SHELF MOUNTED DRAWER

Inventors: William F. Croft, Mooresville, NC (US); Roddy Burgess, Charlotte, NC (US); Christopher J. Claypool, Huntersville, NC (US)

Correspondence Address:
LEMPIA BRAINTWOOD LLC
223 W. JACKSON BLVD.
SUITE 620
CHICAGO, IL 60606 (US)

Assignee: Rubbermaid Incorporated, Huntersville, NC (US)

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ABSTRACT
A slide drawer assembly for mounting to a shelf has a mounting bracket configured to slip over a front end of the shelf. A pair of slide channels is spaced apart from and parallel to one another and carried by the mounting bracket. A drawer has a bottom and an upstanding side wall extending around a substantial portion of a perimeter of the bottom. The upstanding side wall includes a pair of opposed sides each having a surface supported by and slideable along a respective one of the channels between a retracted position and an extended position.
FIG. 1
SHELF MOUNTED DRAWER

RELATED APPLICATION DATA

[0001] This patent is related to and claims priority benefit of U.S. provisional patent application Ser. No. 60/445,977 entitled “Shelf Mounted Slide Drawer,” which was filed on Sep. 20, 2006, and the entire contents of which are incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Disclosure

[0003] The present disclosure is generally directed to drawers, and more particularly to a slidable drawer that can be mounted under an existing shelf.

[0004] 2. Description of Related Art

[0005] Most modern kitchen redesigns are configured for optimal usage of storage space. Older kitchens were typically also designed with storage space as an important issue, but with older kitchen storage accessory technology in mind. Still, many older and more modern kitchens include cabinet systems and other storage elements that include a large volume potential storage space that is either not utilized at all, or that is under-utilized. Kitchen cabinets are typically designed to include a number of vertically spaced apart shelves. Shelves are also present in pantries and other storage areas of a home. Depending on the objects that are to be stored in a particular portion of a cabinet or other storage area that has shelf space, there typically is unused storage space found directly beneath one or more of the shelves in the storage area.

[0006] Some storage unit accessories are known that can be mounted directly onto or beneath shelves. These units typically employ fixed additional sub-shelves or fixed baskets that are attached to an underside of an existing shelf. These baskets or sub-shelves can be mounted in order to better utilize the unused space beneath existing shelves. However, it can be difficult for a user to grasp or even to reach items that are stored near the back end of such sub-shelves or baskets. This is because these units are typically fixed in position under the shelf and because the space between the prior existing shelf and the surface of the sub-shelf or the bottom of the basket can be rather small.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] Objects, features, and advantages of the present invention will become apparent upon reading the following description in conjunction with the drawing figures, in which:

[0008] FIG. 1 shows an exploded view of one example of a slide drawer that can be mounted to an existing shelf and that is constructed in accordance with the teachings of the present invention.

[0009] FIG. 2 shows a front view of the slide drawer shown in FIG. 1.

[0010] FIG. 3 shows a top view of the slide drawer shown in FIG. 1.

[0011] FIG. 4 shows a side view of the slide drawer shown in FIG. 1.

[0012] FIG. 5 shows a lateral cross-section taken along line V-V of the slide drawer shown in FIG. 4.

[0013] FIG. 6 shows a rear view of the slide drawer shown in FIG. 1.

[0014] FIG. 7 shows a side view of the slide drawer mounted to an existing shelf and with the drawer slid to an open and accessible position.

DETAILED DESCRIPTION OF THE DISCLOSURE

[0015] The slide drawer assembly disclosed and described herein solves or improves upon one or more of the above-noted and/or other problems or disadvantages with existing storage solutions for conventional kitchen and other storage cabinets. A slide drawer assembly is disclosed herein that readily mounts to a front edge of an existing shelf without requiring the need for complex hardware to install the assembly. The disclosed slide drawer assembly also provides a retractable and extendable drawer-like storage receptacle that mounts directly beneath the existing shelf. The drawer utilizes this typically unused storage space in a cabinet below the existing shelf and above smaller objects stored within the cabinet. The disclosed slide drawer assembly is simple in construction and easy to install and use. The disclosed assembly also takes up relatively little space, requires few components, and efficiently and effectively increases usable storage space in a cabinet, pantry, or other storage space that includes existing shelves. The drawer can also be extended to permit easy access to items stored anywhere in the drawer.

