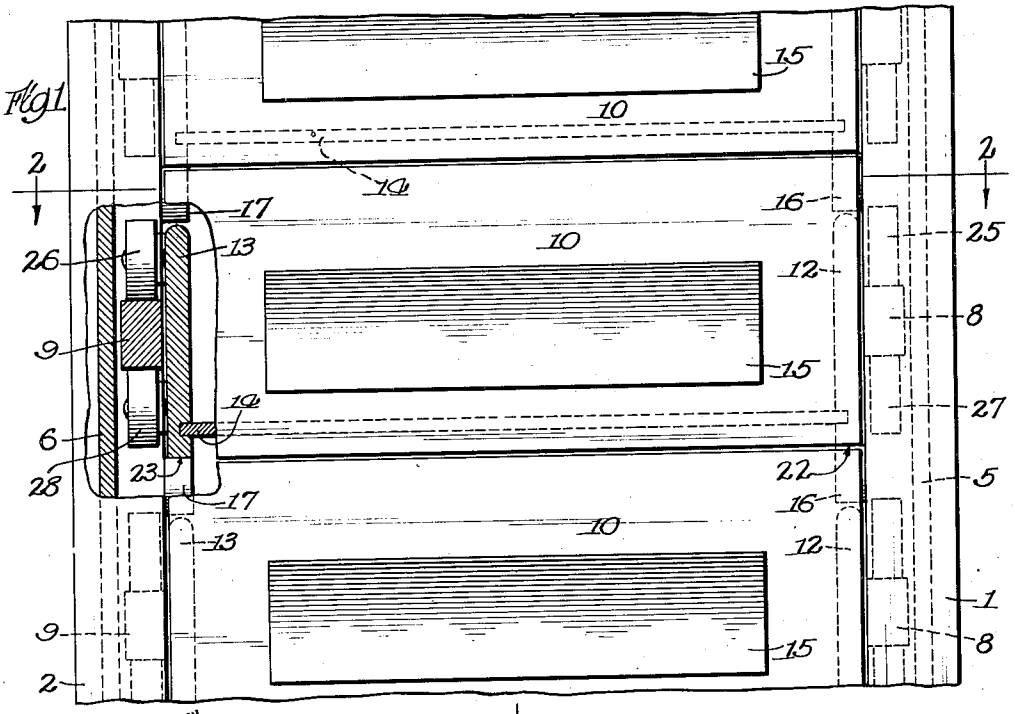
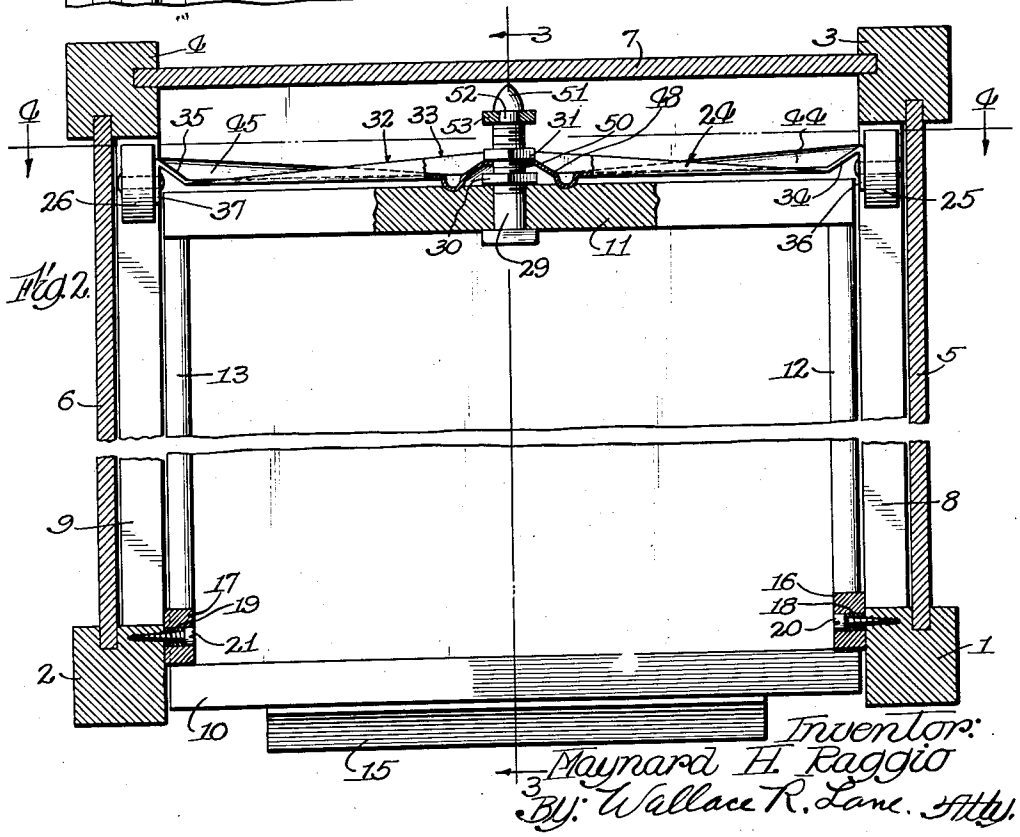
Dec. 25, 1934. M. H. RAGGIO 1,985,550

