

May 12, 1959

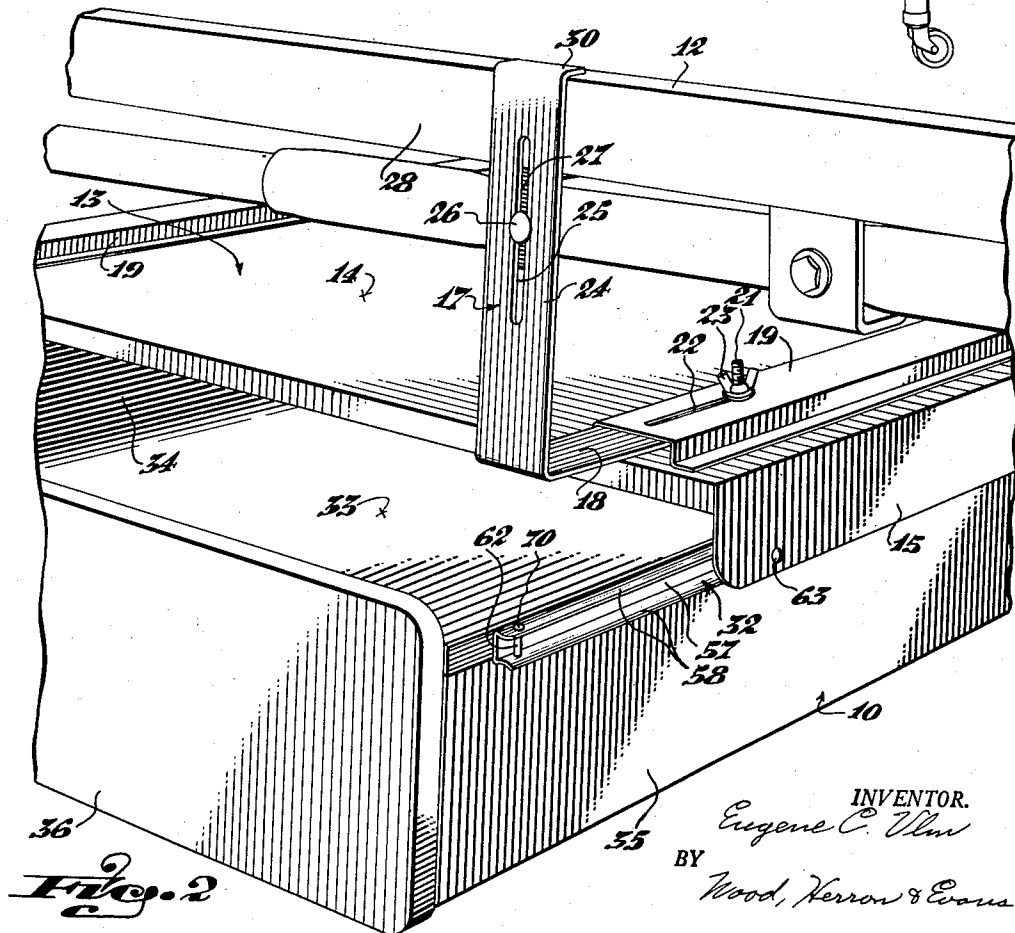
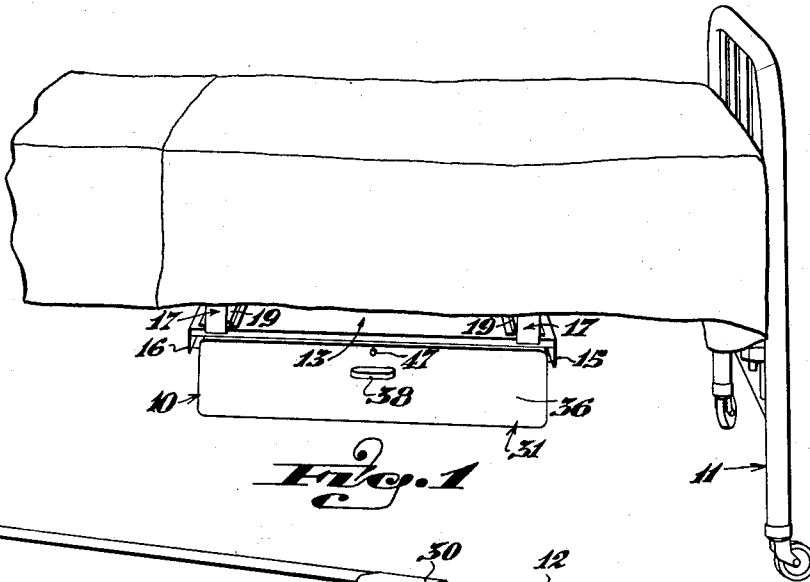
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DRAWER CONSTRUCTION

