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(54) **METHOD AND APPARATUS FOR
INSTALLING A SLIDING DRAWER WITHIN
A CABINET**

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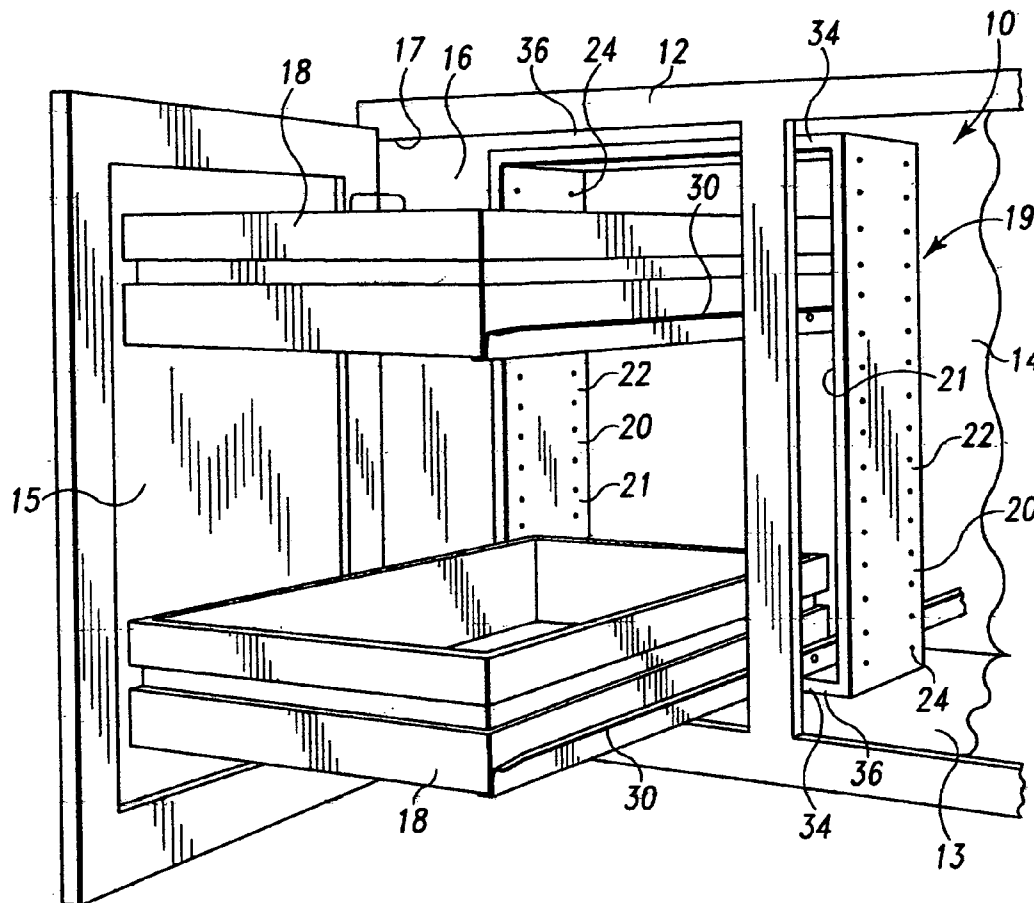
(57) **ABSTRACT**

A method and an apparatus is disclosed for installing a sliding drawer within a cabinet. According to one aspect of the invention, a pair of opposing vertical support members or columns are provided. Attached about the ends of the vertical support members is a pair of opposing horizontal stability members. Moreover, one of the horizontal stability members is attached to the storage cabinet floor (or such other horizontal base/platform located within the storage cabinet). Attached to the sliding drawer are runners extending from the vertical support members.

