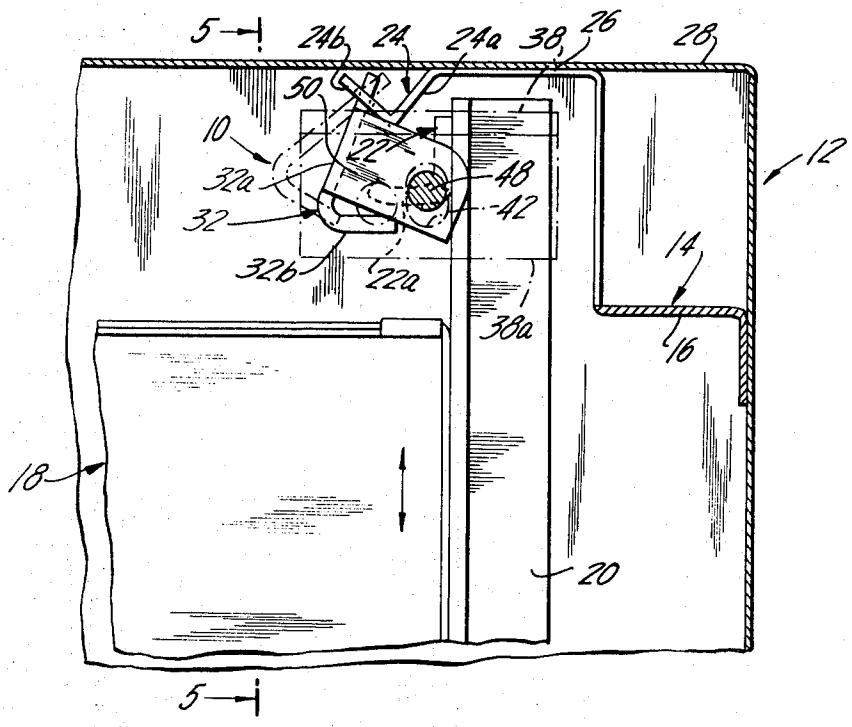
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DRAWER LATCH MECHANISM