DRAWER DEVICE

Filed July 7, 1930 2 Sheets-Sheet 1





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DRAWER DEVICE

Filed July 7, 1930 2 Sheets-Sheet 2

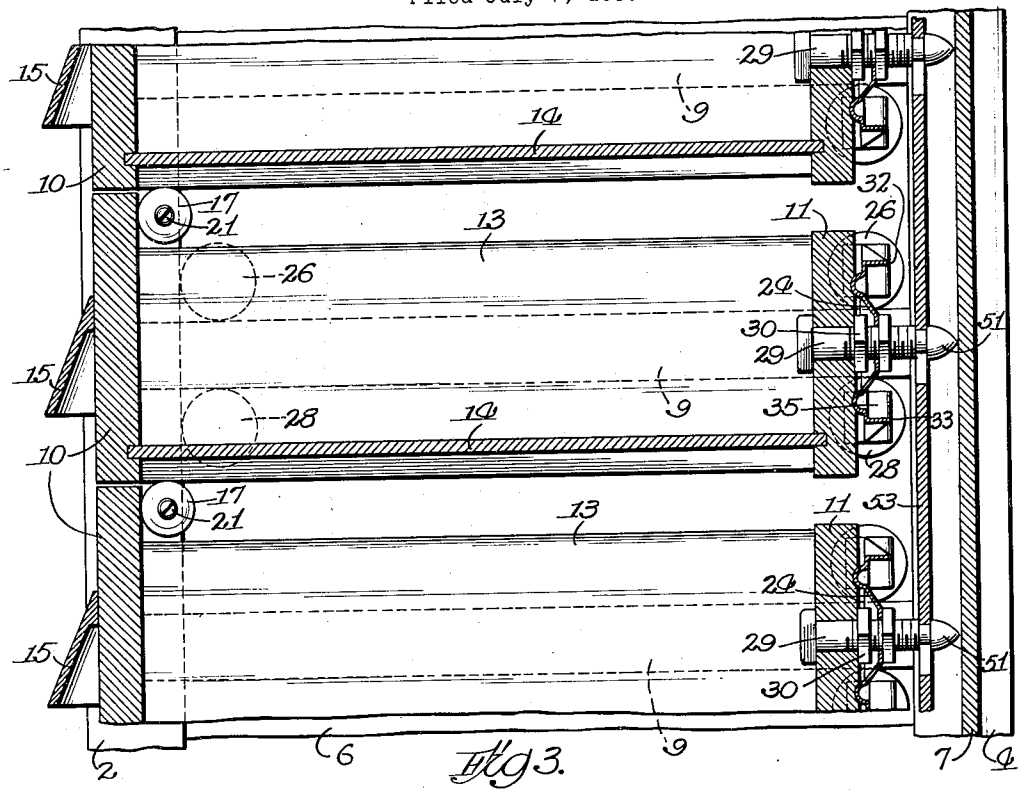


Fig 3.

Fig. 4.

