United States Patent

[11] **3,550,979**

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[21] Appl. No. **738,591**
[22] Filed **June 20, 1968**
[45] Patented **Dec. 29, 1970**

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a corporation of Michigan

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[54] **MOLDED CARD DRAWERS AND CABINETS THEREFOR**
3 Claims, 12 Drawing Figs.

[52] **U.S. Cl.** **312/183,** 312/330
[51] **Int. Cl.** **B42f 17/16**
[50] **Field of Search** 312/193, 190, 189, 183, 330, 184, 303, 302; 221/226; 402/502, 46; 16/125, 127

[56] **References Cited**

UNITED STATES PATENTS

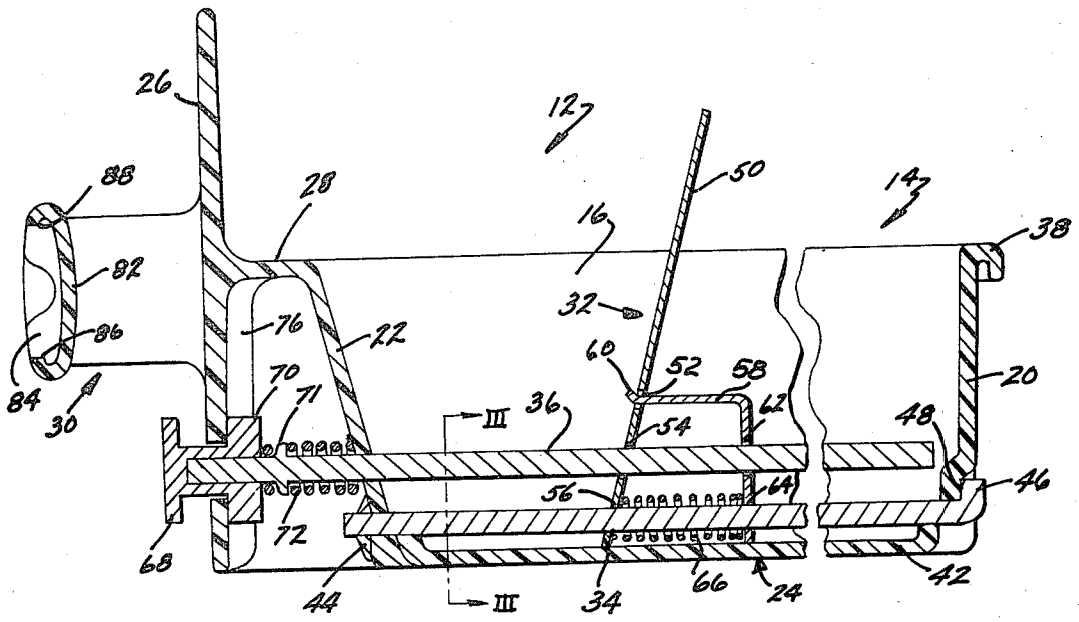
606,286	6/1898	Hamilton	402/27
892,488	7/1908	Yawman	402/26
2,739,026	3/1956	Moore	16/124
3,224,824	12/1965	Remke	312/183
3,273,952	9/1966	Himilreich et al.	312/330
3,312,516	4/1967	Krahn	312/330

FOREIGN PATENTS

13,113	A.D. 1908	Great Britain	402/28

Primary Examiner—James T. Mc Call
Attorney—Price, Heneveld, Huizenga and Cooper

ABSTRACT: This disclosure relates to a drawer and cabinet construction for filing cards and the like. The drawer is made from an integrally molded container forming a downwardly opening recess between a bin and a front face. A card supporting plate is carried within the bin and engages a rod in a recessed trough in the bin bottom. A card holding rod is removably secured to a front face and extends through the bin for retaining cards within the bin. The cabinet has integrally molded rail containing support members which are fixed to the side walls of the cabinet. Outwardly extending runners at the top of the side walls of the drawer engage the rails of the support members so that the drawers can slide within the rails.



