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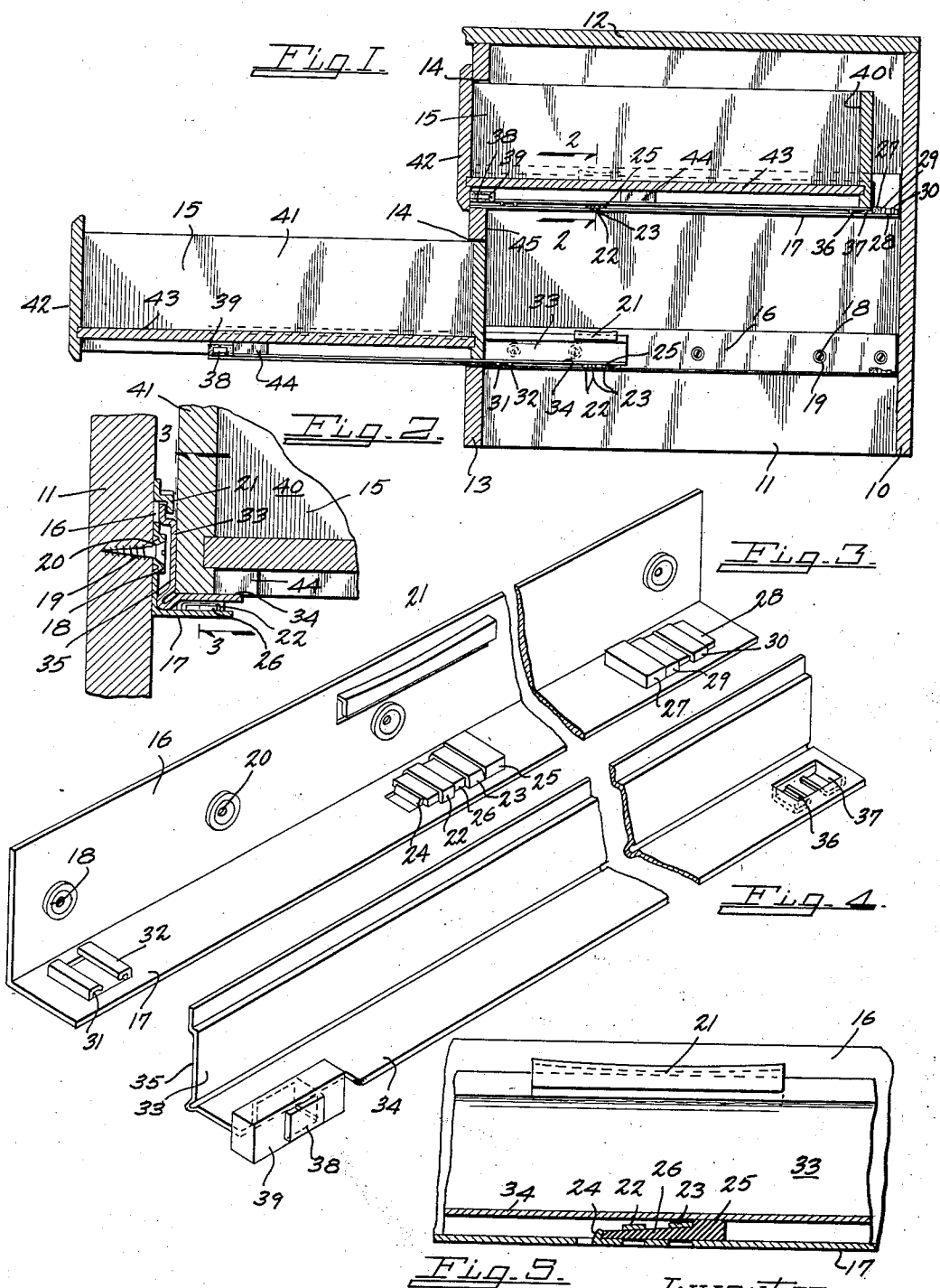
R. I. EUSTIS