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FIG.2



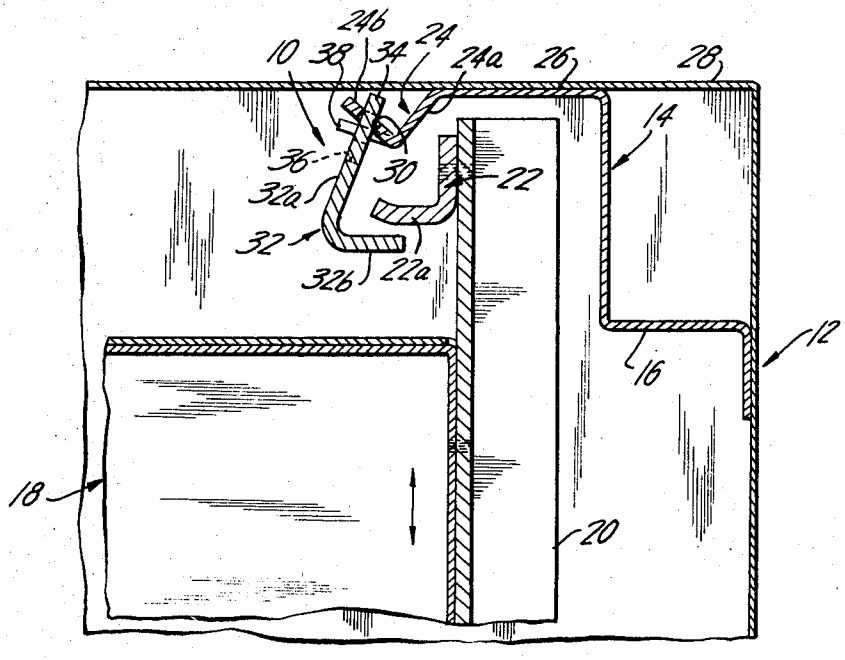


FIG.1

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DRAWER LATCH MECHANISM

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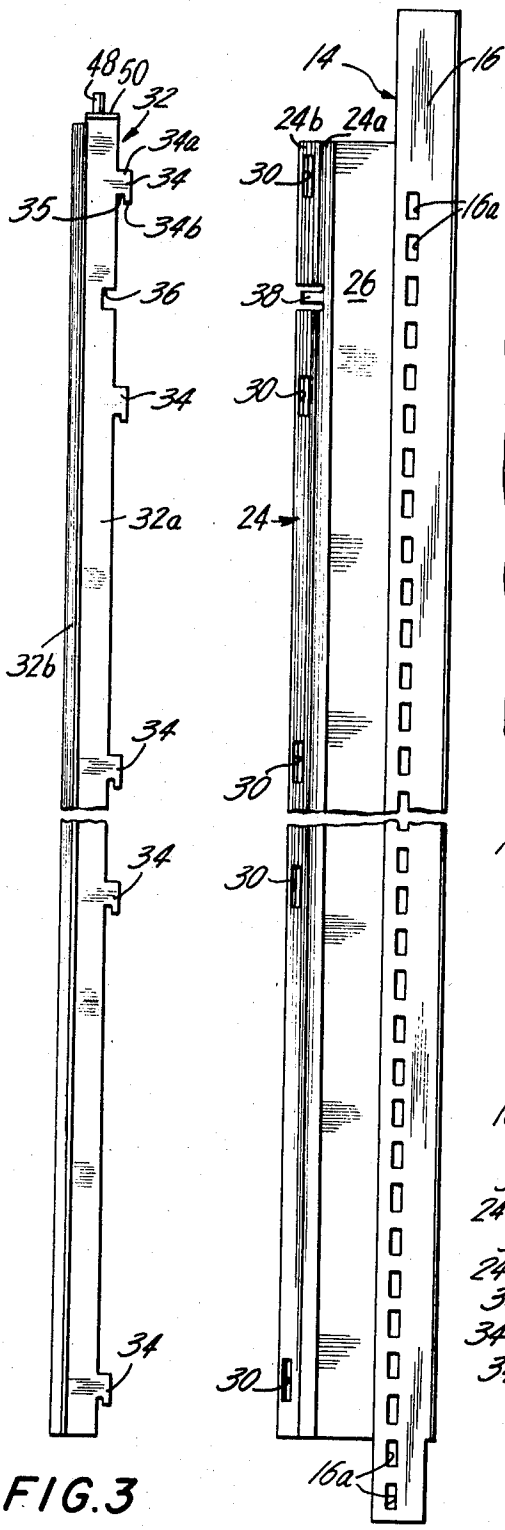