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SHEET 1 OF 4

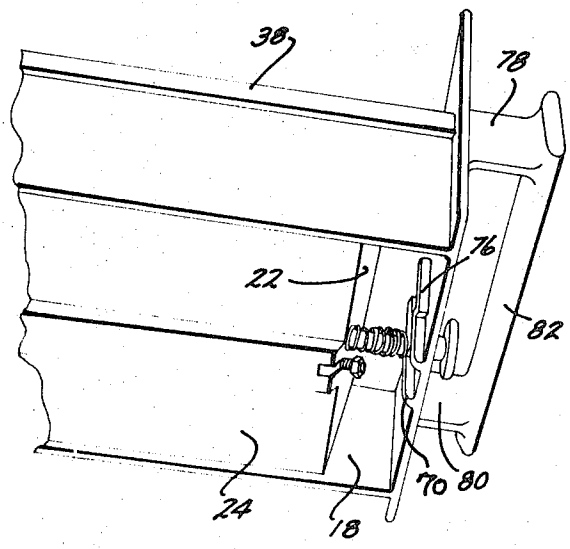

FIG. 4.

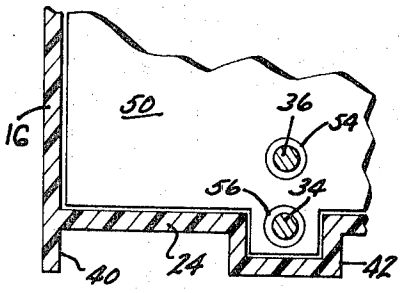

FIG. 3.

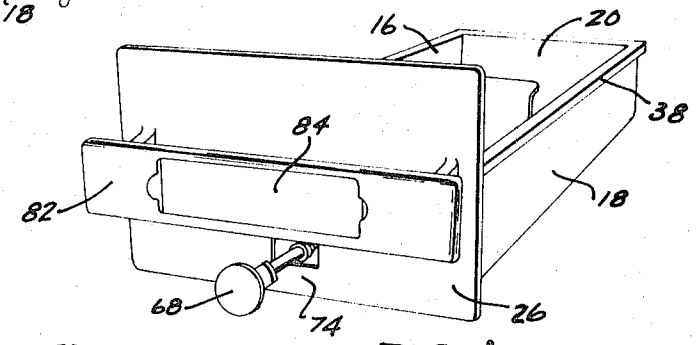

FIG. 1.

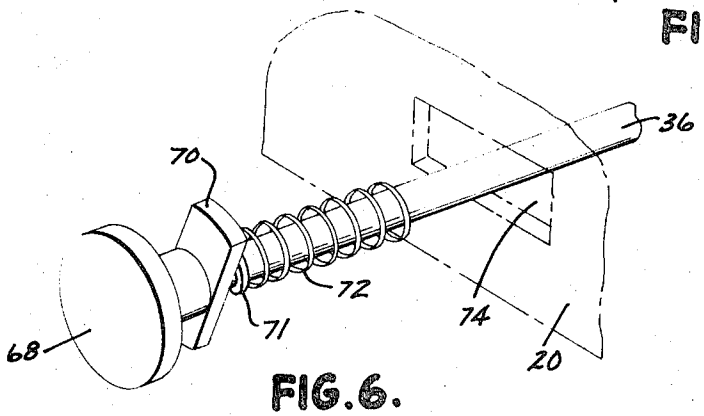

FIG. 6.

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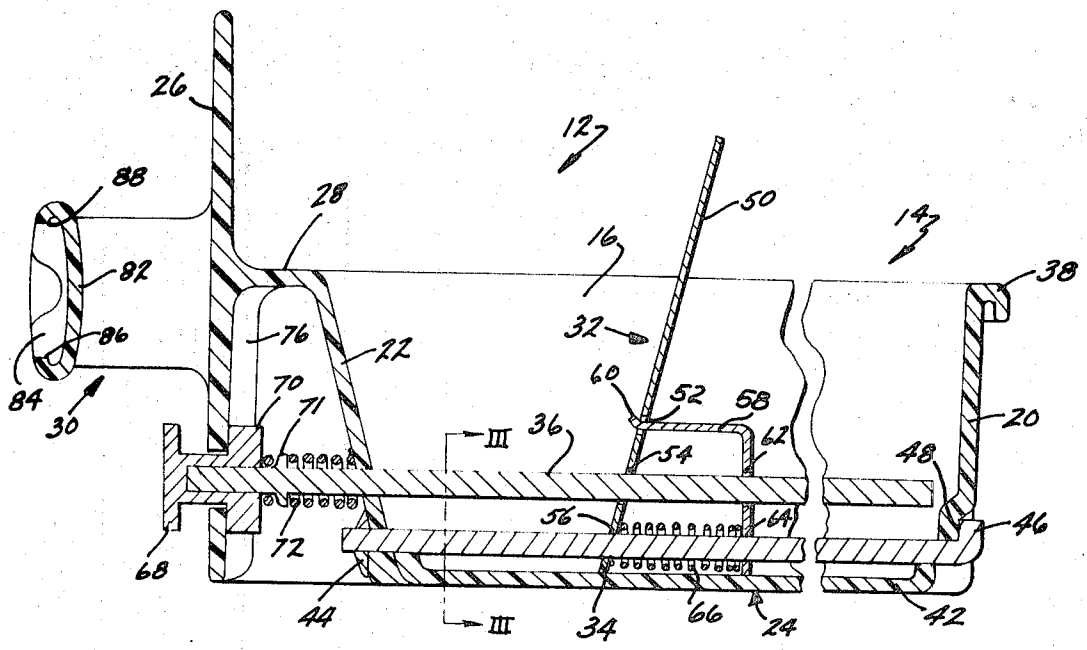

