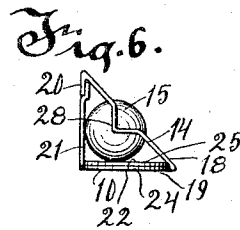
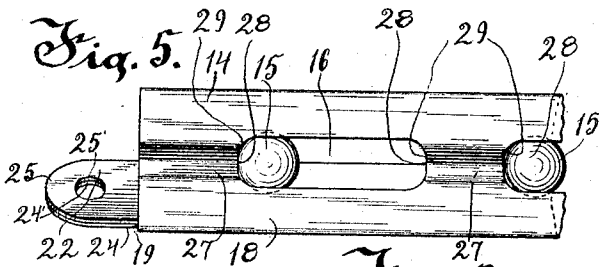
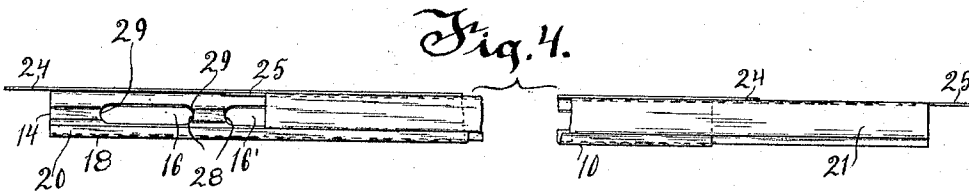
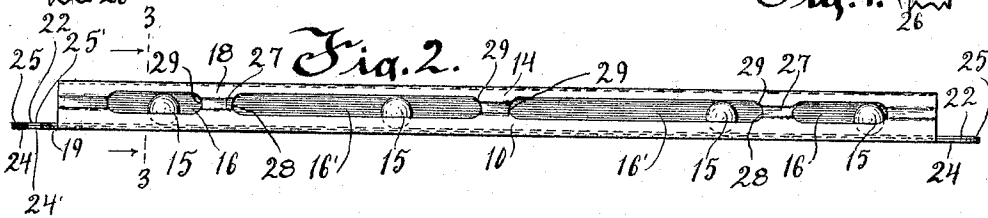
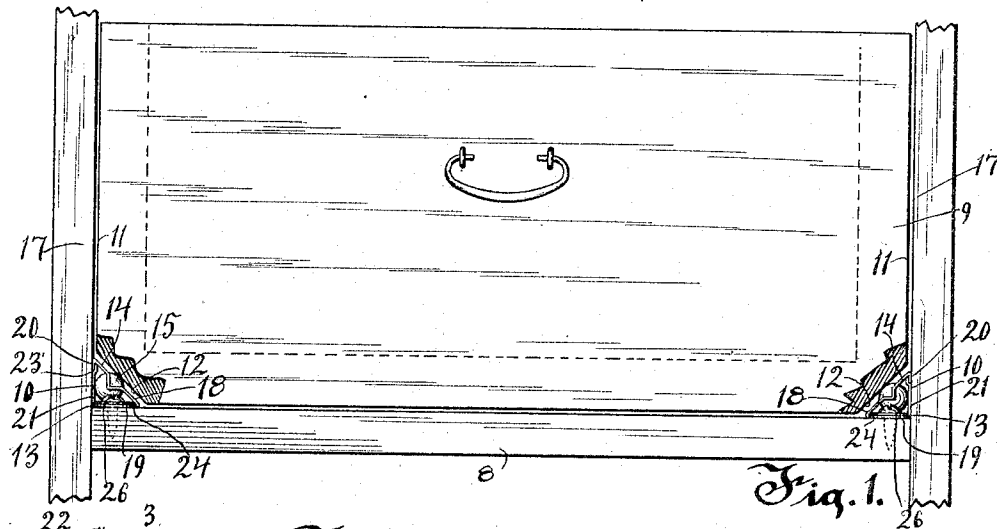
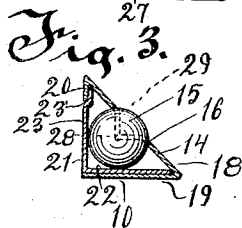


1,203,014.

Patented Oct. 31, 1916.



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UNITED STATES PATENT OFFICE.

ROBERT H. KROOS, OF SHEBOYGAN, WISCONSIN.

DRAWER-GUIDE.

1,203,014.

Specification of Letters Patent.

Patented Oct. 31, 1916.

Application filed February 17, 1915. Serial No. 8,714.

To all whom it may concern:

Be it known that I, ROBERT H. KROOS, a citizen of the United States, and resident of Sheboygan, in the county of Sheboygan and State of Wisconsin, have invented new and useful Improvements in Drawer-Guides, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

This invention relates to improvements in drawer guides more particularly although not solely adapted for furniture use.

