza 48a. The bookcase $376a^1$ comprises top, rear and end panels 378, 380, 382 joined in a boxlike configuration, the bookcase being open at a front 384 and at a bottom 385 thereof. The end panels 382 support a number of shelves 386. A bottom septum 383 is provided between the bottom shelf 386 and the credenza 39 top 352. Desirably, the septum 383 can be spaced inwardly from the back edge of the bookcase for aesthetic purposes. One or more of the shelves can be open at the back wall 380 to lend visual porosity. The septum 383 can also be eliminated. The septum 383, however, typically functions to keep the work area clean. In addition, the bookcase $376a^1$ includes a wire access opening 390 extending through each end panel 382 at a lower portion 392 of the end panel. The openings 390 function to route wiring, for example, from a grommet 102 of the credenza top 352 desk to within the bookcase 376a storing an electronic work accessory (not shown). FIGS. 20C-E show three additional embodiments $376a^{2-4}$ of the bookcase. In addition to the shelves 386, these other embodiments of the bookcase 376a may include storage areas (not shown) covered by hinged doors 388.

FIGS. 21A and B illustrate another work accessory component, namely, a work organizer 376b. Like the bookcase 376a, the work organizer 376b is boxlike in configuration and comprises top, rear and end panels 394, 396, 398, an open bottom 399 and an open front 401. The end panels have therethrough wire access openings 400 identical to the openings 390 of the bookcases. In addition, the work organizer 376b is provided with "spice" drawers 402 slidably supported relative to the panels 394, 396, 398. As revealed in the drawings, the work organizer 376b differs from the bookcases with respect to height, the former being shorter than the latter and of a height sufficient to permit the user to gain access to all of the storage features of the work organizer, such as the spice drawers 402, in a sitting position at the furniture piece on which the work organizer is mounted. Further, in contrast to the bookcases $376a^{1-4}$, the top panel 394 of the work organizer 376b is pro-

vided with the wire management grommets 102 at opposite end edges 404 of the top panel. The grommets 102 of the work organizer 376b are identical to that described above and illustrated in FIGS. 7A and B in connection with certain of the desk, table and credenza embodiments and therefore have not been illustrated in FIGS. 21A and B in detail. The grommets 102 on the top panel 394 are adapted to manage wiring (not shown) of an electronic work accessory, such as computer monitor (not shown), supported on the top panel.

FIGS. 22A and B illustrate another work accessory component, namely, a work shelf 376c. This component includes a top and a pair of pedestals 406, 408, respectively, and is open at a front 410 and at a rear 411 of the component. Like the work organizer 376b, the work shelf 376c is of a relatively short height to permit the user convenient access to work accessories, such as a computer monitor (not shown), supported on the top panel 406 of the work shelf 376C in a sitting position of the user. In addition, like the work organizer 376b, the work shelf 376c, includes, on the top panel 406, the wire management grommets 102 at opposite end edges 412 of the top panel.

FIGS. 23A and B illustrate a further work accessory component, namely, a work tool support fence 376d. The support fence 376d comprises a pair of identical end panels 418 and elongated rails 420 mounted to and between, as by bolting, the end panels in vertically stacked relationship of the rails. The rails 420 are adapted to support any one of a variety of work accessories, such as pencil and document support trays (not shown) anywhere along the length of the rails, the work accessories including hooks (not shown) adapted to be set in removable engagement with lips (not shown in detail) of the rails. The concepts of the work tool support fence 376d of the present invention are addressed in Applicants' assignee's copending U.S. Patent Application Serial No. 162,597, filed March 1, 1988, entitled Work Environment System, the pertinent portions of which are incorporated herein by reference.

To reiterate, each of the desks 44a-c and f, the tables 46a and b and the credenzas 48a-c, by virtue of the grommets 102, is adapted to securely mount a selected one of the work accessory components 376a-d on the respective top of the furniture piece. To this end, the grommets 102 not only have wire management features, but they also function as part of means for mounting the work accessory components on the respective tops of these furniture components. Such mounting means further comprises, as illustrated in FIGS. 24A and B, showing enlarged front side and end fragmentary views of the bookcase 376a^1 mounted on the credenza 48a, a mounting bracket 422 secured, as by bolting, on each of outer lower surfaces 424, 426, 428, 430 of each of the end panels 382, 398, 408, 418 of the work accessory components 376a-d, respectively. The mounting bracket 422 includes, extending upwardly from a bottom surface 432 thereof, a threaded bore 434. The mounting means also includes, associated with each bracket 422, a mounting bolt 436 having a threaded shaft 438 and an enlarged head 440 at one end 442 of the shaft, the shaft 438 being adapted to be set in threaded engagement with the bore 434 of the respective mounting bracket 422. The head 440 is relatively large and is conveniently gripped with a human hand so that a user can tighten or loosen the mounting bracket by hand and without any tools. This hand-adjustability feature is another feature which lends the system to user adaptability and configuration.

With reference again being made to FIGS. 24A and B, in mounting the bookcase 376a^1 to the credenza 48a, the bookcase is first disposed longitudinally of the top 352 of the credenza such that the bores 434 of the mounting brackets 422 align with a pair of slots 122 of the wire management grommets 102 on opposite ends 374 of the credenza top 352. A bolt 446 is then inserted through each slot 122, from below the credenza top 352, and subsequently threaded into the respective bore 434 of each bracket 422. As the bolt 436 is tightened, the bolt head 440 engages a bottom surface 444 of the top 352 to clamp the bookcase 376a^1 thereto.

When so mounted on the furniture components 44a-c and f, 46a and b and 48a and b, the work accessory components 376a-d extend above the floor a sufficient height to create porous visual barriers within the work environment and between work stations defined by such furniture components. Accordingly, the work accessory components 376a-d are particularly useful in uniform and free form open plan environments where workers require a certain degree of privacy. However, the components 376a-d may also be used in other environments such as enclosed offices. For example, an occupant of an enclosed office might mount a bookcase 376a^1 on a credenza 48b. As another example, the work tool support fence 376d may be employed in a bull pen arrangement, whereby a plurality of rows of desks 44f have mounted on the tops 234 thereof work tool support fences 376d.

The End Tables

FIGS. 25A and B, 26A and B, 27A and B, 28A and B and 29A and B illustrate five embodiments 50a-e of the end table. Like the table embodiment 46e described above and illustrated in FIGS. 16A-E, each of the end tables 50a-e is adapted to be

easily moved about the work environment and disposed or "docked" adjacent a selected one of a variety of other furniture components of the assemblage, including the desks 44a-f, the tables 46a-d and the credenzas 48a-c, pursuant to reconfiguration the work station of which the respective end table forms a part thereby to adapt the work station to long-term and short-term requirements of the user.

Each of the end tables 50a-e comprises a base 446, a body 448 and a top 452. The base 446 is a hollow tubular member, circular, in cross section, having a reduced-diameter upper portion 454 and an enlarged-diameter lower portion 456 terminating in a floor-engagable flared portion 458. The flared portion 458, like, for example, the glides 94 of the desks 44a-c, has a large floor engageable bottom surface 460 relative to the geometry and the weight of the respective end table to facilitate movement of the end table over the floor in a sledlike manner. Alternatively, movement of each end table can be achieved by rocking the end table to one side thereof so as to balance the table on a circular edge 461 of the flared portion 458 and rolling the table along the floor by applying sufficient rotational forces to the respective top 452 of the table. The tables are also light enough in construction to pick up and carry from location to location. Preferably, the edge 461 of the floor engageable flared portion 458 of the base 446 defines an area of approximately 200 square inches. The end tables 50a-e preferably range between 28 to 29 inches in height, to 22 to 30 inches in width. The weight of the end tables is preferably in the range of 30 to 60 pounds. The base 446 is preferably made of cast aluminum.

The body 448 of each of the end tables 50a-e comprises an elongated cylindrical member, circular, in cross section, made of thin gage metal, such as steel or plastic tubing. The cylindrical body 448 has a diameter substantially equal to that of the reduced diameter portion 454 of the base 446 and is mounted thereon at a lower end 462 of the body as by bolting.

The five embodiments 50a-e of the end table differ in regard to the shape of the respective tops 452. FIGS. 25A and B illustrate the top 452 of the end table embodiment 50a in the shape of a cake slice (hereinafter sometimes the "cake top embodiment"); FIGS. 26A and B illustrate the top of the end table embodiment 50b in the shape of a grand piano (hereinafter sometimes the "left hand piano top embodiment"); FIGS. 27A and B illustrate the top of the end table embodiment 50c also in the form of a grand piano, the shape of this top being a mirror image of the left hand piano top embodiment 50b (hereafter sometimes the "right hand piano top embodiment"); FIGS. 28A and B show the top of the end table embodiment 50d as having a "D" shape (hereinafter sometimes the "D top embodiment"); and FIGS. 29A and B illustrate the top of the end table embodiment 50e in the form of a square (hereinafter sometimes the "square top embodiment").

Each of the end tables 50a-e, like the table embodiment 46e, imparts great versatility to the furniture assemblage of the invention. Due to the relatively large floor engaging bottom surface 460 of the base 446, each end table is readily mobile and thus may be easily moved by the user himself/herself from one position in a work station to another pursuant to reconfiguration of the same. To further facilitate work station reconfiguration, the top 452 of each end table is provided with the above-discussed identifying means or edge treatment to first identify the end table as being adapted to be disposed adjacent a selected one of certain other furniture components of the assemblage, including one of the desks 44a-f, the tables 46a-c and the credenzas 48a-c, and to subsequently indicate to the user at least one preselected orientation of the end table and the selected other piece when so disposed, with "docking" edges of the end table and the selected furniture piece being positioned in close "docking" relationship.

For example, complementary to the square shape of (1) the end edges 108, 110, 174, 178, 202, 204, 252 of the desks 44a-f, (2) the end edges 280, 294 of the tables 46a-c and (3) the end edges 372 of the credenzas 48a-c, the top 452 of each of the end tables 50a-e is provided with at least one docking side edge 468 characterized by a bull nose shape. This bull nose configuration is complementary in shape to the square end edges of the above-identified desks, tables and credenzas and thus identifies each of the end tables 50a-e as a furniture piece which is adapted to be disposed adjacent a selected one of the desks, credenzas and tables in docking relationship relative thereto. The docking side edges 468 of each end table further indicates to the user a selected one of a number of preselected orientations of the end table and the selected other furniture piece.

In addition, the docking side edges 468 of the tops 452 of the end table embodiments 50a-e are preferably identical in color to that of the "docking" end edges 108, 110, 174, 178, 202, 204, 252, 280, 294, 372 of the desks 44a-f, the tables 46a-c and the credenzas 48a-c. Typically, the color coding of the docking edges is provided when the tops 452 are laminated. In lieu of the laminated tops, a solid wood block (butcher block) can be provided. In this manner, the "matching" color of the docking side edges 468 also functions to identify each of the end tables 50a-e as being adapted to be "docked"

adjacent a selected one of the desks 44a-f, the tables 46a-c and the credenzas 48a-c, and further indicates to the user appropriate preselected orientation of the respective end table and the selected other furniture piece in such "docking" relationship, with a docking side edge 468 of the table being disposed closely adjacent a "docking" edge of the other piece.

Also, the length of each of the docking side edges 468 is essentially equal to either the full length of each of the end edges 108, 110, 174, 178, 202, 204, 252, 280, 294, 372 of the desks 44a-f, the tables 46a-d and credenzas 48a-c, i.e., the distance between the respective front and rear side edges of these furniture components at an end edge, or the shorter length of the end edge defined by the distance between the respective front side edge of the desk, table or credenza and the grommet 102 at the end edge. The complementary length of the docking side edges 468 of the end tables and the "docking" edges of the other furniture components also identifies each end table as being adapted to be disposed adjacent a selected one of the desks, tables and credenzas in docking relationship relative thereto and further indicates to the user a selected one of a predetermined number of relative orientations of the "docked" components, with the "docking" edges of the components being disposed olosely adjacent one another.

Referring specifically to FIGS. 25A and B, the docking side edges 468 of the cake top embodiment 50a comprise those two straight edges illustrated as being essentially equal in length and positioned normal to one another. FIGS. 26A and B and 27A and B show the docking side edges 468 each of the left and right hand piano top embodiments 50b and c of the end table as being for each embodiment, two straight edges disposed normal to one another and having the greatest length of three straight edges of the respective top 452. The D top end table embodiment 50d is shown in FIGS. 28A and B as having one docking side edge 468. Each of the four sides of the top 452 of the square top end table embodiment 50e is associated with a docking side edge 468, as shown in FIGS. 29A and B.

Edges of the top 452 of each of the end table embodiments 50a-e, other than the docking side edges 468, are not characterized by the above-described identifying means. Indeed, such edges signal or cue the user against docking of the edges adjacent the "docking" end edges of the desks, the tables and the credenzas. These other "nondocking" edges of the end table tops 452 comprise a 1/4 circular edge 470 of the cake top embodiment 50a; curved edges 472 and short straight edges 474 of the left and right hand piano top embodiments 50b and c; and a 1/2 circular edge 476 of the D top end table embodiment 50d. The 1/4 circular, the curved and the 1/2 circular edges 470, 472, 476 of the end table embodiments 50a-d do not compliment visually the straight "docking" end edges 108, 110, 174, 178, 202, 204, 252, 280, 294, 372 of the desks 44a-d, the tables 46a-c and credenzas 48a-c and thus cue the user against disposition of the edges 470, 472, 476 of these end tables adjacent such "docking" end edges of such other furniture components. Similarly, the short straight edges 474 of the piano top embodiments 50b and c are unequal in length to (shorter than) the above-identified "docking" end edges of the desks, the tables and the credenzas. Thus, while the essentially equal lengths of the end table docking side edges 468 and the end edges of the desks, tables and credenzas identify each of the end tables as being adapted to be paired with a selected one of these other furniture components, and further indicates proper relative orientation of the pair, with at least one docking side edge of the respective end table being disposed adjacent at least one end edge of the other piece, the "nondocking" edges of the end tables cue the user against docking of such edges adjacent the end edges of such other components.

As stated above, the end tables 50a-e, like the table 46e having the teardrop top 310, impart great flexibility to the furniture assemblage within the work environment because the tables can be easily moved within the environment pursuant to reconfiguration of the same. Such flexibility is most appreciated in enclosed offices and free form open plan arrangements where user control over furnishings is most critical. For example, in a work station forming part of a free form open plan work environment, the work station may include the desk 44f, the table 46a, the credenza 48a and the end table 50a, wherein a selected one of the docking side edges 468 of the end table is "docked" adjacent a selected one of the end edges 252 of the top 234 of the desk. In such position, the top 452 of the end table 50a functions as an extension of the desk top 234. Should the user desire additional work surface area adjacent the credenza top 352, the user need only move the end table 50a adjacent the credenza top 352, the identifying means on the tops 352, 452, e.g., the essentially equal length of the end table side edges 468 and the credenza end edges 372, signaling the user that it is appropriate to "dock" the two components and further indicating to the user selected orientation of the components with one of the end table side edges 468 being disposed adjacent one of the end edges 372 of the credenza.

As shown in FIGS. 30A and B, the furniture assemblage of the invention further comprises a bollard 478. The bollard 478 is substantially similar

to the various end table embodiments 50a-e in that it comprises the base 446, the body 448 and a top. In addition, the bollard 478 further includes a reveal tube 450. However, in contrast to the end tables, the bollard 478 includes a small circular top 480 which does not function as a work surface, in contrast to the tops 452 of the end tables, due to the relatively small size of the top 480, having a diameter slightly greater than that of its supporting body 448. Rather, the bollard 478 functions primary to define work space as will be discussed below in greater detail. Like the end table embodiments 50a-c, the bollard 478 is readily movable within and between work stations to define and redefine work environments of occupants of the work stations.

The reveal tube 450 comprises a relatively short tubular member circular, in cross section, having a smaller diameter than that of the body 448. The reveal tube 450 is mounted to the body portion 448, at an upper end 464 thereof, as by bolting. The reduced diameter of the reveal tube 450 relative to the body 448 provides a decorative reveal space 466 between the body and the top 480 supported on the reveal tube and components of the assemblage. The reveal tube 450 is preferably made of injection-molded plastic.

The Storage Cabinets

FIGS. 31A-E illustrate two embodiments 52a and b of the storage cabinet. Each storage cabinet comprises a base 482 supporting a carcass 484 which in turn supports a reveal frame 486 mounting a top 488. The carcass 484 includes a pair of identical end walls 490 joined by a rear wall 492 of the carcass. The carcass is open at a front 494 thereof and is preferably closed off at the front by a pair of doors 496. Preferably, the doors 496 are of the "pocketing" type, being adapted to, from a closed position illustrated in FIGS. 31A-D, pivot to an open position (not shown) and subsequently slide rearwardly into the cabinet adjacent the end walls 490 thereof as shown in FIG. 31E. A detailed description and illustration of the construction of the cabinet embodiments 52A and B, including the pocketing doors 496 thereof are provided in applicants' assignee's copending U.S. patent application nos. 205,307 and 342,957, filed 6/10/88 and 4/25/89, entitled Work Space Management System and Cabinet Therefor and Cabinet with Pocketing Doors, respectively.

The storage cabinets are preferably provided in a variety of sizes, with respect to height and width, FIGS. 31A-E illustrating merely two embodiments 52a and b of the storage cabinet. Preferably, the cabinet embodiments can be provided at waste level heights, eye level heights and taller embodiments, the eye level and taller embodiments being particularly useful in uniform and free form open plan environments to define work stations and provide the required privacy between the same. Because of their size, the cabinet embodiments 52a and b are immobile furniture components relative to the table embodiment 46e and the end tables 50a-e. Thus, if an occupant of a work station defined, in part, by one or more of the storage cabinet embodiments 52a and b, requires a rearrangement of the work station, in the preferred form of the invention, the other, more mobile, furniture components of the assembly are preferably moved relative to the storage cabinets.

As shown in FIG. 31E, an interior 498 of the cabinet is provided with a plurality of shelves 500 for use in storing office requisites (not shown) or the like.

The Privacy Screens

FIGS. 32A-E illustrate another component of the furniture assemblage, namely, the privacy screen, three embodiments 54a-c being shown. Like the storage cabinet embodiments 52a and b, the privacy screens are preferably provided in a variety of heights, namely, waist-level, eye-level and taller. The heights of the screens typically match the heights of the bookcases and storage cabinets. FIGS. 32A-D illustrate three embodiments 54a-c of the privacy screen, the embodiments differing only with respect to height. Each of the privacy screen embodiments comprises a plurality of rectangular frames 502, six frames being illustrated in respect of each of the embodiments 54a-c, the frames each mounting a translucent or opaque privacy panel 504. The frames 502 are hingeably connected together along vertical side edges 506 of the frames by a flexible hinge 508 to permit adjustment of the overall length and configuration of the screen in the work environment.

Each rectangular frame 502 of the screen embodiments 54a-c comprises a pair of vertical members 510 adjoining a pair of horizontal members 512, each of the vertical and horizontal members 510, 512 being C-shaped, in cross section, to provide a channel 514 in the vertical and horizontal members 510, 512 for receiving an edge 516 of the panel 504. The panel 504 is secured to the vertical and horizontal frame members 510, 512 in registry with the channels 514 by an adhesive bonding material.

As indicated above, and as illustrated in FIG. 32E, a pair of frames 502 are pivotally mounted together at adjacent longitudinal side edges 506 thereof by the resilient hinge 508 connected to and between and extending along substantially the full lengths of adjacent vertical members 510 of the neighboring frames 502. Preferably, the adjacent

vertical members 510 and the resilient hinge 508 are a one-piece extruded member of PVC, with the vertical members 510 being formed of rigid PVC and the flexible hinge being formed of a flexible PVC. A suitable structure of the hinge 508 is disclosed in U.S. patent to Woodland 4,563,381, issued January 7, 1986.

The privacy screens 54a-c are particularly adapted for use in uniform and free form open plan office environments and enclosed offices. In open plan environments, the screens provide the privacy required by occupants of such environments. When an occupant of a work station requires enhanced privacy of his/her work station, the one or more privacy screens 54 defining the work station are adjusted to increase the overall length of the screens about, for example, a desk 44f at which the user is working. If the user subsequently is desirous of reducing visual and acoustic barriers between his/her work station and adjacent work stations, he/she need only reduce the lengths of the screens by folding the frames thereof to a greater extent.

In the enclosed office model, the privacy screens 54a-c may be of particular importance to the user who not only performs work in connection with confidential documentation but who also holds meetings with others within the enclosed office. Thus, for example, when a meeting is held, the user of the enclosed office need only move one or more of the screens about his or her desk 44f, table 46a or credenza 48a on which the documentation may be situated, to isolate and thus protect the confidentiality of such documentation, while the user holds the meeting at, for example, a table 46e. When the meeting adjourns, the user would then move the screens away from the confidential documentation to permit the user to return to his/her work at the desk, table or credenza.

The Mobile Storage Unit

Further, as illustrated in FIGS. 33A-C, the furniture assemblage of the invention includes the mobile storage unit 56. Like the teardrop table embodiment 46e and the end tables 50a-e, the mobile storage unit 56 imparts to a work station great flexibility with respect to the manner in which the furniture components of the assemblage may be configured, as will be discussed below.

The storage unit 56 comprises a rectangular boxlike base 518 mounting on each of four lower corners 520 thereof a floor engaging swivel caster 522. The base 518 is formed by pairs of side and end walls 524, 526 and a bottom wall 528, and has an open top 530 permitting access to an interior 532 of the base for storage.

The storage unit 56 further includes a drawer 534 mounted on the base 518 at an upper portion 536 thereof by a channel and slide connection for lateral horizontal movement between a closed position, where the drawer is disposed over the open top 530 of the base 518 to cover the top, and an open position where the drawer is disposed laterally to one side 538 of the base thereby to permit access to the interior 532 of the same. A top cover 540 is also mounted by a slide and channel connection on the upper portion 536 of the base 518, above the drawer 534, for lateral horizontal movement between an open condition, where the top cover is disposed laterally to another side 542 of the base, and a closed condition, where the top cover is positioned over the open top 530 of the same. Because the drawer 534 and the top cover 540 are mounted to the base 518 independently of one another and are adapted to be set in their respective open position and condition at opposite lateral sides 538, 542 of the base 518, access to the drawer may be obtained in the open position of the drawer at the same time the interior 532 of the base 518 is closed off by the cover member 540 in the closed condition of the cover member. The drawer 534 is provided with a removable organizers 544 to compartmentalize the drawer for organization of documents, pencils and the like (not shown) stored therein. This drawer organizer is removable and usable in other components of the assemblage.

Like the casters 330 on the teardrop table embodiment 46e, the swivel casters 522 permit the storage cabinet 54 to be readily moved about the work environment. For example, in an enclosed office or in a work station forming part of a free form open plan arrangement, the mobile storage unit 54 can be easily moved from a position adjacent one of the desks 44a-f to another position in the work station adjacent one of the tables 46a-e. Specifically, in such example, the user may employ the desk and the table for two entirely different projects. During a working day, the user may be required to work on both projects and thus may be required to move back and forth between the desk and the table. The mobility of the storage unit 54 permits the user to move the same and its contents to a convenient position closely adjacent documentation and the like associated with each of the table and the desk. To facilitate movement of the mobile storage unit 54, the same is provided, on the opposite end walls 526 of the base 518, with a pair of handles 546.