Filed Aug. 30, 1954

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

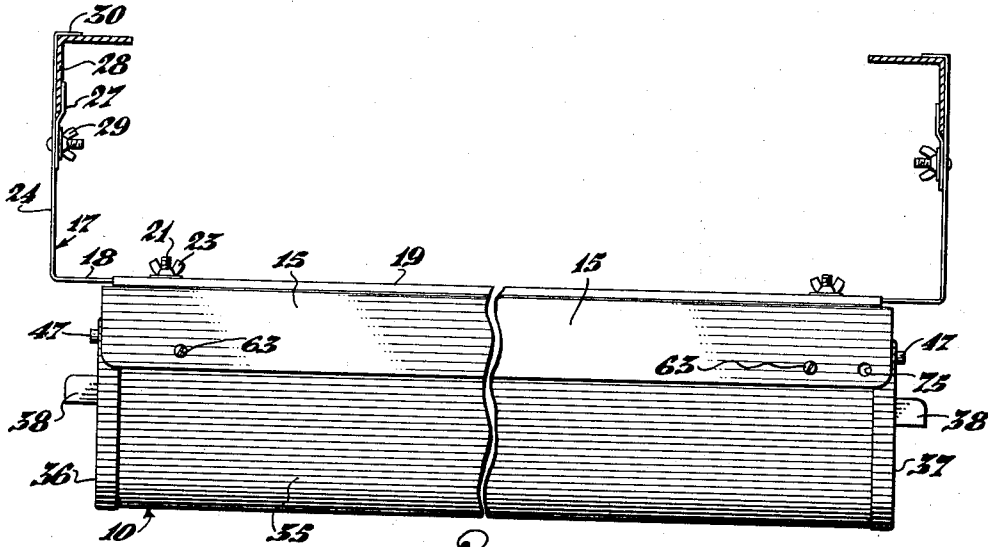


Fig. 5

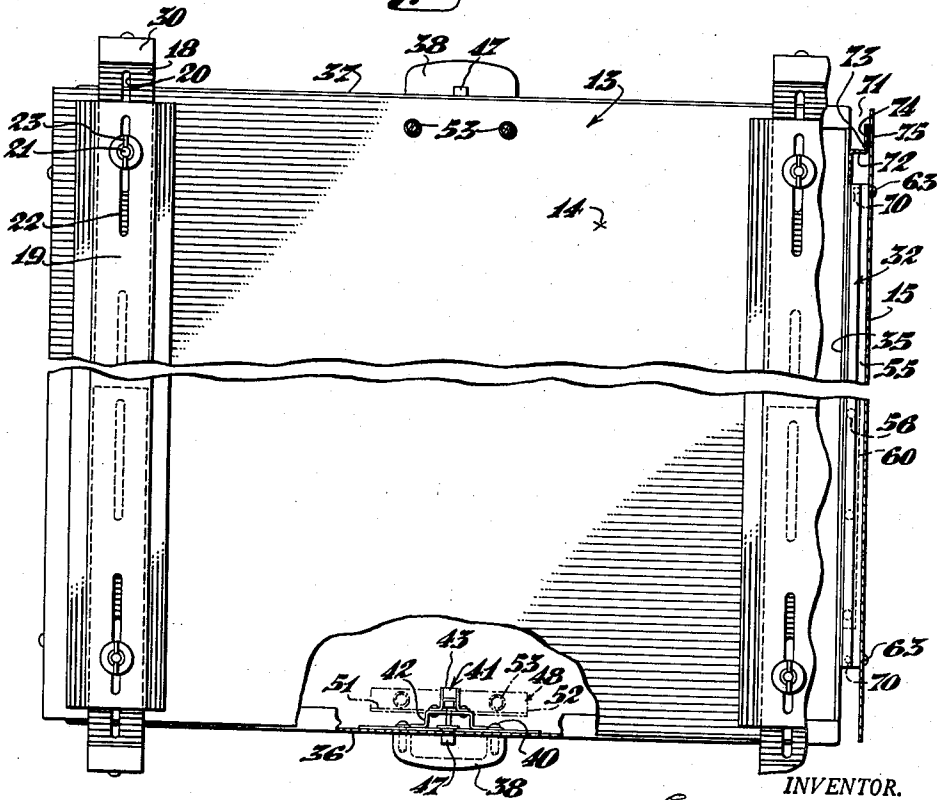


Fig. 4

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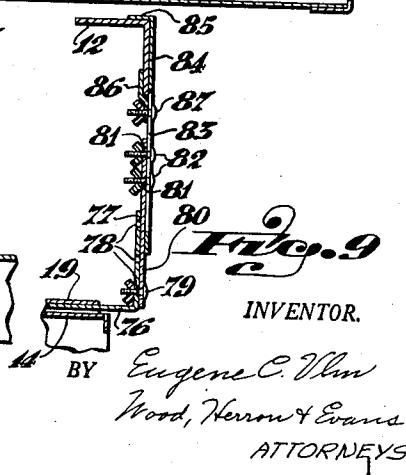