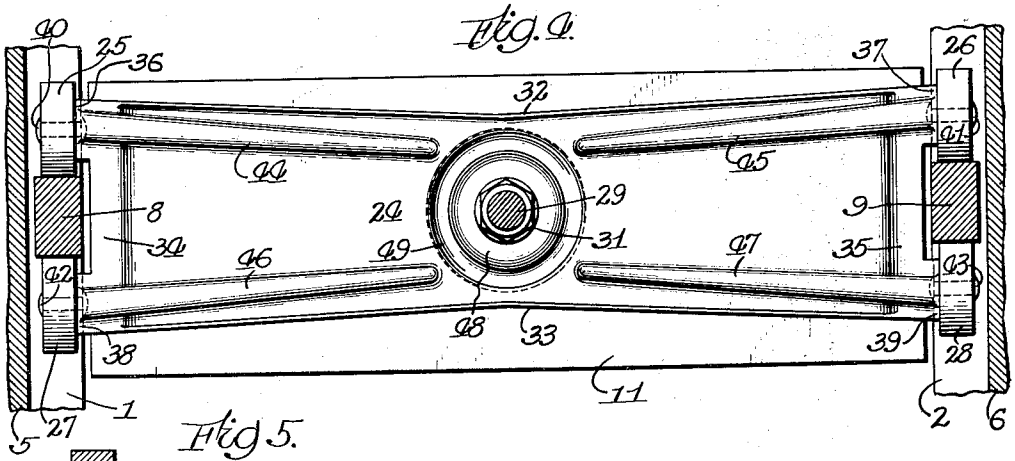
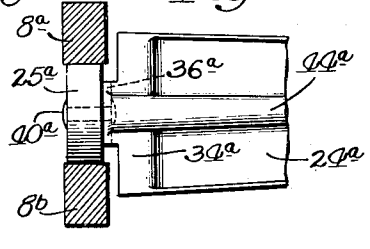


Fig 5.



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Patented Dec. 25, 1934 1,985,550

UNITED STATES PATENT OFFICE

1,985,550

DRAWER DEVICE

Maynard H. Raggio, Chicago, Ill.

Application July 7, 1930, Serial No. 466,131

10 Claims. (Cl. 45—77)

The present invention relates to drawer devices.

The term "drawer" is used herein in the generic sense and to comprehend any construction or device which may be drawn out from a place of storage or the like, for access or use in the withdrawn position, and capable of being moved back in such place when desired.

Among the objects of the invention, is to provide a novel and simple means for supporting and guiding the drawer to its withdrawn and nested positions.

In drawer constructions using frictionless or rolling guide means, it has been necessary to make the drawer narrower and shallower than the drawer space for providing spaces above and below, and at the sides of the drawer where the necessary tracks and rollers or the like are located, thus reducing the capacity of the drawer and necessitating a flanged front for the drawer to cover the spaces around the drawer when in closed position.

The present invention comprehends the use of a full width and height drawer substantially filling the drawer space. No cross bars at the front, are necessary.

In a specific illustrative embodiment, the supporting structure has front and rear posts with or without partitions or panels, and with rails or guide bars, the sides of these bars being proximate to the sides of the drawer. On the front posts and just beneath the side walls of the drawer, are located guiding and supporting rollers. At the rear of the drawer and connected to it, is a carrier or carriage extending transversely between the guides or rails, and having at its ends, rollers operable along the guide bars or rails. In this way, the drawer has three points of support, namely, on the two rollers carried by the front posts and by the carrier at the rear end. Where a single guide bar is used at each side of the drawer, rollers may be used above and below the bar so that they operate along the top and under surfaces of such bar. Where a pair of spaced guide bars are used at each side of the drawer, the carrier may have but a single roller at each end thereof, to operate between the bars, such that such roller moves along the top surface of the lower bar and the under surface of the upper bar. The carrier is preferably connected to the rear wall of the drawer through a bolt or the like so that the drawer may maintain a level condition even though the carrier may not run true or on level tracks. The bolt may also cooperate with a locking bar. The front posts act as stops for the drawer when it is withdrawn, by the rollers of the carrier contacting with the inner faces of said front posts. The front rollers also act as stops for the drawer when it is moved to closed position, by the front of the drawer contacting with said rollers. The drawer front is of full height, reaching up to the bottom of the adjacently upper drawer, thus allowing for full storage capacity of the drawer contents to the full height of the drawer front.

Another object of the invention is to provide a structure whereby the drawer may not be lifted or dipped when returning or withdrawing the drawer, thus avoiding overlapping and the hitting of a drawer front with another. This may be effected by making the side walls of the drawer of just the height to clear the bottoms of the front guide means or rollers, so that any tendency to lift the front end of the drawer will be counteracted by the front rollers engaging with the top edges of the side walls. Likewise any tendency to dip the front of the drawer will be counteracted by the carrier rollers bearing upwardly against the guide bars. By such an arrangement, the chipping or the like of the drawer fronts, will be prevented, and still, the drawer fronts may be flush when closed.

