Aug. 20, 1929. E. J. CARD ET AL 1,725,338

SUSPENSION

Filed Dec. 17, 1925 2 Sheets-Sheet 1

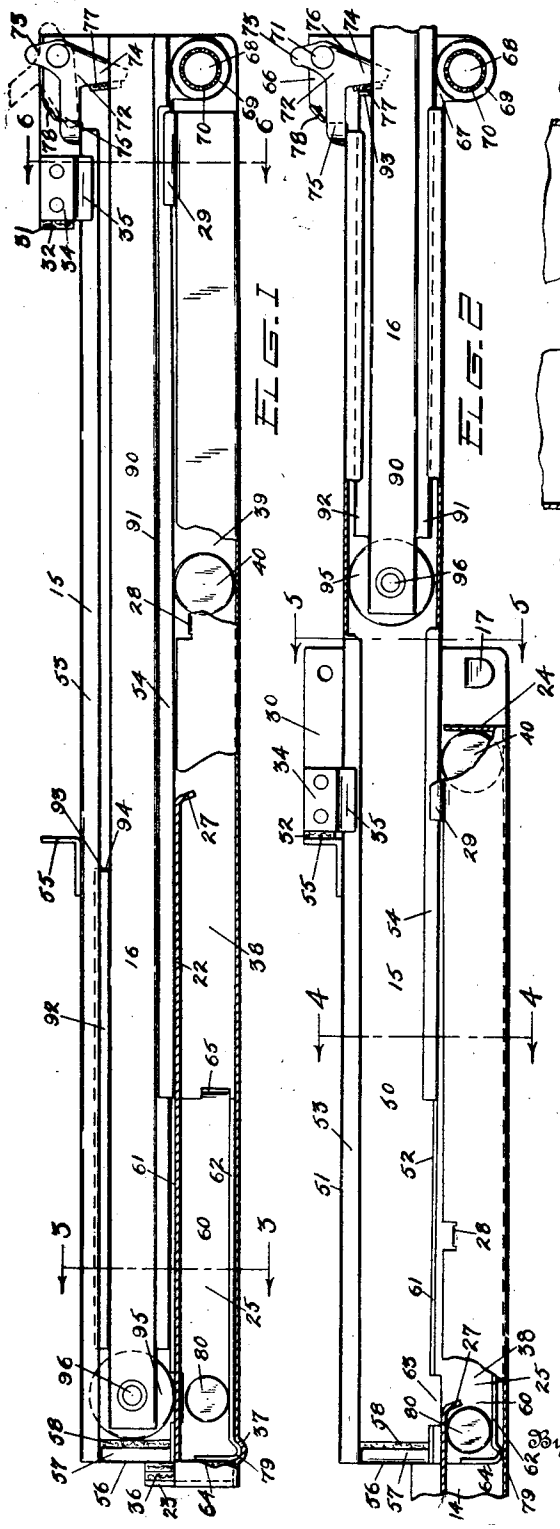


FIG. 1

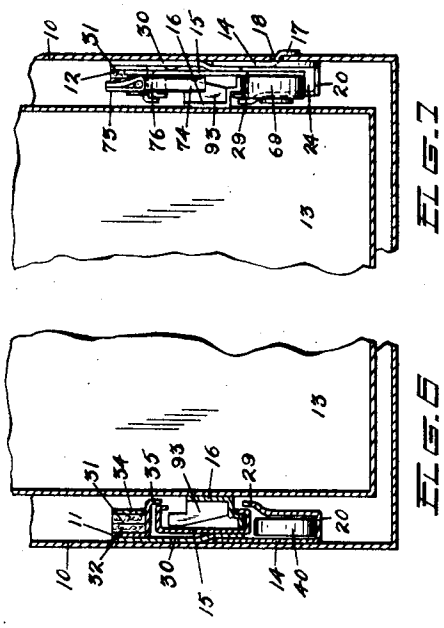


FIG. 2

FIG. 3

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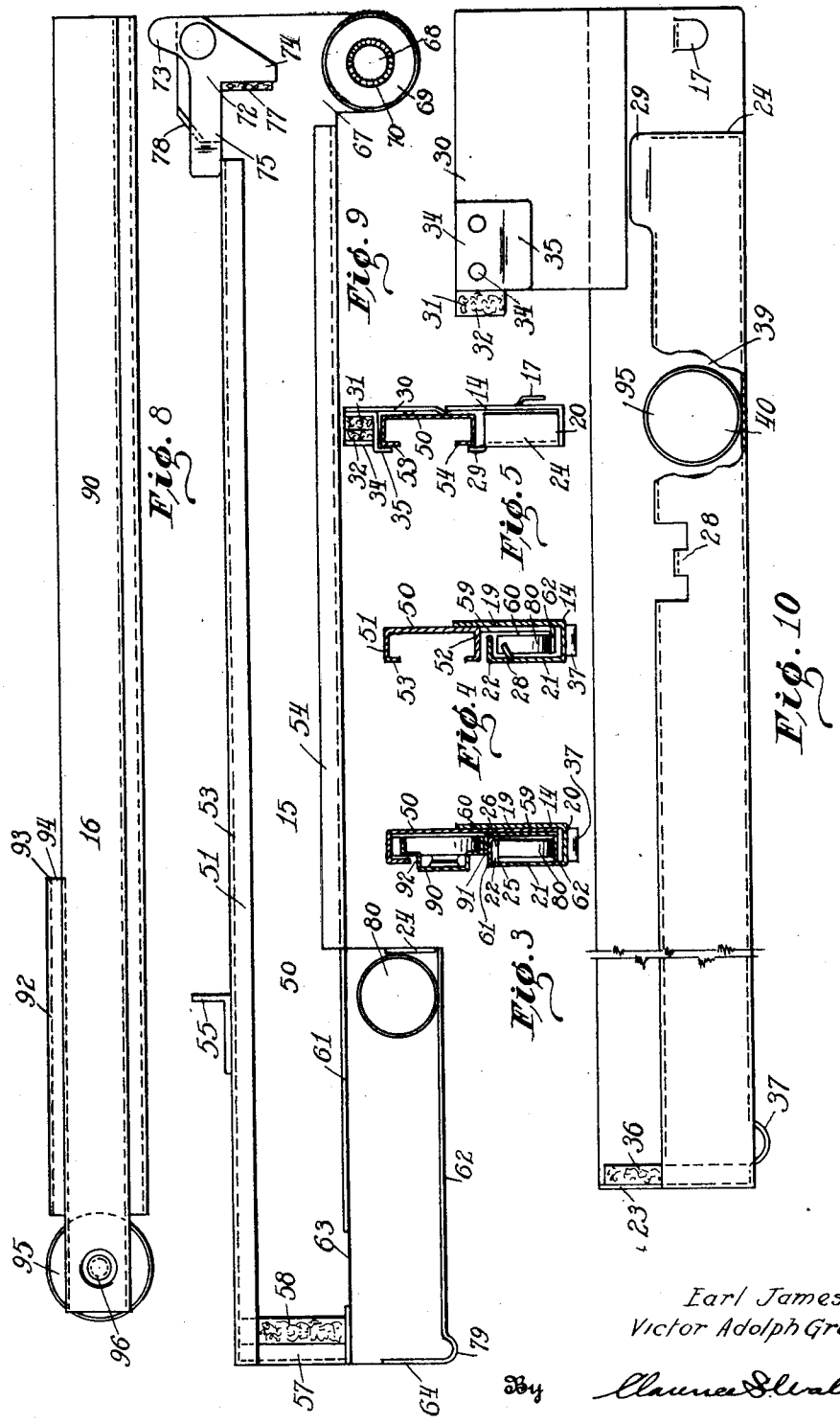


Fig. 8

Fig. 9

Fig. 5

Fig. 4

Fig. 3

Fig. 10

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UNITED STATES PATENT OFFICE.

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SUSPENSION.

Application filed December 17, 1925. Serial No. 76,063.

This invention relates to an improvement in suspensions or carriers for drawers of filing cabinets or other articles of furniture, by which the drawers are supported whether they be enclosed in the cabinet or partly or entirely withdrawn therefrom.

The primary object of this invention is to provide a suspension or carrier in which the weight is carried entirely by rollers adapted to shift in their position, as the suspension is moved, thus providing proper support under all conditions.

