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DRAWER SLIDE

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9 Claims. (Cl. 45—77)

This invention relates to drawer slides and is more particularly concerned with one designed for use with the drawers of sheet metal cabinets.

An outstanding objection to previous drawer slides has been the noisy operation of rollers and the fact that grit and dirt interfere with easy rolling action, and most roller type drawer slides accordingly work harder than would be expected considering the anti-friction purpose of the rollers, and such slides also wear out quickly due to the same cause. The instability of the drawers supported on rollers has been another objection and has necessitated special provisions to prevent drawers from drifting open when closed. It is, therefore, the principal object of my invention to provide fiber slide blocks instead of rollers in connection with sheet metal drawer slides to overcome the objections mentioned, namely, to provide for easy and quiet operation while at the same time providing for the clearing away of grit and dirt from the track surfaces in the slides in the relative movement between the slide blocks and the slides, the fiber of the blocks, in addition to giving quiet operation by reason of the avoidance of metal to metal contact, being of advantage from the standpoint of giving greater resistance to wear. The surface to surface engagement of the blocks with the track surfaces makes for greatly reduced unit bearing pressure and thereby reduces the tendency to wear, while at the same time avoiding the instability which obtained where rollers were used, so that there is less danger of drawers tending to drift open when closed. Furthermore, with square blocks centrally pivoted on the slide rails, it is obvious that when the slide blocks become worn to an appreciable extent on one side they can be turned to present a new surface for wear and, hence, the square slide blocks afford many times the amount of service obtainable with rollers.

Another object of the invention consists in the provision of improved slide rails and improved means for mounting the stationary slides in the cabinets to facilitate assembling.

The invention is illustrated in the accompanying drawing, in which—

Figure 1 is a perspective view of one of a pair of drawer slides made in accordance with my invention, an intermediate portion of the structure being broken away to enable showing the same on a larger scale;

Figs. 2 and 3 are vertical sections on the lines 2—2 and 3—3 of Fig. 1, looking in the direction of the arrows, a lower corner portion of the drawer being illustrated in both figures and a

portion of the adjacent wall of the cabinet being also shown in Fig. 2;

Fig. 4 is a horizontal sectional detail on the line 4—4 of Fig. 1, and

Fig. 5 is a side view looking at the inner side of a companion drawer slide structure.

The same reference numerals are applied to corresponding parts throughout the views.

The reference numeral 6 in Figs. 2 and 3 designates a portion of a drawer adapted to be supported at opposite sides by drawer slide structures indicated generally by the reference numerals 7 and 8 within a sheet metal or other cabinet, portions of which are indicated at 9 and 9a in Figs. 1 and 2. The left hand drawer structure 7, shown on a smaller scale in Fig. 5, it will be understood is a companion for the right hand drawer structure 8 shown on a larger scale in Fig. 1, and, therefore, corresponding parts in these two views are numbered alike.

Each drawer slide structure comprises a stationary guide rail 10 and a movable slide rail 11. The guide rail 10 has a slide block 12 pivotally mounted at 13 in the front end thereof, whereas the slide rail 11 has a slide block 14 pivotally mounted in the rear end thereof, as at 15. The slide rail 11 has a lower inwardly directed horizontal flange 16 for support of the drawer thereon and has an upper horizontal outwardly projecting flange 17 providing a track surface 18 on the underside thereof on which the slide block 12 is arranged to operate. The outer edge of the flange 17 is bent downwardly as at 19 to limit lateral displacement of the slide rail 11 relative to the slide block 12, the block 12 having a reduced central hub portion 20 to space the main body portion of the block with respect to the guide rail 10 so that the edge portion 19 of the flange 17 has working clearance between the slide block 12 and the guide rail 10, as clearly appears in Fig. 2. The guide rail 10 throughout the major portion of the length thereof has the channel cross-section shown in Fig. 3, providing the upper horizontal flange 21 with a track surface 22 on the bottom thereof and the lower horizontal flange 23 with the track surface 24 on the top thereof, the slide block 14 on the slide rail 11 operating between the surfaces 22 and 24 with working clearance and being arranged to slide along the surface 24 when the drawer is past the midpoint in closing, but being adapted to slide on the surface 22 when the drawer is past the midpoint in opening. An upturned outer edge portion 25 on the lower flange 23 cooperates with the slide block 14 to limit sidewise displacement

between the rails 10 and 11 in the same manner as the edge portion 19 on the rail 11 as previously described. The block 14 has a reduced neck portion 20 similarly as the block 12 to space the main body portion of the block with respect to the slide rail 11 and allow adequate working clearance between the block and rail for the edge portion 25 of the flange 23, as clearly appears in Fig. 3.