[0016] Turning now to the drawings, FIG. 1 shows an exploded view of one example of a slide drawer assembly 10 constructed in accordance with the teachings of the present invention. In the disclosed example, the assembly 10 generally has a mounting bracket 12 that is configured to mount to an existing shelf. The assembly 10 also includes a slideable basket, drawer, or storage receptacle 14 that can slide along part of the bracket between a closed or retracted position and an open or extended position for easy and ready access to items stored in the drawer. The bracket disclosed herein can slip directly onto the front edge of a shelf and the disclosed drawer 14 can slide directly onto the mounting bracket 12 and is then ready for use.

[0017] In general, the mounting bracket 12 has a pair of elongate tracks 20 that are spaced apart laterally across the mounting bracket 12 and are parallel to one another. FIG. 2 shows a front view of the slide drawer assembly 10 in an assembled configuration. FIG. 3 shows a top partial cut-away view of the slide drawer assembly 10 with a phantom view of the receptacle or drawer 14 slid to a stored position relative to the bracket 12. In the disclosed example, each of the tracks 20 has a back end 22 and a front end 24. Though not shown, it is possible to include a transverse cross member that interconnects the back ends 22 of the tracks 20 to stabilize the bracket structure. However, in this example, the structure has no component between the back ends of the tracks.

[0018] In this example, a transverse channel or clamping structure 30 extends between and interconnects the front ends 24 of the tracks 20. In general, the mounting bracket 12 is rectangular or square when viewed from the top and has
a large gap between the tracks 20. The clamp structure 30 in the disclosed example has a front panel 32 that is oriented generally vertically and that is connected to and extends upward from the front end 24 of each track 20. An attaching clamp 34 extends rearward from a top edge of the front panel 32. A bottom edge 33 of the front panel 32 is exposed, except where it attaches to the tracks 20. In this example, the clamp 34 includes a pair of elongate clips 36 on opposite ends of the structure that extend toward the back ends of the tracks. Each clip 36 is positioned generally parallel with and vertically spaced above a respective one of the tracks 20. The clamping structure 34 also has a transverse top panel 38 of a length or front-to-back edge depth that is shorter than a length of the clips 36. The top panel 38 extends rearward from the top edge of the front panel 32 and is positioned between and connected to each of the clips 36. The panel 38 is thus significantly shorter in a rearward direction than the clips 36.

[0019] The tracks 20 in the disclosed example each include a top panel 40 that lies generally horizontally and extends from the back end 22 to the front end 24. Each track 20 also has an outer facing side panel 42 that depends from an outside edge of each top panel 40. Each track 20 also includes an elongate support flange 44 that extends laterally inward from a bottom edge of each of the side panels 42 along the length of each track. In the disclosed example, the top panel 40, side panel 42, and support flange 44 on each track form a C-shaped slide channel 46 on each side of the mounting bracket 12. Opposed side portions of the drawer 14 are captured within the channels and are supported on the flanges 44. In the disclosed example, the channels 46 are open and face upward toward one another as can be seen in the cross-section of FIG. 5 and the perspective exploded view of FIG. 1.

[0020] As shown in the side view of FIG. 4, each of the clips 36 and the transverse top panel 38 are angled slightly downwardly from the top edge of the front panel 32 moving toward the back end of the bracket 12. Each clip 36 joins with the front panel 32 at a bend 50. In the disclosed example, the clips 36 and the transverse top panel 38 are intended to be resiliently movable and flexible relative to the tracks 20. Free ends 51 of the clips 36, upon application of an upward force, can bend upward and away from the track top panels 40 to a generally parallel orientation relative to the tracks. In the disclosed example, the sides of the front panel 32 adjacent the exposed bottom edge 33 are coupled to the track front ends 24 at joints 52. The front panel 32 can also lean slightly rearward and can also be resiliently and flexibly movable about the joints 52 to assist in bending the clamp section 34, including the clips 36 and top panel 38 when the bracket 12 is installed. As discussed in more detail below, the construction of the bracket 12 can vary within the spirit and scope of the present invention.