FIG. 2.

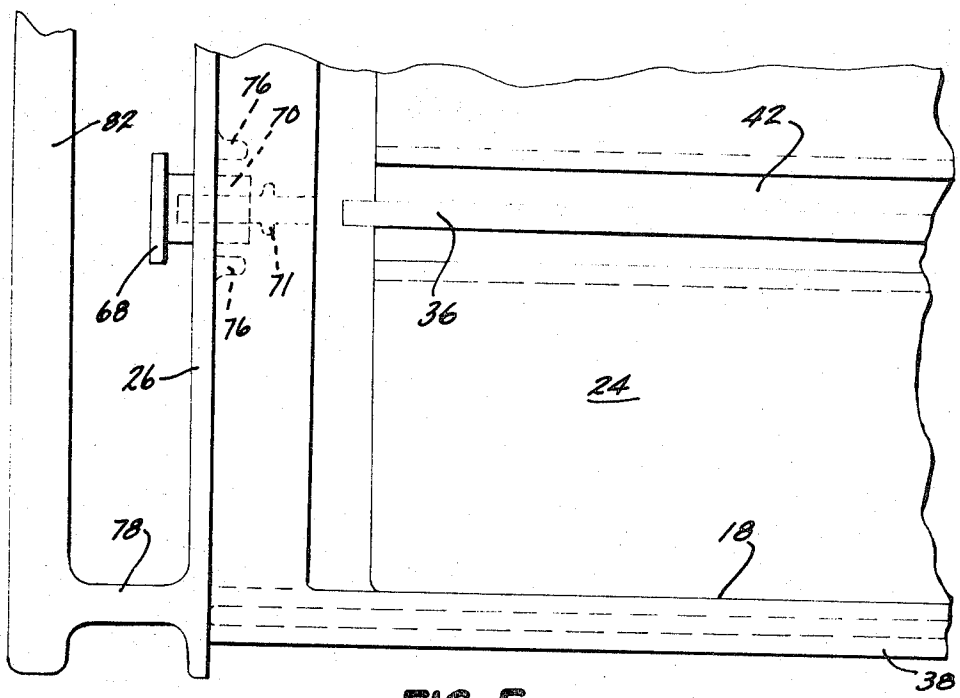

FIG. 5.

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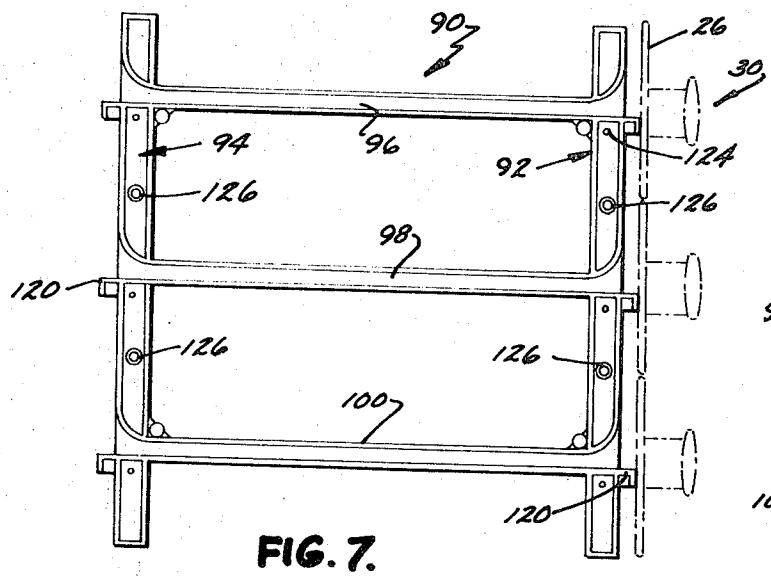

FIG. 7.