Summary

The furniture assemblage of the invention provides a variety of coordinated, unconnected, freestanding furniture components, the assemblage

being adapted for use in each of the enclosed office and bull pen models as well as the uniform and free form open plan environments. In this manner, the assemblage is adapted to accommodate shifts in usage between the models by an organization employing the assemblage. For example, should the organization experience an increased need for the free form open plan model, commensurate with reduced requirements for enclosed offices and bull pens, any one or more of the desks 44a-f previously used in the enclosed offices and bull pens may be arranged in a free form environment to, in conjunction with other components of the assemblage, define individual work stations within the environment. In addition, any of the screens employed in the enclosed offices may also be used in free form open plan environments to provide the visual and acoustical barriers required between the work stations therein. Being adapted for use within the various office models, the furniture assemblage of the invention avoids stockpiles of obsolete furnishings particularly adapted for limited use in only one or certain of the models.

Although the furniture components may be employed in all four of the above-identified office models, they provide particular advantages in enclosed offices and free form open plan arrangements where users in such models require a relatively high degree of control over furnishings of their work stations. It has been found that occupants of these models demand a certain amount of work surface and storage space to adequately perform their work. They also require furniture components which are adapted to be readily moved about the environments by the occupants to reconfigure of the work space to accommodate short term and long-term users needs.

The furniture assemblage of the invention is well suited to provide the flexibility required for rapid and convenient reconfiguration of work stations in enclosed offices and free form open plan arrangements. The assemblage provides a number of relatively lightweight discrete furniture components, some of the components being characterized by relatively large floor engaging support surfaces to permit sledlike movement of the components over the floor, other components being provided with swivel casters to facilitate movement of the components within the work environment. In addition, the furniture components of the invention are adapted to be selectively disposed in any one of a multiplicity of work station configurations, with the components being further adapted to be readily moved about in the above-described manner to be selectively redisposed in any other of the work station configurations. Moreover, with respect to certain of the components, including the desks 44a-f, the tables 46a-c and e, the credenzas 48a-c and the end tables 50a-e, each one of such components is adapted to be selectively coordinated with at least one other of the components in complementary "docking" relationship to form a pair of furniture components useful together in a work station as a work unit. To this end, these components of the assemblage include the identifying means or complementary features at the "docking" edges of the components to identify the same as being adapted to be so disposed adjacent one another in such "docking" relationship. Further, the components in the above-described pair of components forming the work unit are adapted to be set in a selected one of a number of predetermined orientations relative to one another, with "docking" edges of the components being positioned closely adjacent one another. The above-described identifying means further functions to indicate to the user such predetermined orientations of the components thereby to facilitate disposition of the components in such "docking" relationship in a selected one of the orientations.

To illustrate, reference is now made to FIGS. 34A-D, showing a plurality of furniture components of the assemblage arranged in four different work station configurations, the components comprising the desk 44f mounting the bookcase 367a[1], the tables 46a and b, the credenza 48c supporting the work tool support fence 376d, the bollard 478 and a number of end tables, namely, the D top embodiment 50d, the right hand piano embodiment 50c and the cake top embodiment 50a. Chairs are also illustrated and so labeled.

It is to be understood that while a specific number of components have been illustrated to form the four work stations configurations, any fewer or greater number and/or types of the components of the assemblage described and illustrated herein could be used. It should further be noted that although four work stations configurations have been shown, the furniture components employed could be disposed in a larger number of arrangements to form various other work station configurations.

The furniture components and the work station configurations shown in FIGS. 34A-D are equally adapted for use in either an enclosed office or a free form open plan environment, although they are discussed below primarily with reference to the latter arrangement.

FIG. 34A illustrates the furniture components arranged with the desk 44f and the table 46b positioned substantially normal to one another between the "docking" side edges 468 of the right hand piano top embodiment 50c of the end table. The D top end table embodiment and the teardrop table 46e are disposed in docking relationship relative to the desk 44f and the table 46b, respectively.

In this manner, the end table and the table 46e provide work surface extensions of the desk 44f and the table 46b. Further, the work station configuration of FIG. 34A is shown as having one pass way (entrance and exit) between the teardrop table 46e and the table 46a, the furniture components of the work station thereby defining a substantially enclosed work station configuration.

Should at any moment the user require additional work surface area adjacent the table 46a and the credenza 48c the user need only, for example, redispose the teardrop table 46e and the D top end table 50d adjacent these other furniture components. To this end, the above-described identifying means or top edge treatment of the credenza 48c, the tables 46a and e and the D top end table 50d identify each one of these four components as being adapted to be selectively disposed adjacent a selected one of the other of the four components in complementary "docking" relationship. Given the present position of the cake-top embodiment 50a of the end table between the credenza 48c and the table 46a, the user may wish to selectively dispose one of the table 46e and the end table 50d adjacent either free end of either the credenza 48c or the table 46a, the user selecting placement of the D top end table 50d adjacent the credenza 48c and the teardrop table 46e next to the table 46a, as shown in FIG. 34B. The identifying means on the "docking" edges of the furniture components so paired further indicates to the user at least one orientation of the furniture components in each pair, with the complementary "docking" edges of the components of each pair being disposed closely adjacent one another. FIG. 34B also illustrates a redisposition of the passway (entrance/exit) from a position between the desk 44f and the credenza 48c to a location between the tables 46b and e. This redisposition has been accomplished by moving the bollard 478 to a position between the tables 466 and e. In new position of the bollard, the same functions to define a boundary of the work station where a passage once existed.

Figure 34C illustrates the furniture components of FIG. 34B as having been arranged so as to accommodate a meeting between the user and a visitor in the work station. To this end, the teardrop table 46e has been moved to a center of the work station. Figure 34C also illustrates the use of a privacy screen 54, which has been disposed along the length of the desk 44f to shield from view of the visitor confidential documentation on the desk. The bookcase 376a mounted on the desk functions as a visual barrier to the documentation with respect to persons outside of the work station.

After the meeting, the user may wish to continue working in connection with the confidential documentation on the desk 44f. The user may further require additional work surface area adjacent the desk 44f and the table 46b while maintaining the position of the D-top embodiment 50d of the end table adjacent the credenza 48c. The identifying means or complementary edge treatment of the teardrop table 46e, the desk 44f and the table 46b identify the teardrop table 46e as being adapted to be disposed adjacent the desk or the table 46B, the user having selectively disposed the teardrop table adjacent the desk in complementary docking relationship thereto. The identifying means further indicates to the user one of two possible orientations of the teardrop table 46e relative to the desk 44f, with either of the straight "docking" edges of the teardrop table being adapted to be disposed adjacent the free end of the desk, the user having selected one of the two possible orientations.

In order to provide additional work surface area adjacent the table 46b, while maintaining the position of the D-top and piano top embodiments 50a and b of the end table, the complementary "docking" edges of the cake top embodiment of the end table and the table 46b identify the two components as being adapted to be paired in complementary "docking" relationship and further indicate to the user appropriate orientation of the components when so disposed, with a selected one of the straight docking side edges of the end table being disposed adjacent the docking end edge of the table 46b. Further, in the work station configuration of FIG. 34D, the user has enclosed the work station by blocking the above-discussed pass ways into and out of the work station through appropriate rearrangement of the bollard, the cake top and D-top embodiments of the end table and the teardrop table. In this manner, the user can communicate to co-workers the need for privacy to complete the user's work in connection with the confidential documentation.

While the invention has been described in connection with a preferred embodiment, it will be understood that the invention is not limited to the disclosed embodiment. To the contrary, reasonable variations, alternatives, modifications and equivalents are possible within the scope of the foregoing disclosure without departing from the spirit of the invention as defined by the appended claims.

Claims

1. In an assemblage of coordinated, unconnected freestanding office furniture components comprising desks (446-f), tables (46, 500-E) and storage units (48) adapted to be selectively disposed in anyone of a multiplicity of work station formations, all of said components having a top member (58, 162, 164, 234, 258, 284,

296, 310, 352, 452) with a horizontal surface, a leg structure (60, 152, 182) supporting the top member and feet (74, 76) on the leg structure (60, 152, 182) in floor contacting relationship, **characterized** in that the shape, size and construction of each of the components is selected to make the components user movable for configuration and reconfiguration of a work space.

2. The assemblage of claim 1 wherein the top members (58, 162, 164) each have at opposite sides thereof free edges (108, 116, 252) which may conveniently be gripped by a user to facilitate placement and movement of the components within a given work space.

3. The assemblage of claim 1 or 2 wherein the feet (74, 161, 242) of each component have a floor contacting surface (96, 244) which facilitates movement of the components over the floor, including carpeted surfaces and being large relative to the dimensions and weight of the component supported thereby.

4. The assemblage of claim 1, 2 or 3 wherein the top members (58, 162, 164, 234, 258) each further have at least one preferably resilient edge (108, 110, 252) forming a preferably straight docking surface (128, 178), the docking surface (128) of one component being adapted to complement in interfitting to relationship a docking surface (128) of another component and indicate a predetermined orientation of the top members with respect to each other to make coordinated work station formation when components are in docking relationship to each other; whereby each of the components is easily positionable and easily movable by users to configure and reconfigure the components in different work station configurations to adapt the components to long- and short-term requirements of the user.

5. An office furniture assemblage in accordance with claims 1 to 4, wherein the docking surfaces (128) have an undulating surface configuration.

6. An office furniture assemblage according to anyone of the foregoing claims and further comprising means (93, 91) to adjust the vertical position of glides (94) relative to the leg structure (60), including a tool opening (91) in an upper surface (92) of said feet, whereby said glides (94) can be vertically adjusted without removing weight from the feet (94).

7. An office furniture assemblage in accordance with anyone of claims 1 to 6, wherein the top surface (296) of at least some of said tables (46d) has a circular configuration.

8. An office furniture assemblage in accordance with anyone of claims 1 to 7, wherein at least one (78) of the edges of some of the top members (86) has a sloping waterfall shape and wherein an edge (80) opposite the waterfall edge (78) has a bull nose shape.

9. An office furniture assemblage in accordance with claims 1 to 8 wherein at least some of said tables (50a, 50b) are supported on bollards comprising a single (448) column with an expanded circular base (446) at the bottom portion thereof to facilitate movement of the table over a support surface.

10. An office furniture assemblage in accordance with anyone of claims 1 to 9, wherein the supporting leg structure (60) of at least some of said desks 44a, 44b, 44c) comprises pedestals (60) mounted inwardly from side edges (108, 110) of the desks to provide an overhanging work surface for gripping by a user to facilitate moving said desks, the bottom portions (74, 76) of said pedestals (60) extending forwardly and rearwardly, and relatively large glides (94) form feet on the bottom of said pedestals (60).

11. An office furniture assemblage in accordance with anyone of claims 1 to 10, wherein the top members (58, 234) of at least some of the desks (44a-f) have wire management grommets (102) at the side edges (108, 110, 252) thereof.

12. An office furniture assemblage in accordance with claim 11 and further comprising a wire management trough (132) mounted to said desks (44a-f) beneath the top member (58, 162, 234) thereof, the wire management trough (132) being in communication with the wire management grommets (102).

13. An office furniture assemblage in accordance with anyone of claims 1 to 11 wherein cabinets (142, 344) are mounted to the underside of some of the top members (58, 352) inwardly of the side edges (108, 110, 372) thereof, so that each of such top members (158, 352) overhangs the cabinets (142, 344) to provide for gripping surfaces for user movement of the components.

14. An office furniture assemblage in accordance with claim 13, wherein the supporting leg structures (240) in storage units (48a) are mounted beneath the cabinets and comprise tubular legs (240) which extend downwardly from corners of the cabinets (344) and the feet (242) on the bottoms of the legs (240) comprise glides (242) with expanded bottom surfaces wider than the legs (240).

15. An office furniture assemblage in accordance with claim 13 or 14, and further comprising a case (376a-d) mounted to the top member (352) of the storage units (48a) and means (422) clamping the case (376a-d) to the top members (352).

16. An office furniture assemblage in accordance with claim 15, wherein the side edges (372) of the storage unit (48a) top member (352) have wire management grommets (102) extending inwardly therefrom and the case (376a-d) is clamped to the top member (352) through the wire management grommets (102).

17. An office furniture assemblage in accordance with anyone of claims 1 to 16, and further comprising folding screens (54) for providing privacy within the work area.

18. An office furniture assemblage in accordance with anyone of claims 1 to 17, and further comprising at least one bollard (478) comprising a cylindrical member (448) supported by an expanded base (446) and having a height approximately the height of some of said desks (44a-f), tables (46, 50a-e) and storage units (48) to define boundaries of said work space.

19. An office furniture assemblage in accordance with claim 18, wherein the bollards (478) have the same shape as the supporting leg structure (448) of at least some of said tables (50a-e).

20. An office furniture assemblage according to anyone of claims 1 to 19, wherein the feet (94) on the bottom of the leg structure beneath a desk (44a-b) extend to a point substantially coterminous with the perimeter of the top surface (58) supported by the feet (94) and leg structure associated (60) therewith.

21. An office furniture component (44a-f, 48) for an assemblage of anyone of the foregoing claims having a top member (58, 352) with a horizontal surface (86), a front edge (78, 368), a back edge (80, 370) and opposite side edges (108, 110, 372); leg structure (60, 240) supporting the top member (58, 352) and feet (94, 242) on a lower portion of the leg structure (60, 240) in floor-contacting relationship, **characterized** in that the top member (58, 352) has at the side edges (108, 110, 372) thereof wire management grommets (102) formed by inwardly directed slotted openings (122) through the top member (58, 352) and of a size to accommodate wiring and retaining means (118) within the slotted openings (122) for retaining wires therein.

22. An assemblage of coordinated office furniture components according to claim 21 wherein a pedestal support column (314, 326) is mounted to the table top (310) at a center of an arcuate portion (316) thereof.

23. An assemblage of coordinated office furniture components according to claim 21 or 22 wherein there are at least three feet (322, 324) mounted to the support column with one (324) of said feet longer than the other feet and extends beneath the linear portion (318) of the table top side edges.

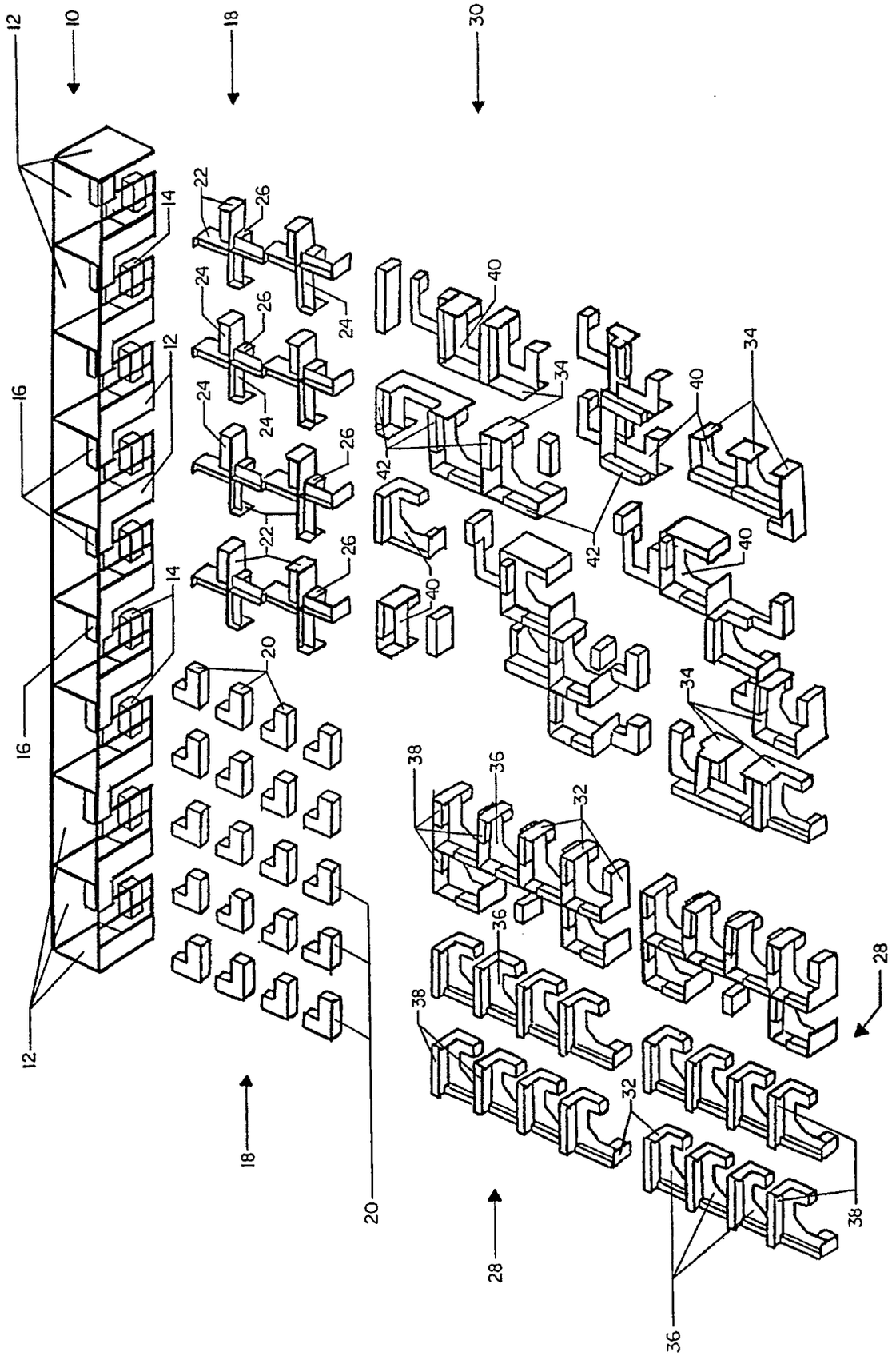
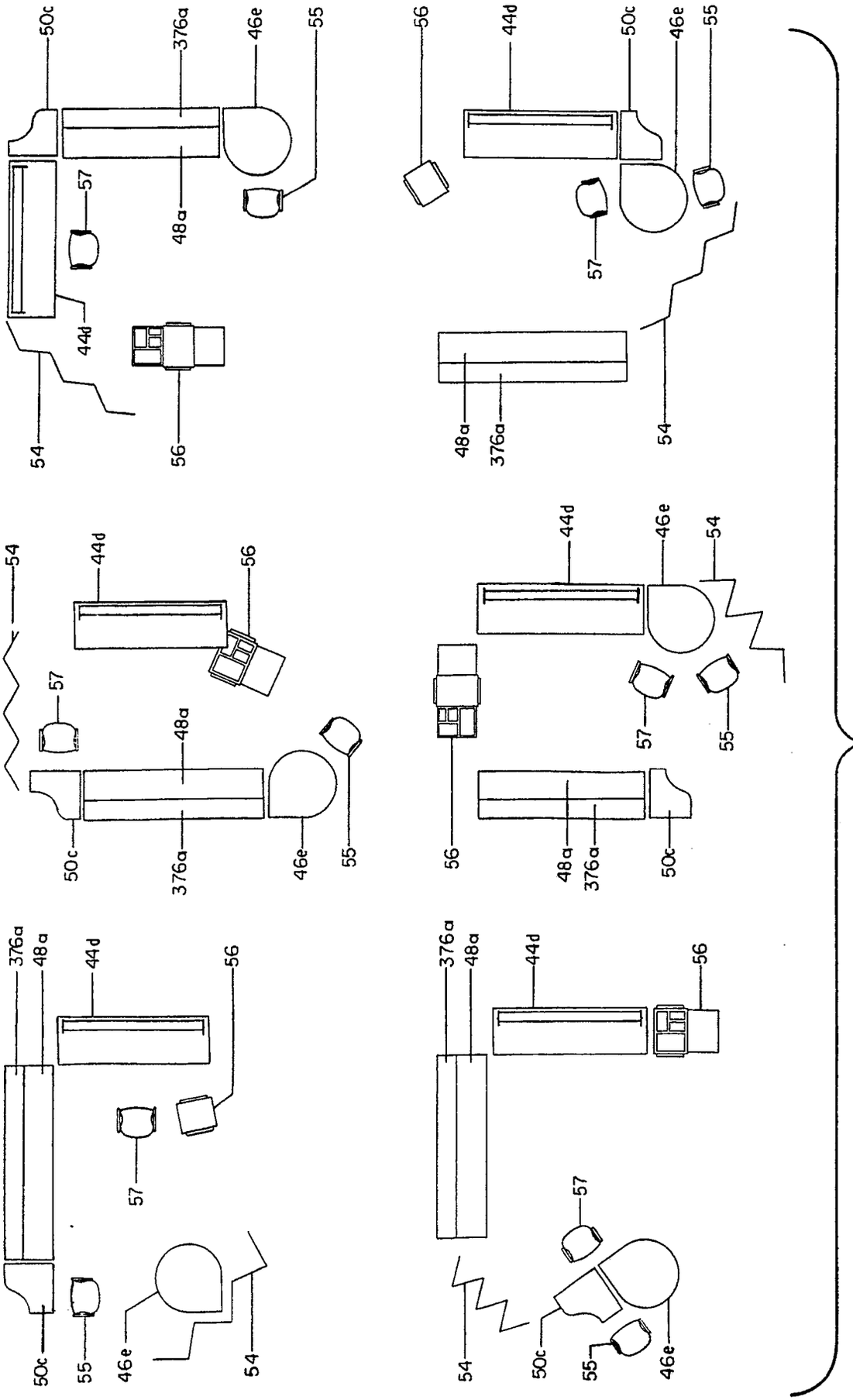


FIG. 1


50c
376a
46e
55
57
48a
44d
54
56
44d
50c
46e
55
56
57
48a
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54
44d
56
57
48a
50c
376a
46e
55
44d
46e
54
57
55
56
48a
376a
50c
376a
48a
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50c
55
46e