A further object of this invention is to provide in an article of this type free or floating rollers, which not only rotate but travel longitudinally as the suspension is operated.

Other objects of this invention will appear from a consideration of the following specification taken in connection with the drawings which form a part thereof, and in which

Fig. 1 is a side elevation with parts broken away of one suspension embodying this invention in the closed position;

Fig. 2 is a similar view of the same suspension in the open position;

Figs. 3, 4 and 5 are cross sectional views taken along the lines indicated in Figs. 1 and 2;

Fig. 6 is a sectional view of the suspension taken along the line 6—6 in Fig. 1, showing also in section a portion of the cabinet casing and drawer therein; and

Fig. 7 is a front view of a suspension, the drawer and casing wall being shown in section.

Fig. 8 is a side elevation of the rail;

Fig. 9 is a side elevation of the slide;

Fig. 10 is a side elevation of the track.

Referring to the drawings, the reference numeral 10 is employed to designate the casing of a cabinet or other article of furniture within which the suspensions 11 and 12 are mounted to support a drawer 13. It will be clear from an examination of Figs. 6 and 7 that each drawer is supported by two suspensions one at the left side and the other at the right side, which are identical in construction, but reversed in arrangement for obvious reasons. Fig. 6 shows the left hand suspension and Fig. 7 shows the right hand suspension. The other figures of the drawing all show the right hand suspension only, but the description thereof will be understood to apply equally well to the left hand suspension of Fig. 6.

Each suspension comprises a track 14, a slide 15 and a rail 16. The track is rigidly secured to the side wall of the casing 10 in any desired manner, as for example by means of a plurality of integral lugs 17, formed in the track, which pass through notches 18 in the casing wall. The slide 15 is mounted to reciprocate on the track 14 and to carry the rail 16 which is rigidly secured to the side wall of the drawer 13. In accordance with the general practice, the track 14, slide 15 and rail 16 are made of sheet metal suitably formed to carry out the desired function and operation.

The tracks 14 each comprise an inner web 19, a base 20, an outer web 21 parallel to the web 19, and an inturned top flange 22 on part only of the upper edge of the web 21. At the inner end of the track the web 19 is provided with an outwardly extending side flange 23 and adjacent to the outer end of the track the web 21 is provided with an inwardly extending side flange 24.

The flanges 23 and 24 close the space between the webs 19 and 21, so that a chamber 25 is formed. The top flange 22 covers part of the chamber 25 and terminates short of the web 19, providing a longitudinal slot 26, the purpose of which will be set forth herein below.

The flange 22 extends approximately along half the length of the track 14 and terminates in a downwardly projecting finger 27. A tongue 28 formed in the web 21 in advance of the finger 27 projects toward the web 19, across the chamber 25. At its outer end the web 21 is provided with an upwardly and outwardly extending lip 29. Suitably secured to the web 19 adjacent its outer end is an offset plate 30 on the outer face of which is suitably secured a bumper 31 (see Fig. 1), which comprises a resilient pad 32 clamped between a right angle bracket 33 and a plate 34. The bracket 33 extends outwardly from the plate 30 at right angles thereto and its outer edge is turned downwardly to provide a flange 35.

The inner edge of the flange 22 terminates short of the flange 23 and in that space is located a resilient pad 36. In the base 20 adjacent and in front of the pad 36 is formed a depression 37 (see Fig. 1). The tongue 28

divides the chamber 25 into two compartments 38 and 39. The compartment 38 is covered throughout substantially its entire length by the flange 22. The compartment 39, on the other hand, is open at the top and contains a roller 40, which is free to reciprocate the entire length of the compartment.

The slide 15 comprises a web 50 having upper and lower walls 51, 52 which terminate in flanges 53, 54, parallel to and spaced from the web 50. The upper wall 51 and its flange 53 extend substantially the length of the slide 15, and on the top about midway its length is fixed a bracket 55, which functions as a stop under conditions to be described below. At its inner end, the web 50 is provided with an end wall 56 terminating in a right angle flange 57. The wall 56, flange 57 and flange 53 form a recess to receive a resilient pad 58. In place of the bottom wall 52 and flange 54 the web 50 at the inner end of the slide continues downwardly at 59 and is flanged at 62 and to the portion 59 is rigidly secured a bracket 60 having an upper flange 61. The upper face of the flange 61 is in alinement with the upper face of the wall 52, thus providing a continuous track, a portion of which is cut away to provide a notch 63 for a purpose to be described later.

