May 28, 1940. A. C. KENNEDY 2,202,209

ROLLER BEARING DRAWER AND GUIDE

Filed Dec. 5, 1938

Fig. 1

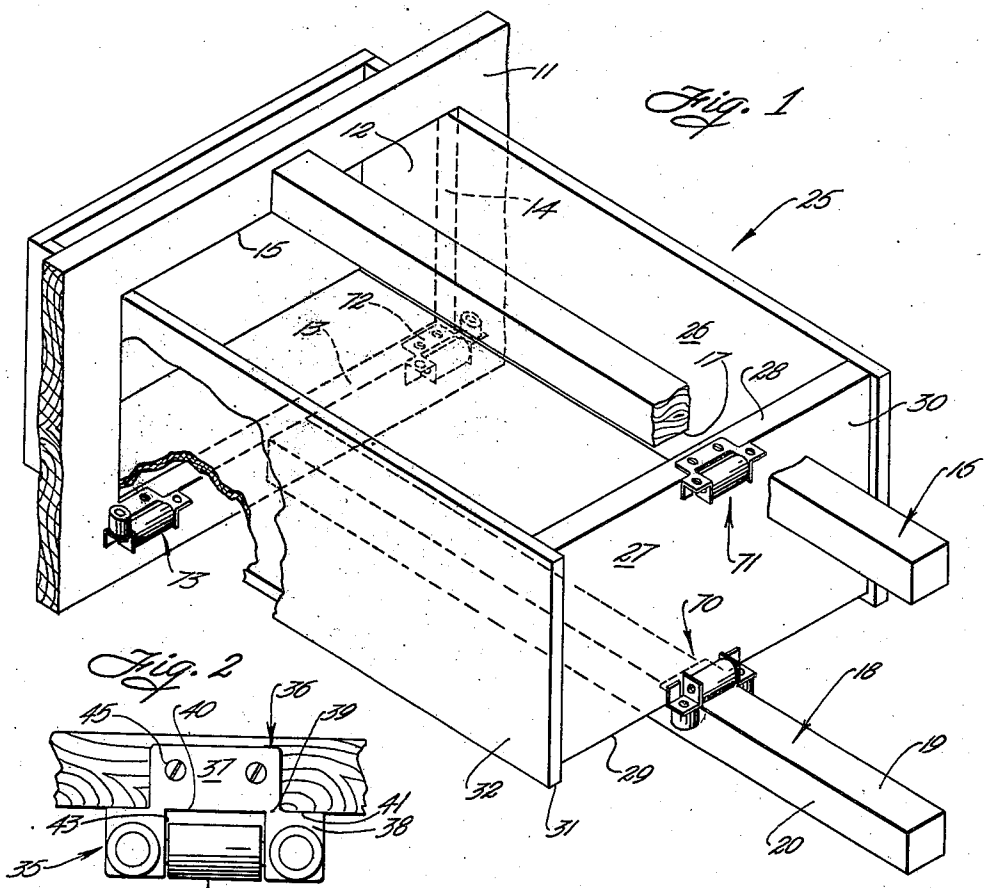


Fig. 2

Fig. 3

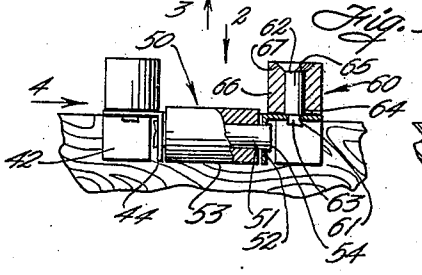


Fig. 4

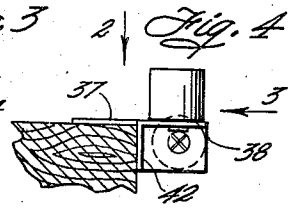


Fig. 5

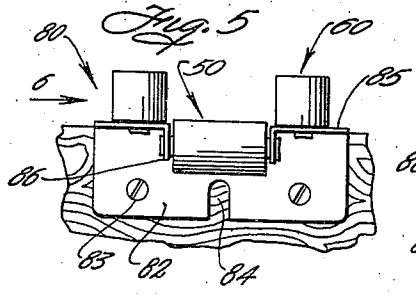
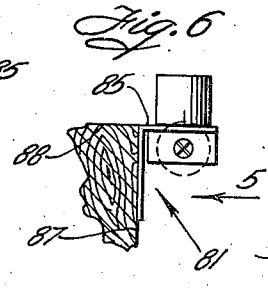


Fig. 6



Inventor
ALBERT C. KENNEDY

By Hazard & Miller
Attorneys

Patented May 28, 1940

2,202,209

UNITED STATES PATENT OFFICE

2,202,209

ROLLER BEARING DRAWER AND GUIDE

Albert C. Kennedy, Long Beach, Calif., assignor of one-half to Janice C. Kennedy, Long Beach, Calif.