FIG. 3

FIG. 4

FIG. 6

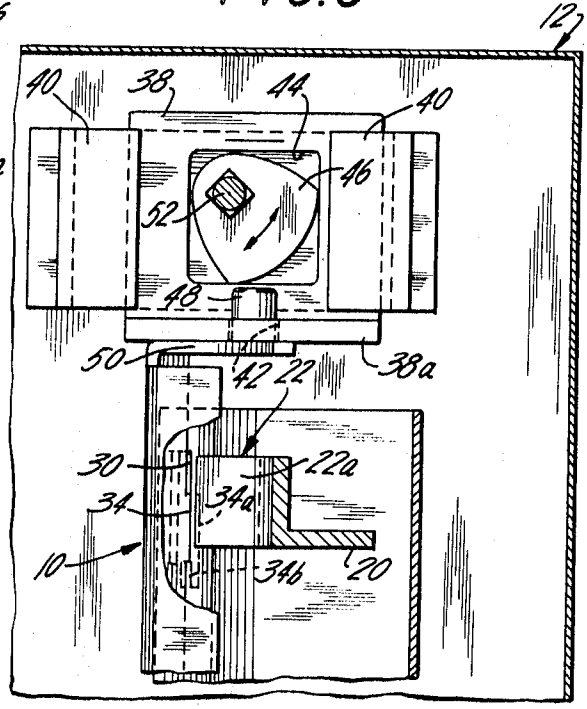
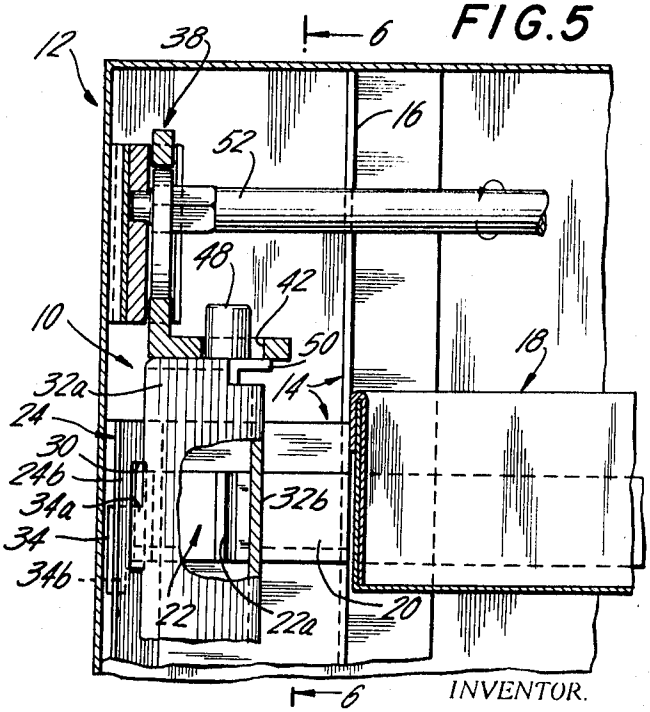


FIG. 5



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DRAWER LATCH MECHANISM

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Int. Cl. E05b 65/46; E05c 15/04
U.S. Cl. 312—217 8 Claims

ABSTRACT OF THE DISCLOSURE

A latch mechanism for drawer-type cabinets comprises a vertical latch-mounting member secured to the cabinet enclosure and a latch member mounted on the latch-mounting member for pivotal movement into and out of engagement with projecting latch pieces on the drawers. The latch member is mounted on the mounting member by means of a series of spaced-apart lugs on one of the members receivable in corresponding slots in the other of the members, the lugs having formations for retaining the latch member secured to the mounting member while affording pivotal movement.

BACKGROUND OF THE INVENTION

This invention relates to latch mechanisms of the type used to lock in closed position a stack of drawers, such as the drawers of file cabinets and similar drawer-type cabinets used for various commercial and industrial purposes.

File cabinets and other drawer-type cabinets are often provided, as a security measure, with latch mechanisms for latching and locking all the drawers in closed position. This is particularly true of industrial and commercial storage drawer cabinets of the type used for storing tools in machine shop tool cribs or small parts in assembly operation and for numerous other purposes. The problem of pilfering in industrial and commercial operations has necessitated such security measures.

One type of latch mechanism used in drawer cabinets includes a pivotal latch member engageable with latch pieces on the drawers, the hinge arrangement being basically of the piano-hinge type. In particular, the latch element forms one leaf of a long hinge, and the other leaf is secured to the cabinet enclosure, generally by riveting or welding. The piano-hinge type of latch element is costly to manufacture and install. Frequently, therefore, a latch mechanism on a drawer cabinet is an extra cost option and is provided only upon order by the purchaser. Consequently, if a purchaser should acquire a cabinet without the latch option, the installation of a latch at some later time, should it become necessary, requires time consuming and costly installation service by the manufacturer. The cost of this type of latch and the difficulty of providing a latch in a cabinet not originally equipped with one constitute serious disadvantages of the piano-hinge type latch mechanism.

SUMMARY OF THE INVENTION

There is provided, in accordance with the invention, a novel and improved latch mechanism that offers the advantgaes of reduced cost of manufacture of the parts and installation and of making possible the installation of the latch mechanism on a cabinet not originally equipped with one quickly and easily without any special tools. A latch mechanism, according to the invention, comprises an elongated latch-mounting member secured to the enclosure in a position adjacent to and in alignment with the latch pieces on the stack of drawers and an elongated latch member arranged to be secured to the mounting for pivoting about an axis longitudinally of the member into and out of latching engagement with the latch pieces on the drawers. An important feature of the invention is the manner in which the latch member is secured to the mounting member.

