

[54] **EXTENSIBLE DRAWER SUPPORT**

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[58] Field of Search**308/3.8; 312/331, 339, 340,**
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[56] **References Cited**

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[57] **ABSTRACT**

An extensible drawer support for use with a file cabinet or the like includes a case mounting rail, a suspension rail, and a drawer mounting rail. The suspension rail is generally S-shaped in cross section with the upper portion thereof being supported on a spherical bearing retained within a flange extending inwardly from an intermediate portion of the case mounting rail. The bottom portion of the drawer mounting rail extends into the lower portion of the extension rail and is supported on a similar bearing within the suspension rail. Two additional spherical bearings serve to fix the position of the suspension rail relative to the case mounting rail and drawer rail, respectively.

3 Claims, 3 Drawing Figures

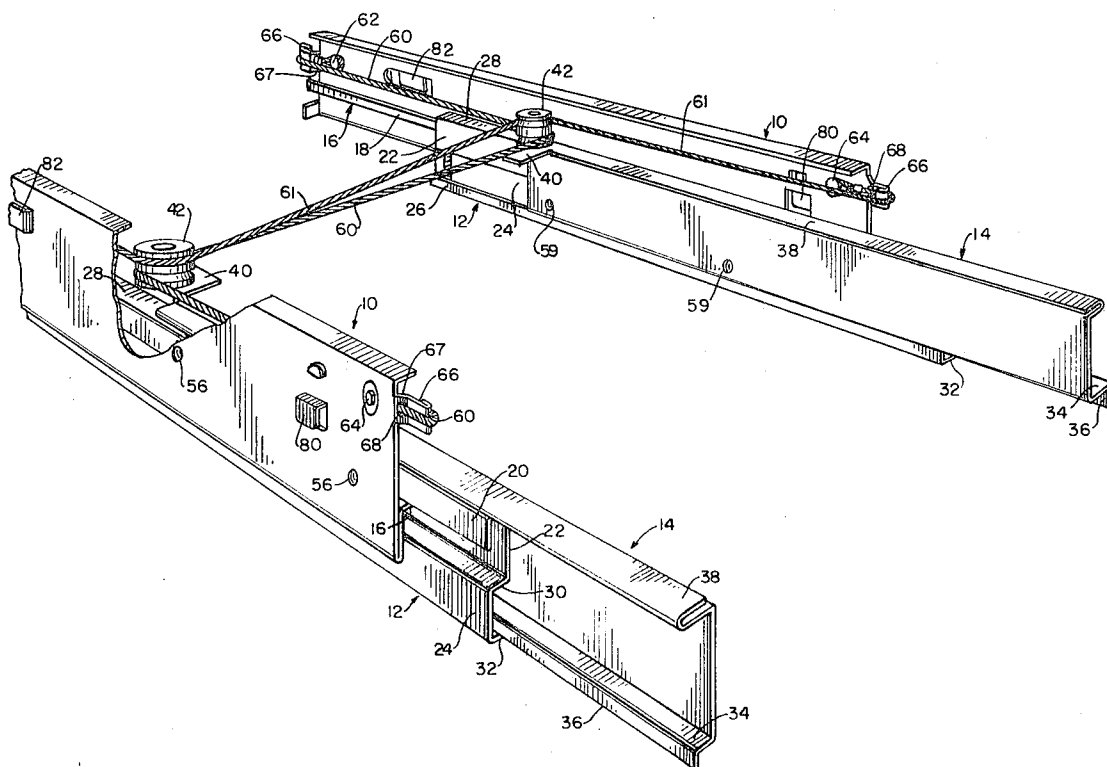
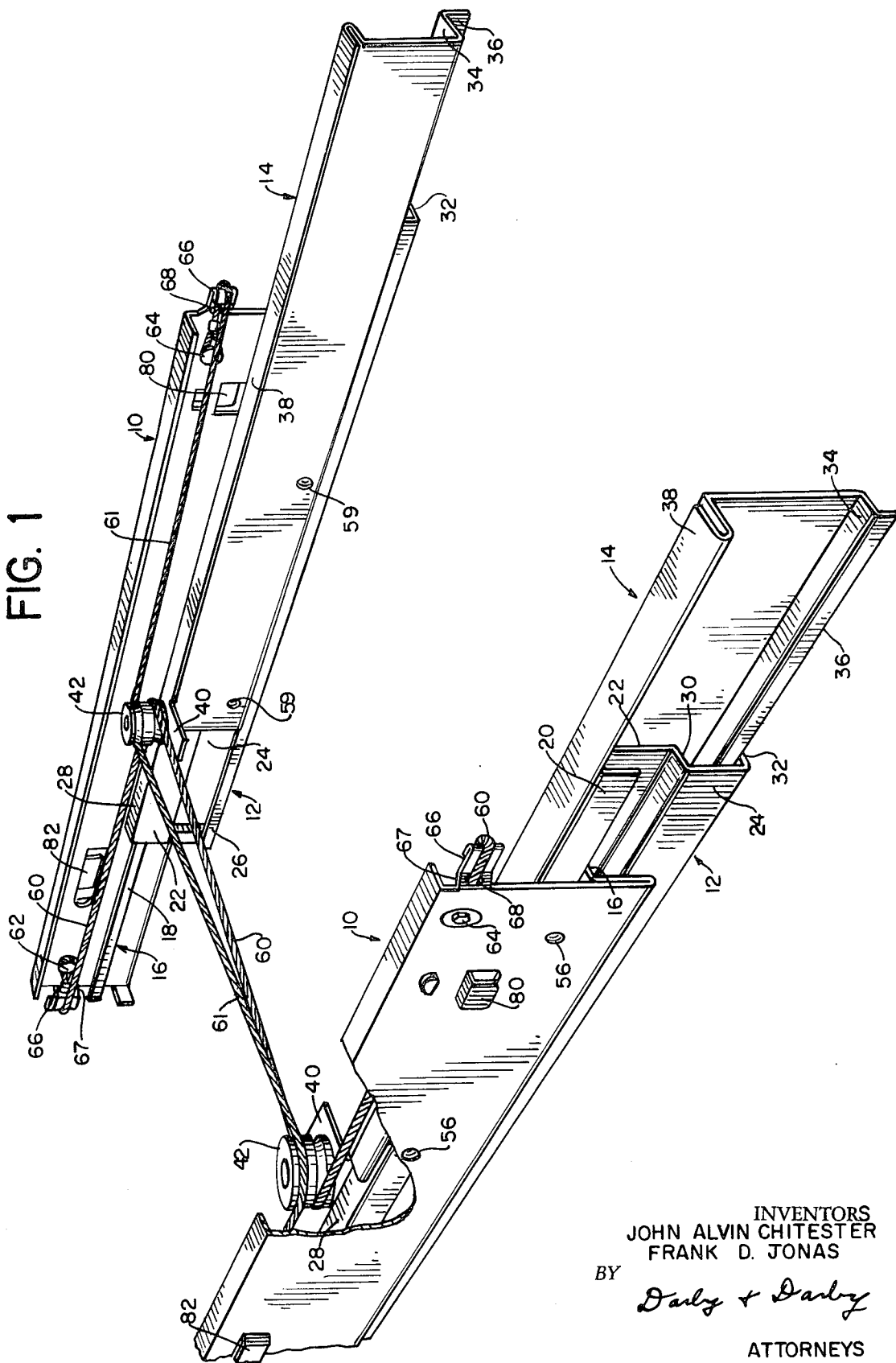
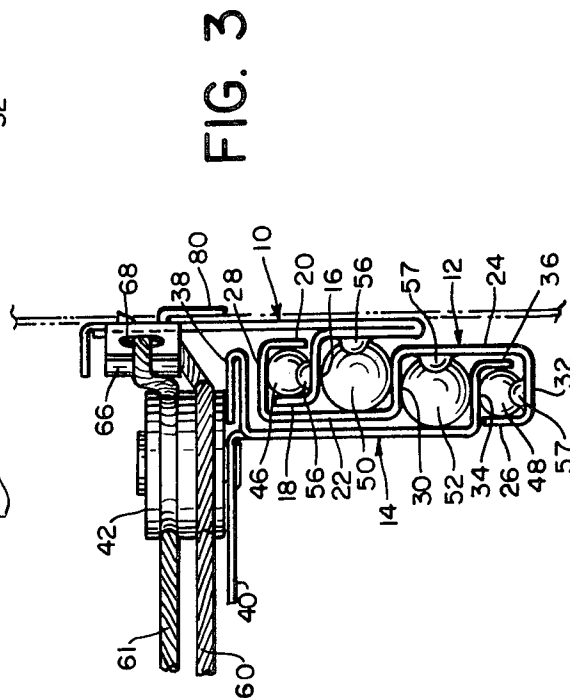
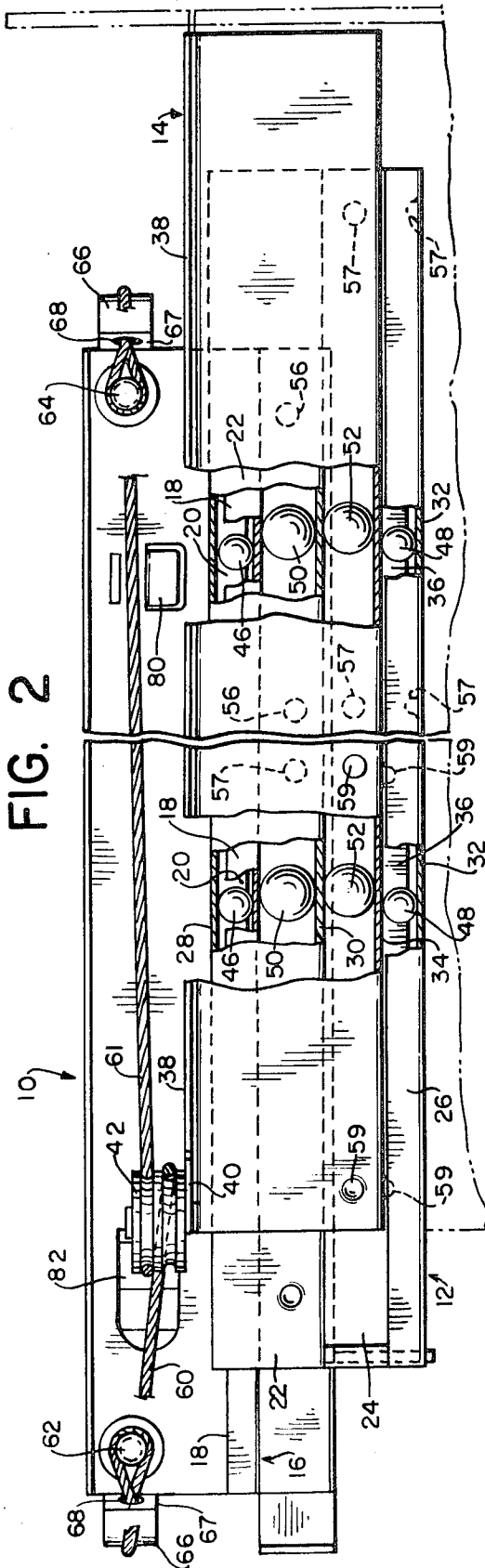