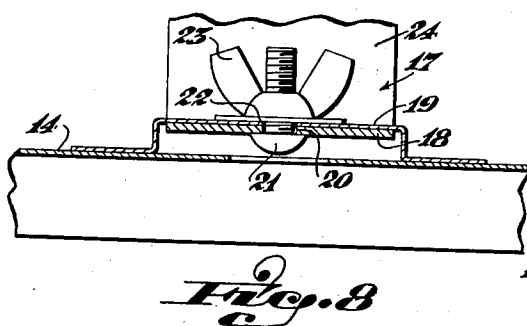
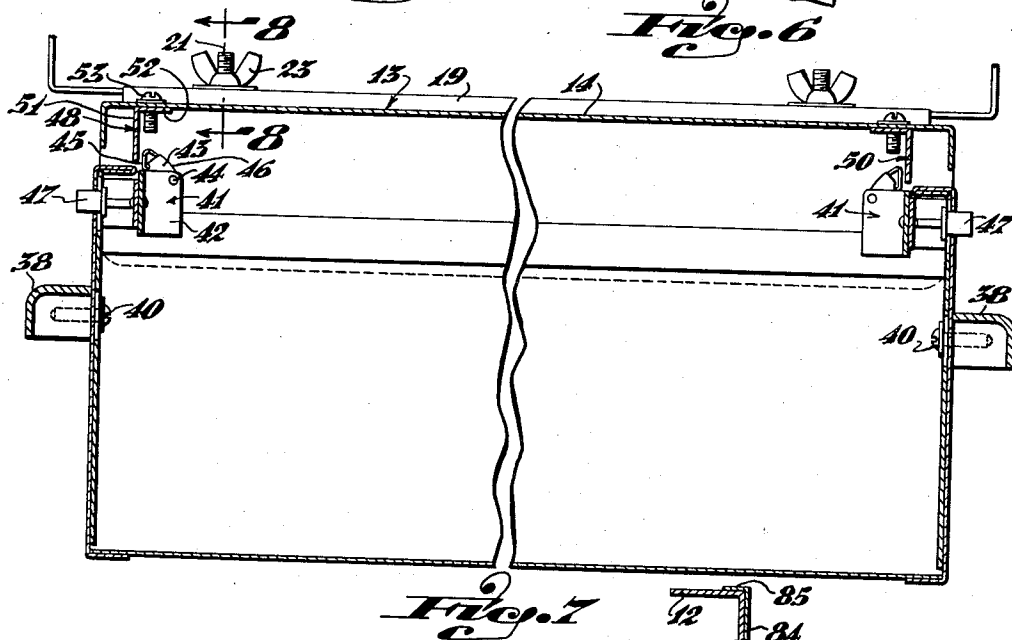
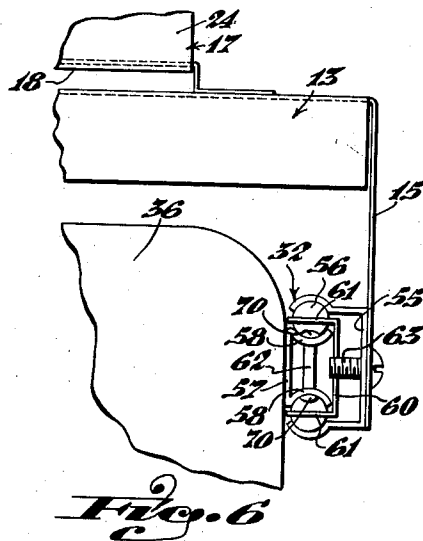
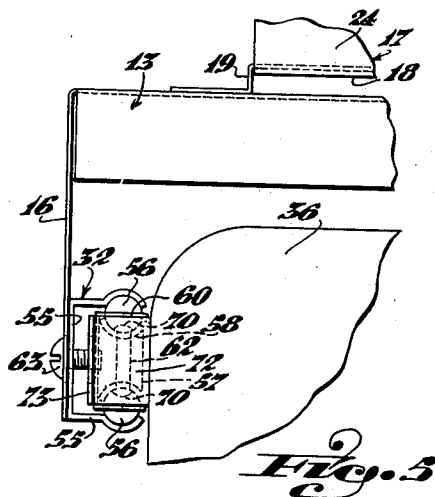
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3 Sheets-Sheet 3