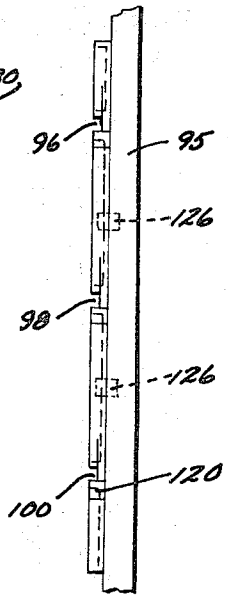

FIG. 8.

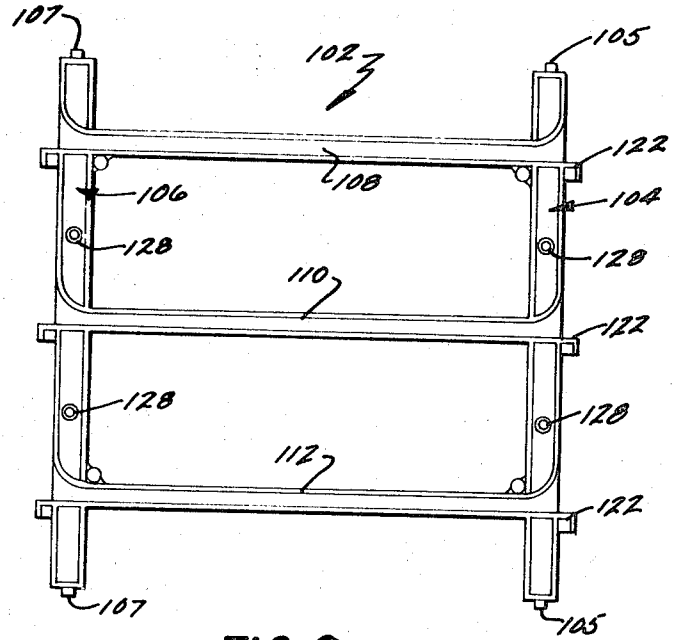

FIG. 9.

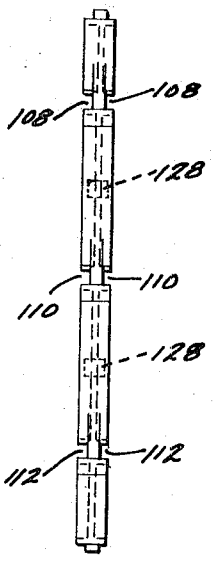

FIG. 10

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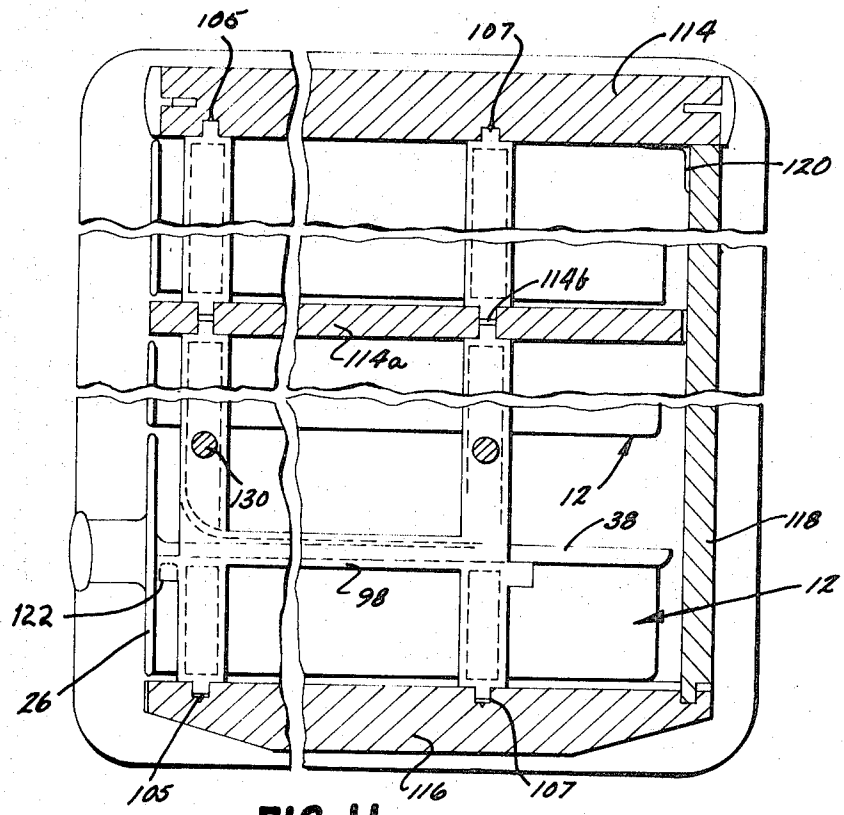