FIG. 2

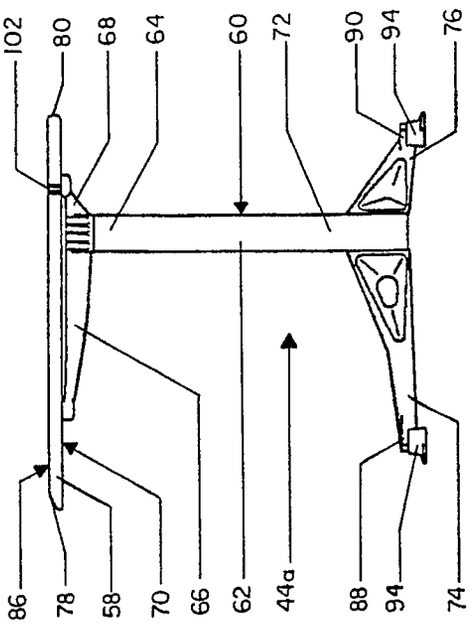


FIG. 3B

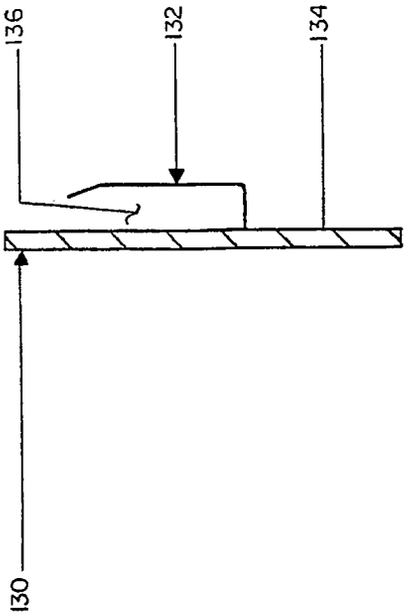


FIG. 3D

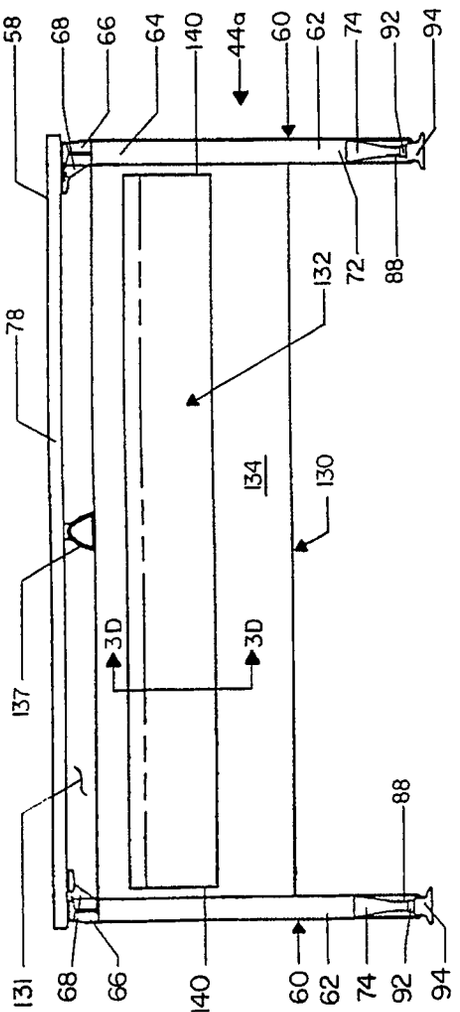


FIG. 3A

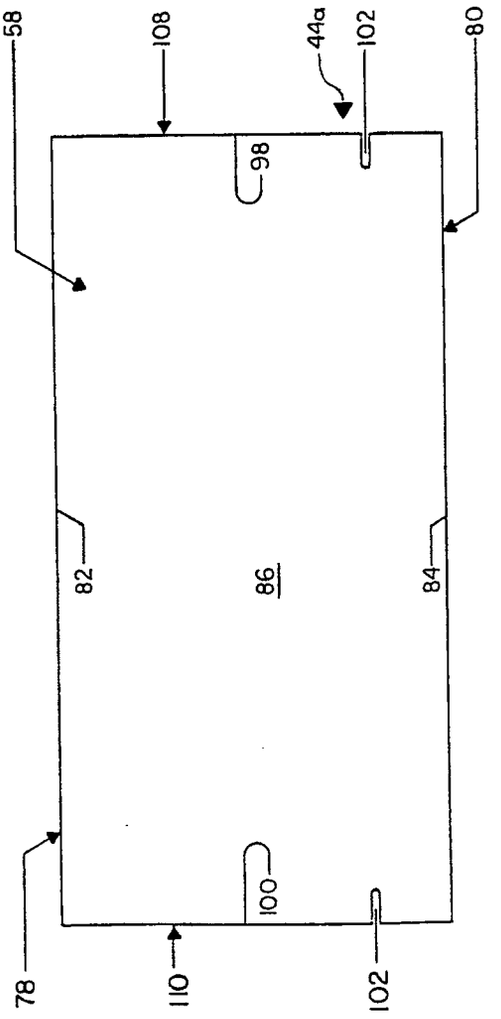


FIG. 3C

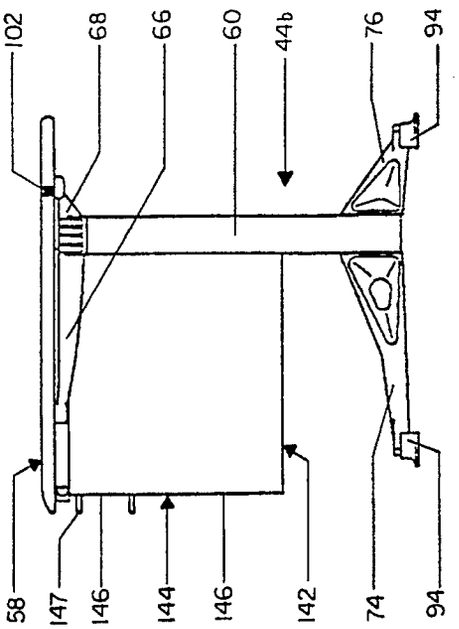


FIG. 4B

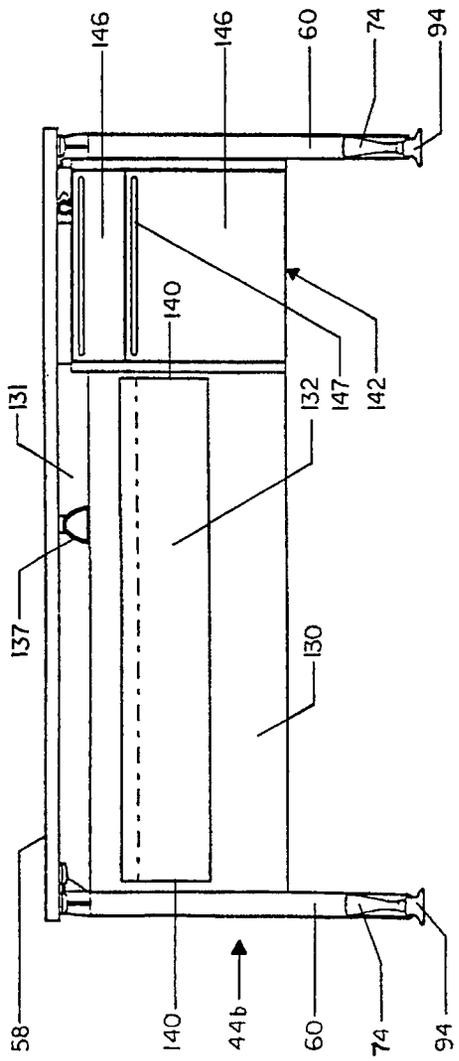


FIG. 4A

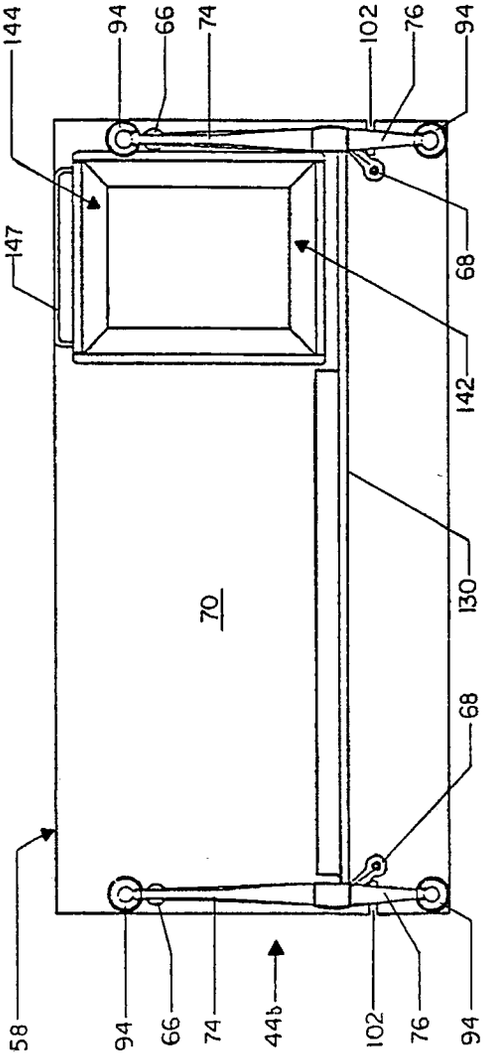


FIG. 4C

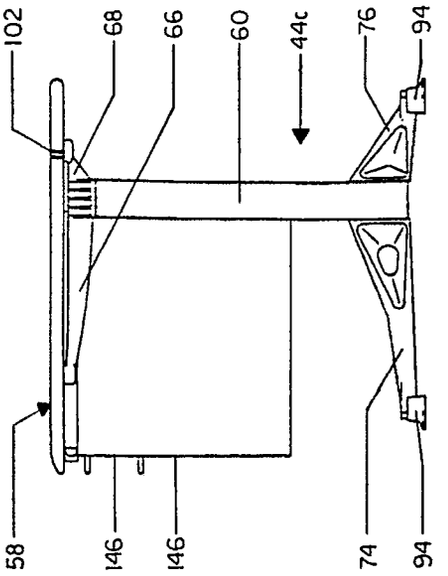


FIG. 5B

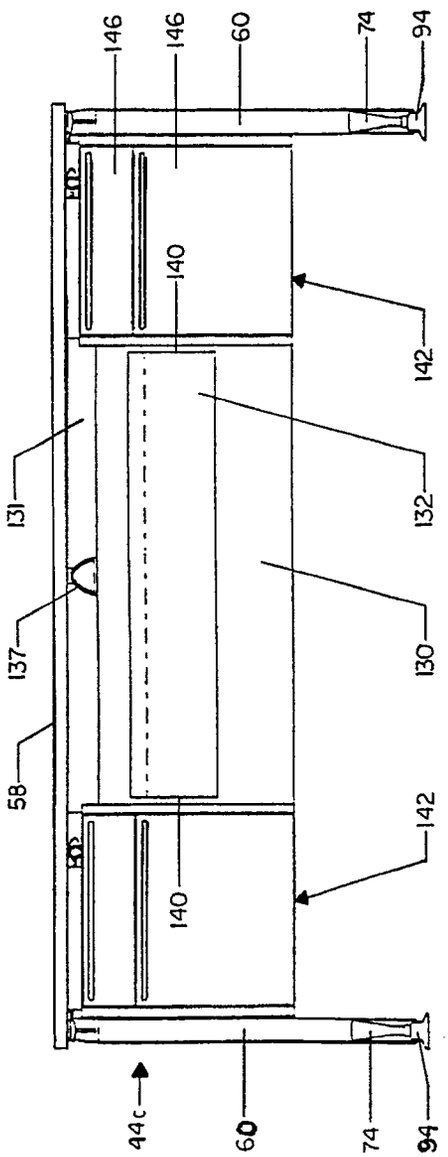


FIG. 5A

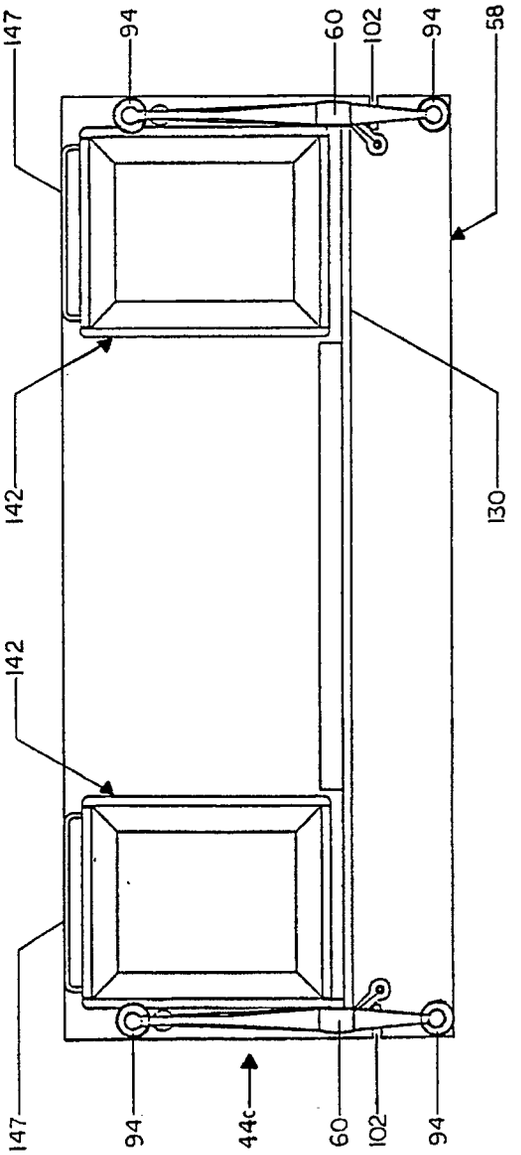


FIG. 5C

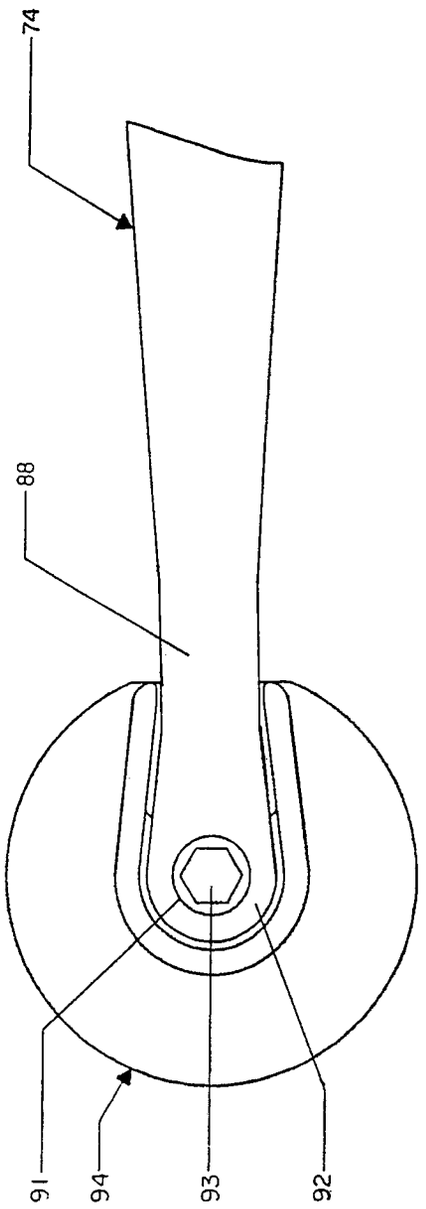


FIG. 6A

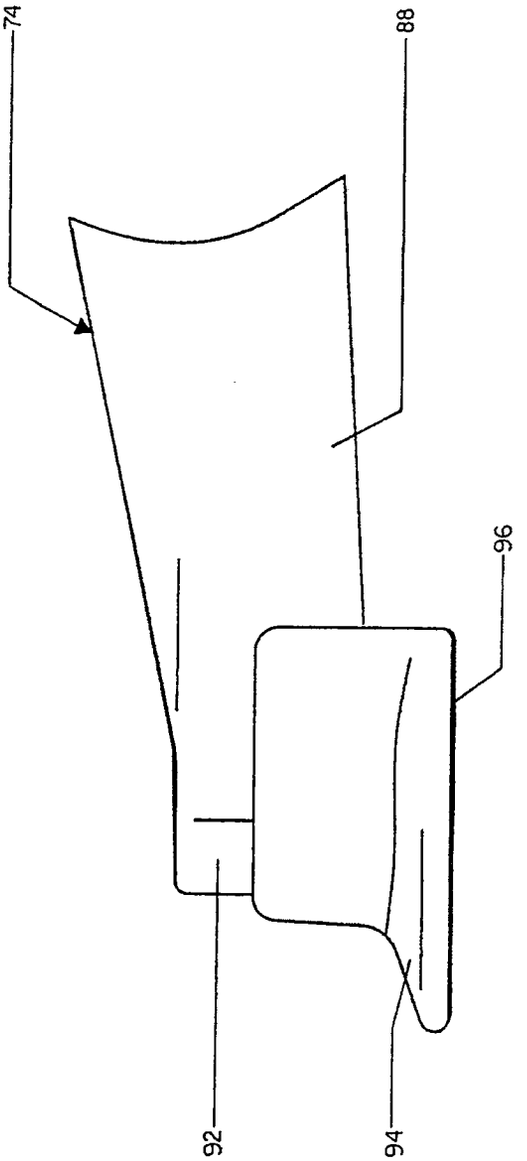


FIG. 6B

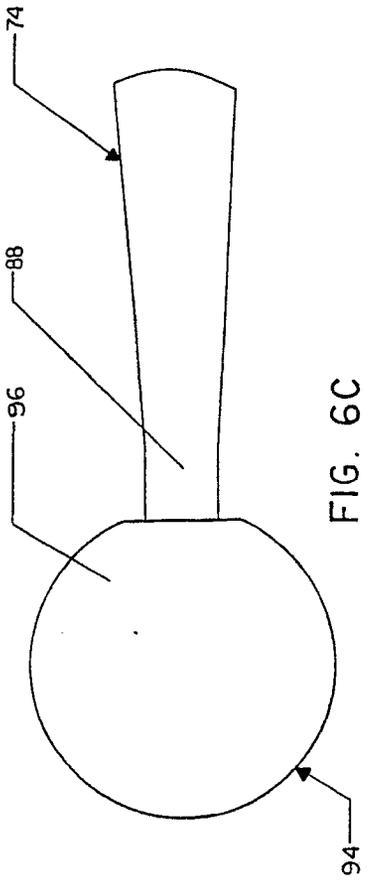


FIG. 6C

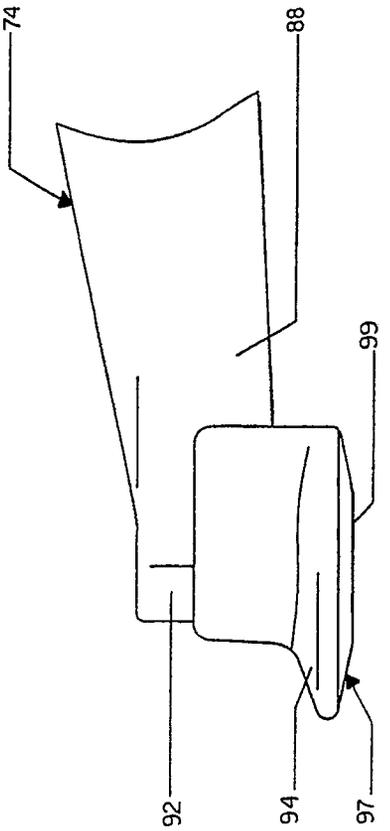


FIG. 6D

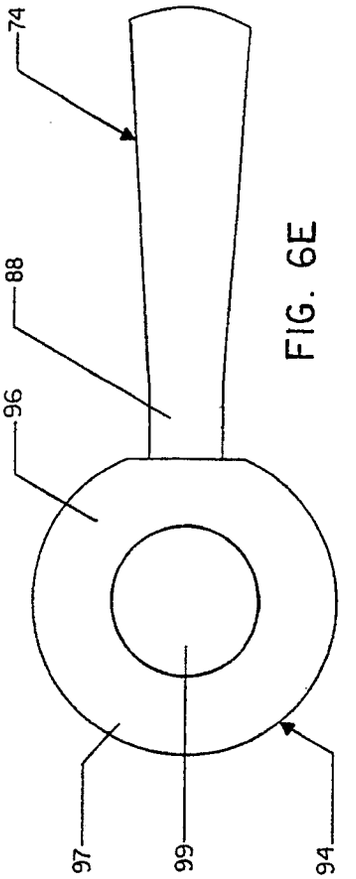


FIG. 6E

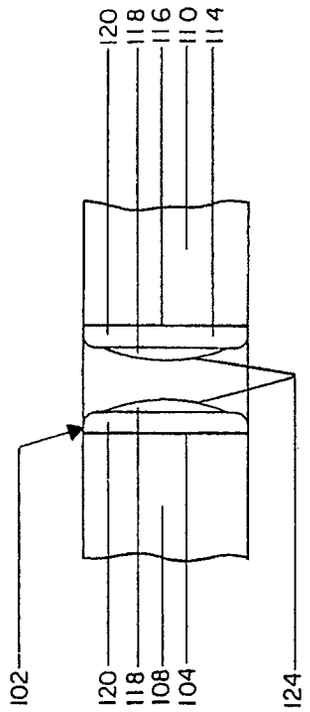


FIG. 7B

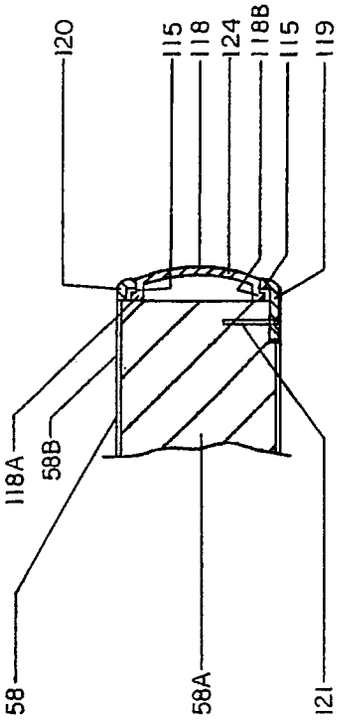


FIG. 7C

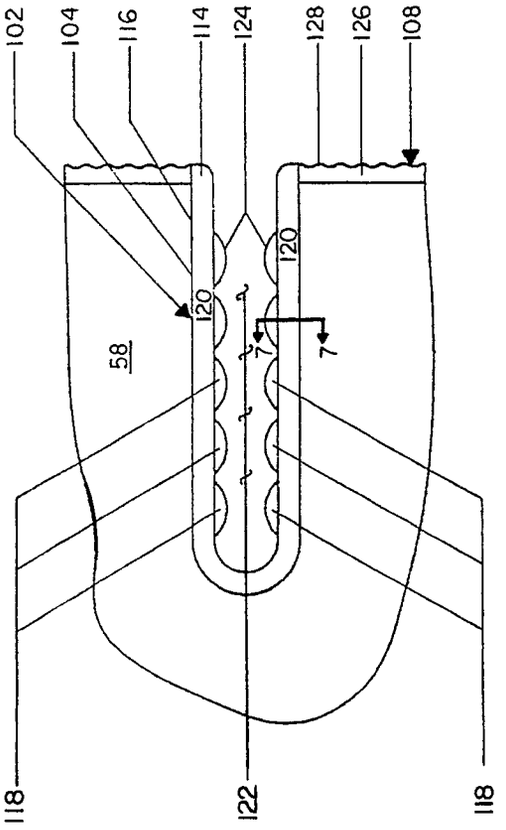


FIG. 7A

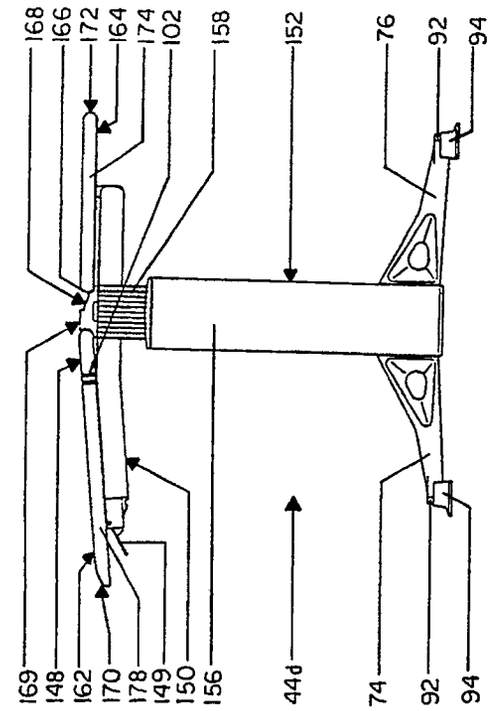


FIG. 8B

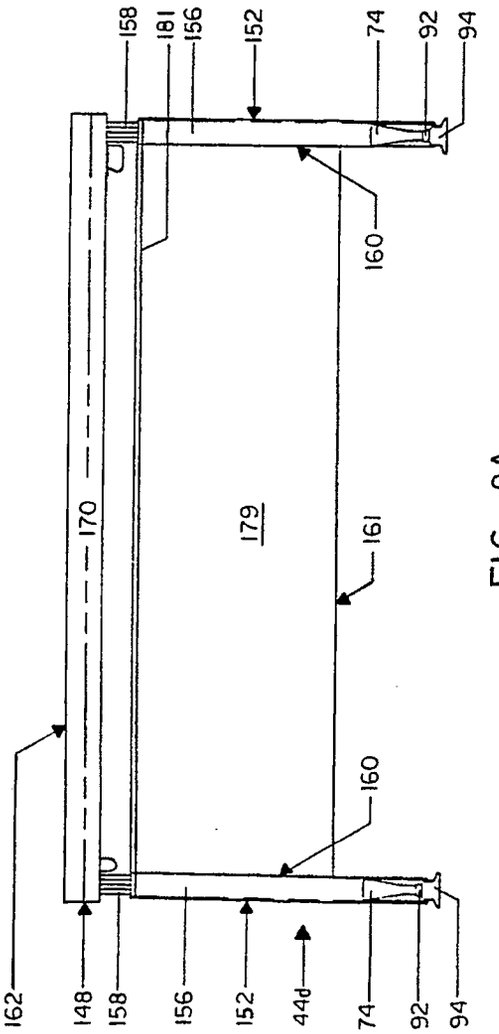


FIG. 8A

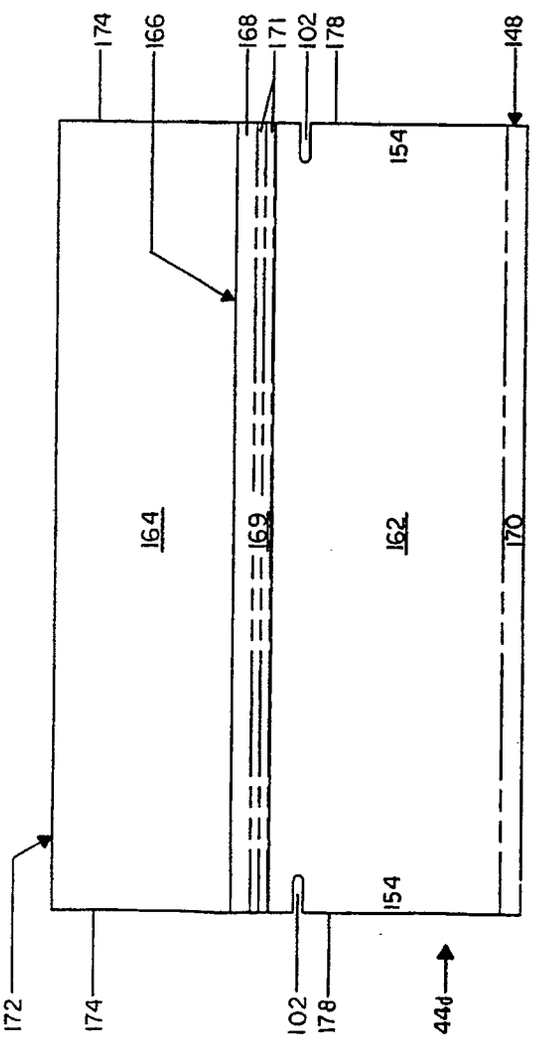
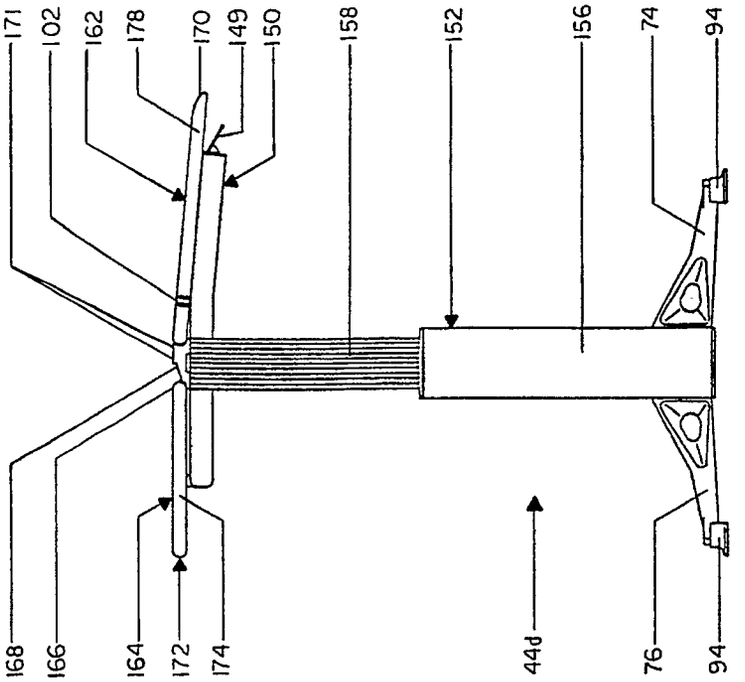


FIG. 8C


171
102
162
178
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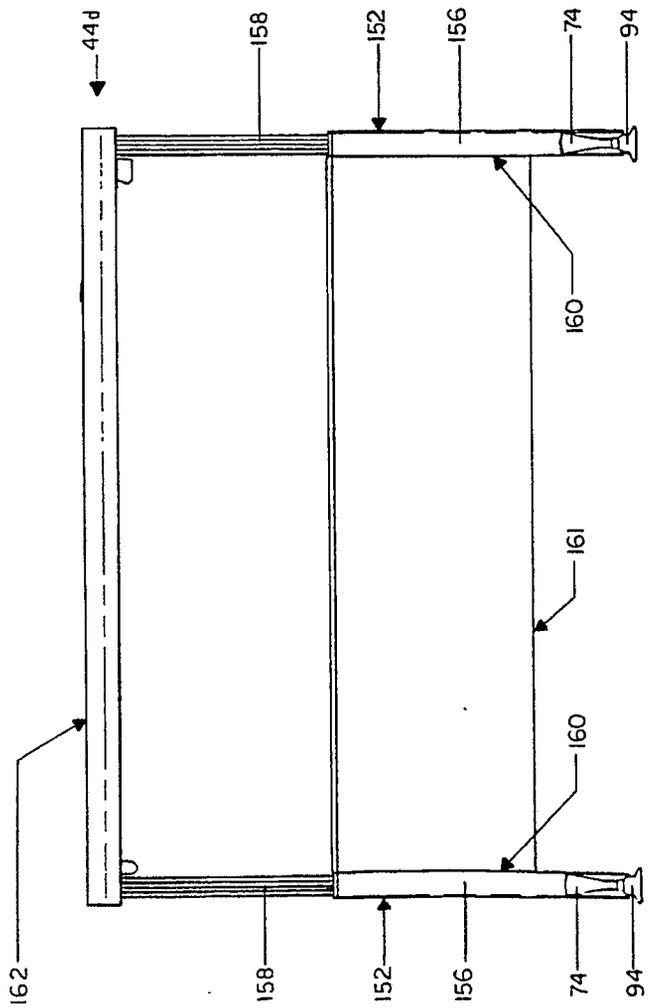
150
158
152
156
74
94
168
166
164
172
174
44d
76
94