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2,885,694

DRAWER CONSTRUCTION

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1 Claim. (Cl. 5—308)

This invention relates to drawers and is particularly directed to a drawer adapted to be slidably mounted beneath a bed.

In many institutions such as hospitals there is a marked shortage of space for storage of such articles as blankets, heating pads and other therapeutic equipment, clothes, and personal belongings of patients. It has previously been proposed to provide such additional storage space by mounting a drawer beneath each bed. Such a drawer is secured to the bed frame and is supported above the floor so that it occupies otherwise wasted space and yet does not interfere with anyone cleaning or polishing the floor.

One of the principal objects of the present invention is to provide a drawer, adapted to be mounted beneath a bed, and constructed so that it can be opened from either side of the bed. The provision of such a drawer is extremely advantageous since a nurse, patient, or other person needing an article stored in the drawer can reach the article from either side of the bed, thereby saving considerable walking from one side of the bed to the other. The present drawers are particularly advantageous when used with beds located in wards, dormitories or the like where the beds are frequently shifted from one wall to the other. The use of the present drawers, which can be opened from either side, eliminates the necessity of changing or adjusting the drawer each time a bed is moved against a different wall.

One of the principal advantages of the present drawer construction is that the drawer is extremely simple to operate. To open the drawer from either side of the bed, the user merely depresses a button to release a latch and pulls outwardly on a handle provided on the drawer panel. The drawer, which is mounted on ball bearings, slides outwardly until its entire interior is accessible and then is automatically stopped. When the drawer is closed, it again slides easily on its bearings until it reaches its original position where it is automatically stopped and held against further movement in either direction. The drawer is operated in exactly the same manner from either side of the bed; no additional manipulations of any kind are required, when the drawer is to be opened from one side rather than the other.

