United States Patent [19]

Pfaffendorf et al.

[11] **3,740,109**

[45] **June 19, 1973**

[54] **FIBERBOARD FILE CABINET AND DRAWER GLIDE STRUCTURE**

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[22] Filed: **Jan. 28, 1972**

[21] Appl. No.: **221,590**

[52] **U.S. Cl.** ..... **312/261**, 312/257 R, 312/350

[51] **Int. Cl.** **A47b 43/02**

[58] **Field of Search** 312/260, 350, 259, 312/261, 262; 248/223; 229/15, 42

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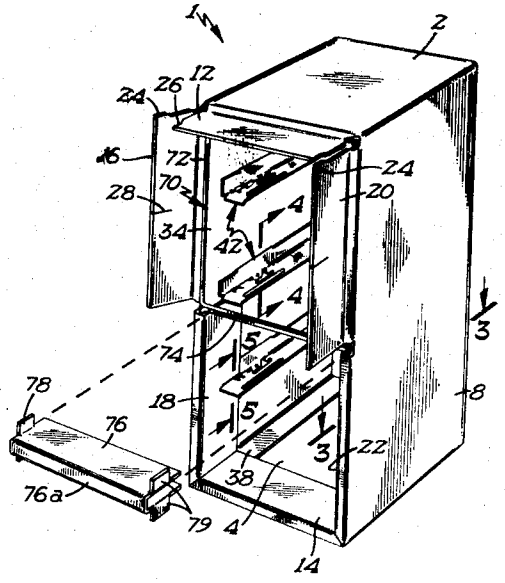
[57] **ABSTRACT**

A lightweight, fiberboard file cabinet having a plurality of drawers slidably supported on vertically spaced, rigid drawer glides removably suspended on the upright side panels of a liner inside the cabinet outer housing. Each drawer glide is comprised of a horizontal, drawer-supporting runner and upwardly and downwardly extending retainer elements which bear against opposite faces of the liner side panels, the glides being attached to the liner through horizontal slots therein.