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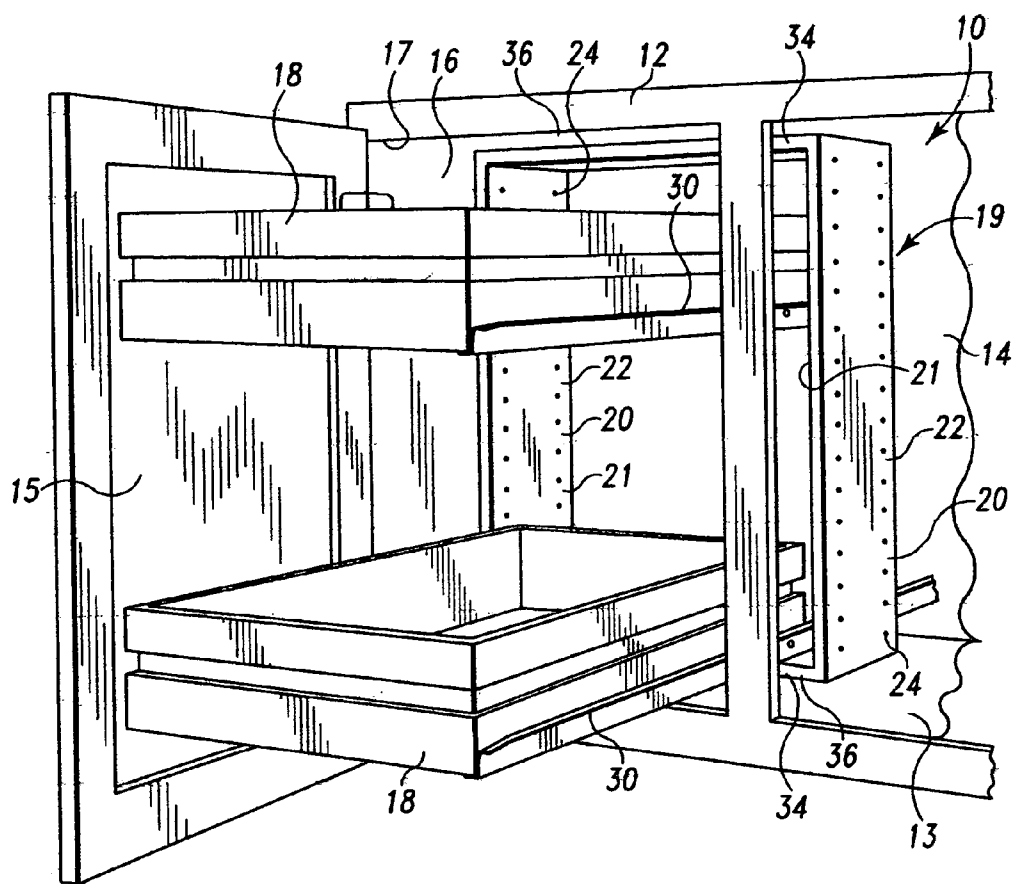