In the preferred embodiment the drawer unit comprises a cover member which is secured in place beneath the bed frame by means of a plurality of brackets which are fastened to the longitudinal bed rails. The cover member carries two spaced outer guide rails including longitudinally extending grooves adapted to receive a plurality of ball bearings which in turn support a pair of inner tracks carried by the side walls of the drawer. As explained in detail below, stop means are provided for limiting the distance which the drawer can be withdrawn in either direction. The stop means do not, however, interfere in any way with the movement of the drawer in the opposite direction. Thus, the tracking arrangement functions both to provide smooth movement of the drawer

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and also to limit the extent to which the drawer can be opened from either side of the bed.

The drawer is secured in its closed position by means of a dual latching arrangement, including spring urged retractable bolt type latches secured to the front and rear panels of the drawer. Each latch is disposed for engagement with a striker plate mounted on the under surface of the cover member intermediate the latch bolt and associated drawer panel when the drawer is in the closed position. The specific details of the latch mechanism constitute no part of the present invention. It is requisite however that the latch bolt be spring urged toward its extended position in which it engages the strikes plate. The inwardly disposed face of each of the latch bolts is angulated so that when the drawer is closed, and the striker plate engages this face it is effective to cam the bolt downwardly so that it passes beneath the plate. The forward, or outer, face of the latch bolt is preferably substantially vertical so that the striker plate does not cam the latch bolt downwardly when the drawer is pulled outwardly, but rather the striker plate functions as an abutment member to prevent movement of the drawer in that direction. However, outward movement of the drawer can be effected by pressing a button which is mechanically interconnected to the bolt in such a manner that the latch bolt is retracted whenever the button is depressed.

In the present drawer unit construction, the latches perform a double function in that they not only prevent accidental opening of the drawer, but also function to automatically stop the drawer when it is returned to its closed position. Thus, if the drawer is opened from one side of the bed, the latch bolt on the same side of the bed is retracted by depressing its button so that the bolt slides under the adjacent striker plate. When the drawer is closed the same bolt is cammed downwardly by the plate to permit the drawer to close completely. However, when the drawer reaches its closed position, the opposite latch bolt strikes its associated striker plate and prevents further movement of the drawer toward the opposite side of the bed. By that time the first latch bolt has completely passed under its plate and has sprung upwardly so that the drawer can no longer be moved in either direction without manipulating one of the latch buttons provided.

In addition to the advantages mentioned above, the present construction is also desirable since the drawer unit can be economically manufactured and assembled. Except for the latches and ball bearings, the component parts are sheet metal stampings which are readily formed and easily fabricated.

A further advantage of the present invention resides in the provision of means for applying a padlock to the drawer to prevent its unauthorized opening when the drawer is used with beds placed in army barracks, dormitories and the like.

Another advantage of the present invention is that the adjustable mounting bracket construction facilitates the mounting of the drawer in any desired position under the bed. That is, the drawer can be centered beneath the bed or can be located adjacent to one side or the other. Moreover, as will be explained more fully below, the mounting bracket construction facilitates the installation of the drawer so that it can be mounted beneath a bed by a single individual without the use of any tools.

These and other advantages of the present construction will be more readily apparent from a further consideration of the following detailed description of the drawings illustrating a preferred embodiment of the invention.

In the drawings:

Figure 1 is a partial perspective view of a bed having

a bed drawer of the present invention mounted thereon.

Figure 2 is a partial perspective view of a bed drawer showing details of the adjustable mounting brackets.

Figure 3 is a side view of the bed drawer shown in Figure 1.

Fig. 4 is a top view of the bed drawer, a portion of the cover member being broken away to show details of the latching mechanism.

Figure 5 is a partial end view of a drawer showing the guide track and ball bearings.

Figure 6 is a partial end view similar to Figure 5 showing the guide track on the opposite side of the drawer.

Figure 7 is a longitudinal cross sectional view of the drawer.

Figure 8 is a cross sectional view taken along line 8—8 of Figure 7.

Figure 9 is a side view of a modified mounting bracket.