6 Claims, 6 Drawing Figures



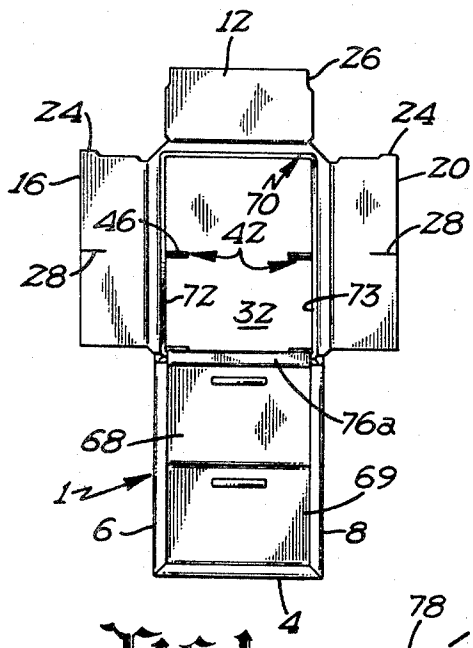


Fig 1

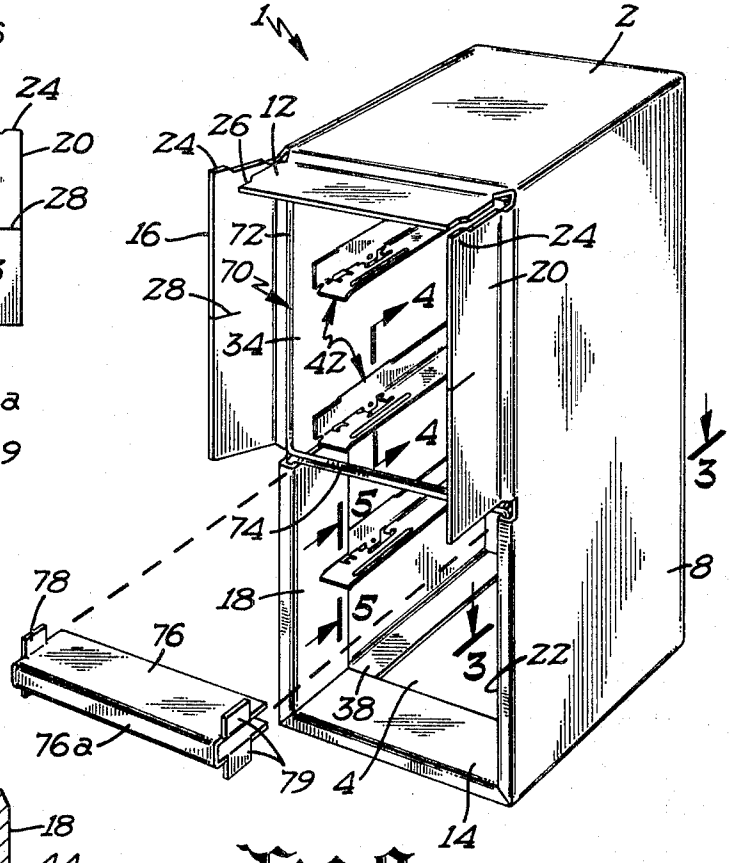


Fig 2

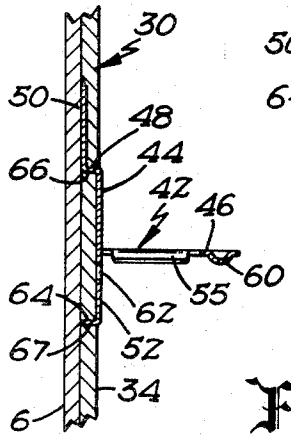


Fig 4

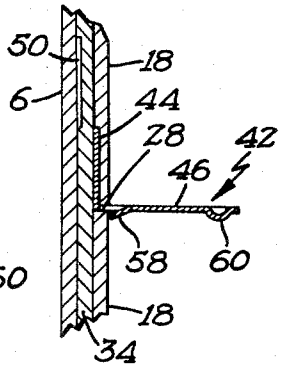


Fig 5

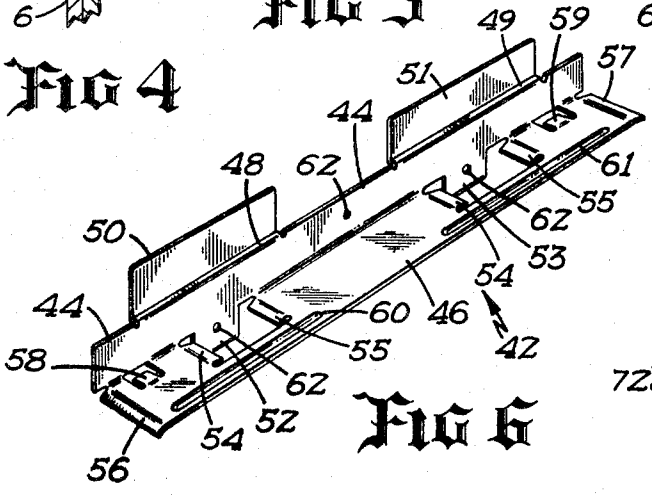


Fig 6

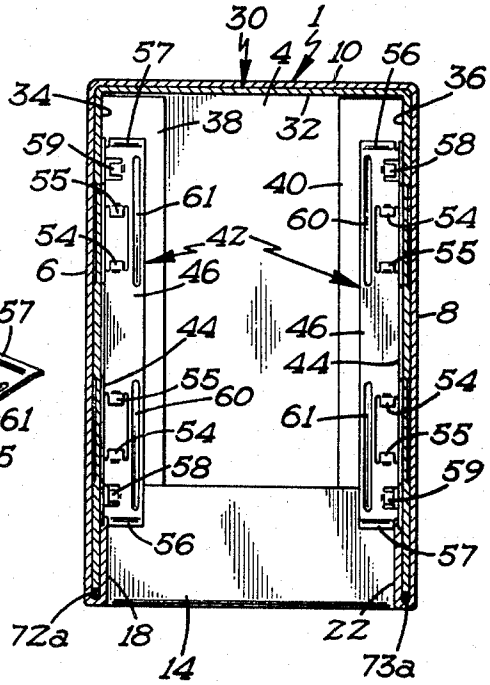


Fig 3

FIBERBOARD FILE CABINET AND DRAWER GLIDE STRUCTURE

BRIEF SUMMARY OF THE INVENTION

This invention is directed to a multiple drawer, lightweight file cabinet constructed of fiberboard or similar material and having drawer glides so constructed and assembled in combination with fiberboard side panels as to provide a basically fiberboard unit of the collapsible type having the vertical shear stength and rigidity required to properly support a plurality of fully loaded drawers slidably supported on the drawer glides.