Application December 5, 1938, Serial No. 243,973

14 Claims. (Cl. 45—77)

My present invention may be considered as an improvement on or further development of my Patent No. 1,866,853 entitled Roller bearing drawer guide, issued July 12, 1932.

Such patent illustrates a typical construction of sliding drawers of built-in cabinet constructions in which extending inwardly from the drawer opening in the wall or other fixture there are upper and lower guide bars, such guide bars being utilized to guide the drawer and the lower bar functioning to support the inner end of the drawer, the upper bar functions to react to an upward thrust of the inner end of the drawer when this is pulled out of the drawer opening a sufficient amount to cause the portion inside of the fixture to be lighter than the part of the drawer outside and hence develop a slight upward tilt of the inner end and an upward pressure against the upper guide bar. In this construction the sides of the drawer are supported and guided on roller guides located on the fixture adjacent the drawer opening.

While the construction illustrated in my patent works or is operative satisfactorily, nevertheless certain of the roller guides are somewhat difficult to properly install, especially in building fixtures and where the drawers are in confined spaces some of the fittings, especially those supporting the sides of the drawer, are somewhat too large in my patent. In addition the construction of the patent requires four and sometimes five different shapes of brackets and assemblies of the rollers. One of the main objects of this invention is to simplify the roller guide and have this of such construction that the main bracket and main horizontal rolls may all be the same. Such bracket is also constructed so that it may be used without any marginal or vertical guide rollers or be provided with a roller fitted to make either a left or a right guide or with double rollers to form a guide engaging opposite sides of a fixed structure. Another characteristic of the present bracket relates to the manner of mounting these on the drawer and the fixed structure in that there is a flange provided which may be secured by nails to the edge of a board and whether this forms the edge of the wall fixture at the drawer opening or the lower or upper edges of the inner end of the drawer. The present construction allows the guides to be made without unnecessary projecting portions and hence adapts the invention to more confined spaces. Further as to attachment to the wall fixture, the guides may be readily attached after the wall fixture is built in place.

Another feature of my invention relates to the detail construction of the axles, especially for the vertical guide rollers, these being designed to be riveted or upset into place without creating a friction of the roller adjacent a lip or the like on which the axle and roller is mounted. My invention also comprehends certain modified forms of the bracket and roller guide for attachment to the face of a board in distinction to attachment to the edge.

My invention is illustrated in connection with the accompanying drawing, in which:

Fig. 1 is a perspective view of a part of a built-in fixture with the drawer guides, the drawer fitting therein and the various roller guides.

Fig. 2 is a plan of one of the drawer guides taken in the direction of the arrow 2 of Fig. 3 illustrating the complete guide, such as used on the inner lower edge of a drawer, this illustration however being inverted from the position in which the device is actually used.

Fig. 3 is a front elevation of Fig. 2 taken in the direction of the arrow 3 partly broken away.

Fig. 4 is a side elevation taken in the direction of the arrow 4 of Fig. 3.

Fig. 5 is an elevation of a modified construction of roller guide adapted to be attached to the inner face of the inner end of a drawer, this being shown inverted from the position of actual use.

Fig. 6 is a side elevation taken in the direction of the arrow 6 of Fig. 5.

Referring to the general construction of fixture as shown in Fig. 1, the wall fixture is indicated by the numeral 11, this having a drawer opening 12 defined as having a lower edge 13, two opposite side edges 14 and a top edge 15. Extending inwardly from the inner face of the wall fixture and above the opening there is an upper guide bar 16, the lower surface 17 being either in alignment with or slightly above the upper edge 15 of the drawer opening. The lower guide bar 18 also extends inwardly from the wall fixture and has its upper edge 19 aligned with or slightly below the lower edge 13 of the drawer opening. This is illustrated as having parallel side edges 20. It is the usual practice to make the upper and lower guides 16 and 17 both of the same dimensions although this is not necessary. The drawer designated 25 is indicated as having opposite sides 26, an inner end 27, such end having an upper edge 28, a lower edge 29 and an inner face 30. The sides 26 are designated as having a lower edge 31 and an outer face 32. These various details are given to indicate in a further description the manner in which the various

drawer guides made up for the vertical fitting are utilized and operate with the various surfaces.