2,012,530

DRAWER SLIDE

Filed May 16, 1932

2 Sheets-Sheet 1



INVENTOR  
R. I. EUSTIS  
BY J. J. S. Miller  
ATTORNEYS

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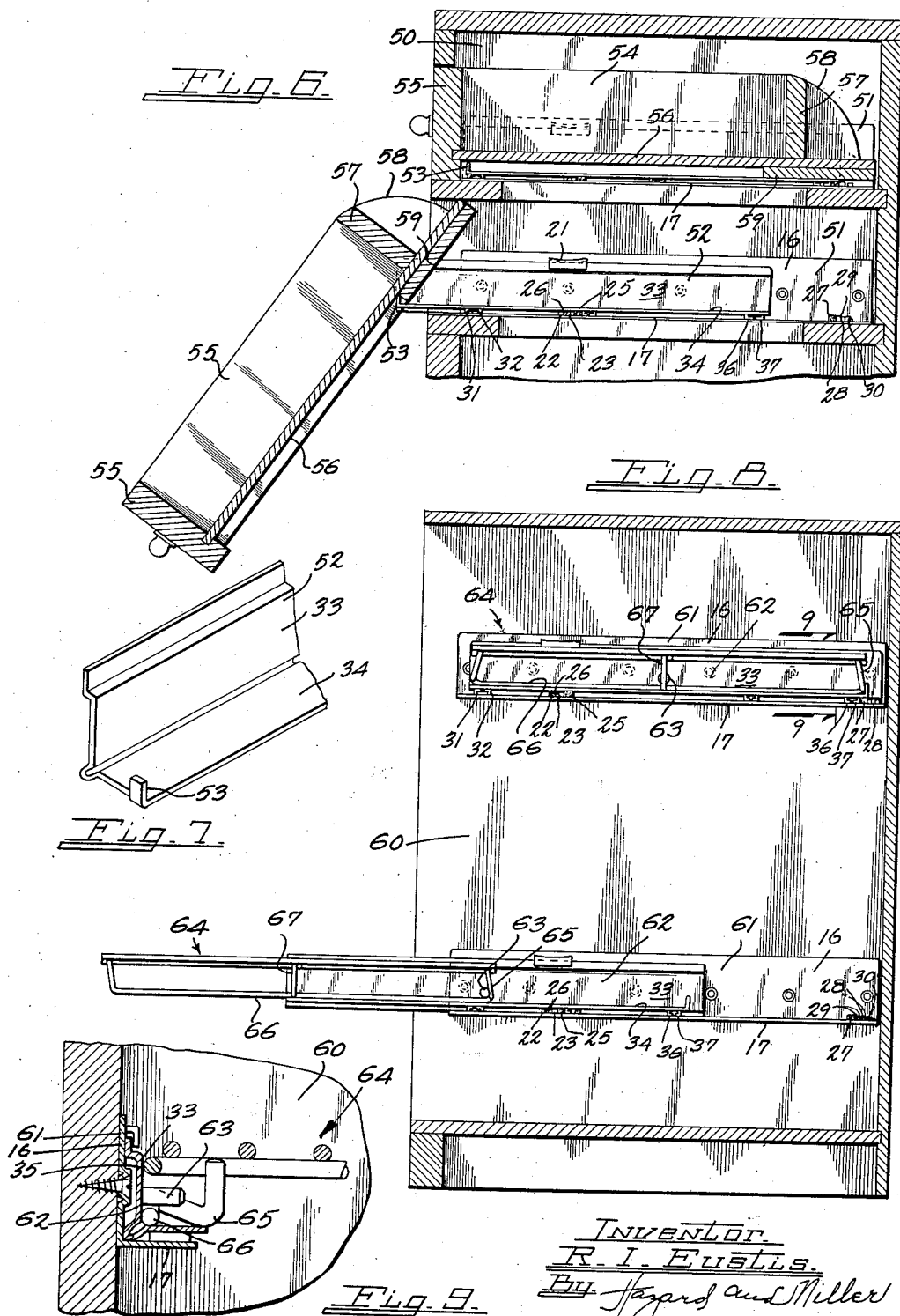
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INVENTOR.  
R. I. EUSTIS.  
By Hazard and Miller  
Attorneys.