FIG. 8E


44d
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158
152
156
74
94

FIG. 8D

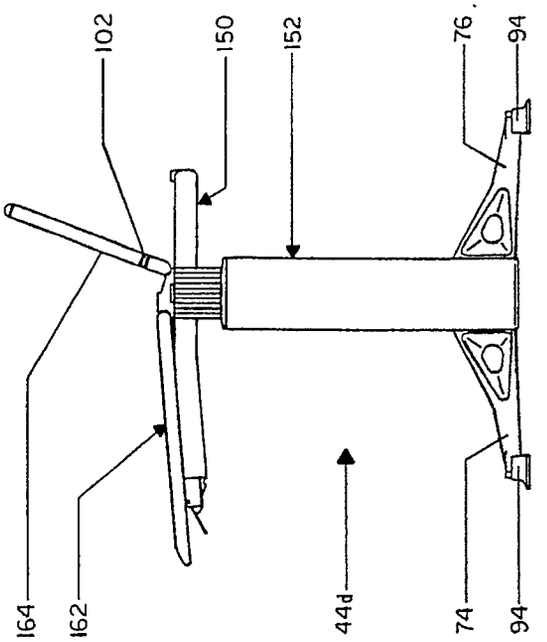

FIG. 8G

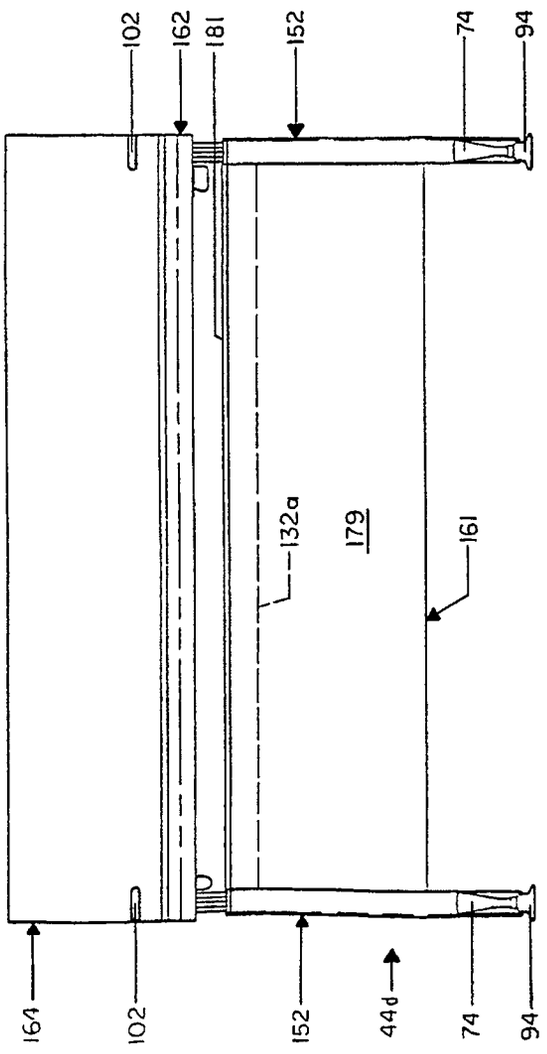

FIG. 8F

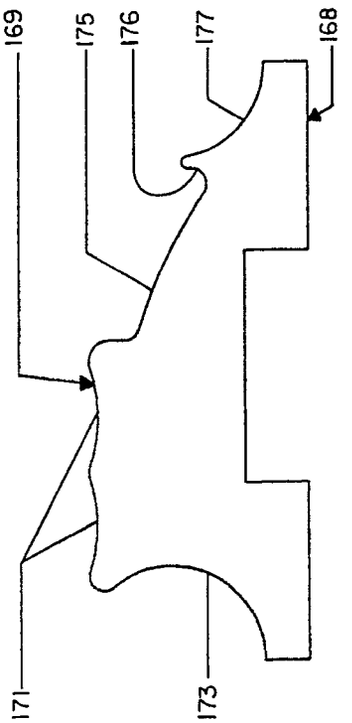

FIG. 8H

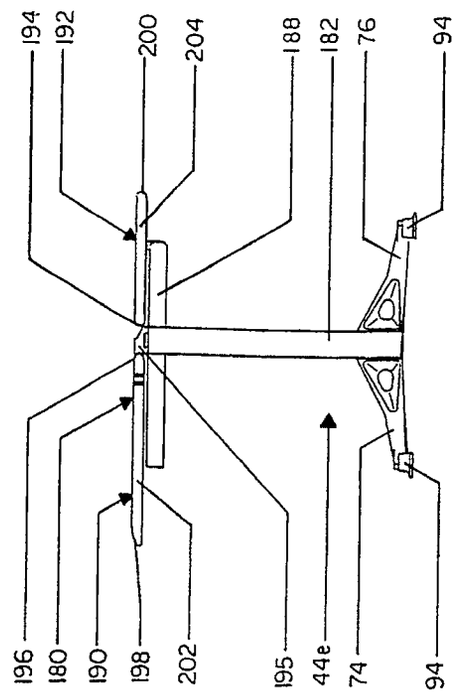

FIG. 9B

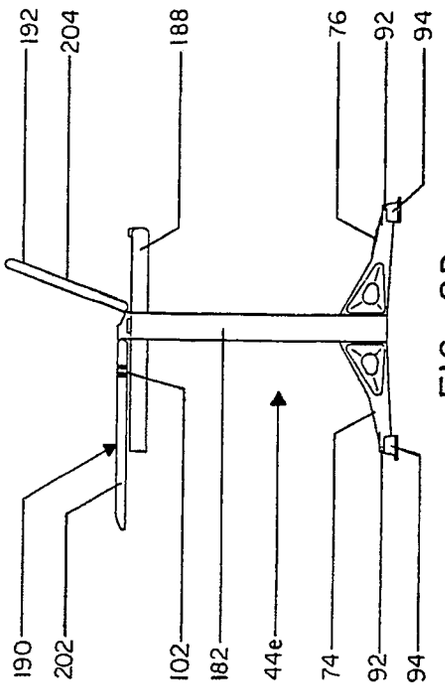

FIG. 9D

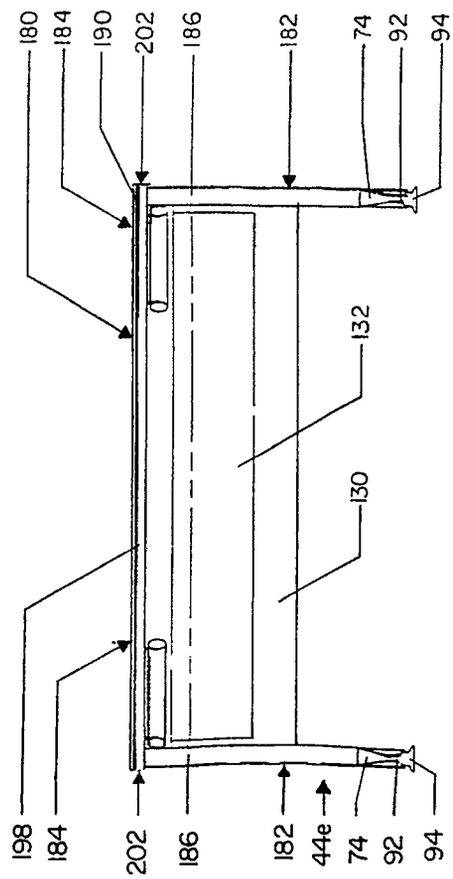

FIG. 9A

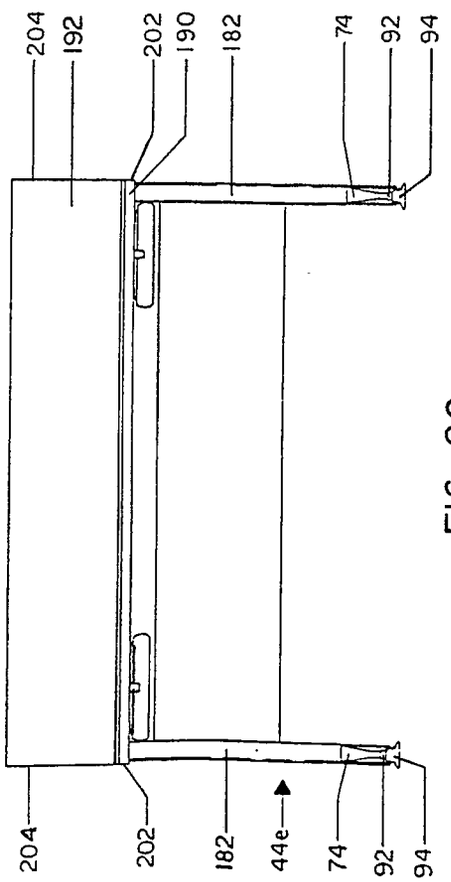

FIG. 9C

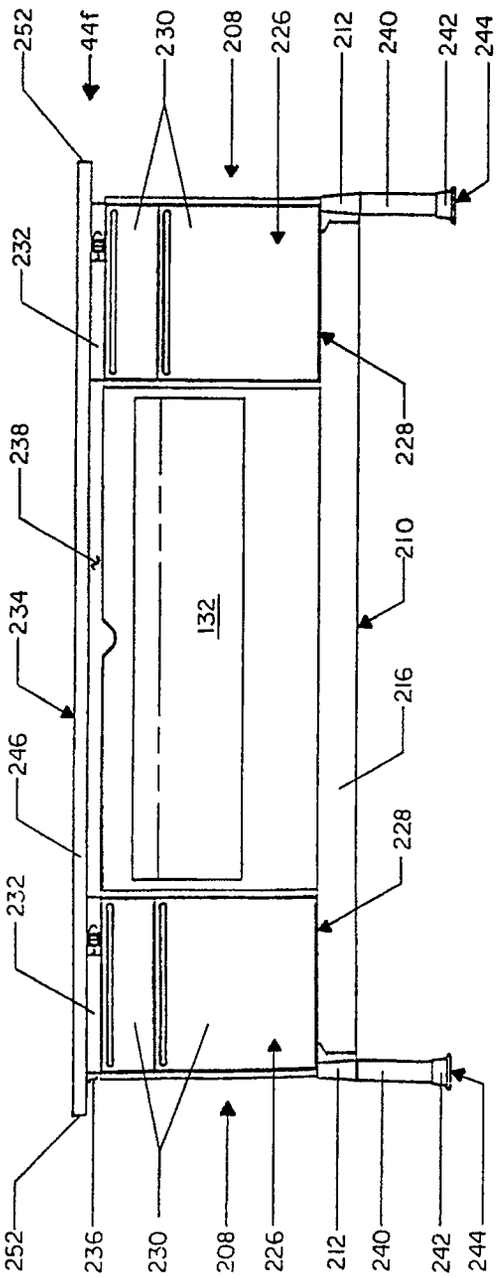

FIG. 10A

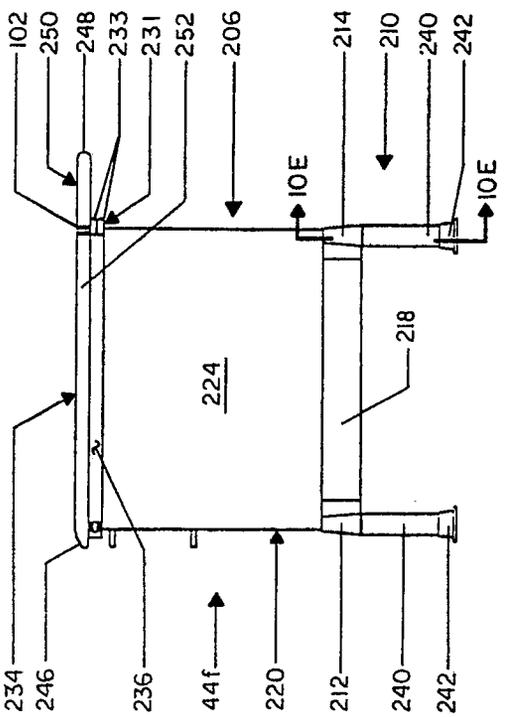

FIG. 10B

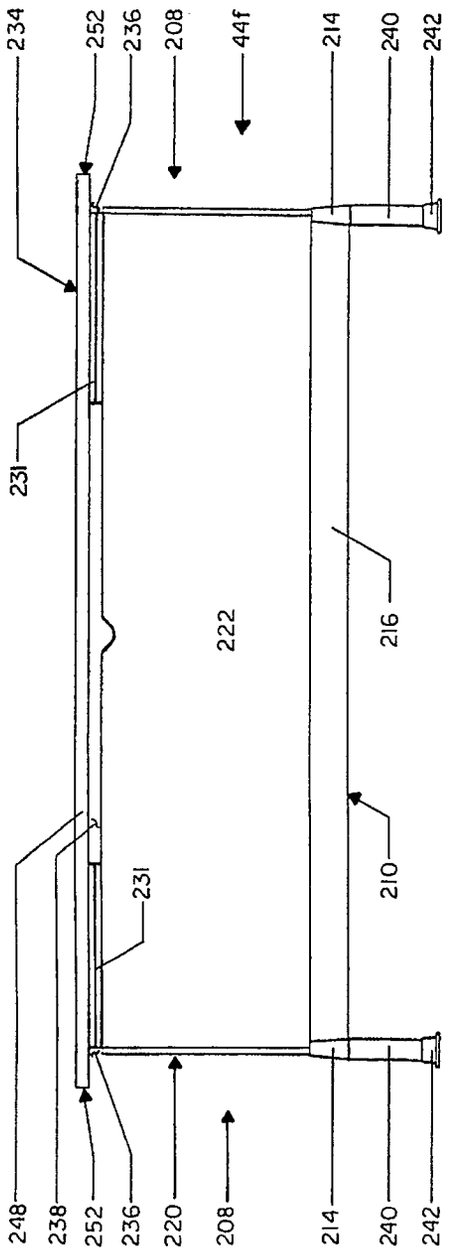

FIG. 10C

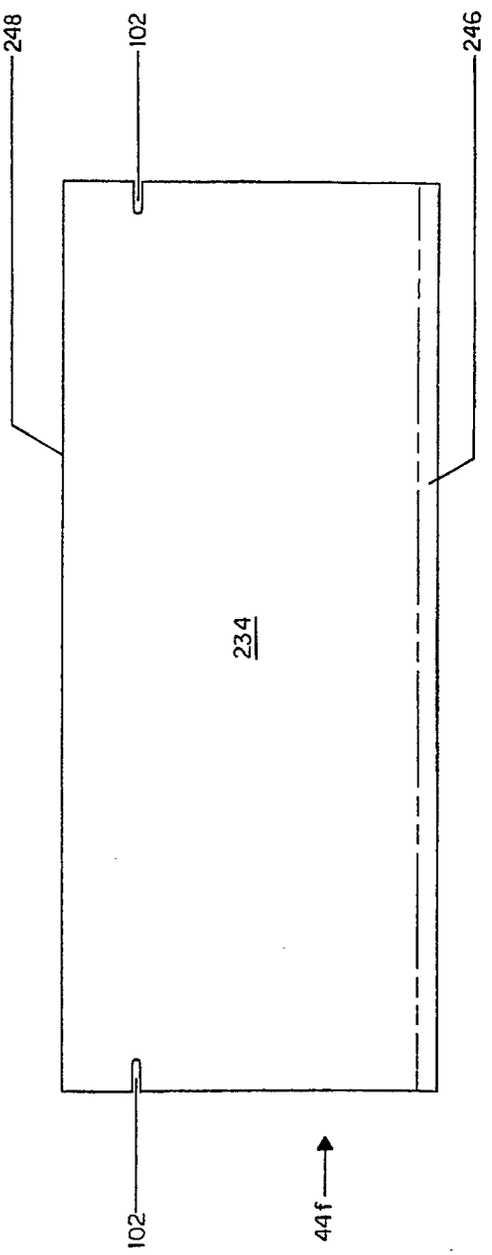

FIG. 10D

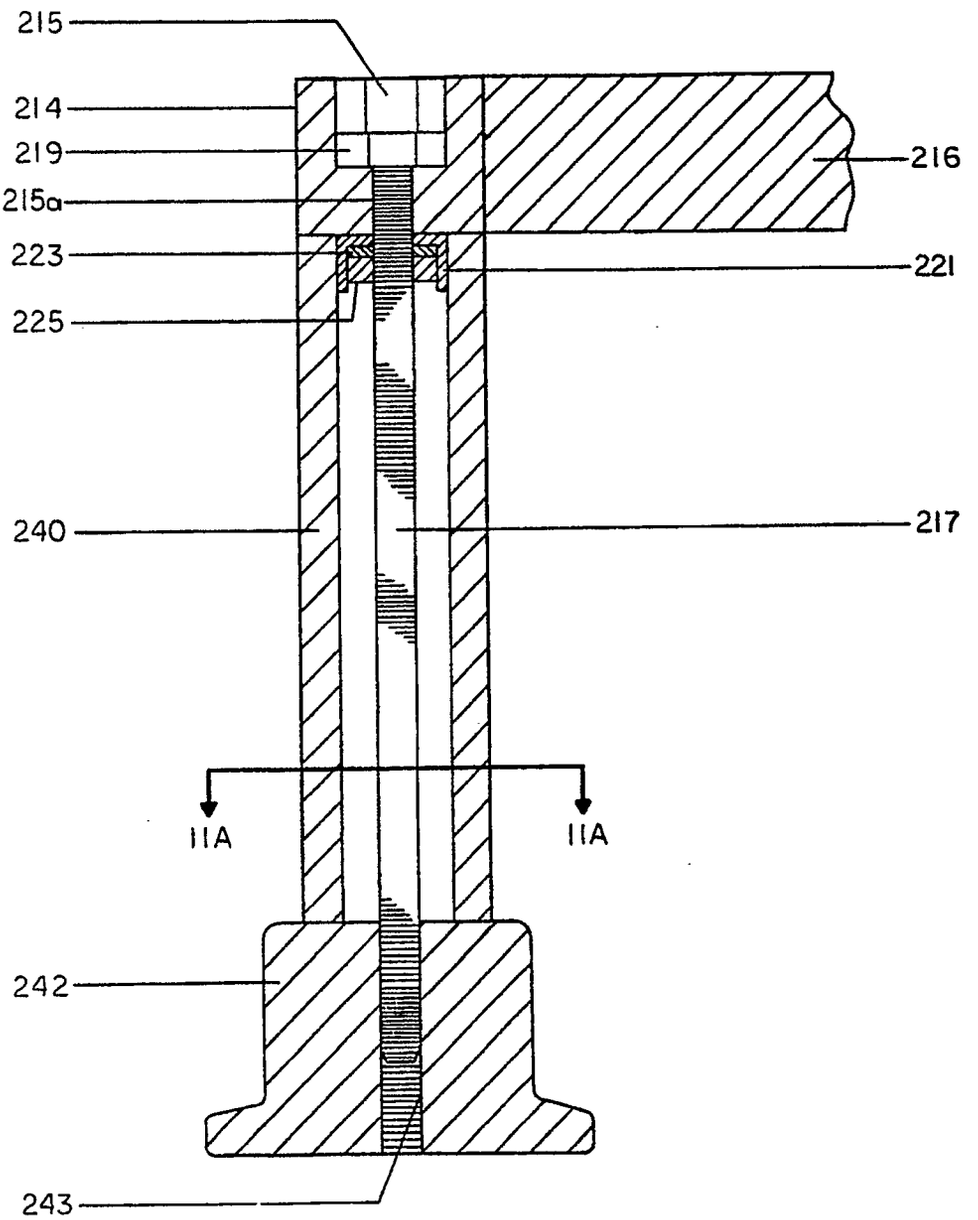

FIG. 10E

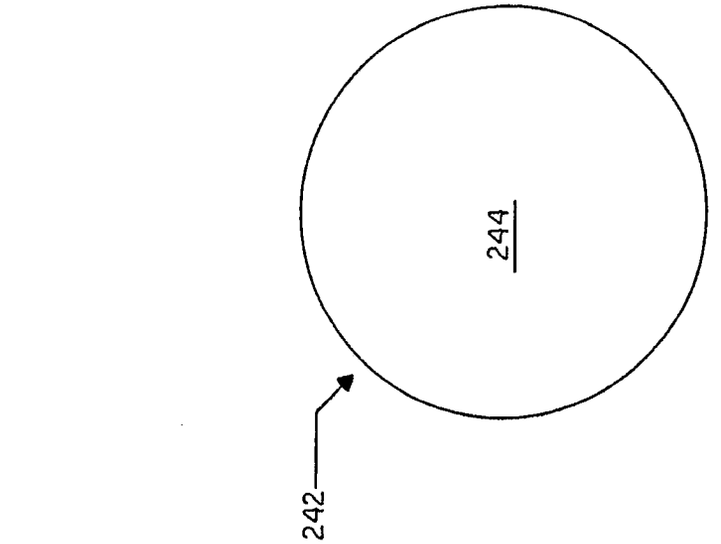

FIG. 11C

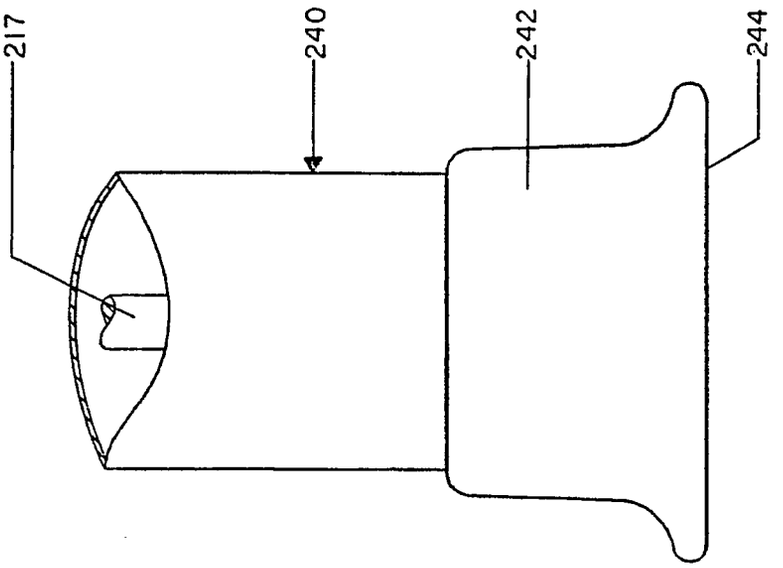

FIG. 11B

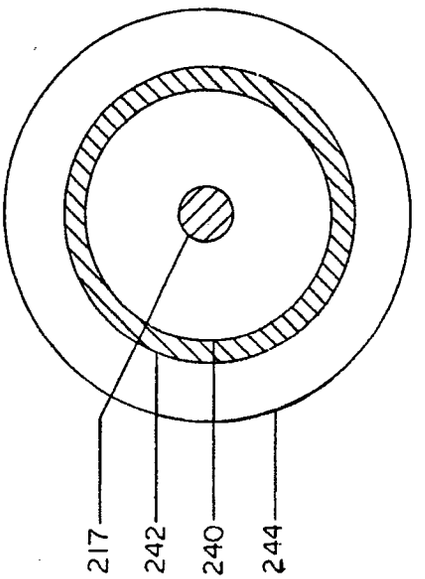

FIG. 11A

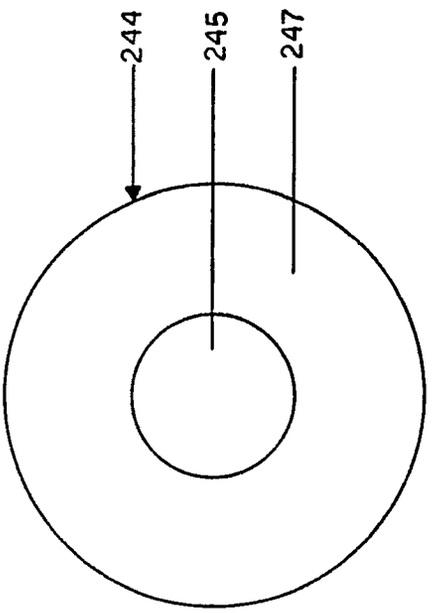

FIG. 11E

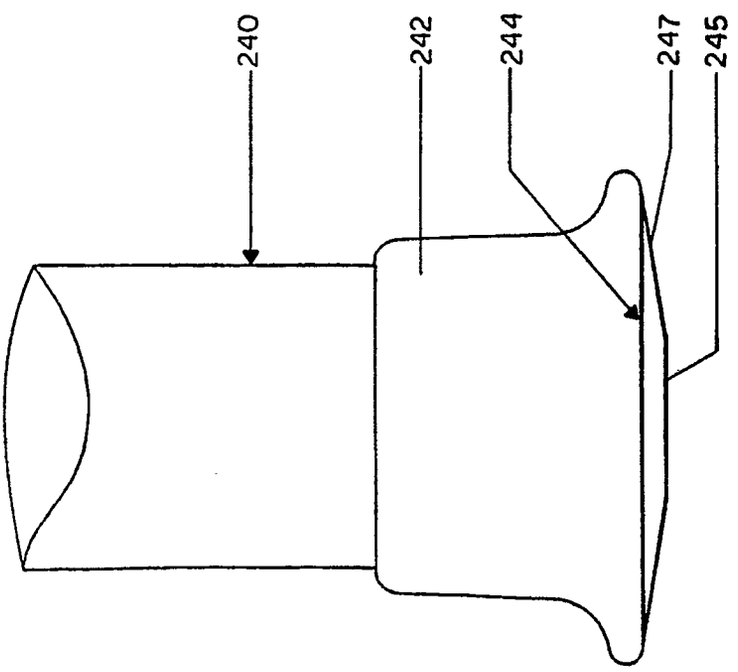

FIG. 11D

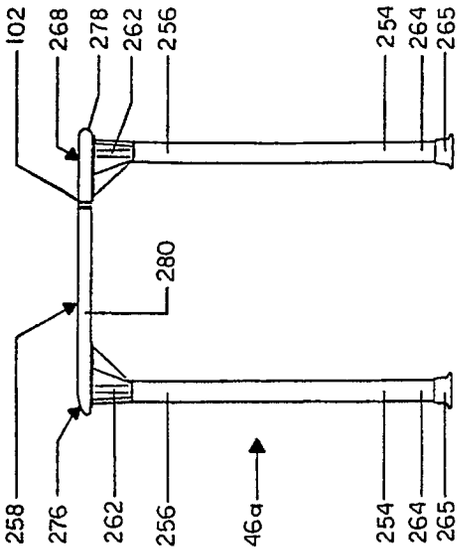