Dealing with the complete roller guide of Figs. 2, 3 and 4, such being designated by the numeral 35, this employs a supporting bracket designated 36, such being provided with a horizontal flange 37 with horizontal lips 38 connected to the flange by a neck strip 39. These lips are in the same plane as the flange 37. The flange has an inner edge 40 which is in substantial alignment with the edge 41 of the lips. Extending at right angles to the lips there is a vertical flange 42, the inside of such flange and the edge 40 being substantially in the same plane. The lips 38 are defined as having an inside edge 43 and at this edge there are a pair of parallel ears 44. Such ears are therefore at right angles to the plane of the flange 37 and the lips 38 and are at right angles to the flanges 42. The large flange 37 is provided with perforations 45 for attaching nails, screws or the like and these are the only places necessary to attach the bracket to the supporting structure such as the edge of a board.

The main horizontal roller mounting 50 has an axle 51 which extends through perforations 52 in the ears 44. Prior to the insertion the roller 53 is fitted over the axles, the axles are then upset as indicated at 54, this being a type of riveting, however, the ears are so spaced that this upsetting action of the axle does not bind the roller but leaves this free to rotate on the axle and confined by the ears. It is to be noted that the roller is of sufficient diameter that it projects slightly above the plane of the large flange 37 and the lips 38.

These lips 38 are utilized for mounting vertical roller assemblies designated 60 and each lip is provided with a perforation 61 in which is fitted an axle 62. The axle 62 has a reduced diameter end 63 forming a shoulder 64. The reduced section fits snugly in the perforation 61 and the shoulder engages the upper face of the lip 38. The upper end of the axle has a beveled head 65. The roller 66 is journalled on the axle and has a countersunk end 67 to receive the beveled head of the axle. The projecting portion of the reduced section 63 is then upset or riveted which securely attaches the axle to the lip 38 and on account of the shoulder 64 having a snug fit against the surface of the lip, the upsetting action cannot bind the edge of the roller 64 against the lip, the short axles being made of sufficient length in proportion to the rollers so that this upsetting or riveting may take place without any binding action. In the construction illustrated in Figs. 2, 3 and 4, there are two of these rollers, one mounted on each of the lips.

In the assembly, the complete roller guide is utilized in the position designated 70 in which the flange 37 is attached to the under edge 29 of the inner end of the drawer and the rollers extend beyond the inner face 30 of such end. The center roller 53 operates on the upper surface 19 of the lower guide bar 18 and the two rollers 66 engage the opposite side faces 20 of the same guide bar, therefore there is a three place contact of the complete roller guide attached to the inner end of the drawer with the lower guide.

The guide 71 to engage the upper guide bar omits the two vertical roller assemblies 60 but for the sake of simplicity of manufacture, the construction is made with the lips 38 which are necessary to provide material to support the ears 32 for the main roller. This device is attached with the flange 37 secured to the upper edge 28 of the inner end of the drawer and the roller extending beyond the inner face 30. This main roller 53 is thus in a position to engage the under-surface 17 of the upper guide bar 16. It is not necessary therefore to have the vertical rollers as the drawer is already guided by the vertical rollers on the lower guide 70.

The guides attached to the wall fixture and designated 72 and 73 are made in rights and lefts, that is, one of the roller assemblies 60 is omitted, therefore in the construction shown both guides have the flange 37 secured to the lower edge 13 of the drawer opening 12 of the wall fixture 11. The main or horizontal roller 53 engages the under-edge 31 of the side 26 whereas the single vertical roller engages the outside face 32 of the drawer side, therefore the drawer is guided by the horizontal rollers on both sides engaging the lower edges of the sides of the drawer and by the vertical rollers which engage the outside face of both sides of the drawer. Therefore by using the four guide roller assemblies, the drawer is properly guided for straight line motion in opening and closing of such drawer.

By this construction of bracket assemblies it will be noted that the flange 37 is the main supporting element for the bracket but in the usual practice this is fitted on the horizontal top edge of a board. The downwardly depending vertical flanges at right angles to the horizontal flange 37 engage the face of the board and thus present a rigid attachment in that these receive a thrust due to weight placed on the main roller 53. They also resist any twist due to a lateral pressure on one or other of the small vertical rollers 66. The attachment is quite simple for as above mentioned it is only necessary to use nails through the flange 37.