## UNITED STATES PATENT OFFICE

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## DRAWER SLIDE

Robert I. Eustis, Los Angeles, Calif., assignor of  
one-half to Morris Nelson, Los Angeles, Calif.

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8 Claims. (Cl. 45-77)

This invention relates to improvements in drawer constructions and particularly to the supporting devices for drawers, trays, and similar articles, which devices are commonly known in the trade as drawer slides. The invention may be considered as an improvement over the construction disclosed in my prior United States Letters Patent No. 1,844,845, issued February 9, 1932.

An object of the present invention is to provide an improved drawer slide consisting of a rail, a slide slidable thereon, which in turn slidably supports a drawer, tray, or similar article.

Specifically the invention has as one of its objects the provision of suitable bumpers or devices formed of relatively soft material adapted to engage to limit sliding movement of the slide relatively to the rail and to limit sliding movement of the drawer relatively to the slide. These bumpers or devices formed of soft material on engagement are relatively noiseless so that when parts of the construction reach the limits of their movement no undesirable noise is produced thereby.

Another object of the invention is to provide an improved drawer slide construction having a rail and a slide, the rail and slide being of such design as to be capable of easy manufacture and installation, at the same time being relatively sturdy to form a solid support for a heavily loaded drawer or tray.

Another object of the invention is to provide a drawer slide construction having a rail and a slide with a drawer slidable on the slide, the construction being such as to enable the drawer to assume a tilted position with respect to the slide. Such a construction is frequently found highly desirable in files and various other cabinets.

Another object of the invention is to provide a suitable form of slide construction which can be advantageously employed in conjunction with grates or trays conventionally employed in refrigerators and like constructions, enabling the grate or tray to be completely withdrawn from the refrigerator, supported in horizontal position by the slide, and caused to slide into the refrigerator when desired.

With the foregoing and other objects in view, which will be made manifest in the following detailed description, and specifically pointed out in the appended claims, reference is had to the accompanying drawings for an illustrative embodiment of the invention, wherein:

Fig. 1 is a sectional view through a cabinet, illustrating two drawers in installed position therein on drawer slides embodying the present

invention, one of the drawers being shown in fully withdrawn position.

Fig. 2 is a sectional view taken substantially upon the line 2-2 upon Figure 1.

Fig. 3 is a perspective view of the rail forming a part of the improved drawer slide construction.

Fig. 4 is a perspective view of the slide which is used in conjunction with the rail shown in Figure 3.

Fig. 5 is a partial view in section, illustrating a detail of construction of the rail.

Fig. 6 is a sectional view similar to Figure 1 illustrating a modified form of construction wherein the drawer is capable of tilting relatively to the slide when in withdrawn position.

Fig. 7 is a perspective view of the forward end of the slide employed in the construction shown in Figure 6.

Fig. 8 is a vertical section illustrating another modification, wherein the slide construction is used to support the tray or grate of a refrigerator or similar construction, one of the trays or grates being shown in fully withdrawn position.

Fig. 9 is a sectional view taken substantially upon the line 9-9 upon Figure 8.

Referring to the accompanying drawings, wherein similar reference characters designate similar parts throughout, the improved drawer slide construction is designed to be installed or mounted within a drawer receiving chamber. For purposes of illustration, I have shown a suitable cabinet having a back wall 10, side walls 11, a top 12, and a front wall 13. In the front wall 13 there are two drawer receiving openings shown, these being indicated at 14, which are designed to receive drawers 15. The drawer slide constructions which are used at opposite sides of each drawer to support it are counterparts of each other and, therefore, only one drawer slide construction need be described in detail.