FIG. 12B

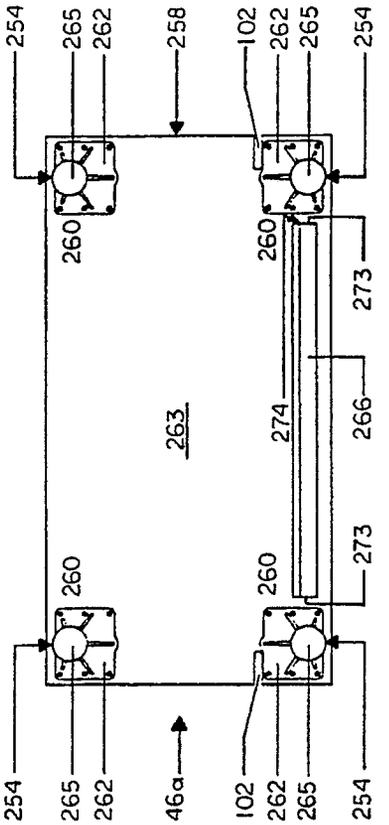

FIG. 12D

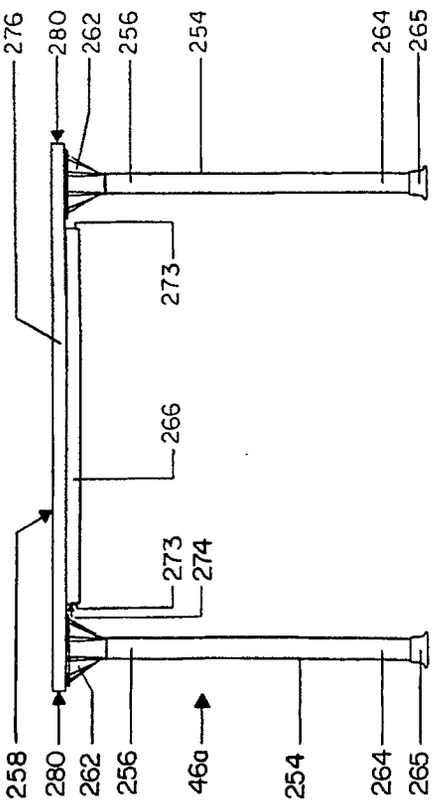

FIG. 12A

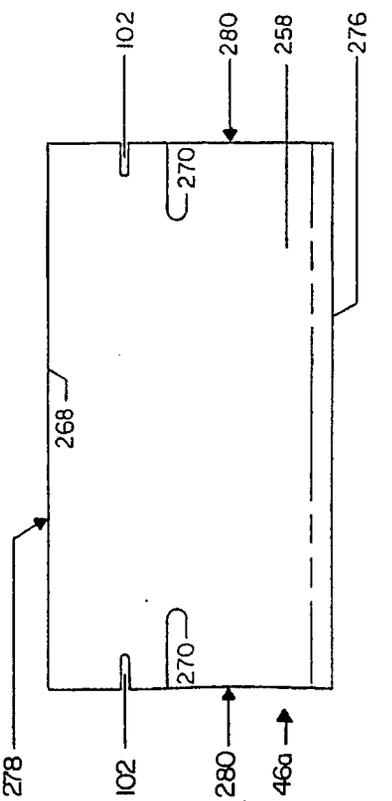

FIG. 12C

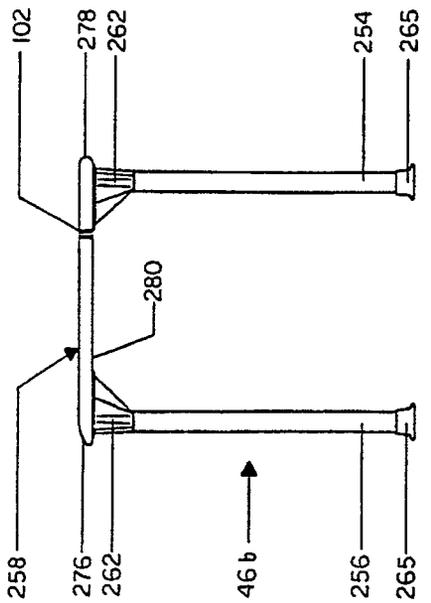

FIG. 13B

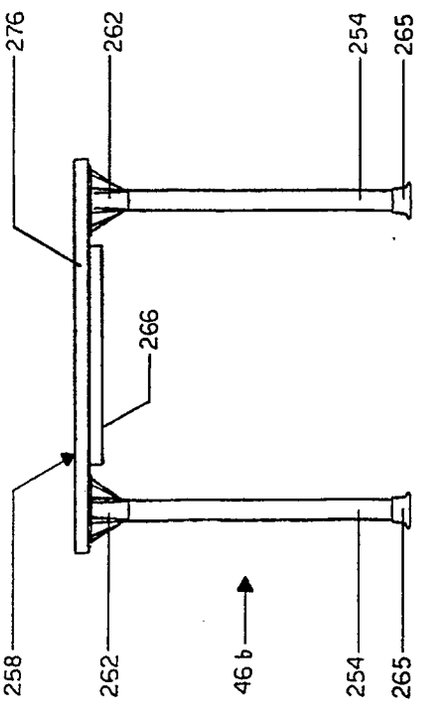

FIG. 13A

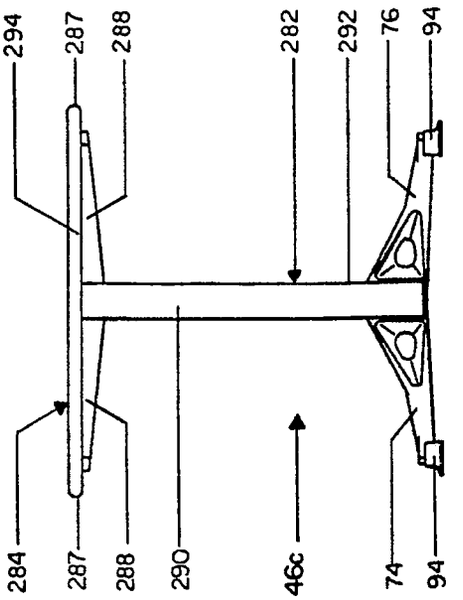

FIG. 14 B

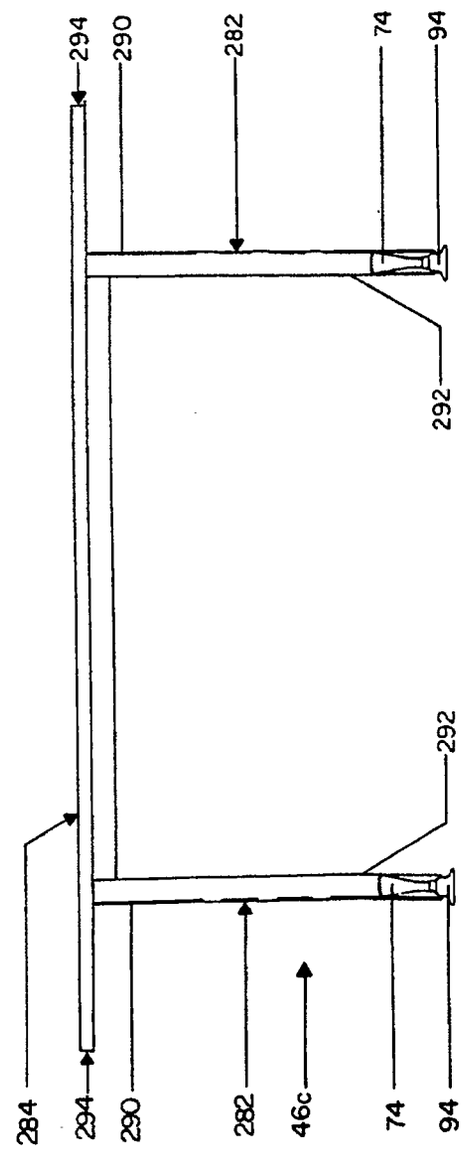

FIG. 14 A

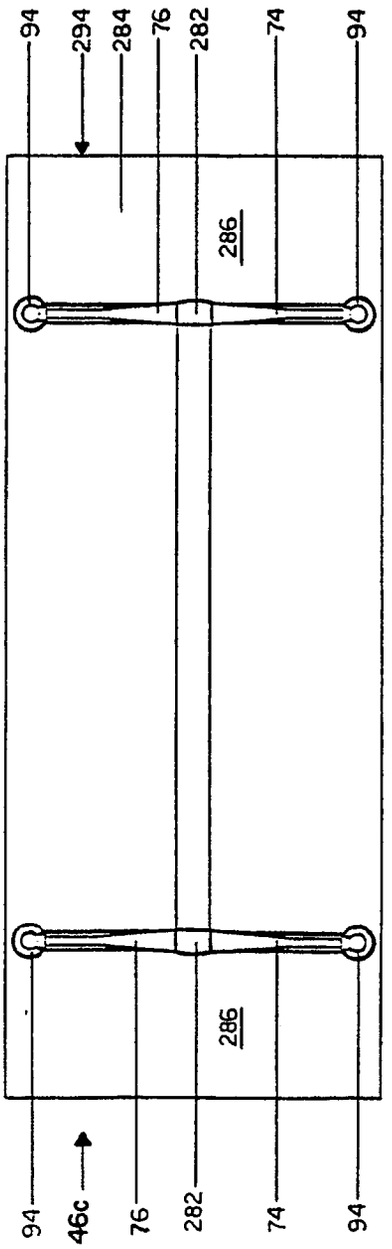

FIG. 14 C

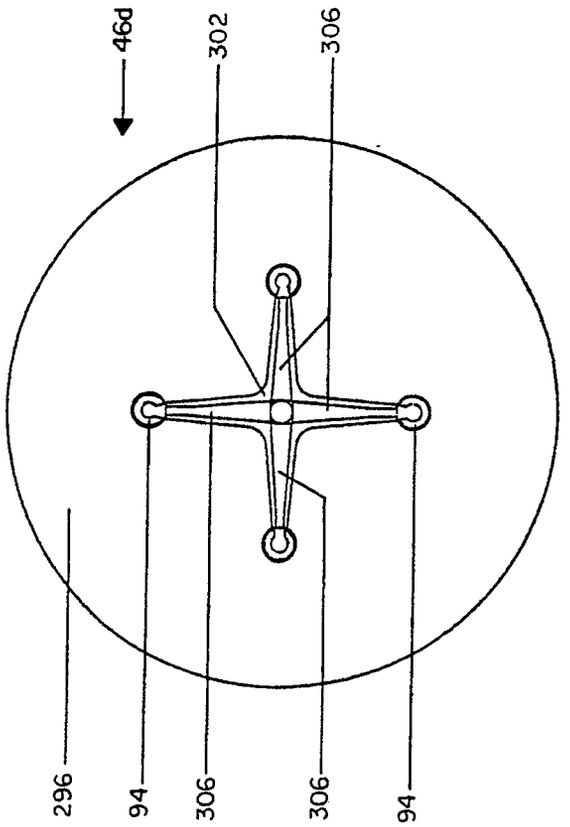

FIG. 15B

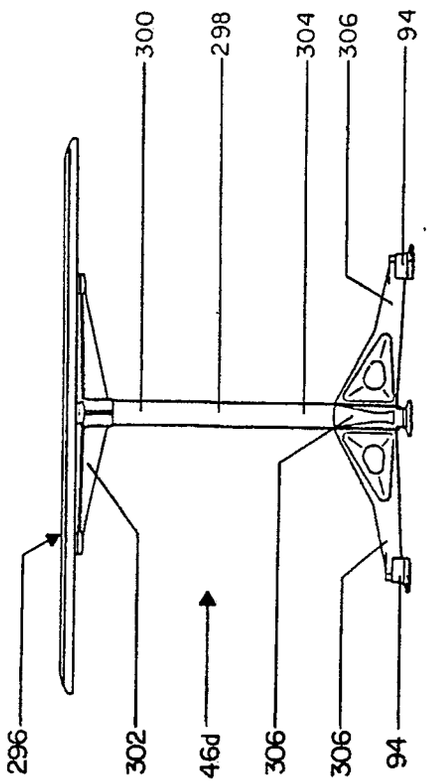

FIG. 15A

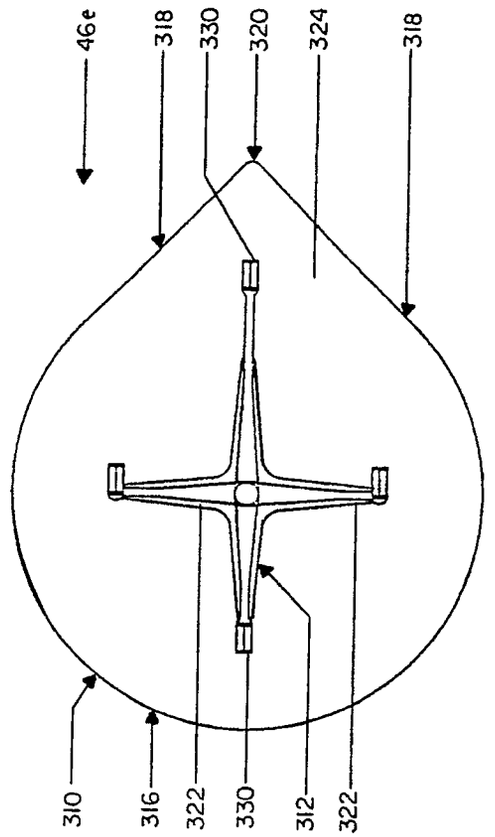

FIG. 16B

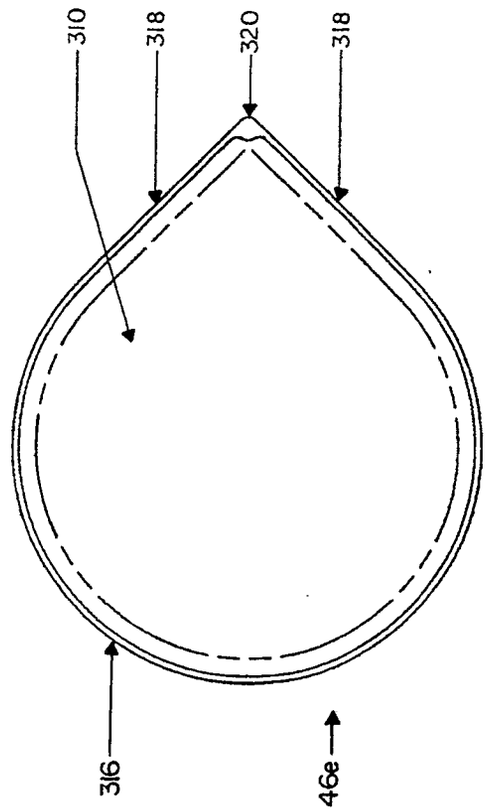

FIG. 16A

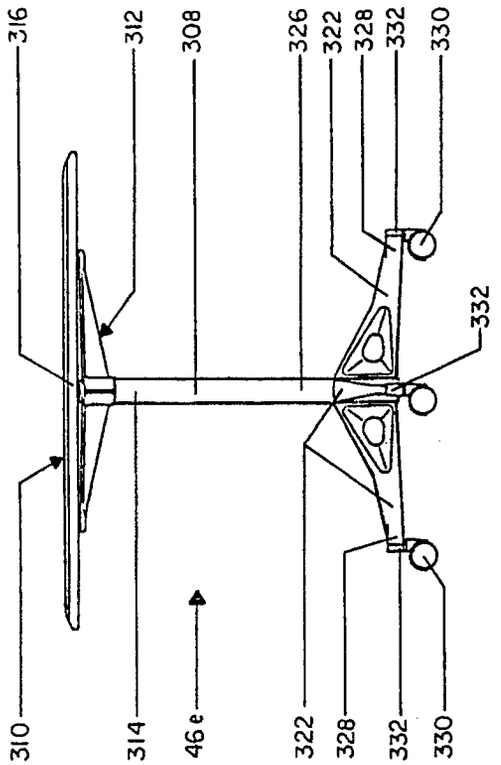

FIG. 16 D

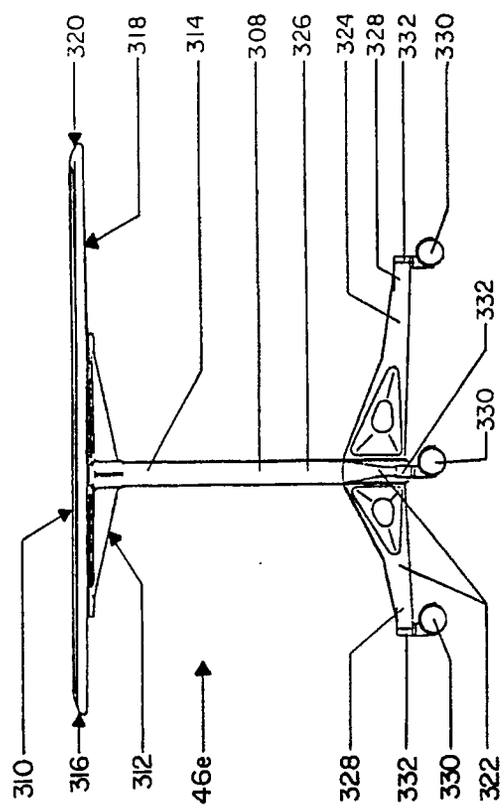

FIG. 16 C

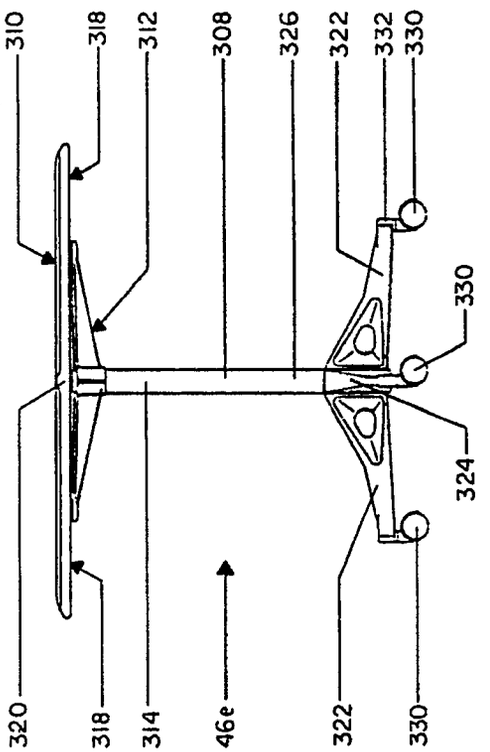

FIG. 16 E

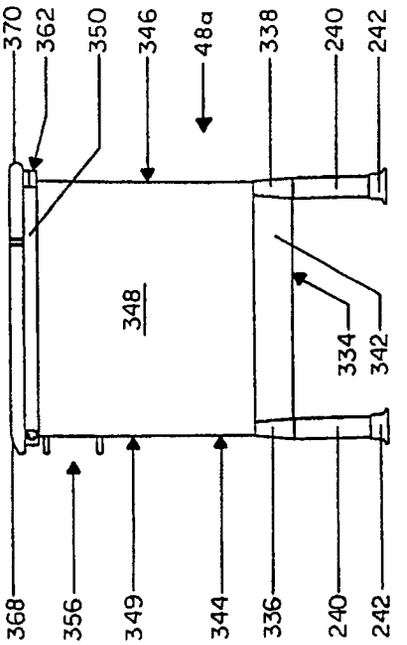

FIG. 17B

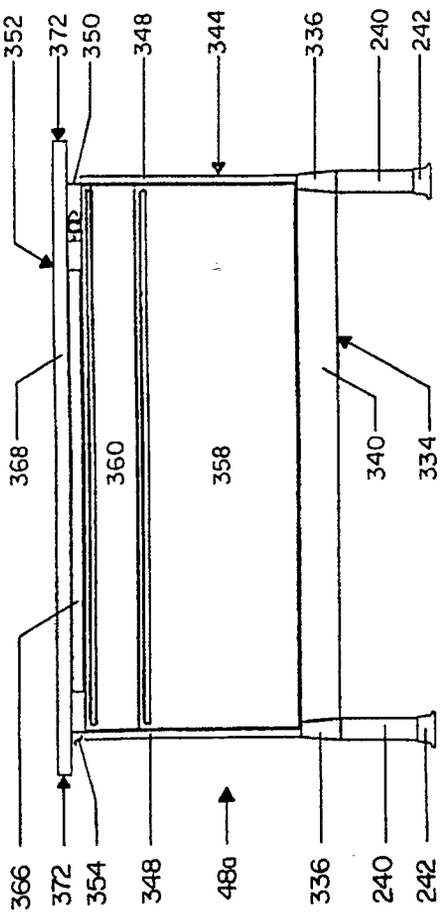

FIG. 17A

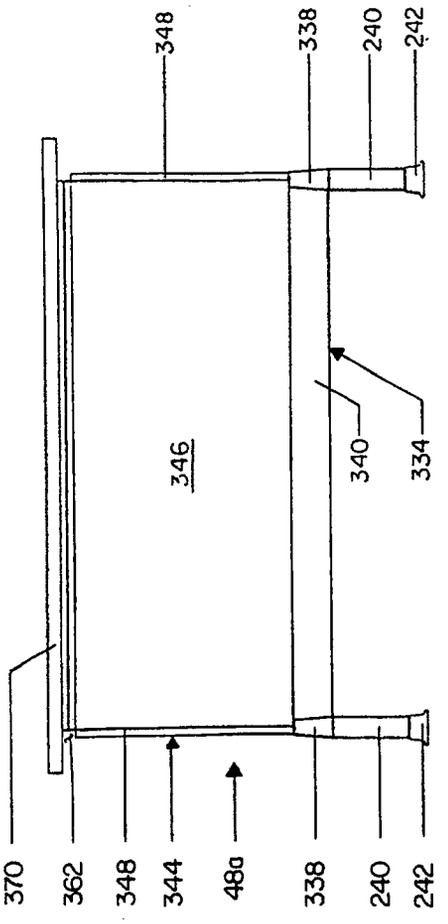

FIG. 17C

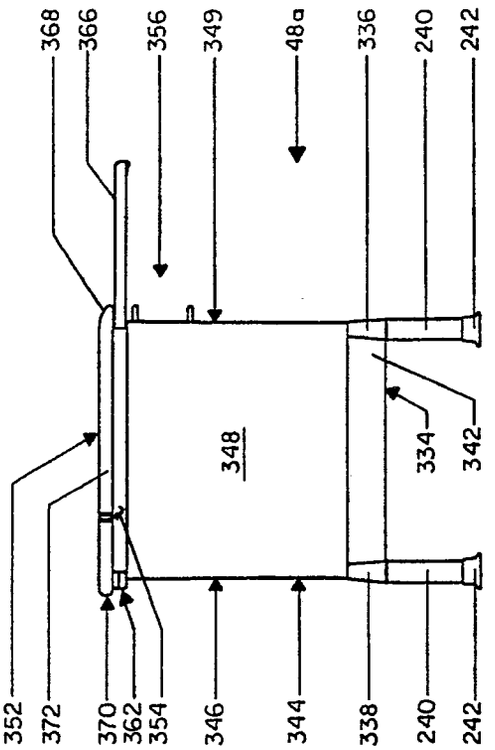

FIG. 17 E