These basic objectives are realized by utilizing a fiberboard liner inside of a cabinet outer housing, and suspending rigid drawer glides on upright side panels of the liner through horizontal slots therein. Each of the drawer glides is preferably comprised of an upright backing strip mounted to abutt against the inside face of one of the liner side panels, a horizontal shoulder segment projecting outwardly from the backing strip through a horizontal slot in one of the side panels and terminating at its outer end at a vertically extending retainer flange which bears against the outside face of the liner side panel and is sandwiched between the liner side panel and one of the housing side walls, and a horizontal, drawer-supporting runner projecting inwardly from the backing strip. A plurality of such drawer glides are supported at vertically spaced locations on the liner side panels with opposed pairs of drawer glides having their runners in horizontal alignment to support a drawer therebetween.

Each of the drawer glides is firmly and securely held in place on one of the liner side panels under the weight of a loaded drawer by forming downwardly depending retainer lugs on each drawer glide as integral parts extending below the drawer-supporting runner of the glide. Such locking lugs lie against the inside face of one of the liner side panels and are urged outwardly against the liner side panels under the weight of a loaded drawer so as to cooperate with the aforesaid glide retainer flanges in securely holding each glide at a desired vertical location on the liner.

A particularly beneficial aspect of our file cabinet structure resides in utilizing a U-shaped liner having a pair of upright side panels contiguous with the side walls of the cabinet housing, and a pair of inwardly turned flaps on the bottom of each of the side panels bearing against the housing bottom wall to serve as base members assisting in supporting the vertical load imposed on the liner side panels by weighted drawers resting on glides attached to the liner side panels in the aforesaid manner.

As a further advantageous feature of our cabinet structure we provide a rigid reinforcing rim extending around the inner periphery of the cabinet housing at the front end thereof, the rim having upright side legs connected by a horizontal rim segment extending therebetween substantially midway of the height of the cabinet between a pair of vertically adjacent drawers. Such a rim lends strength and rigidity to the entire cabinet and drawer assembly.

These and other objects and advantages of our invention will become readily apparent as the following description is read in conjunction with the accompanying drawings wherein like reference numerals have been used to designate like elements throughout the several views.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a front, elevation view of the multiple drawer file cabinet and drawer glide structure of this invention;

FIG. **2** is a front, perspective view of the cabinet and drawer glide assembly;

FIG. **3** is a horizontal section view taken along lines **3—3** of FIG. **2**;

FIG. **4** is a vertical section view taken along lines **4—4** of FIG. **2**;

FIG. **5** is a vertical section view taken along lines **5—5** of FIG. **2**; and

FIG. **6** is a front, perspective view of the drawer glide of this invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, we have shown in FIGS. **1, 2** and **3** a multiple drawer file cabinet of the type to which this invention is directed. The cabinet is of the lightweight, collapsible type made from fiberboard or similar bendable materials such as paperboard which are commonly employed for fabricating boxes and which have sufficient strength to hold their shape when bent. The cabinet is comprised of an outer casing or housing **1** formed from a corrugated sheet of fiberboard which is cut and scored in such a manner that it can be folded from a collapsed or knocked-down condition in which it is shipped to the generally rectangular, cabinet configuration shown in FIGS. **1** through **3.** Housing **1,** as assembled at the point of use, includes top and bottom walls **2** and **4** hingedly connected along score lines to side walls **6** and **8.** A solid back wall **10** is formed by bending and interlocking a plurality of flaps which extend freely from the rear edges of top, bottom and side walls **2, 4, 6** and **8.** The structure of back wall **10** is not shown in detail, since it is formed in a manner well known in the art and forms no part of this invention, as such. Top and bottom walls **2** and **4** terminate at their forward, horizontal edges at inwardly foldable flaps **12** and **14,** bottom flap **14** being shown in its inwardly folded position in FIGS. **2** and **3.** Also, side walls **6** and **8** have vertically extending side flaps **16, 18, 20** and **22** hingedly attached thereto, these side flaps being inwardly foldable to positions parallel to housing side walls **6** and **8,** as is illustrated with respect to side panels **18** and **22** in FIGS. **2** and **3.** Lock tabs **24** and recesses **26** formed on adjacent ones of top and bottom flaps **12, 14** and side flaps **16, 18, 20** and **22** serve to interlock these flaps with each other and hold them in place when they are folded inwardly, in a manner known in the art. Each of the vertically extending side flaps **16, 18, 20** and **22** has a horizontal slit **28** which fits over a drawer glide in a manner hereinafter explained.