It is one of the objects of the present invention to provide a drawer guide in which friction will be eliminated to a considerable extent and the parts will be prevented from binding while in use.

A further object of the invention is to provide a drawer guide which will facilitate the movement of a drawer and which will prevent the tilting of the drawer downwardly when withdrawn almost entirely out of its casing.

A further object of the invention is to provide a drawer guide which may be easily attached to drawers of ordinary construction.

A further object of the invention is to provide a drawer guide having anti-friction means constructed to eliminate the possibility of the parts becoming accidentally misplaced or getting out of their proper position.

A further object of the invention is to provide a drawer guide in which anti-friction balls are adapted to travel in runways for certain distances and then revolve with the minimum amount of friction during the further movement of the drawer.

A further object of the invention is to provide a drawer guide of the anti-friction ball type in which the ball container is of novel construction and is easily assembled.

A further object of the invention is to provide a drawer guide which is of simple construction, is strong and durable and is well adapted for the purpose desired.

With the above and other objects in view the invention consists of the improved drawer guide and its parts and combinations as set forth in the claims, and all equivalents thereof.

In the accompanying drawing in which the same reference characters indicate the same parts in all of the views: Figure 1 is a front view of a portion of an article of furniture provided with the improved drawer

guides, portions of the drawers being broken away to more clearly show the guides; Fig. 2 is a side view of one of the improved guides, a part being in section; Fig. 3 is a transverse sectional view of the guide taken on line 3—3 of Fig. 2; Fig. 4 is an inverted rear view of the guide casing, parts of the casing being partly separated; Fig. 5 is an enlarged detail view of one end portion of the guide; and Fig. 6 is an end view of the improved guide.

Referring to the drawing the numeral 8 indicates a portion of a casing or piece of furniture having a slidable drawer 9 provided with the improved guides 10.

In order to accommodate the improved guides, the lower corner edges of the side portions 11 of the drawer are beveled off inwardly downwardly as indicated by the numeral 12 and the guides 10 which are triangular in form in cross section are mounted in the corner spaces 13 of the casing formed by the beveled edges.

The upper angled faces 14 of the guides are spaced a slight distance from the beveled edges of the drawer to avoid contact therewith and anti-friction balls 15 positioned within the guides and projecting through openings 16 and 16' in the angled faces of the guides are engaged by said beveled edges and centered and spaced between the side faces 17 of the casing. The medial openings 16' are of slotted or elongated form and of a length to permit the anti-friction balls 15 to freely roll therein approximately the length of movement the drawer is pulled outwardly and thus prevent to a large extent, the frictional engagement of the balls with the end edge portions of the angled faces forming the slots, while the end openings, though of elongated form, are of less length than the medial openings to hold the balls in position to support the drawer when the drawer is pulled outwardly.

As the ball openings are of less width than the diameter of the balls, the balls cannot be displaced or knocked out when the drawer is withdrawn from the casing.

Each guide casing is formed of two strips of metal of which the outer strip 18 is bent to form the angular face 14, before mentioned, the bottom portion 19 and the upper rear edge portion 20. The bottom and rear edge portions are bent at acute angles with reference to the face portion 14, and the L-shaped inner casing strip 21 is slid longitudinally

dinally into the outer strip 18 and is held therein against lateral movement by the overlapping bottom and rear edge portions 19 and 20 of the outer strip 18. The bottom portion 22 of the inner strip 21 serves to reinforce the bottom portion 19 of the outer strip and the rear portion 23 of said inner strip forms an inclosing back for the guide so that the anti-friction balls positioned within the guides between the inner and outer strips and with portions projecting through the elongated slots and with other portions bearing upon the two inner faces of the inner strip will be securely but freely revolvably held within the guides.

The upper edge portion 23' of the inner strip is offset inwardly to form a rear surface flush with the upper rear edge portion 20 of the outer strip.

The bottom portions of both the outer and inner strips project outwardly endwise to form ears 24 and 25 which are provided with registering openings 24' and 25' through which screws or other fastening means 26 extend. The fastening means also serves to lock the two strips together against independent longitudinal movement.

In order to eliminate friction when the anti-friction balls reach the ends of their elongated openings the angular face portions of the outer strips in alinement with the center portions of the openings are bent inwardly in the form of V-shaped angles or grooves as indicated by the numeral 27 so that the inner edges or apexes 28 of the V-shaped end portions will aline with the axis of the balls at points in horizontal alinement with the centers of the balls, and the balls will only contact with said apex edges or points upon reaching the end of their rolling movement, due to the fact that said apex edges are slightly in advance of the end edge portions 29 of the angular portion 14. This construction prevents the balls from wedging between the end edges of the angled face portions of the outer strip and the inner strip and thus permit the balls to freely revolve after their rolling or traveling movement has ceased.