In Figs. 5 and 6 there is illustrated a modified construction of bracket and roller guide assembly designated by the assembly numeral 80. This has a right angular bracket 81 provided with a vertical flange 82, this having perforations 83 for attaching screws or the like and also a notch 84 for an additional screw or to be used in centering the bracket. At right angles to the flange 82 there are a pair of horizontal lips 85 and bent downwardly from the inner edge of these lips there are a pair of opposite ears 86. These ears form a journal support for the horizontal roller mounting 50 which is the same as presented in Figs. 1 through 4, the ears 86 being the equivalent to the ears 44. The vertical roller assemblies 60 are mounted on the horizontal lips 85 which are equivalent in function to the horizontal lips 38 of Figs. 2, 3 and 4, the vertical rollers having the same type of axle and being riveted in position.

In the use of the bracket assembly of Figs. 5 and 6 it will be apparent that the construction may be provided with two vertical rollers 60 as illustrated in Fig. 5 or with only one roller positioned as a left or a right hand construction or with no vertical rollers and will therefore correspond repectively to the mounting indicated at 70, 72 and 71 of Fig. 1. In this case however the flange 82 is attached to the face 87 of a board and the horizontal lips 85 are usually in alignment with the upper edge 88 of the same board. The main roller 53 extends slightly above the upper edge of the board.

Various changes may be made in the details of construction without departing from the spirit or

scope of the invention as defined by the appended claims.

I claim:

1. In a device as described, in which a fixture has a drawer opening and is provided with upper and lower guide bars extending inwardly from the opening, a drawer mounted to slide through said opening and between the bars, the combination of a roller mounting having a flange secured to the lower surface of the drawer and provided with a pair of lips in the same plane as the flange, a pair of vertical guide rollers mounted on the lips and a horizontal roller with a mounting means between the said lips, the roller being adapted to engage the upper surface of the lower guide bar, there being a pair of roller mountings one on each side of the drawer opening at the lower corners thereof each having a flange fitted on the lower edge of the opening of the fixture and each having a pair of lips one of such lips having a vertical roller mounted thereon, means forming a mounting for a horizontal roller between the lips, the horizontal roller being adapted to engage underneath the sides of the drawer.

2. A device as described in claim 1, a fourth roller mounting having a flange and a pair of lips in alignment therewith, the flange being secured to the upper edge of the inner end of the drawer with the lips extending rearwardly, ears secured to the lips and at right angles thereto, and a horizontal roller journaled in said ears, the horizontal roller being positioned to engage the underside of the upper guide bar.

3. A device as described in claim 1, the means forming the mounting of the horizontal roller on the lips including each of the lips being provided with an ear at right angles to the plane of the lips and of the flange, the ears being spaced apart and parallel, and the horizontal roller having an axle mounted in the said ears.

4. A roller mounting for drawers comprising a bracket having a flange and a pair of lips in the same plane, the lips being spaced apart, each lip being connected by a neck to the main flange, a pair of vertical flanges extending from the lips at right angles to the plane of the main flange, the lips having means constructed and adapted each for mounting a vertical roller, and a means for mounting a horizontal roller between the two lips, means for mounting the horizontal roller comprising an ear connected to each lip, the ears facing towards each other and being at right angles to the plane of the main flange and the lips and also at right angles to the secondary flanges, the horizontal roller having an axle extending between the said ears.

5. In a device as described, a roller mounting including a bracket having a main horizontal flange constructed and adapted to attaching to an edge of a board, a pair of lips extending from the said flange and in the same plane therewith, a narrow neck connecting each lip with a corner portion of the flange, the lips being spaced apart and adapted to be positioned offset from the edge of the board, an ear connected to each lip and occupying a vertical plane, a shaft mounted between the two ears, and a horizontal roller journaled on said shaft.

6. A device as described in claim 5, each of the lips having a perforation and at least one of the lips having a vertical shaft extending through said perforation and riveted thereto with a vertical roller journaled on such vertical shaft.