The cabinet structure is further comprised of a fiberboard liner generally indicated by reference numeral **30.** Liner **30** is U-shaped, as clearly appears in FIG. **3,** and includes an upright back panel **32** and a pair of upright side panels **34** and **36** which are contiguous with housing side walls **6** and **8.** Liner **30** further includes a pair of inwardly turned flaps **38** and **40** hingedly connected to the bottom of side panels **34** and **36** which bear against housing bottom wall **4** to serve as base members assisting in lending vertical support to liner

30 under the weight load imposed thereon by drawers slidably supported on liner 30.

For this purpose, we utilize a plurality of rigid or semi-rigid drawer glides 42, one of which is shown in the perspective view of FIG. 6. Each of the drawer glides 42 is comprised of an elongated strip of rigid material formed to the right angle configuration shown to include a normally vertical backing strip 44 and a drawer supporting runner 46 extending at right angles thereto. Drawer glides 42 are preferably formed from steel. However, other metals, and materials, such as plastics, possessing sufficient strength and rigidity when formed to the drawer glide shape as shown to support a loaded drawer may be utilized. A pair of shoulder segments 48 and 49 project outwardly from backing strip 44 in a direction substantially perpendicular thereto for insertion through a slot in one of the supporting side panels 34 and 36 of liner 30 in a manner hereinafter explained. Shoulder segements 48 and 49 terminate at their outer ends at vertically extending retainer flanges 50 and 51 at horizontal offset locations from backing strip 44. Shoulder segments 48, 49 and drawer supporting runner 46 thus lie in parallel planes and extend in opposite directions from backing strip 44. Each of the drawer glides 42 also preferably includes a pair of downwardly depending retainer lugs 52 and 53 which extend below drawer runner 46 when the drawer glides 42 are properly oriented for use as shown in FIGS. 2 and 4. Retainer lugs 52 and 53 are coplanar with backing strip 44 and project on the opposite side of runner 46 from retainer flanges 50, 51. This disposition of retainer flanges 50, 51 and retainer lugs 52,53 with respect to each other is important in achieving a secure attachment of drawer glides 42 to liner side panels 34, 36 under the weight of a loaded drawer, as is described below with respect to the mounting of the drawer glides on liner 30. Retainer lugs 52, 53 are struck from glide runners 46 between pairs of downwardly bent guide tabs 54, 55 which are cut and formed as shown in FIG. 6. The opposed ends of drawer glide runners 46 are also bent downwardly to form angled drawer guides 56 and 57. Guide tabs 54, 55, 56 and 57 assist in smoothly guiding the bottom surface of a drawer onto and across runner portions 46 of drawer glides 42, and prevent the bottom of a drawer from catching on any portion of runners 46, as might be the case if sharp, abrupt edges were left on the ends of drawer glides 42, and along the edges of the runner slots from which retainer lugs 52 and 53 are struck.