FIG. 1



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EXTENSIBLE DRAWER SUPPORT

This invention relates to an improved extensible drawer support of the type commonly used with file cabinets.

Extensible, or telescoping, drawer supports for file cabinets are well-known. Such supports commonly include a case mounting rail which is secured to the file cabinet case, a suspension rail supported on a suitable projection of the case mounting rail, and a drawer mounting rail (to which the drawer is secured) supported on the suspension rail. When the user pulls the drawer handle the drawer mounting rail moves with respect to the suspension rail and the suspension rail moves with respect to the fixed case mounting rail so that the entire support is extended. Drawer supports of this type are known in which cable stabilizers are employed to prevent jamming by maintaining the drawer mounting rails parallel regardless of where force is applied to the drawer, and to provide a smooth and easy drawer movement.

The present invention relates to an improvement over known types of extensible drawer supports in that it provides a very low-friction, economical construction which is less likely to jam than known constructions and wherein there can be virtually no direct or rubbing contact between the individual rail members of the support under any circumstances. Additionally, the invention provides a cable mounting mechanism for a cable stabilizer which will enable the cabinet drawer to be opened further than previously possible using known cable stabilizers.

The invention is described in further detail with reference to the attached drawings wherein:

FIG. 1 is a perspective view, partially cut away, of an extensible drawer support according to the invention;

FIG. 2 is a side view of the three rails on one side of the support; and

FIG. 3 is a sectional view along the line 3—3 of FIG. 2.

For purposes of simplicity, the drawings only show the extensible drawer support, the cabinet case and the drawers being omitted for purposes of clarity. Except where indicated, the construction of such parts is conventional and, at any rate, will be obvious to those of ordinary skill in the art.

Referring now to the drawings, two case mounting rails 10 are adapted to be secured to opposite internal sides of the file cabinet case. Two suspension rails 12, generally S-shaped in cross section, are supported on the respective case mounting rails 10. Two drawer mounting rails 14 are supported on the suspension rails 12 as described in detail below. Since both sides of the support are identical, in the following the detailed construction of only one side is described.

Each case mounting rail 10 may consist of a single integral piece of sheet metal with the bottom portion being bent upwardly to form a flange 16 which includes a horizontal ledge terminating in a vertically upwardly directed portion 18 (FIG. 3).