FIG. 11.

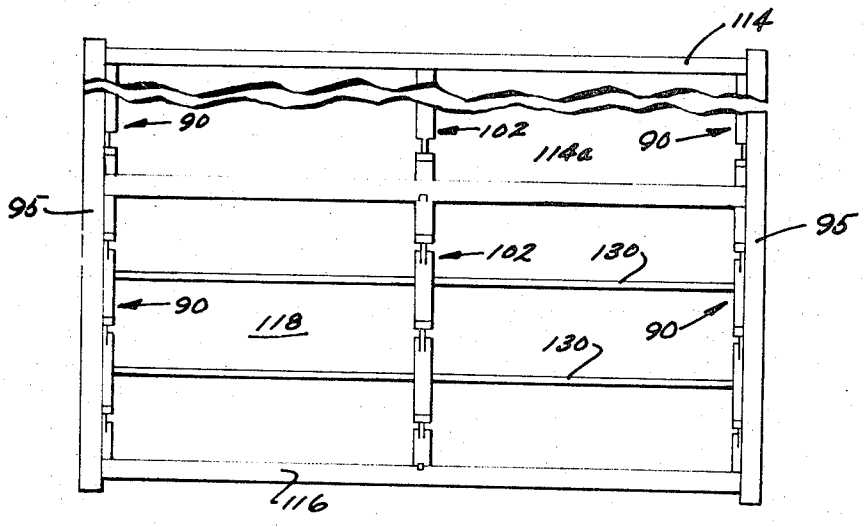

FIG. 12.

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MOLDED CARD DRAWERS AND CABINETS THEREFOR

This invention relates tom to molded card drawers and cabinets therefore. In one of its aspects, it relates to a card drawer with an integrally formed bin and front face spaced from the bin end wall forming a recess for housing a releasable securing means for a card holding rod which extends through the front face.

In another of its aspects, the invention relates to a cabinet construction having integrally molded supporting members forming rails at sides and a central portion of the cabinet, and drawers within the cabinets having integrally molded runners at the sides thereof which slide within the rails for supporting the cards within the cabinet.

Card files, in which cards are kept in a drawer having adjustable card supporting means and removable card holding rods, have been used extensively in libraries and the like. These card files and drawers have been made from wood and metal. Metal drawers are quite heavy and expensive to manufacture. Wood drawers are also expensive to manufacture.

It has been proposed to make the card file drawers out of plastic to reduce the weight and to reduce the cost.

Most card file drawers have a removable holding rod threadably secured to the front plate or to the back wall of the drawer. These card holding rods cannot be threadably attached to plastic drawer files because of the tendency of the plastic to flow and to flow and break to thereby strip the threads.

I have now discovered a card file drawer and cabinet therefor, wherein the drawer is integrally molded out of plastic to make a lighter and less expensive card tray, and yet which has provisions to removably secure a card holding rod in a manner so as to eliminate the prior art problems. I have also discovered an inexpensive, yet durable cabinet for the card files using integrally molded plastic supporting rail members for the drawers.

By various aspects of this invention one or more of the following, or other, objects can be obtained.

It is an object of this invention to provide a lighter and inexpensive card holding drawer which has provisions for removably securing a releasable card holder rod without the use of threads.

It is a further object of this invention to provide an improved card holder which has a main container portion and a handle integrally molded thereto.

It is still a further object of this invention to provide an integrally molded card holder having integrally molded runners for engaging supporting rails in a cabinet.

It is still a further object of this invention to provide a cabinet construction having integrally molded parts which are durable yet inexpensive to manufacture.

It is a still further object of this invention to provide an improved card holder drawer having an integrally molded handle and label holder.

It is yet another object of this invention to provide an improved index card holder having an easily removable card holder rod.