[0021] Returning to FIG. 1, the slide drawer 14 in the disclosed example is constructed as a wire form basket. In this example, the drawer 14 includes a top perimeter wire 60 that is bent to a generally rectangular configuration when viewed from the top. The top wire 60 in the disclosed example includes a rear section 62, a front section 64, and a pair of opposed side sections 66. The side sections 66 in this example are laterally spaced apart and generally parallel to one another as are the front and rear sections 62 and 64. The disclosed drawer 14 has a perimeter side wall formed of bent wires and includes a rear wall 68, a front wall 70, and a pair of side walls 72. The drawer 14 also has a bottom 74.

[0022] In the disclosed example, the bottom 74 is formed of a wire grid pattern with spaced apart side-to-side extending bottom wires 76 and spaced apart front and aft extending bottom wires 78. Each of these wires includes a bend 80 at each end. From the bend, each of the bottom wires 76 and 78 continues upward. The lateral wires 76 continue upward into side wires 82, which are connected to the top wire 60. The fore and aft wires 78 continue upward into either front wires 84 at the front wall 70 of the assembly and rear wires 86 at the rear wall 68 of the drawer. In the disclosed example, the front wires 84, rear wires 86, and side wires 82, are all generally vertical but inclined or angled slightly outward moving toward the top wire 60. This draft angle can be beneficial during formation of the wire basket. It can also be useful in operation of the installed drawer. In the disclosed example, the tips 90 of the side, front, and rear wires are bent outward and also rest on the top wire 60. Thus, the upper perimeter of the drawer 14 is wider than the bottom and an underside 92 of the top wire 60 creates an unencumbered sliding surface for the drawer. To assemble the drawer 14, the tips 90 can be welded, soldered, or otherwise attached to the top wires 60. The points of intersection in the grid of the bottom wires 76 and 78 can also be welded, soldered, or otherwise joined to form a sturdy drawer construction.

[0023] As will be evident to those having ordinary skill in the art, the overall general structure of the bracket 12 and drawer or receptacle 14 can vary and yet fall within the spirit and scope of the present invention. For example, the general wire configuration, wire gauge, and overall size and shape of the drawer 14 can vary. As shown in the drawings, the top wire 60 is a heavier gauge, non-circular cross-section wire than the wall and bottom wires 76, 78, and 82, which are smaller gauge and circular in cross-section. Materials other than metal wires can also be used to form a suitable drawer as well. A molded configuration can be formed that will function in accordance with the teachings of the present invention. In the disclosed example, the bottom surfaces 92 of the top wire 60 at least on the side sections 66 are exposed from below and rest on and slide along the support panels 44 in the channels 46. The front ends 24 of the tracks 40 are open to permit free, unencumbered insertion of the drawer 14 into the channels 46 when installed on the bracket 12. Other laterally outward extending features, such as a flange or lip, of a different drawer construction can perform this same supporting and sliding function. The drawer can have a solid bottom and walls that are transparent, semi-transparent, translucent, or opaque as well. A wire-form basket can help reduce material usage and yet provide a sturdy, durable drawer construction. The drawer can also have an open front wall, a forward tilted front wall, and/or a reduced height front wall to permit partial access to items stored in the drawer without having to slide the drawer outward. The drawer 14 can also take on shapes that differ from the rectangular box-like structure as shown and described herein. The drawer can also have one or more removable or fixed tray inserts and can be sub-divided into storage compartments, if desired.

[0024] In the disclosed example, the bracket 12 can be formed from a single sheet metal layer and stamped, bent, and/or drawn to the configuration as shown. Thus, all of the
bracket 12 components discussed above are integrally connected with one another in this example. The unitary bracket construction forms a simple bracket assembly with few failure points, virtually no assembly, and minimal manufacturing difficulty. However, a bracket formed from different materials, such as wire, plastic, thermoplastic elastomer, polypropylene, polyethylene, and the like, other than sheet metal, can also be provided in accordance with the teachings of the present invention. In one example, a unitary bracket can be formed of a molded plastic or other similar material and yet function as intended.