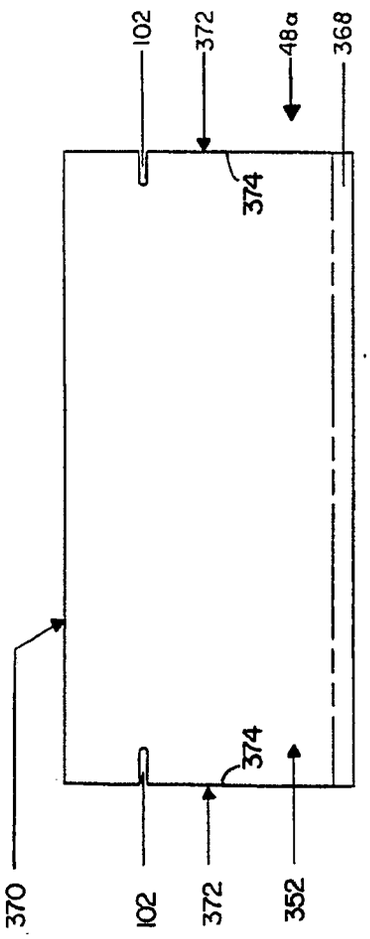

FIG. 17 D

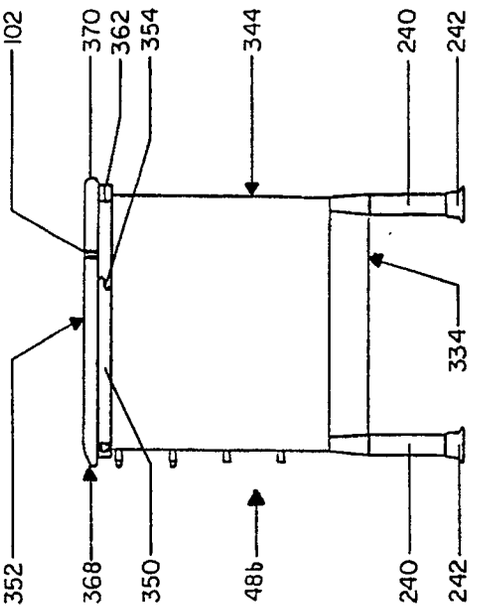

FIG. 18B

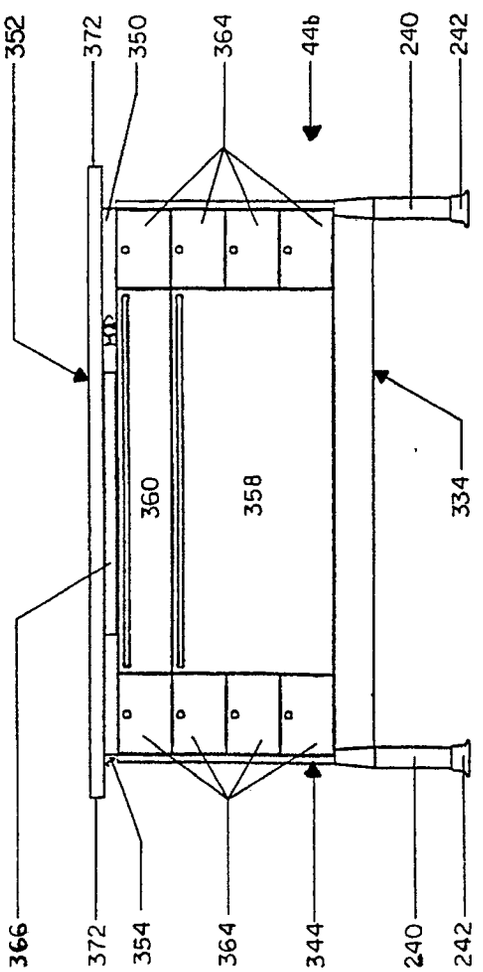

FIG. 18A

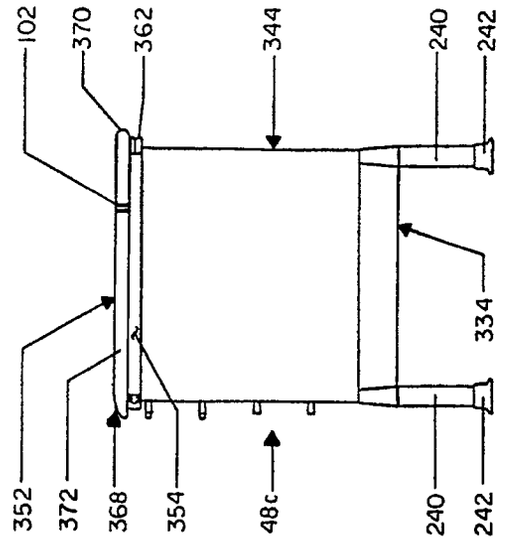

FIG 19B

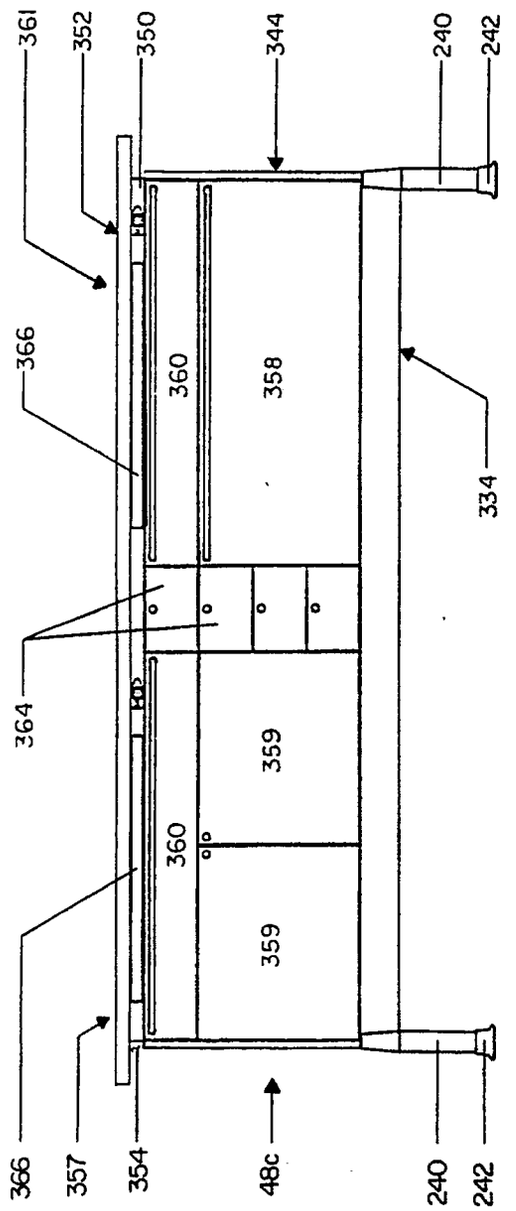

FIG 19A

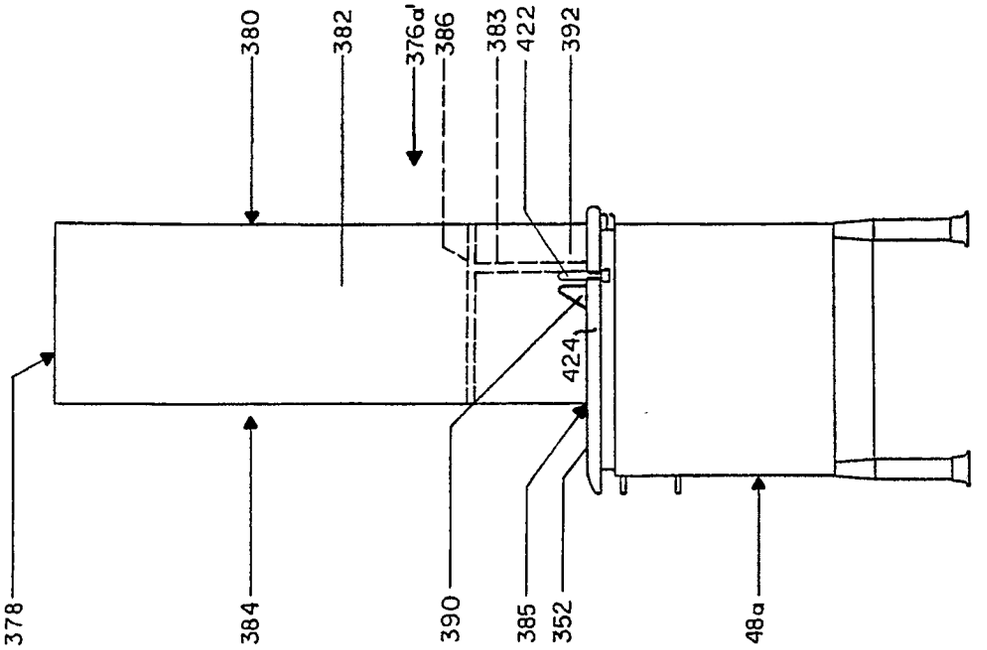

FIG. 20B

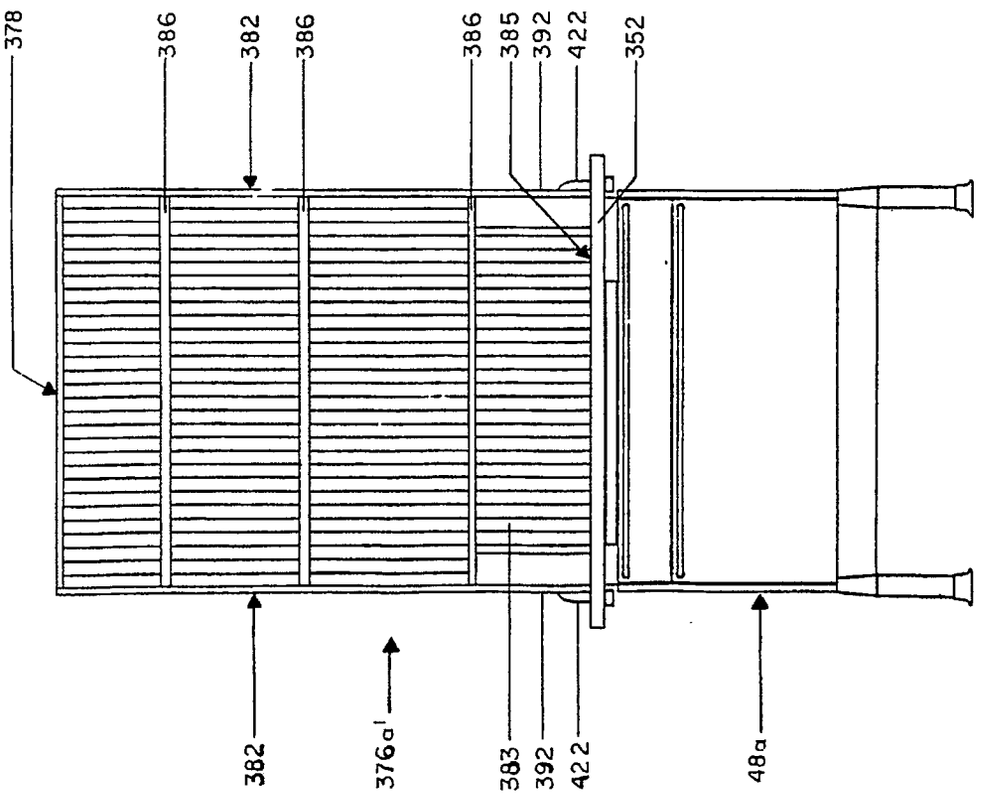

FIG. 20A

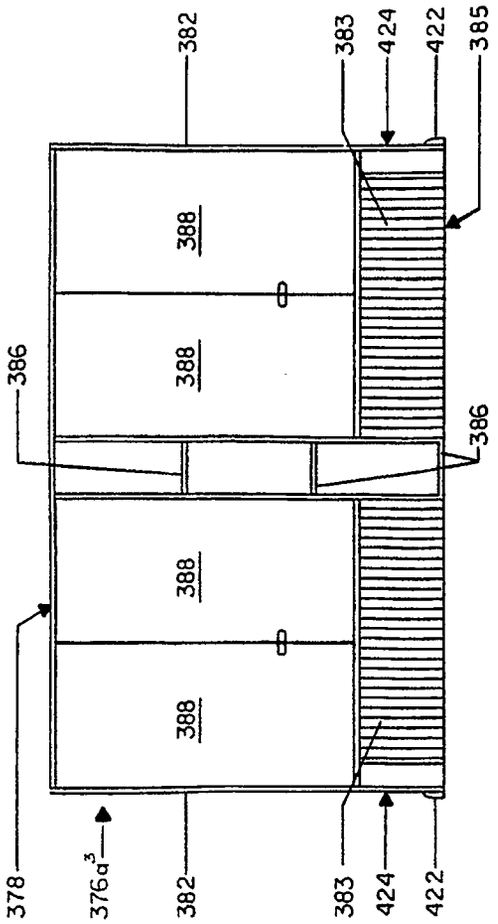

FIG. 20 D

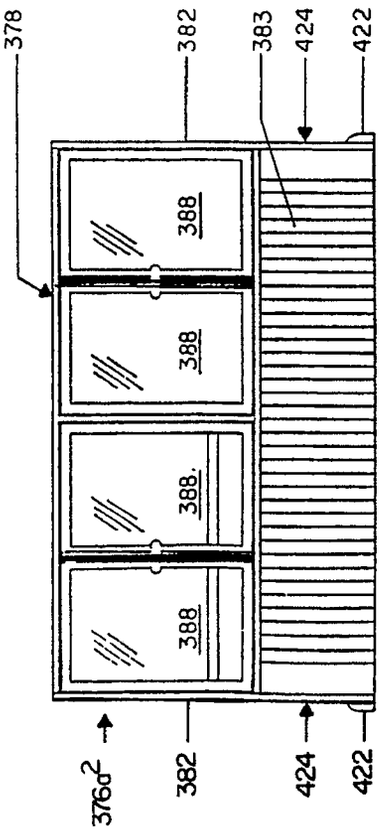

FIG. 20 C

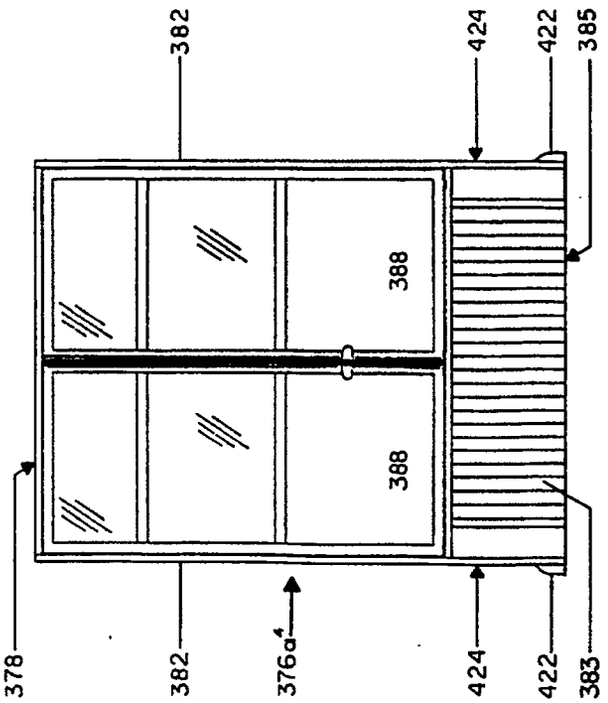

FIG. 20 E

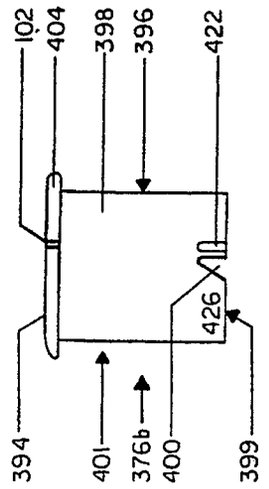

FIG. 21B

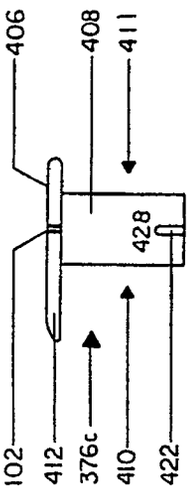

FIG. 22B

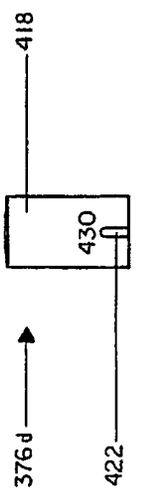

FIG. 23B

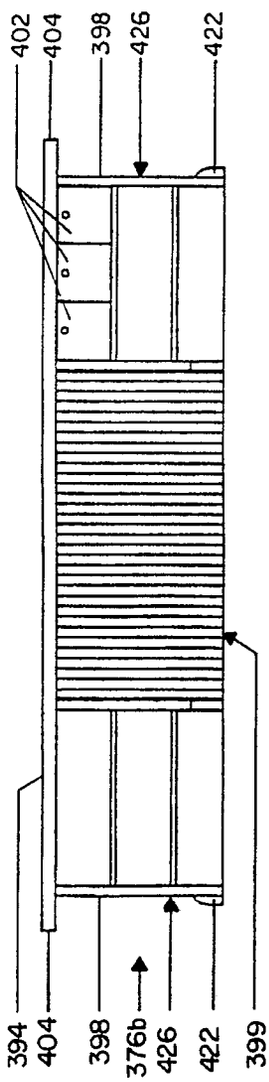

FIG. 21A

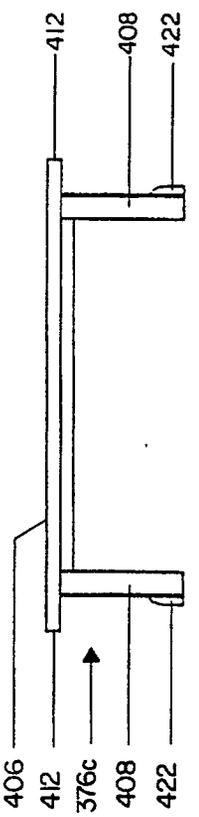

FIG. 22A

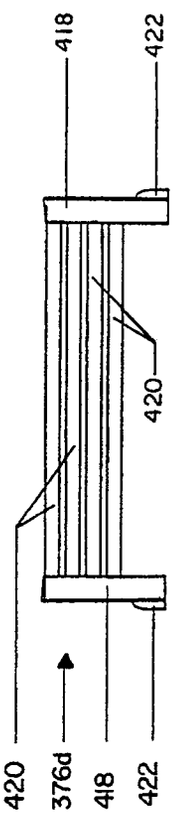

FIG. 23A

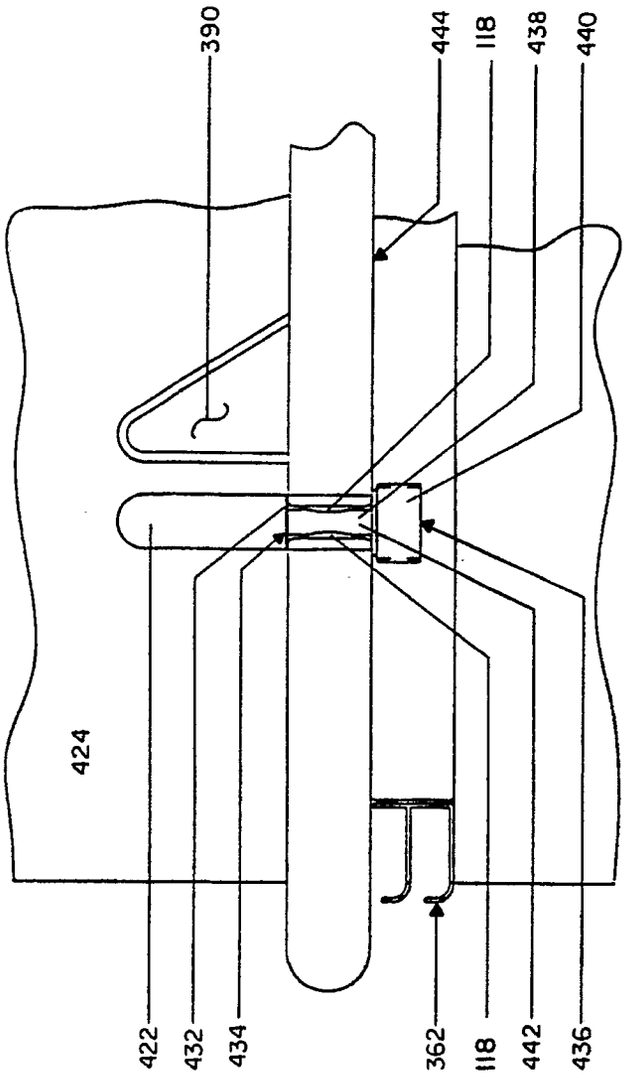

FIG. 24 B

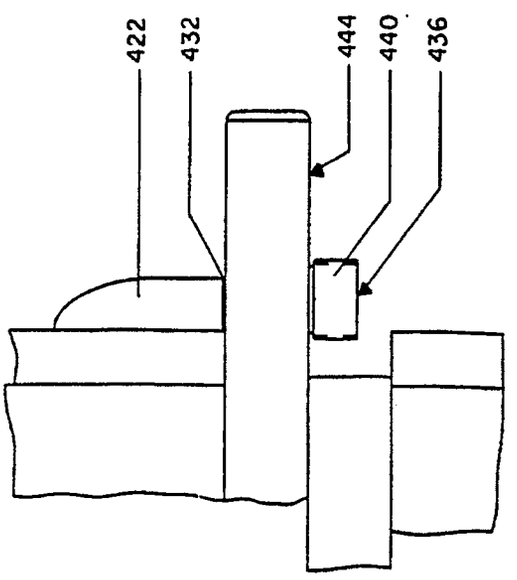

FIG. 24 A

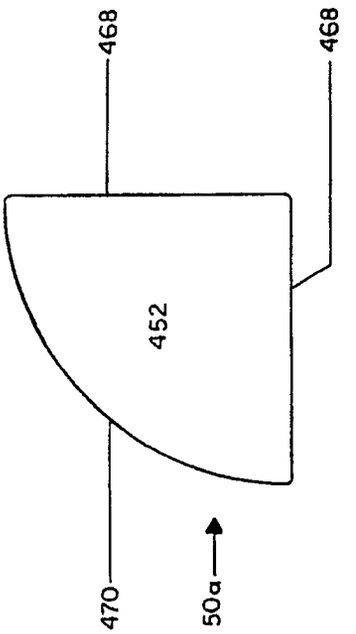

FIG. 25 B

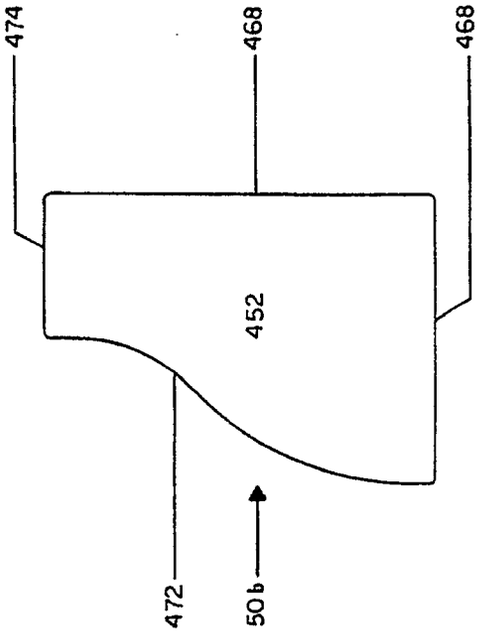