Fig. 1

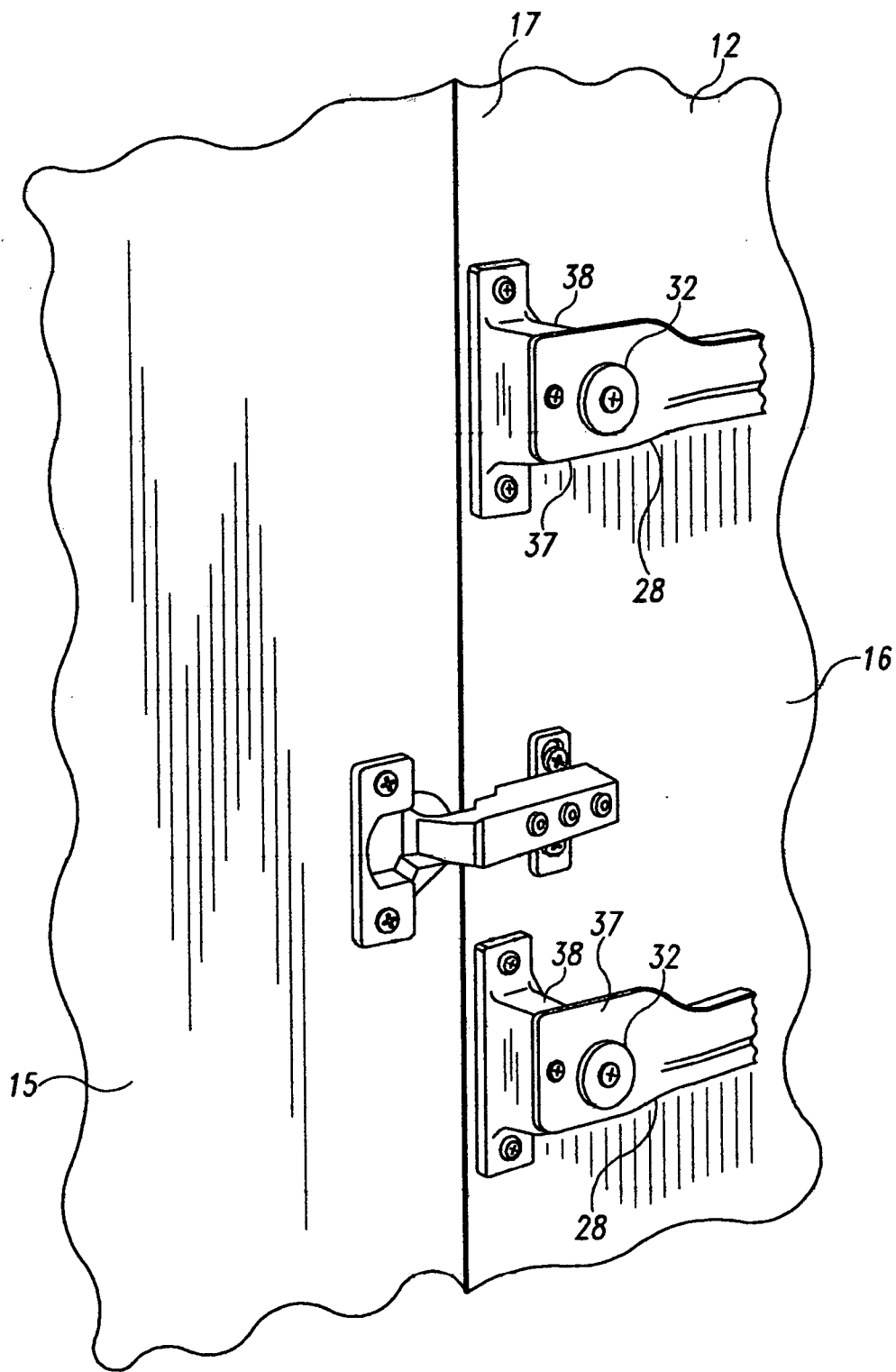


Fig. 2

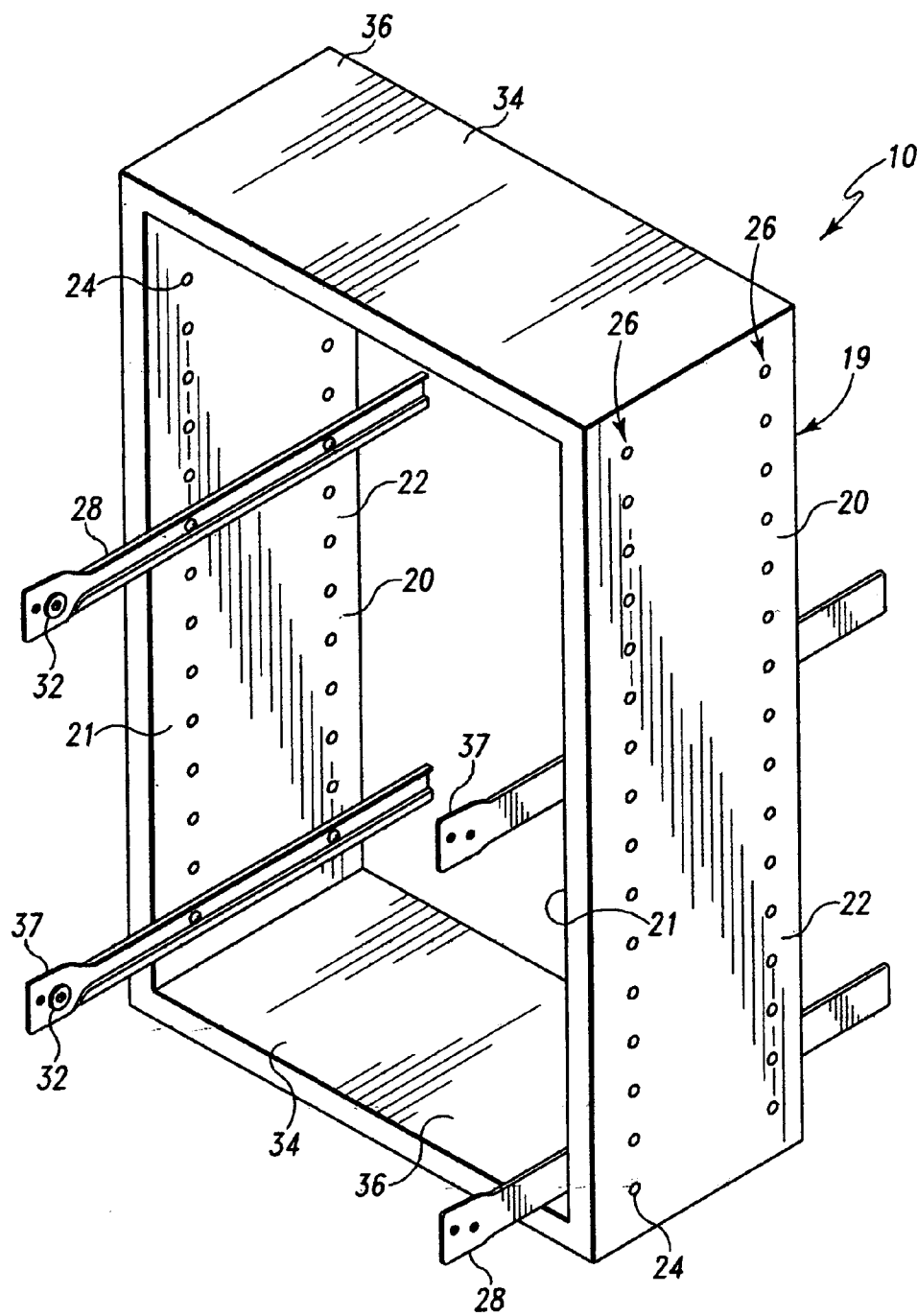


Fig. 3

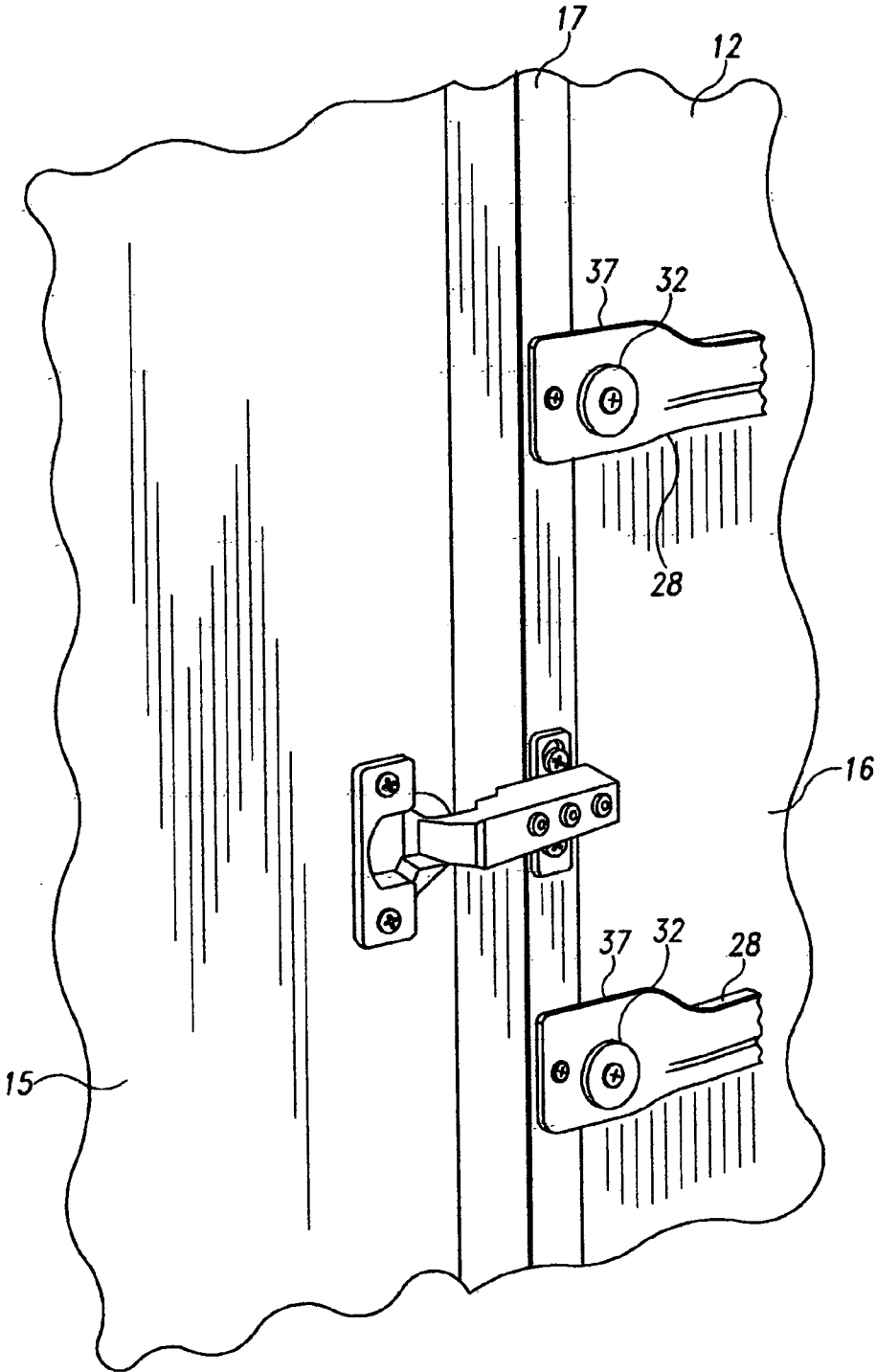


Fig. 4

METHOD AND APPARATUS FOR INSTALLING A SLIDING DRAWER WITHIN A CABINET

FIELD OF THE INVENTION

[0001] The present invention relates to an apparatus suitable for storing articles, and in particular to a sliding drawer apparatus of the type suitable for use within storage cabinets.

RELATED APPLICATIONS

[0002] None.

FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0003] None.

BACKGROUND OF THE INVENTION

[0004] Drawer support devices commonly employed in household storage cabinets rely on the sides of the cabinet for support and guidance of the inserted drawers. For example, the runners which guide and support the drawers are typically fastened directly to the interior sides of the cabinet. This practice, however, presents several difficulties. First, this technique makes it time consuming and difficult for installing or retrofitting an existing cabinet with sliding drawers. Second, this technique cannot be used in cabinets that are not "square" (e.g., cabinets wherein the sides are not oriented at ninety degree angles with respect to the front and back sides). Third, even if the cabinets have the requisite shape and style, this technique produces many permanent alterations in the cabinet. Fourth, the materials utilized in the sidewalls are often not sized or construed to provide the stability to function as the support.

[0005] Therefore, there is a need for a new and improved sliding drawer installation method and apparatus for use within variously sized storage cabinets, and which may be constructed as part of the enclosure or which may be retrofitted into such enclosures.