More particularly, one of the two members is provided with a multiplicity of elongated slots spaced lengthwise of the member, and the other member is provided with matching lugs that are received in the slots in the first member. It will be readily apparent to those skilled in the art that the lugs may be on either the latch member or the latch-mounting member and the slots formed in the other of the two members. However, for convenience of description, the invention will be further described with reference to a version of the latch mechanism in which the lugs are on the latch member and the slots are in the latch-mounting member.

One advantageous form of lug is composed of a body portion projecting from an edge of the latch member and a nose portion projecting from the body portion in a longitudinal direction, relative to the body portion, and dimensioned to define a notch or undercut between it and the edge of the latch member for receiving a small segment of the mounting member adjacent one end of the corresponding slot in the latch-mounting member. Thus, the nose portion of the lug, by such engagement, secures the latch member to the latch-mounting member.

The overall longitudinal dimension of each lug (body plus nose) is slightly less than the length of the slots in the latch-mounting member so that, to install the latch member, the lugs are inserted through the slots and the latch member is than shifted longitudinally to bring the nose portion into engagement with the back surface of the latch-mounting member. The width of the notch or undercut between the nose of each lug and the edge of the latch member is sufficient to allow pivotal movement of the latch member, relative to the latch-mounting member, between a position in latching engagement with the latch pieces on the drawers and a position clear of the latch pieces so that the drawers can be opened. A suitable mechanism is coupled to the latch member for pivoting it between the latch and release positions.

In a preferred embodiment, the latch-mounting member of the latch mechanism is constituted by a flange formation that is integral and unitary with a frame member of the cabinet enclosure. With this arrangement there is no need for separately rivoting, welding or otherwise attaching the latch-mounting member to the enclosure, since it is installed as a necessary aspect of the construction of the enclosure. This offers the distinct advantages of (1) a significant reduction in cost and, (2) taken in conjunction with the use of lugs and slots for attaching the latch member to the mounting member, making it possible to install a latch mechanism quickly and easily and at very little expense at any time that a purchaser who did not originally acquire a latch mechanism may desire to convert over to a latch.

DESCRIPTION OF THE DRAWINGS

For a better understanding of the invention, and the advantages that it provides, reference may be made to the following description of an exemplary embodiment, taken in conjunction with the figures of the accompanying drawings, in which:

FIG. 1 is a top view in cross-section showing a rear corner segment of a cabinet having a latch mechanism according to the invention;

FIG. 2 is a top view of the same cabinet segment as in FIG. 1, except that the latch mechanism is shown in plan, and only the top panel of the enclosure is broken away;

FIG. 3 is a side elevational view of the latch member of a latch mechanism of FIGS. 1 and 2;

FIG. 4 is a side elevational view of a vertical frame member for the cabinet enclosure which incorporates an integral latch-mounting member for the latch mechanism;

FIG. 5 is a side view in cross-section of a top corner segment of the cabinet of FIGS. 1 and 2, illustrating an exemplary mechanism for operating the latch mechanism; and

FIG. 6 is a front view in cross-section of the same upper corner segment of the cabinet as in FIG. 5.

DESCRIPTION OF EXEMPLARY EMBODIMENTS

As exemplary latch mechanism, which is designated generally by the reference numeral **10** in the drawings, is depicted in the drawings as being used in association with a drawer cabinet **12** of the type used in industry and commerce for such purposes as storing tools in a machine shop tool crib or small parts in an assembly operation. A line of such cabinets is manufactured by Vidmar, Inc. of Pennsylvania and is sold under the trademark "Vidmar." These cabinets are heavy-duty, stackable structures which are designed to accommodate drawers of various heights and subdivided in numerous ways, depending upon the needs of the purchaser. The cabinets of this and similar types comprise an outer enclosure of sheet metal panels on the sides, back and top and a supporting frame structure that includes vertical columns or members **14** (only one shown in the drawings) in each of the four corners. Referring briefly to FIG. 4, the vertical frame members **14** include a web portion **16** formed with a row of slots **16***a* which serve for mounting drawer-slide rails (not shown) that run from front to back of the cabinet and support the drawers for sliding in and out. The slots **16***a* provide for mounting of the rails in desired positions, depending upon the configuration of drawers for a particular customer purpose. The particular construction of the enclosure and drawers is of minor significance, as far as the present invention is concerned, but it is useful to have an understanding of the environment of the cabinet latch. Thus, the drawings further illustrate other parts of the cabinet, as shown especially in FIGS. 1 and 2, namely, a rear corner of a drawer body **18** and the rear end portion of a drawer runner **20** by which the drawer body **18** is carried and which is supported and guided by the drawer slide rails.