It is still a further object of this invention to provide an improved index card holder drawer having a removable card holder rod which cannot be inadvertently removed from the drawer.

Other aspects, objects, and the several advantages of this invention are apparent to one skilled in the art from a study of this disclosure, the drawings, and the appended claims.

According to the invention, there is provided a drawer particularly adapted for filing index cards and the like. The drawer has an integrally molded container with a bottom, a pair of upstanding sidewalls, and a pair of end walls joined together forming a bin. A front face is spaced from, but integrally molded to one of the end walls in such a manner as to define a cavity between the front face and the end wall.

Preferably, the drawer has integrally molded supporting runners extending outwardly of the side walls at the top portions thereof and is joined to the front face for strength and rigidity. Further, the sidewalls are joined to the front face at one end thereof so as to form a downwardly opening cavity between the front face and one end wall.

A card retaining rod extends through the front face and one end wall and substantially throughout the length of the bin. The rod is removably secured in a locked position within the bin by a locking means housed in the recess between the bin and wall and the front face. The locking means comprises a retaining lug on the outer end of the rod, a slot in the front face so shaped as to permit the lug to pass therethrough when the rod is in a first rotational position and to prevent the lug from passing through the front face when the rod is in a second rotational position. Means are also provided to bias the rod in an outward direction, at least when the lug is behind the front face within the cavity. Integrally molded ribs are provided within the cavity on the inner side of the front face for locking the lug in place to prevent inadvertent removal of the card holding rod.

Also according to the invention, there is provided a cabinet construction especially adapted for the above described card holding drawers. The cabinet construction has a top, a bottom, and sidewalls joined together to form a boxlike support member. Integrally molded drawer supporting members have upright posts which extend between the top and bottom walls and have integrally molded laterally extending channellike rails for engaging the runners of the drawers. Central supporting members having laterally extending rails can be fixed between the top and bottom surfaces so that a plurality of vertically extending rows of drawers can be positioned within each cabinet.

The invention will not now be described with reference to the accompanying drawings in which:

FIG. 1 is a perspective front view of a card drawer according to the invention;

FIG. 2 is a side elevational view of the drawer shown in FIG. 1;

FIG. 3 is a partial sectional view of the drawer shown in FIGS. 1 and 2, taken along lines III–III of FIG. 2;

FIG. 4 is a perspective bottom view of the drawer shown in FIGS. 1 through 3;

FIG. 5 is a top view of the drawer shown in FIGS. 1 through 4;

FIG. 6 is an enlarged view of a card holding rod with a drawer front, partially shown in phantom lines, illustrating the locking feature of the card holding rod;

FIG. 7 is a side elevational view of a side supporting member for a cabinet for supporting the drawers;

FIG. 8 is a front elevational view of the side support shown in FIG. 7;

FIG. 9 is a side elevational view of a central supporting member for a cabinet construction according to the invention;

FIG. 10 is a front elevational view of the central supporting member shown in FIG. 9;

FIG. 11 is a side view, in section, of a cabinet constructed according to the invention using the integrally molded supporting elements shown in FIGS. 6 through 9; and

FIG. 12 is a front view of the cabinet shown in FIG. 10.

Referring now specifically to FIGS. 1 through 6, a drawer 12 is shown having an integrally molded container 14 formed from sidewalls 16 and 18, a rear end wall 20, a front end wall 22, and a bottom 24. A front face panel 2 26 is integrally molded to the front end wall 22 through a connecting web 28 and through sidewalls 16 and 18. A had handle 30 is also integrally molded to the front face panel 26.

The container has a card support 32 slidable on a rod 34 and a card retaining rod 36 which extends through the front face panel 26, the front end wall 22, and substantially through the container 14.

The sidewalls 16 and 18 and the rear end wall 20 have an outwardly extending runner 38 at the top portions thereof. The runner extends from the front face plate 26 and around the top portions of the sidewalls and the rear end wall 20. The runner extends outwardly and then downwardly with a slight

recess formed between the downwardly extending portion and the side and end walls. The runner **38** lends rigidity to the integrally molded container structure as well as provides a means for supporting the drawer within a cabinet as will be hereinafter described.

The sidewalls **16** and **18** extend downwardly below the bottom wall **24** forming flanges **40** whose bottom surface is coextensive with the bottom surface of front face panel **26**. These flanges provide stabilizing support for the drawer on a flat surface.