A further object of the invention is to provide a structure where the front guide means, such as rollers, will not protrude into the drawer containing space and will not interfere with the contents or the like of such drawer, irrespective of the height or shallowness of the side walls of the drawer.

Another object of the invention is to provide a novel support, such as a carrier preferably comprising a single transverse member or cross piece having means at its ends, such as rollers, to cooperate with the guides or rails, and means for so connecting the same to the rear end of the drawer to afford bracing purchase or like firmness, yet permitting relative rocking movement of the carrier and the drawer.

An advantage of the present invention is that the structure may be economically made and the parts very readily and easily assembled. It is merely necessary to insert the carrier and engage it with the guide means; secure the front rollers in place; insert the drawer, and simply connect the drawer to the carrier.

Other objects, advantages, capabilities and features are comprehended by the invention as will later appear and as are inherently possessed thereby.

Referring to the drawings:

Fig. 1 is a fragmentary front elevation with parts broken away, of a construction made in accordance with the invention;

Fig. 2 is a horizontal sectional view taken in a plane represented by line 2—2 in Fig. 1;

Fig. 3 is a vertical sectional view taken in a plane represented by line 3—3 in Fig. 2;

Fig. 4 is a vertical transverse sectional view taken in a plane represented by line 4—4 in Fig. 2; and

Fig. 5 is a fragmentary view of an alternate form of carrier and guide means.

Referring more in detail to the drawings, the embodiment selected to illustrate the invention is shown in connection with a desk or similar structure having front posts 1 and 2 and rear posts 3 and 4. The front posts may be connected to the rear posts by partitions or panels 5 and 6, and the rear posts may be likewise connected by a panel 7. The front posts are also connected to the rear posts by bars 8 and 9 or 8^a and 8^b which act as guide rails or guides for the drawers of the structure, as will be later explained.

In the space within the above structure, are located a number of drawers, each of which has a front wall 10, a rear wall 11, side walls 12 and 13, and a bottom 14. To each front wall may be attached a finger or hand piece 15.

At the front of the structure, as at the posts 1 and 2, are located rollers 16 and 17 rotatably supported upon sleeves 18 and 19 carried by studs or screws 20 and 21 secured into the side posts 1 and 2.

These rollers 16 and 17 are located so as to support the drawer, as by the lower edges 22 and 23 of the side walls 12 and 13 resting upon such rollers. These rollers therefore act both as a guide for the drawer when moved out or in position, and also as supports for partly supporting the drawer. They also act as stops for the drawer when the drawer is moved into fully closed position, by the front of the drawer contacting with these rollers, as clearly shown in Figure 3 of the drawings.

It will also be noted that the rollers are just above the top edges of the side walls 12 and 13 of the next lower drawer so that should the user tend to lift the drawer, the top edges of the side walls may abut against the lower part of the rollers to prevent such lifting.

The rear end portion of the drawer is supported at a point by a carrier. This carrier preferably comprises a single transverse member or cross piece 24 which may be made of metal, and carries at its ends rollers 25, 26, 27 and 28, such that the rollers 25 and 26 rest upon and ride on the top surfaces of the rails or bars 8 and 9, and the lower rollers 27 and 28 ride under and may contact along the under surfaces of the rails or guide bars 8 and 9. The cross piece 24 is secured to the rear wall 11 of the drawer by way of a bolt 29 passing through an aperture in the rear wall 11. The bolt 29 has a nut 30 for securing the bolt 29 to the wall 11, and the bolt extends rearwardly through an aperture provided in the cross piece 24. A second nut 31 may be used to engage the cross piece 24 to hold the same against the rear wall 11, as clearly shown in Figs. 2 and 3 of the drawings.

In the embodiment selected to illustrate the invention, the carrier is preferably made of sheet metal and the cross piece 24, if desired or necessary, may be provided with reinforcing flanges 32 and 33 at the upper and lower edges of such cross piece. At the ends of the cross piece are provided bent portions 34 and 35 from which extend tongues 36, 37, 38 and 39.