Each of the drawers in the stack is provided with a latch piece, the embodiment shown in the drawings having a latch piece **22** in the form of a metal angle welded or otherwise suitably attached to the runner **20** and having a leg portion **22***a* that projects at substantially 90° to the direction of movement of the drawer (represented by the arrowed lines in FIGS. 1 and 2). All of the drawers in the stack have a similar latch piece **22** located in corresponding positions so that when all of the drawers are closed, there is a vertical row of latch pieces.

Referring next particularly to FIGS. 1, 2 and 4, the vertical frame member **14** located in the corner of the enclosure adjacent the drawer runners **20** carrying the latch pieces **22** (in this instance the right rear corner) includes a flange formation **24** which, in cross-section, is generally L-shaped and consists of (1) a leg **24***a* extending at about a 45° angle inwardly from a web portion **26** of the frame member abutting the rear panel **28** of the cabinet enclosure and (2) a leg **24***b* that extends at approximately 90° with respect to the portions **24***a* back toward the rear panel, thereby providing a standoff of the leg **24***b* from the rear panel wall **28**. The leg **24***b*, as best shown in FIG. 4, is provided with a multiplicity of elongated slots **30** spaced from each other and disposed longitudinally of the member in a row. The leg **24***b* constitutes a latch-mounting member for a latch member **32**. Preferably, as described above and as shown in the drawings, the latch-mounting member forms an integral and unitary part of the rear corner vertical frame member **14** of the cabinet enclosure, but it may also be a separate part welded, rivoted, or otherwise fastened to the enclosure in a position adjacent and aligned with the vertical row of latch pieces **22** on the stack of drawers.

As may be seen in FIGS. 1, 2 and 3, the latch member **32** of the latch mechanism is generally L-shaped in cross-section and includes one leg **32***a* having disposed along its free edge a series of lugs **34**, one lug for each of the slots **30** in the leg **24***b* that constitutes the latch-mounting member of the latch mechanism. The outer leg **32***b* of the latch member forms an included angle of something less than 90° with the leg **32***a* and is so positioned, when the latch member is mounted on the latch-mounting member (as will be described below), as to be interposed in front of the front surfaces of the latch piece legs **24** and thus prevent the drawers from being opened.

More particularly, the lugs **34** on the latch member **32** include a body portion **34***a* having a dimension in the longitudinal direction of somewhat less than longitudinal dimension of the corresponding slots **30** in the latch-mounting member **24***b* and a nose portion **34***b* projecting longitudinally from the outer part of the bottom edge of the body portion **34***a* defining a notch or undercut **35** with the back edge of the latch member. The transverse dimension of the undercut **35** is slightly greater than the thickness of the latch-mounting member **24***b*, and the overall longitudinal dimension of the lugs **34** is slightly less than the longitudinal dimension of the slots **30**. Therefore, the latch member **32** may be installed on the latch-mounting member **24***b* by aligning and inserting the lugs **34** into the slots **30** and then shifting the latch member **32** down to bring the noses **34***b* of the lugs **34** down behind the mounting member at the lower ends of the slots **30** so that the undercuts **35** receive the lower edges of the slots **30**. With the latch member **32** in this position, it is retained on the mounting member. By reason of the dimensioning (as described above) of the undercut **35** relative to the thickness of the member **24***b*, the latch member **32** may be pivoted about a vertical axis aligned with the slots **30** between a latch position and a release position as shown, respectively, by solid lines and phantom lines in FIG. 2 of the drawings.