A downwardly extending, elongated trough **42** is formed in the bottom wall **24**. Rod **34** is positioned within the trough **42** and is retained fixed within the trough by a lock nut **44** at one end thereof and an upturned end **46** at the other end thereof which is positioned within a recessed area **48** and rear end wall **20**.

The card support **32** is conventional in nature having a back plate **50** with a slot **52** and holes **54** and **56**. The plate extends down into the elongated trough **42** as seen clearly in FIG. **3**. An L-shaped flange **58** cooperates with the back plate **50** to hold the cards in place. The L-shaped flange has an upturned end **60** which is positioned within slot **52** and has holes **62** and **64**. The rod **34** passes through holes **56** in plate **50** and through hole **64** in L-shaped flange **58**. The card retaining rod **36** passes through hole **54** in plate **50** and through hole **62** in L-shaped flange **58**. A spring **66** biases L-shaped flange **58** away from the back plate **50** to maintain the card support in a fixed position within the drawer. The card support **32** can be moved forwardly or backwardly within the drawer by urging the L-shaped flange **58** toward the back plate **50** and sliding the support longitudinally within the drawer.

The card retaining rod **36** has a knob **68** on one end thereof spaced from laterally projecting lugs **70**. A spring **72** is positioned on rod **36** adjacent the lugs **70**. The outer end of the spring snaps over a knob **71** with an expanded end for retaining the spring **72**. The knob **71** is integrally formed with lugs **70**.

The front face panel **26** extends upwardly above the sidewalls **16** and **18** and above the end walls **20** and **22**. The front end panel also extends laterally on each side of the sidewalls **16** and **18** and even extends outwardly farther than the outwardly extending runner **38**. A slot **74** is cut in the front face panel **26** to provide an opening for lugs **70** to pass therethrough. As illustrated clearly in FIG. **5**, the lugs **70** can pass through the slot **74** when the rod **36** is in a first rotational position so as to align the lugs **70** with the slot **74**. As seen in FIGS. **2**, **4**, and **5**, when the lugs are positioned behind the front face panel **26** and when the rod **36** is in a second rotational position so that the lugs are not aligned with the slot **74**, then the lugs will be retained behind the front face panel **26**. The outward pressure of spring **72** maintains the lugs in contact with the back of the front face panel so that the rod remains intact in the position shown in FIGS. **2**, **4**, and **5**.

In order to provide inadvertent dislodging of the rod **36** from the locked position as illustrated in FIGS. **2**, **4**, and **5**, integrally molded vertical ribs **76** have been provided on the cavity side of the front face panel **26**. These ribs **76** are spaced so that the lugs **70** can be positioned therebetween when the lugs are not aligned with the slot **74** as illustrated in FIG. **5**. In order to remove the rod **36**, the knob **68** is pushed inwardly so that the lugs **70** move to the right of the ribs as seen in FIGS. **2** and **5**, the rod can then be rotated so that the lugs are aligned with the slot **74**, and the rod can then be merely pulled out of the drawer. The reverse procedure is followed in positioning the rod in the locked position shown in FIGS. **2**, **4**, and **5**.

The integrally molded handle **30** is formed from outwardly extending spaced legs **78** and **80** and by a bar member **82** which is joined to the ends of the legs **78** and **80**. A recessed slot **84** having holding flanges **86** and **88** is provided for insertion of identification tags in the handle.

Reference is now made to FIGS. **9** through **12** for a description of a cabinet especially adapted to house the drawers. The cabinet is best shown in FIGS. **11** and **12**. The cabinet is formed from sidewall panels **95**, a top support member **114**, and a bottom support **116**, all joined together to form a boxlike construction. Intermediate shelf members **114***a* can be provided between the vertically aligned sections. A back support **118** can be joined to the sides, top, and bottom members through appropriate grooves and mechanical fasteners such as bracket **120**.

The basic boxlike structure is adapted to receive the drawers through integrally molded side supporting members **90** which are attached to the sidewalls and, if desirable, central support members **102** which are fixed between the top support member **114** and the bottom support member **116** or between the intermediate shelf members **114***a* and top or bottom support members. Brace rods **130** can be used between the side supporting members **90** and the central support member **102**. Each side support member **90** comprises upright posts **92** and **94** joined to laterally extending rails **96**, **98**, and **100**. The laterally extending rails are channellike in configuration as seen in FIG. **8** and open inwardly into the cabinet. The rails also have stop members **120** at the front and back of the supports. The integrally molded support members are fixed to the sidewall panels through any suitable mechanical fastening means such as screws which can be positioned in holes **124**. Rod holding fixtures **126** are molded to the side supporting members **90**. Each rod holding member is annular in shape and opens outwardly.