Each drawer slide construction comprises a rail as shown in Figure 3. This rail is in the form of a section of sheet metal, angular in cross section, having a vertical portion 16 and a horizontal portion 17. It is of considerable length and preferably extends from the drawer receiving opening 14 rearwardly. The vertical portion 16 has a row of embossments 18 formed thereon, the centers of which are preferably countersunk to receive the heads of screws 19, or equivalent fasteners, which are driven through the apertures 20 in the centers of the embossments into side wall 11. Near the top of the vertical portion 16 of the rail

a portion of the metal is struck out forming a downwardly opened hook 21 which is of suitable length. This hook is designed to hook over the top edge of the vertical portion of the slide hereinafter to be described. As shown in Figure 5, the top of this hook presents an upwardly concaved surface so that the bottom or interior of the hook is convex. It will be understood that the bottom of the hook engages the top edge of the slide and by this curved construction only the center of the hook engages the slide. This reduces friction and prevents any rasping noises from being produced in the event that there are burrs at the front and back of the hook. The horizontal portion 17 carries two spaced and opposed bumpers. Two straps 22 and 23 are struck upwardly out of the body of the horizontal portion and a lug 24 is struck up out of the horizontal portion a short distance in front of forward strap 22. A section of relatively soft material 25 has a reduced shank 26 which is slipped or driven beneath straps 22 and 23 until its end engages lug 24. This bumper is formed of relatively soft material, preferably live rubber, although any equivalent material can be employed. Leather has been found fairly suitable for this purpose. This bumper faces rearwardly toward an opposed bumper 27 which is of similar construction, having a shank 28 extending rearwardly beneath straps 29 and 30 which are struck up out of the horizontal portion 17. The rear bumper faces forwardly. Near the forward end of the horizontal portion 17 a pair of opposed lugs are struck out of the body of the horizontal portion 17, these lugs being indicated at 31 and 32. They present top surfaces which are approximately horizontally even with the top surfaces of bumpers 25 and 27.

The slide which is used in conjunction with the rail is illustrated in Figure 4. This slide is likewise formed of sheet metal bent into angular cross section, providing a vertical portion 33 and a horizontal portion 34. The vertical portion 33 is bent to form a groove 35 on its outer surface which accommodates the embossments 18 and the heads of the screws 19. As shown on Figure 2, the top and bottom of the vertical portion 33 of the slide bears against the vertical portion 16 of the rail but the intermediate portion wherein groove 35 is located is spaced from vertical portion 16 to accommodate the embossments 18 and the screw heads. The top edge of the rail fits into the downwardly opened hook 21 previously described. The horizontal portion 34 is disposed above the corner of the slide, as shown in Figure 2, so that although the slide at the corner rests on horizontal portion 17 of the rail, the major portion of the horizontal portion 34 is disposed above the plane of rail portion 17. Horizontal portion 34 rests on the top surfaces of lugs 31 and 32 and on the top surfaces or over the top surfaces of bumpers 25 and 27. Near the rear of the slide a pair of lugs 36 and 37 are struck out of the body so as to project downwardly therefrom. These lugs are similar in construction to lugs 31 and 32 so that they present bottom surfaces which rest on horizontal portion 17 of the rail between bumpers 25 and 27. It will thus be understood that lugs 31 and 32 and lugs 36 and 37 serve to slidably support the slide on the rail. Lugs 36 and 37 perform an additional function, however, in that they provide an engageable means projecting downwardly from the bottom of the slide disposed between the bumpers 25 and 27, which in turn project upwardly from the bot-

tom of the rail. In this manner lugs 36 and 37 on engagement with the bumpers limit the sliding movement of the slide relatively to the rail. Near the forward end of the slide a suitable clip, indicated at 38, is formed integral with horizontal portion 34 and this clip serves to mount a rubber block 39, the ends of which extend forwardly and rearwardly from the clip.

The rail and slide as above described are designed to support the drawer 15 which in the conventional construction has a back 40, sides 41, a front 42, and a bottom 43, which bottom is disposed above the bottom edges of the back wall, front wall and sides. The sides 41, as clearly shown in Figure 1, have their side surfaces bearing against the vertical portions 33 of the slides and have their bottom edges resting on the horizontal portions 34 of the slides. The drawer is slidable on the slides, rearward movement of the drawer relatively to the slides being limited by engagement of the bottom of the front wall 42 with the forward end of rubber block 39. Forward movement of the drawer relatively to the slides is limited by the application of a stop block 44 to the under side of bottom 43 against side wall 41. This stop block is engageable with the rear end of block 39 and is preferably so positioned that when lug 36 engages bumper 25 the stop block will engage rubber block 39 and position the rear wall 40 of the drawer in the drawer opening 14, thus limiting forward movement of the drawer from within the drawer receiving chamber to the position shown in Figure 1.