FIG. 26 B

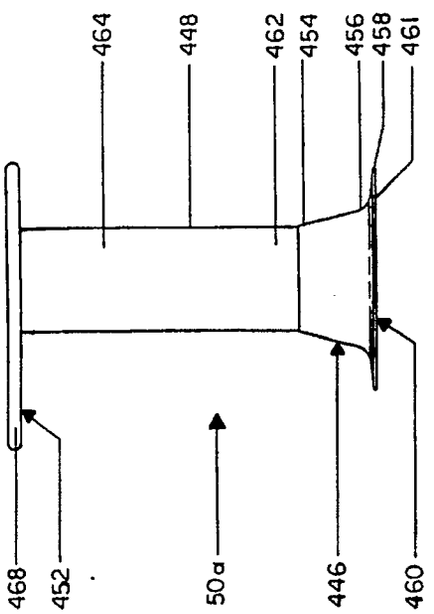

FIG. 25 A

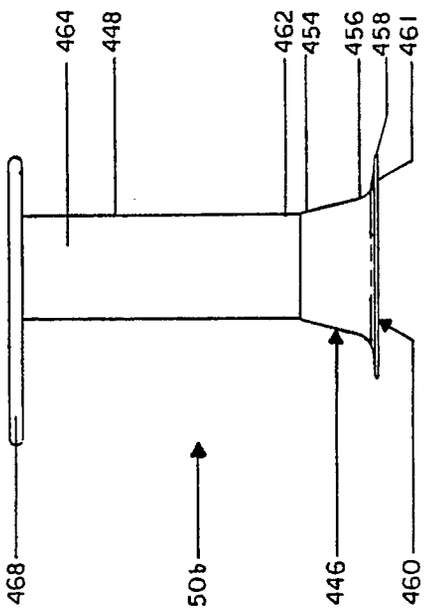

FIG. 26 A

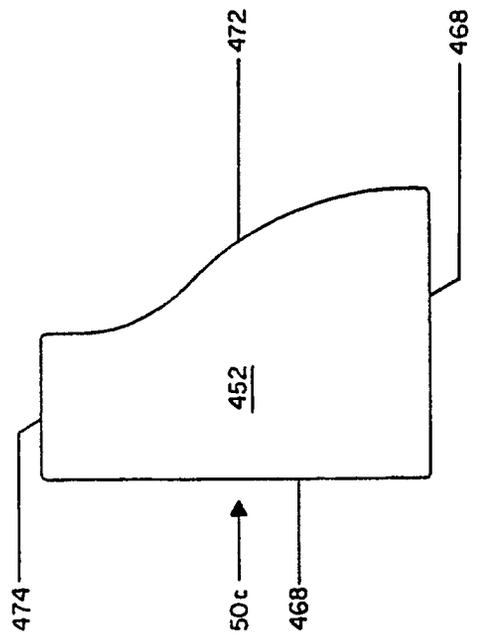

FIG. 27B

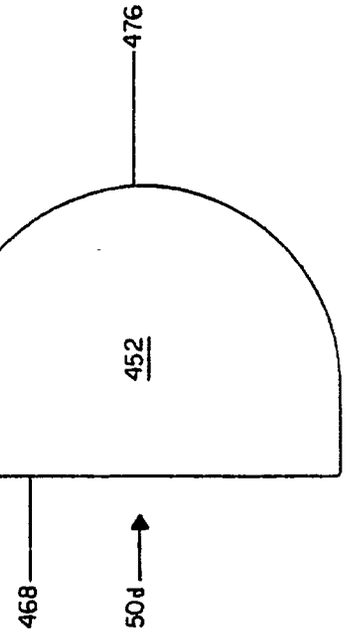

FIG. 28B

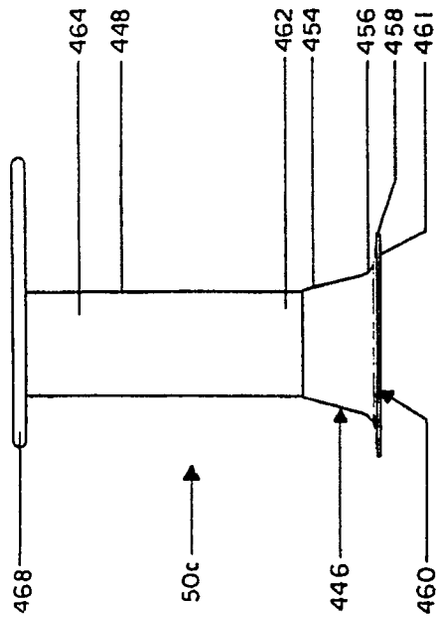

FIG. 27A

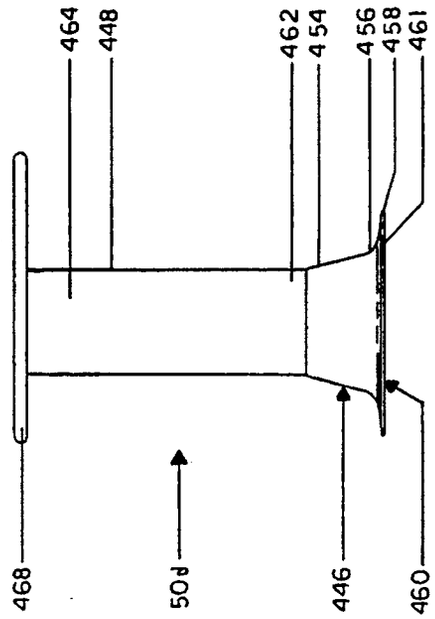

FIG. 28A

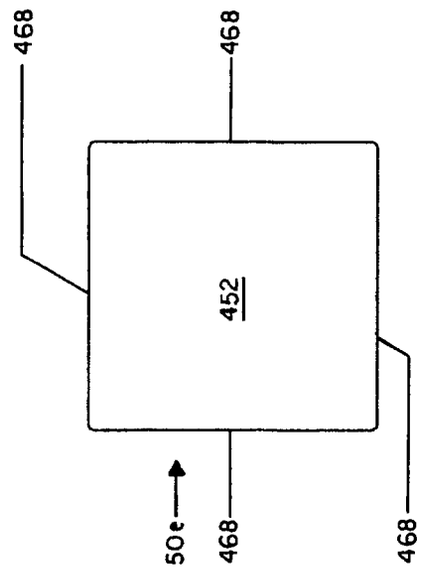

FIG. 29 B

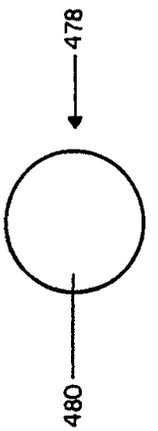

FIG. 30B

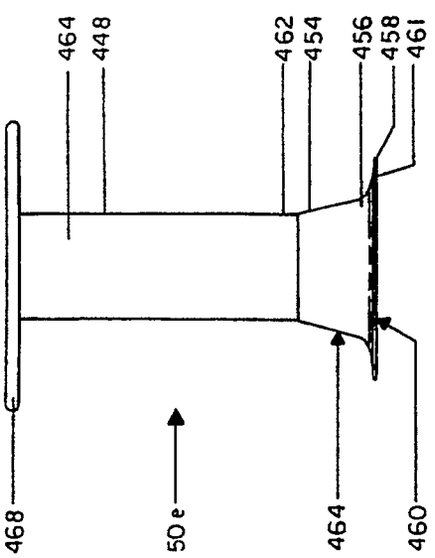

FIG. 29 A

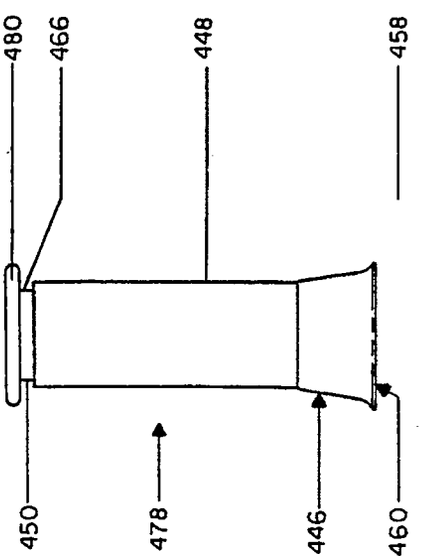

FIG. 30A

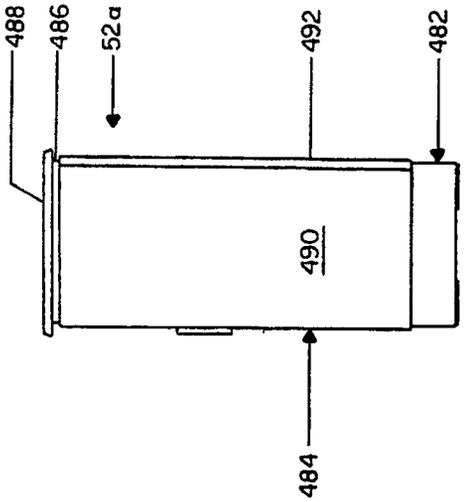

FIG. 31B

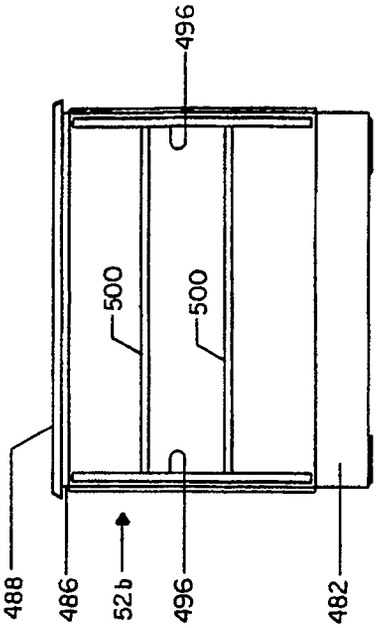

FIG. 31E

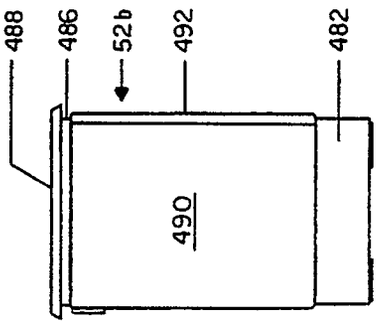

FIG. 31D

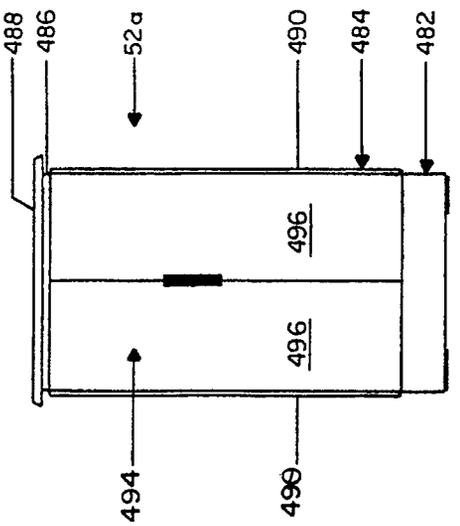

FIG. 31A

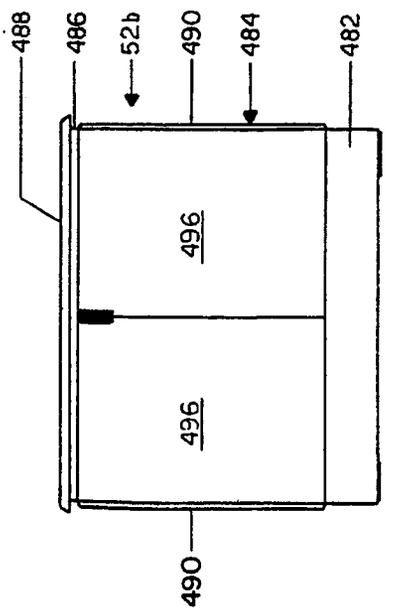

FIG. 31C

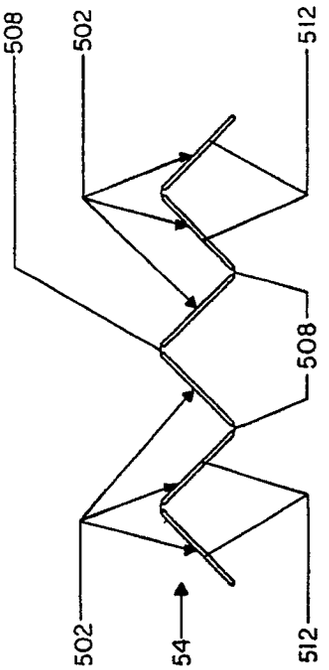

FIG. 32B

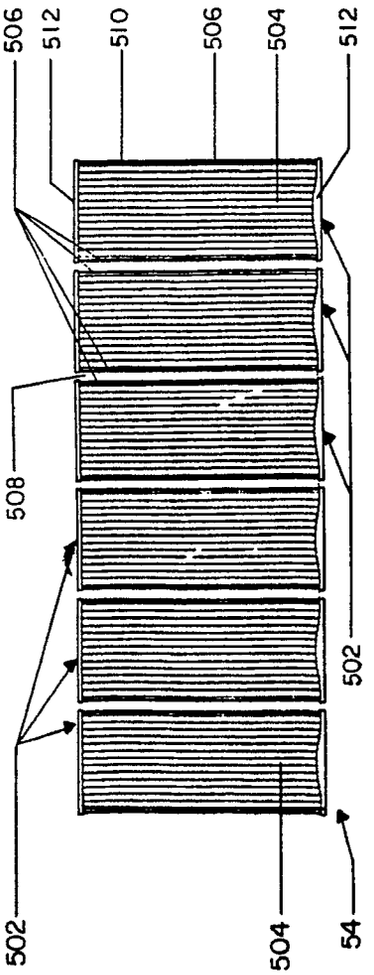

FIG. 32A

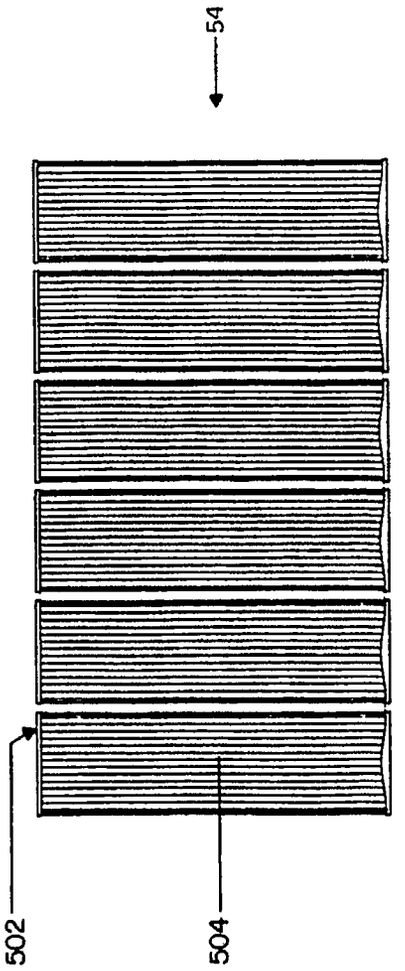

FIG. 32C

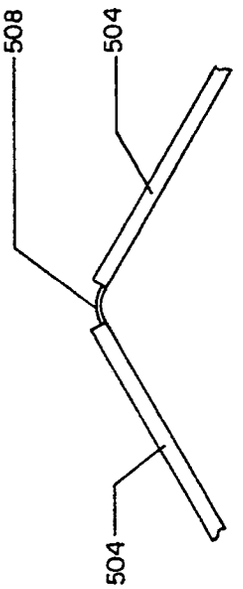