[0025] The shape and configuration of the bracket 12 can also vary from that shown and described. The disclosed bracket 12 is U-shaped from the top view with C-shaped clamps 34 and C-shaped slide channels 46. Each of these features can vary from the shapes and configurations shown. The top of the bracket can have a different shape and can employ traversing structures to add stability between the tracks 20. The clips 36 can be positioned differently from that shown and can even be modified to include only a single clamping structure or more than two clamping structures. The tracks 20 need not underlie the clips 36 and even need not provide part of the clamping structure, as they do in this example. The slide tracks 20 and channels 46 need not be part of a unitary bracket, but instead can be separately manufactured components that are fastened or otherwise attached to other bracket components. Assembly of the tracks to the bracket can simultaneously fasten the bracket to a shelf, if secondary fastening of the assembly to a shelf is desired. The bracket can alternatively be provided with fastener openings to receive mounting fasteners if desired. The bracket can be designed to clamp onto the shelf using only friction, a spring-enhanced biasing mechanism, or an inherently biased clamping force as in the disclosed example. Other positive attachment mechanisms can alternatively be used including adhesive tape or pads, one way metal tugs in the bracket surfaces, or the like.

[0026] Separate slide tracks can be configured to slidably engage, clip on, snap on, or connect to a part of a bracket body and can do so in any attaching direction relative to the bracket during installation. In this example, the C-shaped channels 46 are open facing inward toward one another. It is also possible that the slide tracks provide support surfaces that extend outward away from one another from which a drawer can hang. In addition, a more elaborate bracket structure including two or more components connected together can also be provided. More complex tracks and/or channels could be utilized in a higher end product. The drawer and/or the tracks or channels can employ bearings, wheels, sliders, guide or tracking features, and the like to create a more robust, easily slidable storage drawer product.

[0027] In the disclosed example, each of the clips 36 includes a stamped depression 98 in the body of the clip. These depressions can be provided to add strength and rigidity to the clip structure. Similarly, the top panels 40 of the tracks 20 also include a stamped or drawn upward bump 100 for a similar purpose. stiffening or strengthening crossbars and braces can also be employed for either or both the bracket and drawer. The bracket and/or drawer can also include structural depressions, ribs, or other features to add strength and rigidity. The depressions 98 and bumps 100 can also assist during bracket installation by reducing surface area contact with the shelf and by providing smooth, rounded contact surfaces against the shelf, thus reducing surface friction between bracket and shelf.

[0028] In the disclosed example, a pair of down turned tabs 102 are provided at the back ends of the tracks. These tabs can be of a downward length sufficient to close off the back end 22 of each track. As shown, the tabs 102 can act as rearward stops for the slide drawer 14 when the drawer is pushed completely inward into the bracket.

[0029] FIG. 7 illustrates the disclosed slide drawer assembly 10 installed on a shelf 110. The shelf 110 has a top surface 112, a bottom surface 114, and a front end 116. The clamp 34 including the clips 36 and panel 38 are slipped over the front end 116 of the shelf 110. The bracket 12 is pushed onto the shelf 110 until the front panel 32 bears against the front end 116. The free ends 52 of the clips are upturned and curved to smoothly engage the shelf front edge. In this configuration, the clips 36 and top panel 38 lie adjacent the top 112 of the shelf and the top panels 40 of the tracks 20 lie adjacent the bottom 114 of the shelf. The shelf is clamped between the tracks 20 and the clamping structure 34. The drawer 14 can then be slid into the open front ends 46 of the channels and pushed in and pulled out as needed. In FIG. 7, the drawer 14 is shown in a pulled out ready for access configuration.

[0030] Although certain shelf mounted drawer and drawer features have been described herein in accordance with the teachings of the present disclosure, the scope of coverage of this patent is not limited thereto. On the contrary, this patent covers all embodiments of the teachings of the disclosure that fairly fall within the scope of permissible equivalents. What is claimed is:

1. A slide drawer assembly for mounting to a shelf, the slide drawer assembly comprising:
   a mounting bracket configured to slip over a front end of a shelf;
   a pair of slide channels spaced apart from each other and carried by the mounting bracket; and
   a drawer having a bottom and an upstanding side wall extending around a substantial portion of a perimeter of the bottom, the upstanding side wall including a pair of opposed sides each having a surface supported by and slideable along a respective one of the channels between a retracted position and an extended position.

2. A drawer assembly according to claim 1, wherein the storage receptacle is a wire form basket.

3. A drawer assembly according to claim 2, wherein the bottom and the upstanding side wall are formed of a wire grid pattern.