It is apparent that the latch member should be locked in a down and retained position on the latch-mounting member. To this end, the latch mechanism comprises, as may be seen in FIGS. 3 and 4, a notch on one of the members and a bendable tab on the other of the members. In the embodiments shown, the notch **36** is formed in the latch member, and a bendable tab **38** is provided by making cuts into the free edge of the latch-mounting member **24***b*. It is clear, of course, that the notch and bendable tab can be reversed. In either case, the tab **38** normally resides in the plane of the member for assembly of the two members, but when the members are assembled together in the manner described above, the tab is bent into the slot (see FIG. 1) and when so bent prevents the members from being shifted longitudinally relative to each other. Consequently, the latch member is for all intents and purposes permanently located in the secured position on the latch-mounting member. However, it can be bent back for removal of the latch member.

The provision of the latch-mounting member as an integral part of the frame member **14** during the original fabrication can be accomplished at a very modest cost, and the latch-mounting member is automatically installed in proper position on the cabinet during the construction of the enclosure. Accordingly, the time-consuming and costly separate step of independently securing the mounting member **24** on the cabinet is eliminated. Moreover, the arrangement by which the latch member is attached to the mounting member, namely by the lugs and slots, makes it possible to install a latch member on a cabinet at any time, either during initial assembly or after the cabinet has been in use and the user wants to convert over to a latch mechanism. Consequently, the disadvantages of the usual hinge arrangement used heretofore in similar cabinets are overcome.

The latch mechanism may be operated by any suitable actuating mechanism. For purposes of illustration, FIGS. 5 and 6 show an operating mechanism which is composed of a horizontally slidable, L-shaped coupling member **38** mounted above the top of the latch member by brackets **40** and provided with an elongated slot **42** (see FIG. 2) in an outwardly extending leg portion **38***a*. The slide member **38** further includes a generally rectangular opening **44** that receives a drive cam **46** carried on the end of an actuator rod **52** that extends forward along the side of the enclosure and leads to a suitable lock mechanism at the front of the cabinet. The slide member **38** is coupled to the latch member by a pin **48** that extends up from a top angle piece **50** on the latch member **32**. The piece **50** is advantageously formed integrally with the latch member **32** and initially lies in the plane of the leg **32***a* but is bent over at 90° to the leg during fabrication.

Upon rotation of the cam **46** clockwise (relative to FIG. 6) the slide member **38** is driven to the left, thereby shifting the pin slightly outwardly and to the left and pivoting the latch member **32** into an open position, as represented by the phantom lines in FIG. 2. Conversely, counterclockwise rotation of the cam **46** results in movement of the latch member to the right and in pivotal movement of the latch member **32** into the latch position, illustrated in solid lines in FIG. 2.

For most installations, the latching leg **32***b* of the latch member **32** will extend continuously and will operate simultaneously to lock all of the drawers closed. However, there may be some installations in which the user will wish to lock only some of the drawers as a group while leaving certain ones unlocked. For this purpose, the leg **32***b* may be cut away selectively at locations overlying the latch pieces of the drawers that are not to be latched at any time. In addition, the cabinet can also be operated to latch only selected drawers by pulling those drawers which are not to be latched into a slightly opened position so that the latch member will clear the inside faces of the latch pieces rather than block the front faces.

Thus, there is provided in accordance with the invention a novel and improved latch mechanism which is relatively inexpensive to produce and which is adapted to be quickly and easily installed, whether during initial fabrication of a cabinet or at any later time. The latch mechanism is also adapted to initial fabrication or later modification to provide selective latching of only a given group of drawers by merely replacing one latch element with another of different latch member configuration. It should also be mentioned that latches can be provided in both rear corners of a cabinet, one latch providing selective locking of one group of drawers and the other, another group of drawers. It is often desirable, to this end, initially to construction the cabinet with a latch mounting member in both rear corners, which also makes it possible to provide a latch at the left or the right, depending on the customer's needs and desires.