The inner edge flange 62 of portion 59 of the web 50 is formed upward into a lug 64 which projects beyond the bracket 60, while at the front end of the bracket 60 is formed a flange 65 providing a stop for roller 40.

The web 50 is extended at its outer end beyond the walls 51 and 52 to provide upper and lower projections 66 and 67. Rigidly secured to and extending inwardly from the projection 67 is a stud 68, on which a roller 69 turns freely, suitable anti-friction means 70 may be provided to insure an easy movement. Pivoted upon a stud 71 carried by the projection 66 is a latch stop 72, which comprises an upper finger 73, a lower finger 74 and a rearwardly extending finger 75. The latch 72 is preferably made of a single piece of steel bent upon itself at 76 and brought together at the tips of the fingers 73 and 75. Between the steel portions forming the lower finger 74 is secured a resilient pad 77. The latch 72 is so mounted that the finger 75 normally rests on the top wall 51, and the corner 78 of the projection 66 is bent at right angles thereto, so that when the latch is raised as shown in dotted lines in Fig. 1, the pad 77 strikes against the corner 78 and prevents any further raising of the latch stop.

In the lower flange 62 of the bracket 60 is provided a depression 79, which, when the parts are closed, as shown in Fig. 1, will rest in the depression 37 formed in the base 20 of the track 14.

When the parts are assembled the portion 59 of the web 50 and part of the bracket 60 enters, through the slot 26, the chamber 25 between the inner web 19 and the outer web 21. The tongue 28 terminates short of the web 19, so that the slide 15 is free to reciprocate. The lower flange 62 of portion 59 and bracket 60 and the web 21 with the flange 22 form a holder for a roller 80 in the compartment 38, which is free to roll on the flange 62. The limit of the longitudinal travel of the roller 80 is fixed by the lug 64 and either the lug 65 or the finger 27 depending upon the relation of the slide 15 and track 14. The outer end of the slide is guided by the lip 29 and flange 35.

The rails 16 each comprise a web 90 which is rigidly secured in any suitable manner to the side walls of the drawer 13. The web 90 has a Z-shaped lower wall 91 and a Z-shaped upper wall 92. The lower wall 91 extends substantially the length of the web 90, but the upper wall 92 extends only a small portion of that length and terminates at a bracket 93, the outer edge 94 of which is in a plane with the outer edge of the top wall 92. Both the lower and upper walls 91 and 92 terminate short of the end of the web 90 on the inner face of which is mounted a roller 95, free to rotate on a stud 96 fixed in the web 90.

The walls 52 and 51 of the slide 15 with their flanges 53 and 54 and the flange 61 of the bracket 60 form guides in which the walls 92 and 91 and the roller 95 of the rail 16 reciprocate. One limit of this relative movement is determined by the pad 58 against which the roller 95 strikes. At the same time the roller will enter the notch 63 in the flange 61. The other limit is determined by the latch stop 72 the finger 74 of which is normally in position (see full line showing in Fig. 1) to contact with the bracket 93. When it is desired to disassemble the rail 16 from the slide 15 the latch is swung into the position shown by dotted lines in Fig. 1. The finger 74 then forms a continuation of the upper wall 51 and the track 16 can be withdrawn.

Referring particularly to Figs. 1 and 2 of the drawing the relative relation and operation of the suspension elements will be described. It will be understood, of course, that the track 14 is rigidly secured to the casing 10, that the slide 15 is carried by the track 14 and is free to reciprocate thereover and that the rail 16 is rigidly secured to the drawer and can be inserted in the slide 15 when the drawer is to be supported by the casing.

At all times the slide 15 rests on the free rollers 40 in the compartment 39 and 80 in the compartment 38, while the rail 16 rests on its fixed roller 95 and the fixed roller 69.