When the drawer is pulled out as far as it will go, a struck-in "eyebrow" projection 25 on the slide rail 11 forwardly spaced from the rear slide block 14 strikes the front slide block 12 and serves as a limiting stop, whereupon the drawer may be lifted, pivoting on the pivots 15 of the rear slide blocks 14 to raise the stop projections 26 clear of the front slide blocks 13 and thus permit withdrawal of the drawer with the two slide rails 11 from the two guide rails 10. It will be noticed that the guide rails 10 have their upper flanges 21 cut across, as at 27, in rearwardly spaced relation to the front slide blocks 12 and that the front portions 21a of these flanges on the two guide rails 10 are bent upwardly so as to provide an opening in the top of the front end portions of the guide rails 10 through which the rear end portions of the slide rails 11 can be entered or removed in the insertion or removal of the drawer. The lower flange 23 is also cut across near the front end of the guide rail 10, as indicated at 28, and the front portion of the flange is bent downwardly into the same vertical plane with the flange 21a as at 23a. The flanges 21a and 23a are perforated, as indicated at 29 and 30, to receive screws 31 for fastening the front end of the guide rails 10 to the adjacent side walls 32 of the cabinet 9. A tongue 33 is struck out from the vertical plane of the web portion 34 of each guide rail 10 at the rear end thereof, and is arranged to be entered in a notch 35 provided in the front edge 36 of an upright member 37 in the rear of the cabinet, both guide rails 10 being thus adapted for quick and easy assembling in the cabinet at their rear ends, following which the screws 31 are entered through the holes 29 and 30 in the front ends to fasten the rails 10 in place. The rear end portion of the upper flange 17 of each of the slide rails 11 is cut away, as indicated at 38 in Fig. 5, to expose the top of the slide block 14 for engagement with the track surface 22 on the bottom of the flange 21.

In operation, the two pairs of slide blocks 12 and 14 slidably support the drawer 6 by means of the slide rails 11 cooperating with the guide rails 10 in the manner described. With the drawer supported on the elongated top surfaces of the blocks 12 and the elongated bottom surfaces of the blocks 14, there is sufficient stability so that the drawer is not apt to drift open, and, hence, the usual safeguards necessary with other constructions may be eliminated with a proportionate saving in cost, the simplification being also of advantage from the standpoint that it eliminates another possible source of trouble should the latch or other means provided for that purpose fail to function properly. The drawer is found to slide open easily and smoothly because the fibre slide blocks 12 and 14 in their operation on the track surfaces 18 and 24 wipe these surfaces clear of dirt and grit, whereas rollers grind the dirt and grit between the rollers and the track surface, thus giving resistance to easy movement and causing excessive wear on the contacting parts. The avoidance of metal to metal contact is furthermore of advantage from the standpoint

of quiet operation, the fiber blocks 12 and 14 having a distinct sound deadening action. Where metal rollers were used in metal to metal contact with the slides, they had a tendency to transmit sound to the cabinet as a sounding board, thus producing the familiar rumbling noise. The fiber blocks slide on the metal track surfaces with very little friction and, if desired, the surfaces may be coated with graphite or other lubricant to make for still easier operation and reduce wear to a minimum. The rounded or chamfered edges on the blocks 12 and 14 insure sliding contact of the blocks on the track surfaces 18, 22, and 24 in spaced relation to the flanges 19 and 25 on the guide rails, so that the fillets at the juncture of these flanges with the track surfaces will not interfere with the easy operation of the drawer slide. The decreased unit bearing pressure afforded by the length of bearing contact on each slide block, as distinguished from the high unit bearing pressure existing with the line contact of rollers on tracks, also accounts for the easy operation and decreased wear obtained with the present construction. The blocks 12 and 14 being square afford at least two diametrically opposed working surfaces on each and, hence, when the blocks have worn down to an appreciable extent on one side, the drawer can be removed and the blocks turned around through 180° to present new surfaces for wear, thus greatly increasing the life of the structure. Four working surfaces may be provided on each block, if desired. When the drawer is pulled out beyond the half-way point, the slide blocks 14 shift from contact with the lower track surfaces 24 to the upper track surfaces 22, thus supporting the drawer against sagging. The outward movement is limited by the engagement of the stops 26 with the backs of the blocks 12. The drawer when pulled out as far as it will go can be readily removed by raising the front end so as to move the stops 26 upwardly clear of the tops of the blocks 12, whereupon the drawer can be pulled out still farther and is removable once the rear slide blocks 14 are moved to a position close to the blocks 12, the blocks 14 finding support on the lower flanges 23 of the guide rails 10 all the way out and being movable upwardly out of said rails past the front ends of the upper flanges 21.

It is believed the foregoing description conveys a good understanding of the objects and advantages of my invention. The appended claims have been drawn to cover all legitimate modifications and adaptations.

I claim:

1. A drawer slide structure comprising in combination with a guide rail providing upper and lower horizontal longitudinal track surfaces and a companion slide rail providing an upper horizontal longitudinal track surface, of a pair of prismatic slide blocks, each presenting a plurality of elongated surfaces on the periphery thereof for sliding engagement with a support, one pivoted on the front end of the guide rail for sliding engagement of one of its elongated peripheral surfaces with the upper track surface on the slide rail and the other pivoted on the rear end of the slide rail for sliding engagement of peripheral surfaces on opposite sides thereof interchangeably with the lower and upper track surfaces on the guide rail.