SUMMARY OF INVENTION

[0006] The present invention proposes a novel solution for supporting sliding drawers while solving many of the above described problems. Since the preferred apparatus relies, at least in part, on the floor of the cabinet for support, it can support heavier objects, it can be used in cabinets which are not square, and it can be utilized in cabinets of any size and shape. Moreover, this apparatus leaves fewer markings on the sidewalls of the cabinet and can be easily incorporated into new or preexisting cabinets.

[0007] In a preferred embodiment of an apparatus constructed in accordance to the principles of the present invention, the sliding drawer apparatus comprises a pair of opposing vertical support members or columns, a pair of opposing horizontal stability members attached about the ends of the vertical support members, and one or more sliding drawers. One of the horizontal stability members is attached to the storage cabinet floor (or such other horizontal base/platform located within a storage cabinet). Attached to the sliding drawer(s) are runners extending from the vertical support members.

[0008] Other embodiments, systems, methods, features, and advantages of the present invention will be, or will

become, apparent to one having ordinary skill in the art upon examination of the following drawings and detailed description. It is intended that all such additional systems, methods, features, and advantages included within this description be within the scope of the present invention, and be protected by the accompanying claims.

DESCRIPTION OF THE DRAWINGS

[0009] The invention may be better understood with reference to the following drawings. The components in the drawings are not necessarily to scale, emphasis instead being placed upon illustrating the principles of the invention. In the drawings, like reference numerals designate corresponding parts throughout the several views.

[0010] FIG. 1 is a perspective view of a storage cabinet with an apparatus in accordance with the present invention installed therein;

[0011] FIG. 2 is a perspective view of a portion of the apparatus of FIG. 1 coupled about the opening to the cabinet;

[0012] FIG. 3 is a perspective view of the apparatus of FIG. 1 in a freestanding upright position and before installation within the cabinet; and,

[0013] FIG. 4 is a perspective view of a portion of the apparatus of FIG. 3 coupled about the opening of yet another embodiment of a cabinet.

DESCRIPTION OF DETAILED EMBODIMENTS

[0014] The following descriptions of detailed embodiments are for exemplifying the principles and advantages of the inventions claimed herein. They are not to be taken in any way as limitations on the scope of the inventions.

[0015] The principles of this invention apply particularly well to constructing sliding shelving within original and existing storage cabinets. A preferred application for this invention is retrofitting sliding drawers within existing kitchen cabinets. The most common type of kitchen cabinet is referred to as "face frame" or "frameless" style cabinets. Such preferred application, however, is typical of only one of the innumerable types of applications in which the principles of the present invention can be employed.