The center supporting members **102** all illustrated in FIGS. **9** and **10** and comprise upright posts **10** and **106** having pins **105** and **107**, respectively. The posts are joined by integrally formed channellike rails **108**, **110**, and **112**. As seen in FIG. **10**, the rails open laterally in either direction. Holes are provided in the intermediate shelf members **113** **114***a*, in the top support member **114** and in the bottom support member **116** for retaining pins **105** and **107** (FIGS. **11** and **12**). Rod holding fixtures **128** are also provided in each side of the center support member **102**. These fixtures are shaped the same as the fixtures **126**.

The cabinet is inexpensive to make and rapid to construct by simply fixing the side support members **90** to the sidewall panels **95**, and then fixing the top support member **114** and the bottom support member **116** to the finished sidewalls with the center support member **102** therebetween. It is to be understood that a plurality of center support members **102** can be provided in any given cabinet structure.

The drawers fit within the cabinet construction with the runners **38** engaging the rails such as **96**, **98**, and **100**, and **108**, **110**, and **112**. The back surface of the front face panel **26** strikes the stop member **122** as the drawer is pushed into the cabinet. In this manner, all of the drawer fronts will be aligned in the same plane.

The cabinet illustrated in the drawings can be made to any size desirable using the basic structure illustrated in FIGS. **11** and **12** with or without intermediate shelf member **114***a*. In making large larger structures, the sidewall panels **95** can be extended vertically to any distance desired. A plurality of intermediate shelf members **114***a* can be used to support and space the central support members **102**. These intermediate shelf members **114***a* also space the side support members **90**. In the construction of the cabinet, brace rods **130** are wedged between fixtures **13** **128** and **126** for support of the central support member **102**.

The drawers and the support members can be made from any suitable moldable plastic material including thermoplastics such as polyethylene, polypropylene, polyvinyl chloride, polymethacrylates, nylon, ABS, and the like. Those plastics having self-lubricating properties such as polyethylene are preferred. Thermosetting resins such as diallyl phthalate and phenol formaldehyde can also be used.

Reasonable variation and modification is possible within the scope of the foregoing disclosure, the drawings, and the appended claims, without departing from the spirit of the invention.

I claim:

1. A drawer particularly adapted for filing index cards and the like, said drawer comprising an integrally molded container having a bottom, a pair of upstanding sidewalls, and a pair of end walls joined together forming a bin, a front face at one end of said drawer joined to said sidewalls and to one of said end walls, said one end wall slanting downwardly and rearwardly thereby forming a downwardly opening cavity between said front face and said one end wall; an elongated slot formed in said front face; a card retaining rod extending through said front face at said slot and said one end wall, and substantially throughout the length of said bin; a retaining lug secured to said card retaining rod near an outer end thereof; said elongated slot in said front face being so shaped as to permit passage of said lug therethrough when said rod is in a first rotational position, and to prevent passage of said lug therethrough when said rod is in a second rotational position; and biasing means inwardly of said lug to bias said rod outwardly when said lug is positioned behind said front face.

2. The drawer of claim 1 wherein an elongated trough is formed in said bottom and extends downwardly of said bottom; a rod member is mounted in said end walls and positioned within said trough below said top surface of said bottom; a card supporting means is positioned between said sidewall and has a portion thereof engaging said rod member for selective sliding movement therealong.

3. The drawer of claim 1 further comprising spaced ribs on the back of said front face panel angularly disposed to said slot such that said lugs, when positioned in said second rotational position, will be locked within said spaced ribs and cannot be rotated without first forcing said rod away from said back of said front face panel against the tension of said biasing means.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,550,979 Dated 12-29-70

Inventor(s) Peter J. Protzmann

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 1, line 3:

delete "tom".

Column 2, line 24:

after "supporting members" insert --- are fixed to the side walls for holding the drawers. The support members ---.

Column 2, line 63:

delete "2".

Column 4, line 29:

"upright posts 10" should be --- upright pos 104 ---.

Column 4, line 33:

delete "113"

Column 4, line 63:

delete "13".

Signed and sealed this 28th day of September 1971.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

ROBERT GOTTSCHALK
Acting Commissioner of Pater