2. A drawer slide structure comprising in combination with a metallic guide rail formed to provide upper and lower horizontal longitudinal flanges providing track surfaces thereon, and a

companion metallic slide rail formed to provide an upper horizontal longitudinal flange providing a track surface thereon, of a pair of non-metallic prismatic slide blocks, each presenting a plurality of elongated surfaces on the periphery thereof for sliding engagement with a support, one pivoted on the front end of the guide rail for sliding engagement of one of its elongated peripheral surfaces with the upper track surface on the slide rail and the other pivoted on the rear end of the slide rail for sliding engagement of peripheral surfaces on opposite sides thereof interchangeably with the lower and upper track surfaces on the guide rail.

3. A drawer slide structure comprising in combination with a guide rail providing upper and lower horizontal longitudinal track surfaces and a companion slide rail providing an upper horizontal longitudinal track surface, of a pair of slide blocks, one pivoted on the front end of the guide rail for sliding engagement with the upper track surface on the slide rail and the other pivoted on the rear end of the slide rail for sliding engagement interchangeably with the lower and upper track surfaces on the guide rail, the slide blocks being of regular polygonal form, each providing elongated bearing surfaces on the periphery thereof and substantially equidistant from the pivot point, whereby the blocks may be turned from one operative position to another to present unused bearing surfaces for use after other bearing surfaces have been worn.

4. A drawer slide structure comprising in combination with a metallic guide rail formed to provide upper and lower horizontal longitudinal flanges providing track surfaces thereon, and a companion metallic slide rail formed to provide an upper horizontal longitudinal flange providing a track surface thereon, of a pair of non-metallic slide blocks, one pivoted on the front end of the guide rail for sliding engagement with the upper track surface on the slide rail and the other pivoted on the rear end of the slide rail for sliding engagement interchangeably with the lower and upper track surfaces on the guide rail, the slide blocks being of regular polygonal form, each providing elongated bearing surfaces on the periphery thereof and substantially equidistant from the pivot point, whereby the blocks may be turned from one operative position to another to present unused bearing surfaces for use after other bearing surfaces have been worn.

5. A drawer slide structure comprising in combination with a guide rail providing upper and lower horizontal longitudinal track surfaces and a companion slide rail providing an upper horizontal longitudinal track surface, of a pair of slide blocks, one pivoted on the front end of the guide rail for sliding engagement with the upper track surface on the slide rail and the other pivoted on the rear end of the slide rail for sliding engagement interchangeably with the lower and upper track surfaces on the guide rail, the slide blocks each having a plurality of elongated bearing surfaces provided thereon, arranged upon turning of the block from one op-

erative position to another to be presented for engagement with the track surfaces interchangeably.

6. A drawer slide structure comprising in combination with a metallic guide rail formed to provide upper and lower horizontal longitudinal flanges providing track surfaces thereon, and a companion metallic slide rail formed to provide an upper horizontal longitudinal flange providing a track surface thereon, of a pair of non-metallic slide blocks, one pivoted on the front end of the guide rail for sliding engagement with the upper track surface on the slide rail and the other pivoted on the rear end of the slide rail for sliding engagement interchangeably with the lower and upper track surfaces on the guide rail, the slide blocks each having a plurality of elongated bearing surfaces provided thereon, arranged upon turning of the block from one operative position to another to be presented for engagement with the track surfaces interchangeably.

7. A drawer slide structure comprising, in combination, a guide rail formed to provide upper and lower horizontal longitudinal track surfaces thereon, a companion slide rail formed to provide an upper horizontal longitudinal track surface thereon, and a pair of slide blocks one mounted on the front end of the guide rail having an elongated top surface for sliding engagement with the upper track surface on the slide rail and the other mounted on the rear end of the slide rail having substantially parallel elongated top and bottom surfaces for sliding engagement interchangeably with the upper and lower track surfaces on the guide rail.

8. A drawer slide structure comprising, in combination, a metallic guide rail formed to provide upper and lower horizontal longitudinal track surfaces thereon, a companion metallic slide rail formed to provide an upper horizontal longitudinal track surface thereon, and a pair of non-metallic slide blocks, one mounted on the front end of the guide rail having an elongated top surface for sliding engagement with the upper track surface on the slide rail, and the other mounted on the rear end of the slide rail having substantially parallel elongated top and bottom surfaces for sliding engagement interchangeably with the upper and lower track surfaces on the guide rail.

9. A drawer slide structure comprising, in combination, a metallic guide rail formed to provide upper and lower horizontal longitudinal track surfaces thereon, a companion metallic slide rail formed to provide an upper horizontal longitudinal track surface thereon, and a pair of non-metallic slide blocks, one pivoted on the front end of the guide rail having an elongated top surface for sliding engagement with the upper track surface on the slide rail, and the other pivoted on the rear end of the slide rail having substantially parallel elongated top and bottom surfaces for sliding engagement interchangeably with the upper and lower track surfaces on the guide rail.

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