As shown particularly in Figures 1 and 2, a drawer unit 10 constructed in accordance with the present invention is particularly adapted to be mounted beneath a hospital, barracks, dormitory or institutional bed 11 including a pair of longitudinally extending frame members 12. While the drawer construction is particularly adapted for use with beds of this type, it will be understood that the drawer can also be used with other types of beds to provide extra storage space in homes and apartments and can also be mounted beneath work tables and the like to provide storage space for tools and other articles.

The drawer unit 10 comprises a cover member 13 including a horizontally extending panel 14 and downwardly extending end flanges 15 and 16. The cover member is secured to the bed by means of four adjustable brackets 17. Since the brackets are preferably of identical construction, only one will be described. Each bracket 17 is substantially L-shaped, including a foot 18 disposed within one of the channels 19 welded or otherwise secured to panel 14 of the cover member. Foot 18 is provided with a suitable opening 20 for receiving a bolt 21 which also passes through an elongated slot 22 in channel member 19. A wing nut 23 is threaded over the bolt to fasten the foot and channel together, thereby holding bracket 17 in any desired position relative to the cover. By adjusting these brackets inwardly or outwardly along channels 19 the drawer unit can readily be mounted upon beds of different widths. Also as explained in detail below, by adjusting the brackets the drawer can be selectively positioned in the center of the bed or adjacent to one of its sides. The upstanding arm 24 of each bracket is configured to form an elongated slot 25 adapted to receive a bolt 26 passing through the slot and an opening in a clip member 27 carried by the arm. Clip member 27 includes an offset portion adapted for engagement with the downwardly extending arm 28 of the bed frame member 12 when the clip is locked in place by means of nut 29. The upper end of arm 24 of the angle bracket is overturned to provide a lip 30 for engaging the upper surface of bed frame 12.

A drawer 31 is slidably mounted beneath cover member 13 by means of two guide track assemblies 32—32. The drawer is of generally rectangular cross section and includes a bottom 33, side walls 34 and 35 and front and rear panels 36 and 37. Panels 36 and 37 are each provided with a handle 38 which is secured to the panel in any suitable manner such as by means of bolts 40. The front and rear panels also carry latching elements 41.

The exact construction of latching elements 41 constitutes no part of the present invention; consequently, the inner mechanism of these devices is not illustrated. However, the latches have been shown in sufficient detail to indicate the manner in which they operate. As shown, each latching element 41 comprises a housing 42 which is welded or otherwise secured to the front or rear panel of the drawer. Housing 42 supports a boltlike element 43 which is pivotally mounted to the upper end of the housing as at 44. The bolt, which includes a substan-

tially vertical outer face 45 and a bevelled inner face 46, is spring urged upwardly to its extended position shown in Figure 7. However, the bolt is adapted to pivot downwardly about pin 44 to a retracted position when the bevelled edge 46 engages an abutment member such as the striker plate, or when button 47 is depressed. This button is mechanically interconnected with the bolt and is reciprocally supported by the latch housing 42 so as to normally protrude through an opening in the drawer panel.

As shown particularly in Figure 7, two striker plates, 48 and 50, are mounted beneath the cover member in the path of movement of latches 41, each striker plate being disposed outwardly of the bolt of its associated latch when the drawer is in the closed position. The striker plates may be of any desired configuration, but in the preferred embodiment are formed from angle members including a depending arm 51 and a foot 52 secured to the cover member by any suitable means such as by bolts 53. If desired, either the bolt holes in the striker plate or cover member can be slotted to provide a ready means for shifting the striker plate to vary the backlash of the drawer when closed.