Each of the drawer glides 42 further includes a pair of detent tabs 58, 59 bent downwardly at an angle from runners 46 to assist in locking cabinet side panels 16, 18, 20 and 22 in place as hereinafter explained. It is to be noted that tabs 54, 55; 56, 57; and 58, 59 are formed in oppositely directed pairs at both ends of each of the drawer glides 42 to permit reversing the orientation of the drawer glides 180° from the position shown in FIG. 6 for interchangable use on either side panel 34 or 36 of liner 30. Strengthening ribs 60 and 61 are formed along the outer edge of glide runners 46 on the bottom side thereof to make the runners more rigid. Holes 62 shown in backing strip 44 and in retainer lugs 52 and 53 are optional, and may be utilized to receive fasteners used to assist in securing drawer glides 42 to the side panels of a liner or cabinet housing. As may best be noted by reference to FIG. 4, each of the drawer glides 42 preferably includes a horizontally extending flange lip 64 on the bottom of retainer lugs 52 and 53 to assist in locking drawer glides 42 on liner side panels 34 and 36, and in supporting the weight of a drawer.

The manner of removably suspending drawer glides 42 on liner side panels 34 and 36 may best be understood by reference to FIG. 4. Each of the liner side panels 34 and 36 is provided with a plurality of horizontal, vertically spaced slots 66 and 67 to receive drawer glide shoulders 48, 49 and flange lips 64. With two horizontal shoulder segments 48, 49 and two bottom flange lips 64 formed on each drawer glide 42, it will be apparent that two horizontally aligned slots 66 and lower slots 67 must be provided at each drawer glide location to accommodate shoulders 48, 49 and flange lip pairs 64. Drawer glides 42 are mounted on liner side panels 34 and 36 by first inserting upwardly projecting retainer flanges 50, 51 through liner side panel slots 66 with glide runners 46 tipped upwardly and inwardly from the side panels, and then swinging glide runners 46 downwardly and outwardly towards side panels 34 and 36 to extend shoulders 48, 49 all of the way through slots 66 and to insert bottom flange lips 64 into liner slots 67. It will be apparent that with drawer glides 42 so installed, horizontally extending glide shoulders 48, 49 and flange lips 64 will bear on the horizontally extending liner edges defined by slots 66 and 67. Glide shoulders 48, 49 and flange lips 64 thus lend vertical bearing strength to assist in supporting weighted drawers on glides 42.

As appears most clearly in FIG. 1, a pair of drawer glides 42 are mounted opposite each other on liner side panels 34 and 36 at each vertical location where a drawer is to be slidably supported, with the glide runners 46 in horizontal alignment with each other. It will be appreciated that any number of drawers can be supported in this manner. In the embodiment of our invention disclosed herein, the file cabinet is sized to accommodate four drawers, two of the drawers 68 and 69 being shown in place in FIG. 1 in the lower half of cabinet housing 1. With drawer glides 42 mounted in the aforesaid manner, backing strips 44 will bear against the inside surface of liner side panels 34 and 36, as will downwardly depending retainer lugs 52 and 53. Upwardly projecting retainer flanges 50 and 51 will bear against the outside faces of liner side panels 34 and 36 and be sandwiched between these liner side panels and housing side walls 6 and 8, as is illustrated in FIG. 4. Glide runners 46 will project inwardly from backing strips 44 in position to receive and support drawers thereon. It will be appreciated that loaded drawers resting on horizontally aligned pairs of glide runners 46 will create a twisting moment on each runner, tending to pivot the runners 46 downwardly and outwardly towards liner side panels 34 and 36. Such a force acting on glide runners 46 will tend to impart horizontal components of force in opposite directions. Upwardly extending retainer flanges 50, 51 will tend to be urged inwardly against the outside face of the liner side panels 34, 36 while downwardly depending retainer lugs 52, 53 will be urged outwardly against the inside face of side panels 34 and 36. Thus, under the downward force of a weighted drawer acting on glide runners 46, retainer flanges 50, 51 and retainer lugs 52, 53 on each drawer glide 42 will provide a clamping effect against liner side panels 34 and 36, securely holding the drawer glides in place. Lightly loaded drawers could probably be adequately supported utilizing drawer glides without

downwardly depending retainer lugs **52** and **53.** However, the counterforce effect of outwardly acting retainer lugs **52** and **53** in combination with the effect of retainer flanges **50** and **51** bearing inwardly on the outside face of side panels **34** and **36** is the preferred manner of adequately supporting heavy weight loads, as would be incurred with letter or legal size drawers fully loaded with paper.