When, as shown in Fig. 1, the drawer is

closed, the depression 79 of the slide 15 rests in the depression 37 of the track 14 and the roller 95 of the rail 16 is in the notch 63 of the slide 15. Thus the parts are held against any tendency to separate longitudinally or in other words, the drawer will stay closed until force is exerted to pull it out of the casing 10. When such force is exerted the roller 95 is drawn out of the notch 63 and the rail 16 moves relative to the slide 15 until the bracket 93 strikes against the finger 74 of the latch 72. If the pulling force is continued the slide 15 will move on the rollers 40 and 80. Since both these rollers are free the roller 40 will move longitudinally along in the compartment 39 by reason of the contact with the slide, while the roller 80 will be drawn along by contact with the slide and track through the compartment 38. Thus full support at all times is given to the slide and consequently through the rail to the drawer.

The slide 15 will be checked by the contact of the stop 55 with the bumper 31, which takes place at substantially the time the roller 80 reached the finger 27.

It will be noted that as the drawer is pulled out the weight will rest directly upon the roller 69 on the slide 15 and the free roller 40 of the the track 14, while the roller 95 will be raised against the wall 51 of the slide 15 and the free roller 80 will be raised against the underside of the flange 61. In other words, the outer roller of each pair will support directly the weight of the moving element, while the weight of the drawer will fulcrum on the outer rollers, so that the inner rollers will be raised into contact with the relatively stationary elements. Thus the weight of the drawer will not impair the function of any of the rollers.

While one embodiment of this invention has been shown and described, applicant is not limited thereto, since it is obvious that other embodiments can be made without departing from the spirit and scope of this invention as set forth in the following claims.

Having set forth my invention, what I claim as new and for which I desire protection by Letters Patent is:

1. A suspension for a drawer of a cabinet comprising a track secured to said cabinet, compartments in said track, a slide mounted for horizontal movement upon and with relation to said track, a rail in telescopic engagement with said slide, said rail being secured to said drawer, free rollers in said compartments upon which said slide is supported and adapted to move relative to said track, one of said rollers being carried by said slide and the other of said rollers by said track, said roller being out of contact with said track when said slide is in its retracted position.

2. A suspension for a drawer of a cabinet comprising a track secured to said cabinet, compartments in said track, a slide mounted upon said track, a rail telescopically engaging said slide, said rail being secured to said drawer, free rollers in said compartments supporting said slide, the larger of said rollers supporting said slide and the smaller of said rollers being carried by said slide, said smaller roller being in contact with said slide and said track when said slide is in its extended position and being out of contact with said track when said slide is in its retracted position, and a roller operably fixed to said rail for rotation upon said slide and a second roller fixed to said slide upon which the forward portion of said rail is at all times supported whereby when said drawer is extended said small roller and said large roller carry the weight of said slide and said slide roller and rail roller carry the weight of said rail and said drawer.

3. A suspension for a drawer of a cabinet comprising a track fixed to said cabinet, a rail fixed to said drawer and a slide carried by said track and supporting said rail, said track including a base in which a depression is formed, said slide including a lower flange in which a depression similar to the depression in said track is formed, and a second flange in which a notch is provided, and a roller carried by said rail, whereby when the drawer is closed, said roller will enter said notch and the depression in said slide will enter the depression in said track.

4. A suspension for a drawer of a cabinet comprising a track fixed to said cabinet, a rail fixed to said drawer, and a slide carried by said track and supporting said rail, said slide being provided with a notch and a depressed portion, said rail having means engaging said notch and said track having a further means engaging said depressed portion when said drawer is closed whereby to prevent inadvertent opening of said drawer.

5. A suspension for a drawer of a cabinet comprising a track fixed to said cabinet and a rail fixed to said drawer and a slide carried by said track and supporting said rail, a pair of free rollers on which said slide travels longitudinally of said track and a pair of fixed rollers on which said rail travels longitudinally of said slide, the outer free roller functioning to support said slide and the outer fixed roller functioning to support said rail, while the inner free roller is raised to engage said track and the inner fixed roller raised to engage said slide.

In testimony whereof we have affixed our signatures.

EARL JAMES CARD.
VICTOR ADOLPH GRONBERG.