The means for slidably securing the drawer to the cover member are best shown in Figures 2, 5 and 6. As there shown, each of the depending end flanges of the cover member carries an inwardly facing generally U-shaped track 55 which is welded, riveted or otherwise secured to the cover member. The ends of each arm of the track are given a rounded, concave configuration to define a groove for receiving ball bearings 56. A second pair of cooperating tracks 57 are mounted on the two side walls of the drawer. Tracks 57 extend substantially the length of the drawer, the ends of the tracks being spaced slightly inwardly of panels 36 and 37 as shown in Figure 2. Each track is of generally U-shaped configuration including two longitudinally extending arcuate arms 58 adapted to be disposed between the arms of the outer brackets, which are preferably of substantially the same length as tracks 57, in such a manner that a plurality of ball bearings can be mounted within the cooperating arcuate portions of the two tracks as shown in Figure 5.

The bearings disposed between the tracks are spaced from one another by a channel shaped spacer 60, the arms 61 of which are provided with a plurality of openings for receiving the ball bearings. The spacer member is substantially shorter, for example one third the length of guide tracks, and is not secured to any other element so that it is free to travel for a limited distance back and forth along the guide tracks. The spacer member is confined by stop members, such as bolts 63, which are threaded into side flanges 15 and 16 of the cover member adjacent to the ends thereof. The stops extend inwardly from the flanges a sufficient distance to engage the ends of the spacer member but do not engage the inner guide rails secured to the drawer. As will be explained later, spacer members 60 and stops 63 cooperate with abutment members 62 secured to the ends of the inner guide rails to limit the amount which the drawer can be withdrawn from beneath the cover member. In the embodiment shown, abutment members 62 are formed by rivets which pass through bolt arms of the inner guide rails and are upset at either end to form enlarged portions 70.

In the preferred embodiment, means are provided for locking the drawer in its closed position so that clothes and other valuables can be safely stored in wards, barracks and the like. As shown, the locking means comprise an opening 71 formed at one end of the flange and a substantially Z-shaped bracket 72 welded or otherwise secured to the edge of the drawer and including an arm 73 spaced outwardly from the side of the drawer. Arm 73 is configured to form an opening 74 which is disposed relative to opening 75 in flange 16 so that the two open-

ings are in registry when the drawer is in the closed position and are adapted to receive any suitable lock such as a combination padlock.

When mounting a drawer unit of the present invention upon a bed frame the first step is to adjust the position of one set of brackets 17 relative to cover member 14 so that the bed drawer unit will be disposed in the desired position with respect to the sides of the bed. After the brackets are correctly positioned, they are secured in place by tightening wing nuts 23 to firmly secure the brackets to channel members 19. The lips 30 of these brackets are then placed over one side bed frame member 12. Next, clip members 27 are brought into engagement with the frame member and wing nuts 29 are tightened down so that the bed frame is firmly clamped between the clips and vertical arms 24 of the brackets. The opposite brackets are then slidably positioned along channels 19 until the brackets engage the opposite bed frame member 12. The second set of brackets is then clamped in place by tightening wing nuts 23 and the clips 27 carried by these brackets are brought into engagement with the bed frame member as explained above.

To open the drawer from either side of the bed, the user grasps handle 38 on the drawer panel facing him and depresses button 47 disposed above the handle. This causes bolt 43 to pivot downwardly allowing it to pass beneath its associated striker plate 50. The drawer is then pulled outwardly and slides very smoothly on ball bearings 56. By the time the drawer has been opened a sufficient distance so that its entire interior is readily accessible, the spacer channels 60 have been moved forward by the frictional force of the ball bearings to a point where they engage forward stop members 63. Also, the inner rails attached to the drawer have moved forward a sufficient distance so that the abutment members 62 disposed at the rear end of the channel are brought into engagement with the last ball bearings carried by the spacer members. The abutment members cannot pass beneath the balls, which are constrained between the inner and outer rails, and the guide strip cannot be shifted further outwardly, consequently, the drawer is firmly held against further outward movement.