To these tongues are secured pivot pins 40, 41, 42 and 43 upon which are rotatably supported the rollers 25, 26, 27 and 28. To reinforce the parts, particularly the bent parts 34 and 35, the cross piece 24 is provided with pressed out hollow ribs 44, 45, 46 and 47. When the rollers hit the front posts 1 and 2, there would be a tendency to bend the cross piece 24 at the angles between the parts 34 and 35 and the body part or portion of the cross member 24. The reinforcing ribs 44, 45, 46 and 47 will prevent such a bending and will also generally strengthen the carriage body or cross piece 24.

In the central portion of the cross piece 24 is provided a pressed up socket 48 surrounded by an annular hollow rib portion 49 which is of substantial diameter and designed to engage against the rear wall 11 of the drawer to seat upon the rear surface of the wall 11 and to give sufficient holding purchase or firmness between such wall 11 and the carrier when the latter is connected in place. The space in the socket 48 permits the use of the nut 30 on the bolt 29 as clearly shown in Figures 2 and 3 of the drawings. The aperture through which the bolt 29 passes through the cross piece 24 is provided in the back wall 50 of this socket member 48.

The bolt 29 may extend rearwardly and have a tapered portion 51 for aiding the introduction of the bolt 29 through the apertures provided in the rear wall 11 of the drawer and the aperture in the cross member 24, and also has a reduced or neck portion 52 adapted to fit in a slot of a locking bar 53, the locking bar being vertically disposed and being provided with apertures large enough to permit the passage of the bolt 29 and having a slot of a size to receive the neck portion 52 when the locking bar is moved in one direction to engage the bolt about the neck 52 and thus hold the drawers in locked position. When the bar is moved to present the apertures thereof axially of the bolts 29, the drawers may then be opened without interference.

It will be noted that the drawer is of the full width and height of the drawer space between the posts of the structure, and that the tracks 8 and 9 and 8^a and 8^b are close to the sides of the drawer but are located in the space between the front and rear posts so as to leave a clear way for the passage or movement of the drawer without sacrificing any width of the drawer for positioning of any track and supporting mechanism.

The front of a drawer extends up the full height and its upper end comes flush with the bottom of the adjacent upper drawer. The contents of the drawer may thus extend for the full height of the drawer space up to the bottom of the drawer next above. The upper part of the drawer front contacts with the front rollers as a stop when the drawer is moved to its nested or closed position.

In the construction shown in Fig. 5 at each side of the drawer and connected between the front and rear posts, are spaced guide rails 8^a and 8^b between which operates a roller 25^a rotatably carried on pin 40^a secured to a tongue 36^a extending from a bent portion 34^a of the cross plate 24^a of the carrier. A reinforcing rib 44^a may be used to strengthen the plate 24^a and parts 34^a and 36^a. In this case the roller 25^a operates between the guide rails 8^a and 8^b and along the lower surface of bar 8^a and the top surface of the bar 8^b.

In assembling the device, the carrier as a complete unit is inserted in the drawer space at an angle to the length of the track bars 8 and 9, or 8^a and 8^b, and then the builder turns the carrier in a horizontal plane or about a vertical axis so as to bring the rollers 25, 26, 27 and 28 or rollers 25^a into place above and below the tracks 8 and 9, or between the bars 8^a and 3^b. The carrier is then in a transverse position or substantially at right angles to the tracks 8

and 9, or 8^a and 8^b. The drawer may then be inserted by sliding the same over the rollers 16 and 17 and the rear end 11 of the drawer is brought into contact with the carrier. The bolt 29 has been previously inserted in place in the rear end 11 and tightened by the nut 30. The bolt will extend through the opening in the transverse piece 24 or 24^a of the carrier, and a nut 31 may then be screwed into place to hold the carrier firmly against the rear end 11 of the drawer. The locking bar 53 may be located in place so that the end of the bolt will pass through the aperture therein. The part 49 of the transverse piece 24 of the carrier is preferably circular and it presses against the back surface of the rear piece 11 of the drawer or may fit into an annular groove provided in such back piece 11.

Should the tracks be uneven, as the drawer is moved to and from closed position the carrier may turn about the axis of the bolt 29 thus leaving the drawer always in level position as determined by the rollers 16 and 17 where the front portion of the drawer normally rests.