[0016] As shown in FIG. 1, the present invention is a sliding drawer support apparatus 10 that may be installed within the cabinet 12 of virtually any size and shape. It will become apparent upon further review of the specification and drawings that the apparatus 10 does not rely solely on the backwall 14 and sidewalls 16 of the cabinet 12 for support. Therefore, the cabinet materials, material strength, thickness, and whether the walls are square can be, in some cases, effectively ignored while installing and utilizing the apparatus 10 within the cabinet.

[0017] The apparatus 10 includes a frame 19 that is generally rectangular in shape (including a square shape) and can support one or more drawers 18, depending in part on the size of the cabinet 12 and the size of the desired drawers. Similarly, one cabinet 12 can have multiple apparatuses 10 in a side-by-side configuration or a spaced apart configuration, contained in the cabinet 12.

[0018] The apparatus 10 is comprised of one pair of vertical support members or columns 20. These support

members 20 are preferably mirror images of one another. Each support member 20 preferably comprises a single elongated board 22 of wood, wood composites, laminates, plastic, metal, or any combination thereof.

[0019] Additionally, each of the support members 20 has an inner planar surface 21 with a plurality of alignment apertures or pilot holes 24 that can extend partially or completely through the board 22 as shown in FIG. 3. If the alignment apertures only extend partially through the boards 22, then it is desired that the openings to the apertures inwardly face each other on each of the opposing boards.

[0020] Preferably, as shown in FIG. 3, the apertures 24 on each board 22 form a pair of parallel lines 26 wherein each line comprises a plurality of equal distantly spaced apart apertures. In an embodiment, the lines 26 are spaced apart from each other and parallel to the centerline of the board. Further, it is desired that an aperture from each line 26 forms a corresponding pair of apertures that are in horizontal alignment with each other and thus perpendicular to the centerline of the board 26. Thus, the apparatus within each board 22 forms a grid pattern.

[0021] Attached to the vertical support members 20 are sliding channels, or horizontal runners 28 to engage rails/protrusions 30 fixed to the drawer 18 as shown in FIG. 1. Preferably each runner 28 is connected to a vertical support member 20 using screws, rivets, nails, bolts or other conventional means that are installed through holes in the runner and into a pair of apertures 24 in the support member. Preferably, the runners 28 extend perpendicular to the centerline of the vertical support member when they are attached together.

[0022] Preferably, the runners 28 are adapted to receive rotatable wheels (not shown) located on the rear end of the drawer 18 and further include a wheel 32 affixed to the front end of the runner 28 on which the drawer protrusion rides. The runners 28 used in the sliding drawer apparatus 10 are well known in the art and so will not be described further herein. In an embodiment, the horizontal runners utilized are channel guides manufactured by Grass America, of Kerns-ville, N.C., having a model designation of G-6600-18AL (wherein the last designation is the width desired and the color; e.g., 18AL designates 18 inches long and almond). Alternatively, the horizontal runners are channel guides manufactured by Houck Industries, Inc., of Greensburg, Ind., having a model designations of M&S 950C450 or M&S 950C550.

[0023] Preferably, a pair of runners 28 are in spaced parallel relationship to each other and lie within a plane that is perpendicular to the vertical support members 20. Accordingly, when a drawer 18 is mounted on the pair of runners 28, the drawer is between and perpendicular to the vertical support members 20.

[0024] Each vertical column 20 and connected runner 28 generally lies within the same plane. Accordingly, the drawers 18 extend at generally a right angle with respect to the plane formed by the columns 20 and within the plane formed by the runners 28.

[0025] It will be appreciated by those skilled in the art that the references in the description of the apparatus 10 to top, bottom, front, and back refer to the normal orientation of the apparatus when installed within a cabinet 12. Therefore, top

and bottom are relative to the floor/base 13 of the cabinet 12, while front and back are relative to the door 15 and backwall 14, respectively (i.e., the back is the portion of the apparatus which is closest to the rear cabinet wall 14).

[0026] In an embodiment, horizontal stability members 34 connect about the ends of the two vertical support members 20 and maintain the support members in spaced parallel relationship to each other. Stated another way, the horizontal stability members 34 assure that the vertical support members 20 remain at a constant parallel distance apart from each other. Each horizontal member 34 preferably comprises a single elongated board 36 of wood, wood composites, laminates, plastic, metal, or any combination thereof. As those having ordinary skill in the art will appreciate, there is no requirement that the horizontal members 34 and the vertical support members 20 be constructed of the same material.