When the drawer is closed, it slides inwardly along the ball bearings until it reaches its normally closed position beneath the cover member. As the drawer approaches this position the bevelled face 46 of the bolt member is engaged by adjacent striker plate 50, whereupon the bolt is pivoted downwardly and passes beneath the striker plate. As soon as the bolt passes free of the striker plate it is spring urged upwardly to its projecting position shown in Figure 7. As the bolt springs upwardly the vertical face 45 of the bolt carried by the opposite latch member engages the striker plate at the opposite end of the cover and prevents the drawer from being pushed further toward the other side of the bed. The drawer is thus automatically stopped and held in its closed position, since both latch mechanisms are again rendered effective to prevent movement of the drawer in either direction until one of the buttons is depressed. The drawer is operated from the opposite side of the bed in exactly the same manner as that just described except that the opposite handle is grasped and the opposite latch button is depressed.

It will readily be appreciated that the cover member is firmly held against canting or twisting during the manipulation of the drawer by the engagement of the four mounting brackets with channels 19. Moreover, these channels also function to distribute the load over a greater area of the mounting bracket feet and in addition serve to rigidify the cover member. Thus the drawer unit is particularly well adapted to withstand rough usage of the type encountered in army barracks and institutes.

If it is desired to lock the drawer in the closed position, a padlock of any suitable configuration is inserted

through opening 75 in one of the depending flanges of the cover member and through opening 74 in the Z-shaped bracket 72 carried by the drawer.

From the foregoing description of the principles of the present invention and the above disclosure of a preferred embodiment, those skilled in the art will readily comprehend the various modifications to which the invention is susceptible. For example, as shown in Figure 9 a modified form of vertically adjustable mounting bracket can be employed for securing the cover member to a bed frame. The modified form of the mounting bracket comprises a foot member 76 which fits within channel 19 and is held in place by a wing nut as in the preferred embodiment. The upstanding portion 77 of the foot member includes a plurality of vertically spaced apertures 78 adapted to receive a bolt 79 carried by a lower aperture in spacer member 80. The spacer member also is provided with a pair of upper openings 81 which receive bolts 82 engaging slot 83 in vertical member 84, which includes a turned over lip 85, as in the preferred embodiment. A clip member 86 is carried by an uppermost bolt 87 also passing through slot 83 and is disposed for engagement with the depending portion of the side bed frame member 12 as explained above.

Having described my invention I claim:

A drawer unit which may be opened from either end thereof, comprising a cover member, means for attaching said cover member to the underside of a bed frame, a guide track carried at each side of said cover member, each of said guide tracks being of a generally U-shaped configuration, and including arcuate ball receiving grooves, a drawer including a bottom, front and rear panels and side walls, a guide rail secured to each side wall of said drawer, each of said guide rails including an arcuate ball receiving groove and being disposed to reside within the guide tracks, a plurality of ball bearings interposed between said guide tracks and rails, a freely mounted spacer member embracing each of said rails and including openings for receiving said ball bearings, stop members carried by said cover member adjacent the ends thereof and disposed for abutment with said spacer members to limit the outward movement thereof in both directions, abutment members carried by said rails adjacent to each end thereof and adapted for engagement with corresponding inward ends of said spacer members to limit the outward movement of said rails relative to said spacer members, and latching means associated with each end of said drawer for selectively preventing outward movement of said drawer, whereby the motion of said drawer in either direction along said tracks is limited so that said drawer cannot be withdrawn beyond a fully extended position.

References Cited in the file of this patent

UNITED STATES PATENTS

311,910	Moeller	Feb. 10, 1885
739,581	Bragunier	Sept. 22, 1903
948,728	Hendricks	Feb. 8, 1910
996,811	Tarbet	July 4, 1911
1,143,443	Schramm	June 15, 1915
1,177,390	Daniel	Mar. 28, 1916
1,250,946	Belden	Dec. 25, 1917
1,408,269	Christensen	Feb. 28, 1922
1,542,920	Swenson	June 23, 1925
1,684,889	Russ	Sept. 18, 1928
1,736,108	Anderson	Nov. 19, 1929
1,888,947	Buck	Nov. 22, 1932
2,534,350	Gussack	Dec. 19, 1950
2,559,380	Wikman	July 3, 1951
2,567,630	Whittier	Sept. 11, 1951

FOREIGN PATENTS

600,418	Germany	July 23, 1934
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