From the above, it will become apparent that the drawer is supported at three points, namely, upon the two rollers 16 and 17, and by way of the bolt 29 secured to the carrier.

Referring to Fig. 3, it will be apparent that when the drawer is in closed position, it is supported at its forward end upon the rollers 16 and 17 and at its rear end by way of the rollers 25 and 26 resting upon the tracks 8 and 9. When the drawer is extended to open position and inasmuch as the weight of the drawer has a tendency to dip the front end of the drawer, the weight is sustained by the rollers 27 and 28 acting upwardly against the under faces of the tracks 8 and 9, or the rollers 25^a acting upwardly against the under surfaces of the bars 8^a, and by the rollers 16 and 17, the drawer also acting downwardly against these rollers. Should the user tend to lift the front end of the drawer as it is drawn out, the upper edges of the side walls of the drawer will act against the rollers 16 and 17 next above such side walls, and the rollers 25 and 26 will act downwardly on the top surfaces of the guide bars 8 and 9, or the rollers 25^a will act downwardly against the top surfaces of the guide bars 8^b, thus preventing any lifting of the drawer. In this way a true linear movement of the drawer is obtained.

With the above construction, it will be noted that the drawer fronts join flush with each other without any intervening cross bar or similar members.

While I have herein described and upon the drawings shown an illustrative embodiment of the invention, it is to be understood that the invention is not limited thereto but may comprehend other constructions, details, arrangements of parts and features without departing from the spirit thereof.

Having thus disclosed the invention,

I claim:

1. A drawer device having a supporting structure, a drawer, said structure comprising guide means, a carrier for supporting the rear end of the drawer and movable along the guide means, and means for rockably connecting the carrier to the rear end wall of the drawer.

2. A drawer device having a supporting structure, a drawer, guide means comprised in said structure, a carrier extending laterally from guide means to guide means and movable along the guide means, and means for connecting the carrier to the rear end wall of the drawer.

3. A drawer device comprising a supporting structure, a drawer, guides comprised in said structure, means at the front of the structure for partly supporting the drawer, a carrier comprising a cross piece extending between the guides of the drawer and having guide parts movable along said guides, and means for connecting said carrier to the rear end wall of said drawer.

4. A drawer device having a supporting structure and a drawer, guide and supporting elements at the front of the structure for the drawer, guides comprised in said structure and extending from front to rear and located at the sides of the drawer, a carrier between said guides and movable along said guides, and means for connecting said carrier to the rear wall of the drawer.

5. A drawer device having a supporting structure and a drawer, means for affording three points of support for the drawer and comprising two guide elements at the front of the structure, and a carrier disposed transversely to and at the rear of the drawer, guides comprised in said structure and slidably cooperating with said carrier, and means for rockably connecting said carrier to said drawer at the third point of support.

6. A supporting carrier for a drawer in a drawer supporting structure having guides, comprising a cross piece having its ends slidable along said guides, and means for rockably connecting the rear wall of the drawer to said cross piece to support the rear end of the drawer thereat.

7. A supporting carrier for a drawer in a drawer supporting structure having guides, comprising a cross piece having its ends slidable with the guides of the drawer supporting structure, means for connecting the rear part of the drawer to said cross piece, and a locking element carried by the carrier for locking engagement with a locking bar.

8. A supporting carrier for a drawer in a drawer supporting structure having guides, comprising a cross piece pivotally connected to the rear wall of said drawer whereby the carrier may rock relative to said drawer to maintain the drawer level, and means at the ends of the cross piece for sliding along said guides.

9. A drawer device comprising guides adjacent the sides of the drawer, supporting elements for supporting the front portion of the drawer at two points of support, a supporting carrier disposed at the rear end of the drawer and extending horizontally transversely between said guides and having its ends slidable in said guides, and a connecting means for connecting said carrier at an intermediate point thereof to the rear wall of said drawer to support the rear portion of the drawer at a third point of support.

10. A drawer device comprising guides adjacent the sides of the drawer, supporting elements for supporting the front portion of the drawer at two points of support, a supporting carrier disposed at the rear end of the drawer and extending horizontally transversely between said guides and having its ends slidable in said guides, and a pivotal connection between an intermediate point of the carrier and rear wall of the drawer to support the rear portion of the drawer at a third point of support and to afford relative movement of the carrier and drawer whereby the drawer is maintained self leveling.

MAYNARD H. RAGGIO.