[0027] Preferably, the horizontal stability members 34 are positioned in parallel spaced relationship to each other and perpendicular to the vertical support members 20. The horizontal members 34 can be connected to the vertical support members 20 by a conventional L-bracket attached to both members 34,20 by fasteners such as screws. Alternatively, the horizontal members 34 can be attached to the vertical support members 20 by other means such as, but not limited to, glue, nails, rivets, bolts or other conventional means. In yet another embodiment, the horizontal members 34 can be connected to the vertical support members 20 by using ready to assembly fittings or fasteners such as Rafx fittings and bolts as available from, for example, Hafele America Co., Archdale, N.C., under part numbers 263.10.703 and 263.20.847, respectively. As used herein, the frame 19 of the apparatus 10 consists of the horizontal members 34 and attached vertical members 20.

[0028] If desired, the ends of the both the horizontal stability members 34 and the vertical support members 20 can be beveled so they abut each other without having a gap therebetween. Alternatively, the ends of the horizontal stability members 34 or vertical support members 20 can abut against the planar surface of the corresponding vertical or horizontal member.

[0029] The preferred embodiment of the apparatus 10 includes no more than two vertical columns 20. As those skilled in the art will appreciate, the columns 20 can be situated in any particular part of the cabinet 12 so that the drawers 18 can slide between the vertical support members 20. The position of the vertical support members 20 within the cabinet 12 is fixed by securing the bottom horizontal stability member 34 to the floor 13 of the cabinet by using conventional fasteners such as screws, bolts, rivets, etc. Accordingly, the bottom vertical support member 34 can include two or more holes which allow screws or the like to be used in fastening the apparatus 10 to the base 13 of the cabinet 12. However, nails, glue, and other fastening means could similarly be used to attach the bottom member 34 to the floor 13, as is well known in the art.

[0030] Preferably, as shown in FIG. 3, the bottom horizontal member 34 is of sufficient dimension whereby the apparatus 10 is freestanding in an upright position when placed on a level planar surface, and before the apparatus is attached to the cabinet floor 13 and the drawers 18 are installed. This freestanding feature provides for ease in

installation within a cabinet because, during installation, the installer typically does not need to support the apparatus to keep it from tipping over.

[0031] As shown in FIG. 2 and 4, it is preferred that the runners 28 be attached to the cabinet 12 about the opening 17 thereto, which can be covered by door 15. As shown in FIG. 2, the runners 28, about their respective distal ends 37, can be attached to the cabinet 12 via a conventional spacer 38 made of plastic, wood, metal, or other conventional material. Preferably, the spacer 38 is attached to the cabinet by conventional means such as by using screws, bolts, rivets, nails, glue or other means known in the art. Likewise, the runner 28 is attached to the spacer 38 by conventional means such as by using screws, bolts, rivets, nails, glue or other means known in the art.

[0032] As shown in FIG. 4, the spacer can be omitted whereby the runners 28, about their respective distal ends 37, are attached directly to the cabinet 12 about the opening 17 thereto. Accordingly, the runners 28 can be attached to the cabinet by conventional means such as by using screws, bolts, rivets, nails, glue or other means known in the art.

[0033] When installing the apparatus 10 within an existing cabinet 12, any preexisting shelves or drawers within the cabinet are removed. The proper length of the vertical members 20 and horizontal members 34 should be determined to ensure that the apparatus 10 will fit within the cabinet opening 17 and the drawers will slide through the opening once the apparatus is installed within the cabinet 12. Alternatively, the frame 19 to the apparatus 10 can be assembly within the cabinet 12. In addition, the proper length of the drawer 18 should be determined to ensure that the drawer will fit within the cabinet 12 and allow the cabinet door 15 to close.

[0034] Next, the assembly comprising the vertical members 20 attached to the horizontal members 34 is placed within the cabinet 12. The appropriately sized runners 28 are then positioned to locate the desired location of the drawer(s). Once the runners 28 are positioned, the locations are marked for attachment of the runners to the vertical support members 20 and the cabinet 12 about the opening.

[0035] Next, the bottom horizontal member 34 is attached to the cabinet floor 13 and the runners are attached to the vertical support members 20 and the cabinet 12 about opening 17. Then, the drawers 18 are coupled to the runners. As will be appreciated, preferably the drawers 18 are slidable out through the opened cabinet door 15, but can be retracted to allow the door to close over the cabinet opening 17. As will be appreciated by those having ordinary skill in the art, the drawers 18 can be constructed of, for example, wood, wood composites, laminates, plastic, metal, or any combination thereof.

[0036] It should be emphasized that the above-described embodiments of the present invention, particularly, any "preferred" embodiments, are possible examples of implementations merely set forth for a clear understanding of the principles of the invention. Many variations and modifications may be made to the above-described embodiment(s) of the invention without substantially departing from the spirit and principles of the invention. All such modifications are intended to be included herein within the scope of this disclosure and the present invention, and protected by the following claims.