7. In a device as described, a roller mounting including a bracket having a main horizontal flange, a pair of horizontal lips each connected to the said flange by a neck strip, the main flange being substantially rectangular and each lip being substantially rectangular, the neck strips being at the corners, a pair of ears each connected to a lip and occupying a vertical plane extending downwardly from the plane of the said flange and lips, a secondary flange connected to each lip and extending vertically and in the same direction as the pair of ears, the vertical planes of the ears and the secondary flanges being at right angles, a shaft journaled in the ears and a horizontal roller mounted on such shaft.

8. A device as described in claim 7, each lip having a perforation, at least one of the perforations having a vertical shaft extending therethrough, such shaft being provided with a shoulder and upset to form a riveted attachment and a vertical roller mounted on such vertical shaft.

9. In a device as described, in which a fixture has a drawer opening and is provided with upper and lower guide bars extending inwardly from the opening, a drawer mounted to slide between said opening and between the bars, the combination of a roller mounting having a vertical flange to engage a vertical surface at the inner end of the drawer, means to attach the bracket to the inner end of the drawer, a pair of horizontal lips spaced apart, a pair of vertical ears one attached to the inner edge of each lip, a horizontal roller journaled between the ears, a pair of vertical rollers mounted on the lips, a horizontal roller engaging the upper edge of the lower guide bar and the vertical rollers engaging each side, a second and third guide roller mounting each including a bracket with a pair of lips spaced apart, a vertical flange connected to each lip, means to attach each bracket to the fixture adjacent the door opening, a pair of ears one secured to each lip positioned vertically, a horizontal roller journaled in the ears, a vertical roller mounted on one of the lips of each bracket, the horizontal rollers engaging the underside of the drawer and the vertical rollers the outer side of the drawer.

10. A device as described in claim 9, a fourth roller mounting having a bracket with a pair of horizontal lips spaced apart, a vertical flange connected to each lip, means to attach the bracket to the inner end of the drawer, a pair of vertical ears one attached to the inner edge of each lip, a horizontal roller being positioned to engage the lower edge of the upper guide bar.

11. A roller drawer guide comprising in combination a roller mounting bracket of integral sheet material including a pair of lips spaced apart and in the same horizontal plane, a pair of vertical ears, each depending downwardly directly from an edge of a lip, said ears being parallel and facing towards each other, a vertical flange depending downwardly from another edge of each lip, the flange being at right angles to the ears and constructed and adapted to contact one side of a board, means for attaching said bracket to such board, and a horizontal roller journalled between said ears and having its periphery spaced from the vertical flange on a lip, each lip having a perforation adapted to form with the lip the sole mounting of a vertical roller.

12. A roller drawer guide comprising in combination a roller mounting bracket of integral sheet material including a pair of lips spaced apart and in the same horizontal plane, a pair of vertical ears, each depending downwardly directly from

an edge of a lip, said ears being parallel and facing towards each other, a vertical flange depending downwardly from another edge of each lip, the flange being at right angles to the ears and constructed and adapted to contact one side of a board, means for attaching said bracket to such board, and a horizontal roller journaled between said ears and having its periphery spaced from the vertical flange on a lip, each lip having a perforation and one of the lips having a vertical axle with a shoulder riveted at said perforation, a vertical roller on the axle, the periphery of the vertical roller being spaced from the vertical flange, said axle and the lip to which it is riveted forming the sole support for the vertical roller.

13. A roller bearing drawer guide comprising in combination a roller mounting bracket of integral sheet material including a single main vertical flange to engage the face of a board, with means for attaching said flange to the board, a pair of lips each extending laterally directly from the upper edge of said flange, the lip being in the same horizontal plane and spaced apart, an ear depending from an edge of each lip, the ears being in vertical planes spaced apart and at right angles to the flange, and a horizontal roller journalled between said ears and having its periphery spaced from the vertical flange, each lip having a perforation adapted to form with the lip the sole mounting of a vertical roller.

14. A roller bearing drawer guide comprising in combination a roller mounting bracket of integral sheet material including a single main vertical flange to engage the face of a board, with means for attaching said flange to the board, a pair of lips each extending laterally directly from the upper edge of said flange, the lips being in the same horizontal plane and spaced apart, an ear depending from an edge of each lip, the ears being in vertical planes spaced apart and at right angles to the flange, and a horizontal roller journalled between said ears and having its periphery spaced from the vertical flange, each lip having a perforation and one of the lips having a vertical axle with a shoulder riveted at said perforation, a vertical roller on the axle, the periphery of the vertical roller being spaced from the vertical flange, said axle and the lip to which it is riveted forming the sole support for the vertical roller.

ALBERT C. KENNEDY.