FIG. 32E

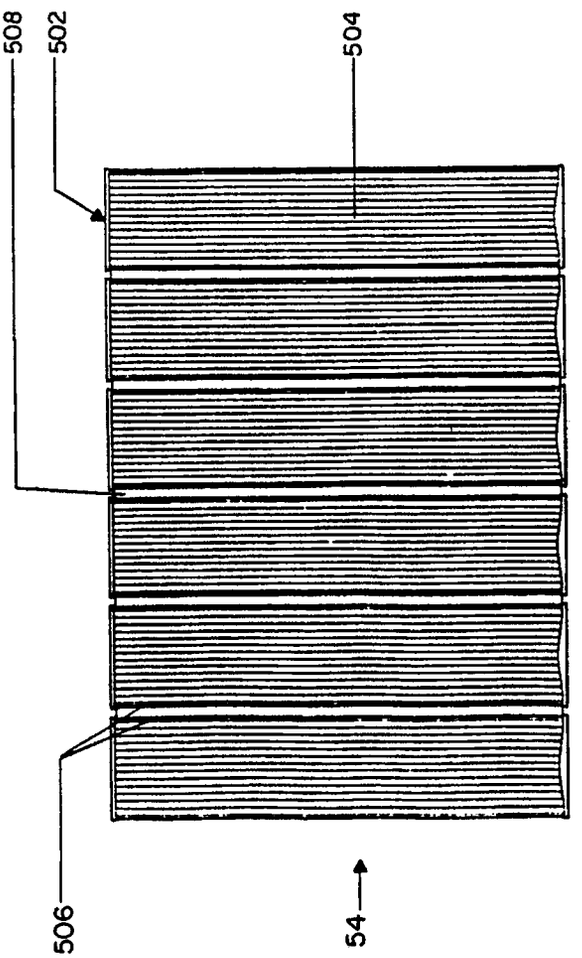

FIG. 32D

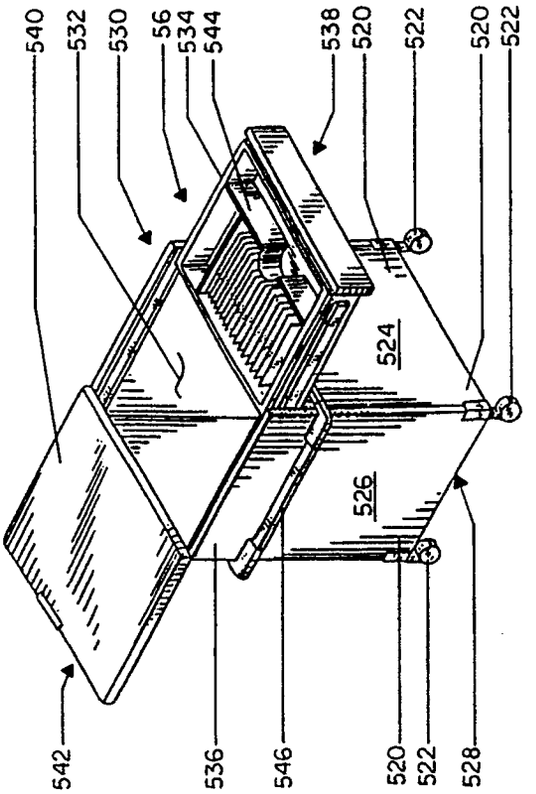

FIG. 33 B

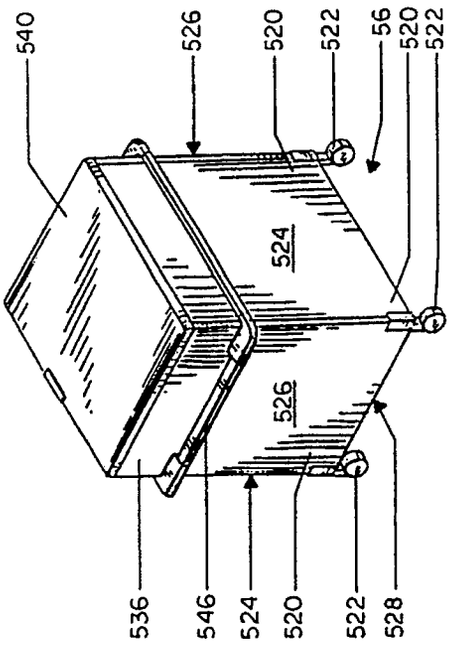

FIG. 33A

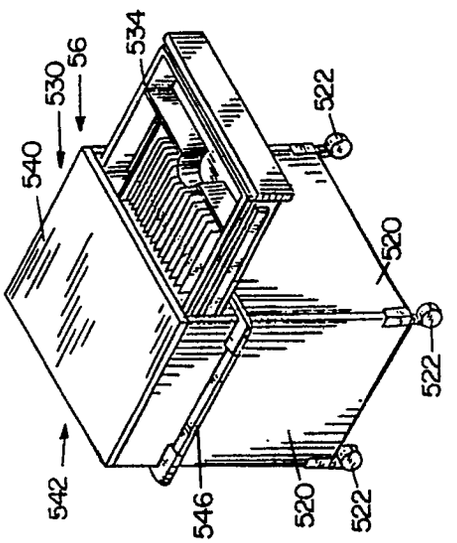

FIG. 33 C

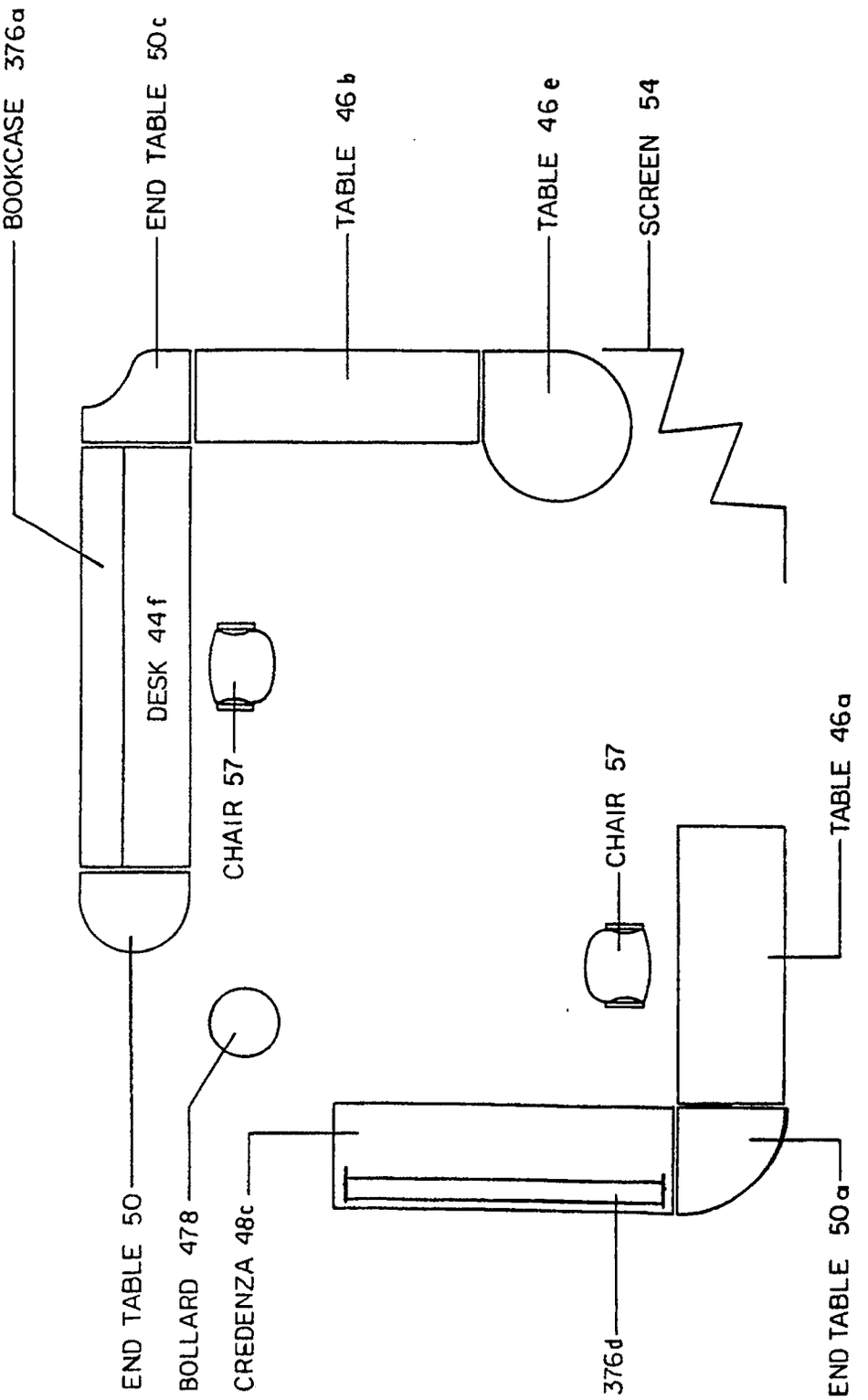
BOOKCASE 376a
END TABLE 50c
TABLE 46b
TABLE 46e
SCREEN 54
DESK 44f
CHAIR 57
CHAIR 57
TABLE 46a
END TABLE 50
BOLLARD 478
CREDENZA 48c
376d
END TABLE 50a

FIG. 34A

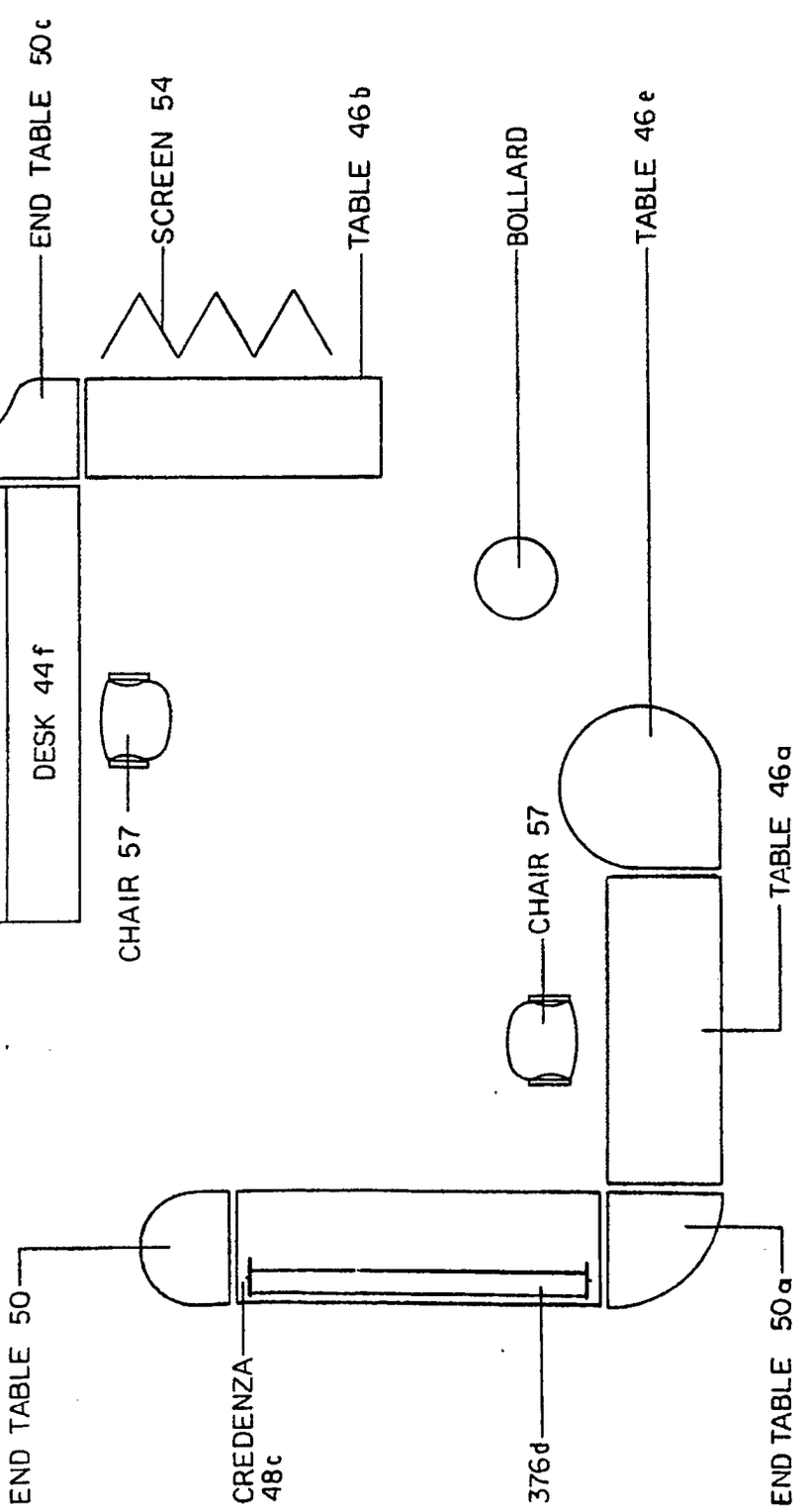
BOOKCASE 376a
END TABLE 50c
SCREEN 54
TABLE 46b
BOLLARD
TABLE 46e
DESK 44f
CHAIR 57
CHAIR 57
TABLE 46a
END TABLE 50
CREDENZA 48c
376d
END TABLE 50a

FIG. 34B

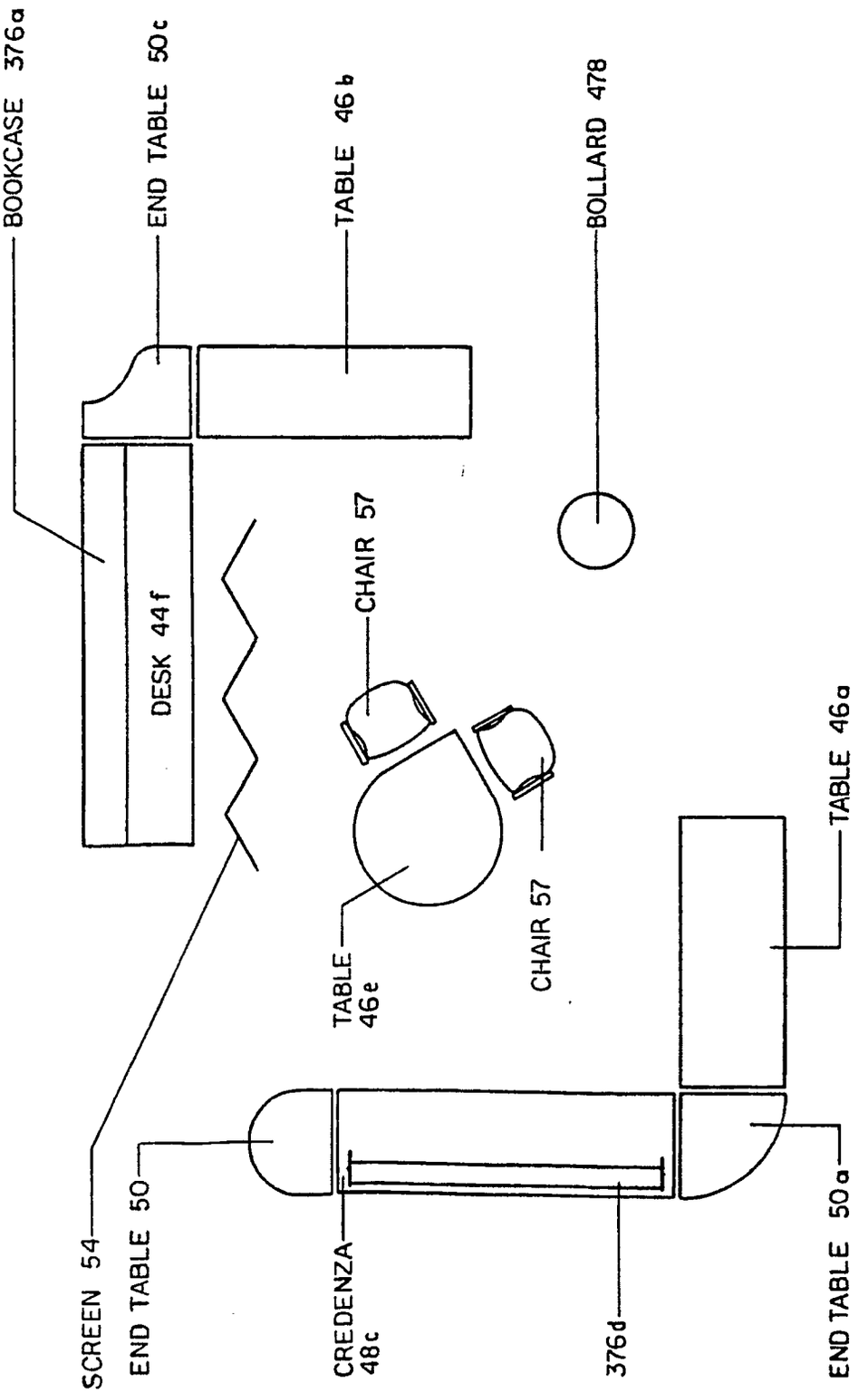
BOOKCASE 376a
END TABLE 50c
TABLE 46b
BOLLARD 478
DESK 44f
CHAIR 57
SCREEN 54
END TABLE 50
TABLE 46e
CHAIR 57
TABLE 46a
CREDENZA 48c
376d
END TABLE 50a

FIG. 34C

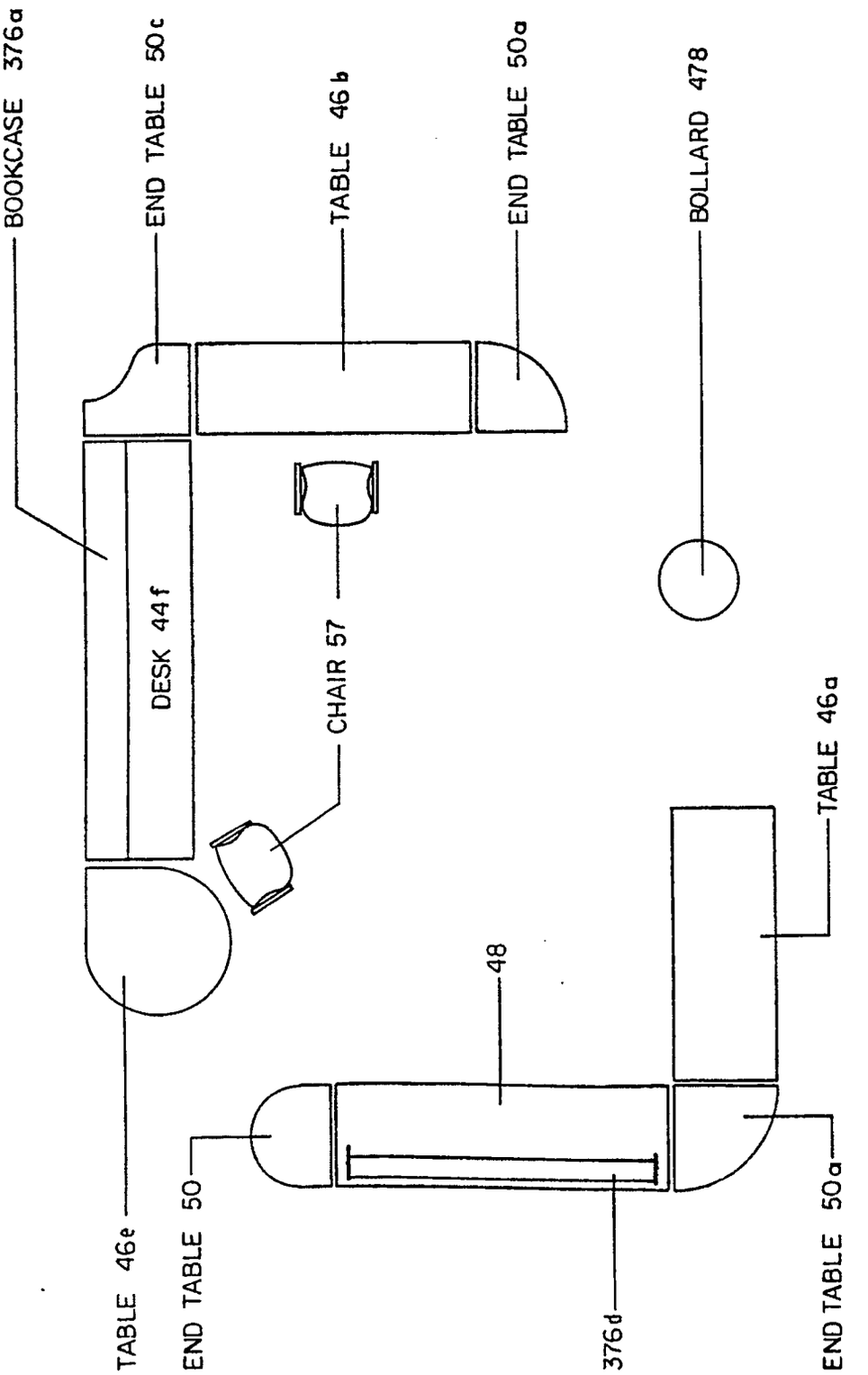
BOOKCASE 376a
END TABLE 50c
TABLE 46b
END TABLE 50a
BOLLARD 478
DESK 44f
CHAIR 57
TABLE 46a
48
TABLE 46e
END TABLE 50
376d
END TABLE 50a

FIG. 34D