4. A drawer assembly according to claim 1, wherein the bracket includes a front end that extends laterally between and interconnects front ends of the pair of slide channels.

5. A drawer assembly according to claim 1, wherein each of the slide channels is formed by a top panel, a side panel, and a support flange arranged in an elongate C-shape in cross-section, and wherein a side of the drawer is supported on the support flange of each slide channel.

6. A drawer assembly according to claim 1, wherein the mounting bracket includes a resiliently flexible clamping structure coupled to and extending rearward from a front end of the mounting bracket and spaced vertically upward from a top panel of each of the respective slide channels.
7. A drawer assembly according to claim 6, the clamping structure further comprising:
   a pair of clips resiliently coupled to the mounting bracket and extending rearward from the front end;
   a top panel extending between the pair of clips; and
   a front panel coupled to the top panel and the pair of clips, wherein the top panel and clips are arranged to bear against a top surface of a shelf and the front panel is arranged to bear against a front end of a shelf when installed.

8. A drawer assembly according to claim 7, wherein a top panel of the slide channels is arranged to bear against a bottom surface of a shelf when installed.

9. A drawer assembly according to claim 1, wherein each of the slide channels has a stop surface that is positioned near a back end of the channel and arranged to limit drawer travel when moved to the retracted position.

10. A slide drawer assembly for mounting to a shelf, the slide drawer assembly comprising:
    a mounting bracket with a clamping section configured to clamp onto a front end of a shelf;
    a pair of slide tracks spaced apart front and parallel to one another and carried by the mounting bracket, the pair of slide tracks each having an open front end and a support surface extending in a lengthwise direction along the respective slide track; and
    a drawer having a bottom and an upstanding side wall extending substantially around a perimeter of the bottom, the upstanding side wall including a pair of opposed sides each having an upper edge slido into the open front end of a respective one of the channels and supported by and slidable along a respective one of the channels between a retracted position and an extended position.

11. A slide drawer assembly according to claim 10, wherein the mounting bracket, the clamping section, and the pair of slide tracks are integrally formed as one piece from a sheet metal material.

12. A slide drawer assembly according to claim 10, wherein the clamping section comprises:
    a pair of clips resiliently coupled to a front end of the mounting bracket and extending rearward from the front end; and
    a front panel coupled to the pair of clips, wherein the clips are arranged to bear against a top surface of a shelf and the front panel is arranged to bear against a front end of a shelf when installed.

13. A slide drawer assembly according to claim 12, wherein a top panel of each of the slide tracks is arranged to bear against a bottom surface of a shelf when installed.

14. A slide drawer assembly according to claim 10, wherein each of the slide tracks is integrally bent from the same material as the mounting bracket and includes a top panel, a side panel, and a support flange arranged in an elongate C-shape in cross-section, and wherein a side of the drawer is supported on the support flange of each slide channel.

15. A slide drawer assembly mountable to a shelf, the slide drawer assembly comprising:
    a mounting bracket having a transverse front panel, at least one elongate panel extending rearward from a bottom edge of the front panel, and at least one clip extending rearward from a top edge of the front panel and spaced upward from the elongate panel, wherein the elongate panel, front panel, and clip form a shelf receiving clamp therebetween;
    a pair of slide channels spaced apart from and parallel to one another and carried by the at least one elongate panel, the pair of slide channels each having an open front end and a support flange extending in a lengthwise direction along the respective slide channel track; and
    a drawer having a bottom and an upstanding side wall extending around a majority of a perimeter of the bottom, the upstanding side wall including a pair of opposed sides each having an upper edge slid into the open front end of a respective one of the channels and supported by and slidable along a respective one of the support flanges.

16. A slide drawer assembly according to claim 15, further comprising a travel stop positioned at a back end of each of the slide channels to limit travel of the drawer in the retracted position.

17. A slide drawer assembly according to claim 15, wherein the mounting bracket has a pair of the elongate panels spaced apart from one another and a side wall depending from an edge of each of the pair of elongate panels, and wherein each of the support flanges extends from a bottom edge of a respective one of the side walls.

18. A slide drawer assembly according to claim 17, wherein each of the slide channels is C-shaped and wherein the support flanges extend inward from the respective side walls toward one another.

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