The operation and advantages of the above described construction are as follows. In closing the drawer from the position shown in Figure 1, the drawer is merely caused to slide rearwardly. Sliding movement first takes place between the drawer and the slide until front wall 42 engages block 39. The slides are then forced rearwardly by the drawer and slide rearwardly on the rails until lug 37 engages bumper 27. On withdrawal of the drawer from the chamber the drawer slides outwardly on the slides until stop blocks 40 engage the rear ends of blocks 39 after which the slides are caused to slide forwardly on the rails until lugs 36 engage bumpers 25. Because of this arrangement and the application of bumpers very little if any noise is produced on sliding the drawer forwardly or rearwardly.

I have illustrated the two drawers in Figure 1 as being separated by a division strip 45 but the use of this division strip is not necessary and may be completely omitted, in which event each drawer is supported solely by its rails and slides on the side walls 11 of the drawer receiving chamber. The top of front wall 42 of the lower drawer is preferably so arranged as to fit snugly beneath the bottom of the front wall 42 of the upper drawer.

In the modification shown in Figure 6 there is a drawer receiving chamber 50 against the side walls of which are secured rails 51, which are of substantially the same construction illustrated in Figure 3. The slides 52 are of substantially the same construction illustrated in Figure 4 with the exception that at the forward ends of these slides instead of having clip 38 and rubber block 39 it is merely an upstanding lug 53, see Figure 7, which is integral with the bottom or horizontal portion of the slide. The drawer employed has sides 54, a front wall 55, a bottom 56 disposed above the bottom of the sides 54 and front wall 55, and a rear wall 57. Rear wall 57 is disposed forwardly of the rear edge of bottom 56 and the

rear ends of sides 54 are rounded, as indicated at 53. Stop blocks 59 are fastened to the bottom 55 near the side walls 54 and are adapted to engage lug 53. In this construction when the drawer is withdrawn into substantially fully withdrawn position it is possible to tilt the drawer into the position shown. On swinging the drawer back into horizontal position it may be caused to slide into drawer receiving chamber 50, first sliding on the slide and then causing slide 52 to slide rearwardly on rail 51.

In the modification shown in Figure 8 there is illustrated a refrigerator, the interior of which constitutes a tray receiving chamber 60. Rails 61 are secured to the sides of chamber 60, these rails being of the same construction previously described in conjunction with Figure 3. The slides 62 are of substantially the same construction as disclosed in Figure 4 except that the rubber block 39 and clip 38 are omitted and in place thereof a pin 63 projects inwardly from the vertical portion of the slide. The grate or tray is indicated at 64 and has rods 65 secured thereto which are bent downwardly, forwardly and then upwardly, providing runners 66. Runners 66 are connected to the body of the tray by suitable struts or posts 67 and the rear ends of the runners are bent upwardly behind the pins 63. In this construction it is possible to slide the tray on its runners forwardly, sliding movement taking place on the slides 62 until the pins 63 are engaged by the upwardly bent ends at the rear ends of the runners. Continued forward movement of the tray causes the slides 62 to slide forwardly on rails 61. Conversely on sliding the tray back into the refrigerator the tray first slides on its runners on slides 62 until pins 63 engage struts or posts 67. Continued rearward movement causes the slides 62 to be carried rearwardly by the tray and to slide rearwardly on rails 61.

In all modifications the hooks 21 on the rails hold the slides in horizontal position so that although considerable weight is placed on the forward ends of the slides they cannot tilt relatively to the rails.

From the above described constructions it will be appreciated that an improved drawer slide construction is provided having several advantageous improvements incorporated therein rendering the slide virtually frictionless in operation and virtually noiseless. The construction is such that both the rail and the slide can be constructed each of a single piece of metal and the bumpers 25 and 27 and the block 39 which are formed of softer material applied thereto.