I claim:

1. A latch mechanism for a stack of drawers in an enclosure, the drawers each having a projecting latch piece disposed within the enclosure when the drawers are closed and located in corresponding positions on the drawers, comprising an elongated latch-mounting member secured to the enclosure in a position adjacent and in alignment with the latch pieces on the drawers when the drawers are closed, an elongated latch member, one of the members having a multiplicity of spaced-apart elongated openings arranged lengthwise thereof, and the other member having a multiplicity of spaced-apart lugs located in positions thereon corresponding to the positions of the openings in the said one member, the lugs being receivable through the openings in one position of the members relative to each other for installation of the latch member on the mounting member and including formations engageable upon shifting of the latch member relative to the mounting member to another position to secure the latch member to the mounting member while affording pivotal movement of the latch member relative to the mounting member about an axis lengthwise of the members, means coacting with the members for retaining the latch member in said another position, means on the latch member engageable with the latch pieces on the drawers to secure the drawers in closed position upon pivoting of the latch member into a first position and releasable from such engagement upon pivoting into a second position, and means coupled to the latch member for pivoting it about said axis between the said first and second positions.

2. A latch mechanism according to claim **1** wherein the means for retaining the latch member in the said another position on the mounting member includes a bendable tab on one of the members and a notch on the other member positioned to receive the tab, the tab being initially disposed to be free of engagement with the notch upon installation of the latch member on the mounting member and being bendable into the notch upon positioning of the latch member in the said another position on the mounting member.

3. A latch mechanism according to claim **1** wherein the mounting member is integral and unitary with a vertical frame member of the enclosure.

4. A latch mechanism according to claim **3** wherein the mounting member is generally L-shaped in cross section and includes angularly related legs, the free end of one leg being joined to the frame member and the other leg being formed with the said openings or lugs, as the case may be, to receive the latch member.

5. A latch member according to claim **1** wherein the latch member is generally L-shaped and cross section and includes a first leg portion having the said lugs or openings and a second leg portion angularly related to the first leg portion and constituting the means engageable with the latch pieces of the drawer.

6. A latch mechanism according to claim **1** wherein each lug comprises a body portion having a dimension longitudinally of the said other member substantially less than the longitudinal dimension of the opening in the said one member and a nose portion projecting from one edge of the body portion in a direction longitudinally of the member and defining a notch or undercut portion to receive a portion of the said one member adjacent the corresponding receiving opening.

7. A latch mechanism for a stack of drawers slidable in an enclosure, the drawers having a projecting latch piece disposed in a back corner of the enclosure when the drawers are closed and located in corresponding positions on the drawers, and the enclosure having a vertical back corner frame member, comprising a latch-mounting member in the form of flange formation unitary and integral with the frame member of the enclosure, the flange formation extending longitudinally of the frame member and being generally L-shaped and cross section with the end of one leg being joined to the frame member and providing a stand-off of the other leg from the enclosure wall, and the other leg being formed with elongated spaced-apart openings disposed lengthwise thereof, an elongated latch member of generally L-shaped cross section and having a multiplicity of spaced-apart attaching lugs projecting from the free edge of one of the legs thereof in positions corresponding to the positions of the openings in the mounting member, the lugs being adapted to be received through the openings in one position of the latch member relative to the mounting member for installation of the latch member on the mounting member and including formations engageable with the mounting member upon shifting of the latch member relative to the mounting member to another longitudinal position to secure the latch member to the mounting member while affording pivotal movement of the latch member relative to the mounting member about an axis lengthwise of the members, means for retaining the latch member in the said another position on the mounting member, the other leg of the latch member being en-

gageable with the latch pieces on the drawers to secure the drawers in closed position upon pivoting of the latch member to a first position and releasable from such engagement upon pivoting to a second position, and means coupled to the latch member for pivoting it between the said first and second positions selectively to latch and release the drawers.

8. A latch mechanism according to claim 7 wherein the means for retaining the latch member in the said another position on the mounting member includes a bendable tab on one of the members and a notch in the other of the members positioned to receive the tab, the tab being initially disposed to be free of engagement with the notch for installation of the latch member on the mounting member and being bendable into engagement with the notch when the latch member is positioned in the said another position relative to the mounting member.

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