Cabinet housing **1** is further reinforced by a rigid, rectangular shaped metal rim **70** which extends around the entire inner periphery of the housing just inside of its open front end. Rim **70** is actually made from two rectangular rim segments joined together to provide vertically extending upper rim side legs **72, 73** and lower side legs **72***a* and **73***a*, said side legs abutting against the front edges of liner side panels **34** and **36.** The two rim segments are joined together along top and bottom, horizontal legs thereof, as by welding, to provide a horizontal rim segment **74** extending between the rim side legs at a vertical location substantially midway of the height of housing **1.** With a cabinet having an even number of drawers, such as the four drawer cabinet illustrated herein, horizontal rim segment **74** will extend between the two middle drawers of the file cabinet. Horizontal rim segment **74** is normally covered by a fiberboard insert **76** folded to the U-shaped configuration shown in FIG. **2.** The open end of insert **76** is slidably inserted into housing **1** over rim segment **74,** with the front, folded edge **76***a* of insert **76** facing outwardly in the fully assembled position as shown in FIG. **1.** Insert **76** is held in place around horizontal rim segment **74** by vertically extending lock tabs **78** and **79** folded upwardly and downwardly from its lateral edges. Lock tabs **78** and **79** abutt against the forward end of liner side panels **34** and **36,** and are held in place by side flaps **16, 18, 20** and **22** which are folded inwardly thereover in overlying relation to the forward ends of liner side panels **34** and **36.** Housing side flaps **16, 18, 20** and **22** also wrap around rim side legs **72, 73, 72***a* and **73***a*, as is clearly illustrated in FIG. **3,** in their inwardly folded positions, to hold the entire rim assembly **70** in place.

When housing side flaps **16, 18, 20** and **22** are folded inwardly, their horizontal slits **28** pass over the front end of runners **46** of drawer glides **42.** With guide runners **46** projecting through slits **28,** side flaps **16, 18, 20** and **22** will be securely held in their inwardly folded positions by engagement of their lower segments below slits **28** with detent tabs **58** and **59** at the forward end of drawer guides **42,** as is illustrated with respect to side flap **18** in FIG. **5.**

Reinforcing rim **70,** being firmly held in place by inwardly folded flaps **16, 18, 20** and **22,** strengthens the entire cabinet assembly, assists in preventing side sway, and with its horizontal segment **74,** tends to prevent bowing of the housing side walls **6** and **8** under compression loads. Fiberboard fold strips or insert **76** not only improves the appearance of the file cabinet unit by conceiling horizontal rim segment **74,** but also assists in holding rim **70** in place with its tabs **78** and **79** locked under inwardly folded side flaps **16, 18, 20** and **22.** It will be appreciated by those skilled in the art that the combination of rigid drawer glides **42** suspended on fiberboard liner **30** within housing **1** in the manner described herein, provides an exceptionally strong and sturdy fiberboard file cabinet capable of supporting a number of drawers of legal or letter size. Such a sturdy, four drawer, fiberboard file cabinet can be quickly and easily assembled from a knocked-down or collapsed condition to provide very good sliding support for a plurality of drawers by reason of the removable mounting of drawer glides **42** on liner side panels **34** and **36.** Liner **30,** as well as outer housing **1** can be folded to a flat, collapsed condition for shipment and storage.

Those skilled in the art will recognize that various changes can be made in drawer glides **42** without losing the secure glide mounting and strong drawer support achieved by the drawer glide and mounting arrangement disclosed herein. For example, a continuous retainer flange could be used in place of the two, spaced apart retainer flanges **50** and **51** extending upwardly from shoulder segments **48** and **49.** We anticipate that various other changes in the size, shape, and construction of drawer guide **42** and the entire cabinet assembly may be made without departing from the spirit and scope of our invention as defined by the following claims.