From the foregoing description it will be seen that the improved drawer guide is of very simple construction and is well adapted for the purpose described.

What I claim as my invention is:

1. A drawer guide, comprising strips of angled material connected together, one of said strips provided with an elongated opening, and a ball mounted between the strips of material and projecting partly through the elongated opening, one of said strips having a portion bent inwardly to a position in the path of movement of the ball to stop the travel of said ball before it reaches the end of the opening.

2. A drawer guide, comprising strips of

angled material connected together with portions overlapping throughout their length and breadth, one of said strips provided with an elongated opening and with an inwardly bent stop portion, and a ball mounted between the strips and projecting partly through the elongated opening, said opening being of less width than the diameter of the ball and the stop portion being positioned to be engaged by the ball before the ball travels to the end of the elongated opening.

3. A drawer guide, comprising strips of angled material endwise and slidably connected together and with their bottom portions overlapping, one of said strips provided with an elongated opening and with an inwardly bent stop portion, and a ball mounted between the strips and projecting partly through the elongated opening, said opening being of less width than the diameter of the ball and the stop portion being positioned to be engaged by the horizontal central portion of the ball before the ball travels to the end of the elongated opening.

4. A drawer guide, comprising an outer strip of angled material having a face portion, a bottom portion and an upper rear edge portion, the face portion being provided with an elongated opening and the portions of the face portions adjacent the ends of the opening being bent to form inwardly extending stop projections, an inner strip of material, said strips being longitudinally slidably connected together to form a casing of triangular shape in cross section, and a ball mounted between the strips and projecting partly through the elongated opening, said opening being of less width than the diameter of the ball and the stop projections being positioned to be engaged by the ball before the ball travels to either end of the opening.

5. A drawer guide, comprising an outer strip of angled material having a face portion, a bottom portion extending the full width of the guide and an upper rear edge portion, the face portion being provided with an elongated opening and the portions of the face portion adjacent the ends of the opening being bent to form inwardly extending stop projections, an inner strip of angled material having a rear portion and a bottom portion, said strips being longitudinally slidably connected together to form a casing of triangular shape in cross section, the bottom portions of said strips having eyed overlapping projecting ears, and a ball mounted between the strips and projecting partly through the elongated opening, said opening being of less width than the diameter of the ball and the stop projections being positioned to be engaged by the ball before the ball travels to either end of the opening.

6. A drawer guide, comprising an outer strip of angled material having a face portion, a bottom portion extending the full width of the guide and an upper rear edge portion, the face portion being provided with an elongated opening and the portions of the face portions adjacent the ends of the opening being bent to form inwardly extending stop projections, an inner strip of angled material having a rear portion and a bottom portion, said strips being longitudinally slidably connected together to form a casing of triangular shape in cross section and of double thickness along the bottom portion, and a ball mounted between the strips and projecting partly through the elongated opening, said opening being of less width than the diameter of the ball and the stop projections being positioned to be engaged by portions of the ball in horizontal alinement with its axis before the ball travels to either end of the openings.

7. A drawer guide, comprising an outer strip of angled material having a face portion, a bottom portion and an upper rear edge portion, the face portion being provided with an elongated opening and the portions of the face portions adjacent the ends of the opening being bent to form inwardly extending stop projections, an inner strip of angled material having a rear portion and a bottom portion, said strips being longitudinally slidably connected together to form a casing of triangular shape in cross section, the bottom portions of said strips overlapping each other throughout their length and breadth and having eyed pro-

jecting ears, and a ball mounted between the strips and projecting partly through the elongated opening, said opening being of less width than the diameter of the ball and the stop projections being positioned to be engaged by portions of the ball in horizontal alinement with its axis before the ball travels to either end of the openings.

8. In combination with a casing having a drawer opening and a slidable drawer therefor having beveled edges, of guide members therefor comprising guide casings formed of two strips of material both of which are of triangular form in cross section and one of said strips of each casing having elongated openings in their angled faces adjacent to the beveled drawer edges, some of said openings being of greater length than the others and the portions of the angled face forming the ends of the openings being bent inwardly to form stop projections, and balls mounted within the casing and having an engagement with two sides of the casing and projecting through the openings and being engaged by the adjacent beveled edges of the drawers, the stop projections being positioned to be engaged by portions of the balls in horizontal alinement with the axis of the balls, said stops serving to stop the travel of said balls before they reach the ends of the elongated openings.

In testimony whereof I affix my signature, in presence of two witnesses.

ROBERT H. KROOS.

Witnesses:

EDWARD ZELLE,
WILLIAM KERBER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."