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. A drawer slide comprising a rail having vertical and horizontal portions, a slide having vertical and horizontal portions slidable on the rail and adapted to support a drawer or the like, the vertical portion of the slide having a groove formed thereon to accommodate the heads of fastenings driven through the vertical portion of the rail.

2. In a drawer construction or the like, means providing a drawer receiving chamber having a drawer opening through which a drawer may slide, rails having vertical and horizontal portions mounted in the chamber with the horizontal portions extending from the drawer opening rearwardly, slides having vertical and hori-

zontal portions positioned adjacent the vertical and horizontal portions of the rails, the vertical portions of the slides having top and bottom portions disposed outwardly so as to be engageable with the vertical portions of the rails and hold the central portions of the vertical portions of the slides out of engagement therewith, said slides being slidable on the rails, and a drawer slidably mounted upon the slides, there being engageable means between the horizontal portions of the rails and slides adapted to engage and limit sliding movement of the slides relatively to the rails.

3. In a drawer construction or the like, a pair of rails, each rail having a vertical portion and a horizontal portion, bumpers secured to the horizontal portion of each rail and projecting upwardly therefrom, a pair of slides, one for each rail, each slide having a horizontal portion and a vertical portion, the horizontal portion of each slide having a projection on the under side thereof engaging the horizontal portion of its respective rail so as to slidably support the slide thereon and be capable of engaging the bumpers to limit the sliding movement of the slide relatively to its respective rail.

4. In a drawer construction or the like, a pair of rails, each rail having a vertical portion and a horizontal portion, bumpers secured to the horizontal portion of each rail and projecting upwardly therefrom, a pair of slides, one for each rail, each slide having a horizontal portion and a vertical portion, the horizontal portion of each slide having a projection on the under side thereof engaging the horizontal portion of its respective rail so as to slidably support the slide thereon and be capable of engaging the bumpers to limit the sliding movement of the slide relatively to its respective rail, and a projection extending upwardly from the horizontal portion of the rail engaging the bottom of the horizontal portion of the slide to slidably support the slide thereon.

5. In a drawer construction, a rail having a vertical attaching portion and a horizontal supporting portion, means providing bumpers on the upper side of the horizontal portion of the rail, one bumper being located adjacent the rear end of the rail and the other bumper being located intermediate its ends, and a slide having a vertical portion and a horizontal portion, the horizontal portion having a downwardly extending projection on its under side disposed between the bumpers and slidably engaging the horizontal portion of the rail.

6. In a drawer construction, a rail having a vertical attaching portion and a horizontal supporting portion, means providing bumpers on the upper side of the horizontal portion of the rail, one bumper being located adjacent the rear end of the rail and the other bumper being located intermediate its ends, and a slide having a vertical portion and a horizontal portion, the horizontal portion having a downwardly extending projection on its under side disposed between the bumpers and slidably engaging the horizontal portion of the rail, said rail having an upstanding projection adjacent the forward end thereof slidably engaging the under side of the horizontal portion of the slide.

7. In a drawer construction, a rail having a vertical attaching portion and a horizontal supporting portion, means providing bumpers on the upper side of the horizontal portion of the rail, one bumper being located adjacent the rear end

of the rail and the other bumper being located intermediate its ends, and a slide having a vertical portion and a horizontal portion, the horizontal portion having a downwardly extending projection on its under side disposed between the bumpers and slidably engaging the horizontal portion of the rail, the vertical portion of the rail having a downwardly open hook into which the top of the vertical portion of the slide extends, said hook presenting a slightly convex downward surface engageable by the top edge of the vertical portion of the slide.

8. A drawer slide comprising a rail having a vertical portion through which fastenings may

be driven, a horizontal portion near the bottom of the vertical portion, a slide having a vertical portion positioned next to the vertical portion on a rail and a horizontal portion positioned over the horizontal portion of the rail, lugs pressed downwardly from the rear end of the horizontal portion of the slide, lugs pressed upwardly from the forward end of the horizontal portion of the rail, and bumpers mounted upon the horizontal portion of the rail and projecting upwardly therefrom to be engaged by the lugs on the slide to limit sliding movement of the slide with respect to the rail.

ROBERT I. EUSTIS.