We claim:

1. In combination with a lightweight, fiberboard file cabinet, improved drawer support means for a plurality of drawers comprising:

an outer housing of said file cabinet having top and bottom walls, a pair of upright side walls, a back closure wall and an open front end defined between the forward edges of said side walls;

a self-supporting liner inside of said outer housing, said liner having three interconnected vertical panels including a back panel abutting against said housing back wall and a pair of upright side panels contiguous with said side walls and bearing thereagainst;

a plurality of rigid drawer glides suspended at vertically spaced locations on each of said liner side panels, each of said drawer glides comprising an upright backing strip abutting against the inside face of one of said side panels, an elongated, horizontal shoulder segment projecting outwardly from said backing strip through a horizontal slot in one of said side panels and terminating at its outer end at an elongated, vertically extending retainer flange projecting upwardly therefrom and bearing against the outside face of one of said side panels at a horizontally offset location from said backing strip snugly sandwiched between one of said liner side panels and one of said housing side walls, and a horizontal, drawer-supporting runner projecting inwardly from said backing strip substantailly at right angles thereto, and said drawer glides being disposed opposite each other in pairs on said liner side panels with their runners in horizontal alignment to support a drawer therebetween; and

a plurality of drawers supported on said opposed pairs of drawer glides and slidably shiftable on said runners back and forth through said open front end of said cabinet housing.

2. A file cabinet and drawer support structure as defined in claim **1** wherein:

each of said drawer glides includes at least one retainer lug depending downwardly from the bottom of said backing strip below said drawer-supporting runner and lying against the inside face of one of said liner panels, said retainer lug being struck from said runner and formed downwardly to

thereby provide a unitary drawer glide and hanger structure.

3. A file cabinet and drawer support structure as defined in claim 2 wherein:

each of said drawer glides has a flange lip on the bottom of said retainer lug projecting horizontally outwardly therefrom into a slot in one of said liner side panels, said shoulder and said flange lip on each of said drawer glides bearing against the bottom edges of their respective slots to thereby lend vertical bearing support to said drawer glides under the vertical load imposed by loaded drawers.

4. A file cabinet and drawer support structure as defined in claim 1 wherein:

said liner includes a pair of inwardly turned flaps on the bottom of said upright side panels, said flaps bearing against said housing bottom wall to serve as base members assisting in supporting the vertical load imposed on said liner side panels by said drawers.

5. A file cabinet and drawer support structure as defined in claim 1 wherein:

each of said drawer glides further includes a detent tab depending from the forward end of said runner at an angle thereto adjacent said open front end of said cabinet housing; and

a plurality of vertically extending flaps hingedly attached to the forward edges of said housing side walls and folded inwardly over said drawer glides in overlying relation to the forward ends of said liner side panels, and said detent tabs restrainably engaging said flaps to assist in holding said flaps in said inwardly folded position.

6. A lightweight, multiple drawer, fiberboard file cabinet comprising in combination:

a collapsible outer housing having top and bottom walls, a pair of upright side walls, a back closure wall and an open front end defined between the forward edges of said side walls;

a self-supporting, three sided liner inside of said outer housing having a pair of upright side panels lying against and contiguous with said housing side walls;

a plurality of rigid drawer glides attached to each of said liner side panels at vertically spaced locations thereon through horizontal slots in said side panels, each of said drawer glides comprising upwardly and downwardly extending retainer elements bearing against opposite faces of one of said liner side panels and a horizontal, drawer-supporting runner projecting inwardly from said liner side panels, and said drawer glides being disposed opposite each other in pairs on said liner side panels with their runners in horizontal alignment to support a drawer therebetween;

a plurality of drawers supported on said opposed pair of drawer glides and slidably shiftable on said runners back and forth through said open front end of said cabinet housing; and

a rigid reinforcing rim extending around the inner periphery of said housing inside of said open front end of said housing, said rim having upright side legs adjacent the forward edges of said housing side walls connected by a horizontal rim segment extending therebetween substantially midway of the height of said cabinet between a pair of vertically adjacent ones of said drawers said horizontal segment of said rim being covered by a removable fiberboard insert folded around said horizontal rim segment to a U-shaped configuration with its folded edge facing outwardly, and said fiberboard insert being held in place around said horizontal rim segment by vertically extending flaps hingedly attached to the forward edges of said housing side walls and folded inwardly over said rim side legs.

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