What is claimed is:

1. A method of installing a drawer within a preexisting household cabinet having a cavity with an opening thereto and a floor, the method comprising the step of:

placing a rectangular shaped frame within the household cabinet, the frame comprising a pair of vertical members in parallel spaced relationship to each other and each vertical member having a planar surface within a plurality of apertures therein in a grid pattern, a pair of horizontal members attached about the ends of the vertical support members and extending perpendicular thereto;

with fasteners, attaching a pair of runners to the vertical support members wherein the runners are in parallel spaced relationship to each other and each of the runners has a distal end;

securing the distal ends of the runners to the household cabinet about the opening to the household cabinet; and,

attaching a drawer to the runners wherein the drawer slides along the runners and is perpendicular to the vertical support members.

2. The method of claim 1 further comprising the step of attaching one of the pair of horizontal members to the floor of the household cabinet.

3. The method of claim 1 further comprising the step of removing preexisting shelves from the household cabinet before placing the apparatus within the household cabinet.

4. The method of claim 1 further comprising the step of selecting the runners based, at least in part, upon the depth of the cabinet.

5. The method of claim 1 further comprising the step of selecting a drawer of appropriate size to fit within the cavity of the household cabinet.

6. The method of claim 1 further comprising the steps of determining a position for another drawer within the cabinet and attaching another pair of runners to the vertical members about the position.

7. The method of claim 1, the step of securing the distal ends of the runners to the household cabinet comprising the steps of attaching spacers to the household cabinet and attaching the runners to the spacers.

8. The method of claim 1, the step of securing the distal ends of the runners to the household cabinet comprising the step of attaching fasteners to the runners and the household cabinet.

9. The method of claim 1, further comprising the step of allowing the frame to be freestanding in an upright position on the floor of the cabinet before the distal ends of the runners are secured about the opening to the household cabinet.

10. The method of claim 1, wherein the household cabinet is a kitchen cabinet.

11. A method of installing a drawer within a preexisting household cabinet having a cavity with an opening thereto and a floor, the method comprising the step of:

placing a rectangular shaped frame within the household cabinet, the frame comprising a pair of vertical members in parallel spaced relationship to each other and each vertical member having a planar surface within a plurality of apertures therein in a grid pattern, a pair of

horizontal members attached about the ends of the vertical support members and extending perpendicular thereto;

with fasteners, attaching a pair of runners to the vertical support members wherein the runners are in parallel spaced relationship to each other and each of the runners has a distal end;

securing the distal ends of the runners to the household cabinet about the opening to the household cabinet;

attaching a drawer to the runners wherein the drawer slides along the runners and is perpendicular to the vertical support members; and,

allowing the frame to be freestanding in an upright position on the floor of the household cabinet before the distal ends of the runners are secured about the opening to the household cabinet.

12. The method of claim 11 further comprising the step of attaching one of the horizontal members to the floor of the household cabinet.

13. The method of claim 11 further comprising the step of removing preexisting shelves from the household cabinet before placing the apparatus within the household cabinet.

14. The method of claim 11, the step of securing the distal ends of the runners to the household cabinet comprising the steps of attaching spacers to the household cabinet and attaching the runners to the spacers.

15. The method of claim 11, the step of securing the distal ends of the runners to the household cabinet comprising the step of attaching fasteners to the runners and the household cabinet.

16. The method of claim 11, wherein the household cabinet is a kitchen cabinet.

17. An apparatus for installing a drawer within a household cabinet having a cavity with an opening thereto and a floor, the apparatus comprising:

a rectangular shaped frame comprising a pair of vertical members in parallel spaced relationship to each other and each vertical member having a planar surface within a plurality of apertures therein in a grid pattern, a pair of horizontal members attached about the ends of the vertical support members and extending perpendicular thereto;

a pair of runners attached to the vertical support members wherein the runners are in parallel spaced relationship to each other and each of the runners has a distal end; and

the bottom; and,

the pair of horizontal members including a bottom member dimensioned wherein the frame is freestanding in an upright position on the floor of the household cabinet before being secured to the household cabinet.

18. The apparatus of claim 17 further comprising spacers attached about the distal ends of the runners.

19. The apparatus of claim 18 further comprising another pair of runners attached to the vertical members with another drawer therebetween.

20. The apparatus of claim 17 wherein the household cabinet is a kitchen cabinet.

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