The S-shaped suspension rails 12 consist of a vertical flange 20, inner and outer vertical side walls 22 and 24, an upwardly extending vertical bottom flange 26 and integrally formed top, intermediate and bottom horizontal ledges 28, 30 and 32, respectively.

The drawer mounting rails 14 include a horizontal bottom flange 34 which terminates in a downwardly ex-

tending vertical portion 36 and is adapted to be received in the bottom of the S-shaped suspension rail 12. A U-shaped drawer receiving channel 38 is formed at the top of drawer mounting rail 14 and is adapted to receive a complementary member extending outwardly from the drawer (not shown) so that the drawer can be mounted in the support. A rear horizontal flange 40 extends inwardly from rail 14 and provides a support for a roller 42 which, as described below, functions as a part of the cable stabilizing system.

The top of the S-shaped suspension rail 12 is hooked over mounting flange 16 and supported on a spherical bearing 46 which contacts all four adjacent rail surfaces, i.e., 16, 18, 28 and 20. In turn, the bottom flange 34 of the drawer mounting rail 14 is retained within the bottom of suspension rail 12 by a similar spherical bearing 48 which also engages all four adjacent rail surfaces, i.e., 34, 36, 32 and 26. To further stabilize the support, two intermediate spherical bearings 50 and 52 are provided. Bearing 50 rides in a track defined by the upper portion of the S-shaped suspension rail 12 and the portion of the mounting rail 10 beneath flange 16. Bearing 50 also contacts the four adjacent surfaces of the rails 10 and 12. Similarly, bearing 52 contacts the four adjacent surfaces which define a track between the portion of the drawer mounting rail 14 above bottom flange 34 and a lower intermediate portion of the S-shaped suspension rail 12.

The mounting rail 10, suspension rail 12, and the drawer mounting rail 14 may include small integrally formed projections 56, 57, and 59, respectively, which serve as stops to limit the movement of bearings 46, 48, 50 and 52 within the tracks defined by the rails 10, 12 and 14. In the preferred embodiment, two sets of bearings as shown in FIG. 3 are employed spaced approximately as shown in FIG. 2.

The four-point contact between each of the bearings and the contiguous rail surfaces helps to prevent jamming. If there are no special provisions to maintain the drawer mounting rails parallel, the tendency of the drawers to form a parallelogram can cause jamming with known constructions under certain conditions. However, according to the invention, the bearings contact the vertical surfaces of the adjacent rails, so that this horizontal jamming force is translated from one side of the cabinet to the other. Consequently, the rails 14 will tend to remain parallel and jamming will not occur.

An important subsidiary features of the invention relates to the cable stabilizer system. As mentioned above, rollers 42 are mounted for rotation on flanges 40 extending inwardly from drawer mounting rails 14. Each of the mounting rails 10 includes anchor rivets 62 and 64 disposed at opposite ends. A generally U-shaped extension 66 is associated with each of the rivets 62 and 64. The extensions 66 extend outwardly from an integrally formed diagonally offset portion 67 which includes a small hole 68 to receive one end of an associated cable 60 or 61. The cables 60 and 61 may be aircraft cable, which is a nylon-jacketed wire, although obviously other types of cables can also be used.

Cable 60 is secured to rivet 62 of the right-hand mounting rail 10 then brought around a bottom retaining groove (not numbered) of right-hand roller 42, around the bottom of left-hand roller 42 and anchored

at its other end to rivet 64. In the same way, cable 61 is anchored at the right-hand rivet 64 and left-hand rivet 62 after being brought around upper grooves of the respective rollers 42. In each case where the end of a cable is anchored to rivet 62 or rivet 64, it is first brought around the U-shaped extension bracket 66 and then back through the hole 68 so that the end of the cable can be looped around the rivet.

The cable stabilizer system operates in a known way to produce compensatory forces where, for one reason or another, the applied forces cause the drawer mounting rail 14 to become skewed or non-parallel. However, with known stabilizers the anchoring arrangement for the ends of the cables limits the extent to which the drawer mounting rail 14 can be extended from the suspension rail 12 because the change in angle between the cable and roller as the roller approaches the anchor can result in the cable falling from its roller groove.

According to the invention, where the ends of the cable are brought around extensions 66 and back toward the anchoring rivets 62 and 64, the cable 62 can be maintained "tangential" to the respective rollers 42 (i.e., parallel to rail 14) for extremes of drawer movement. By providing extensions 66 at both ends of the case mounting rail 10, the cable will not form this undesired angle at either extreme of movement and the problem is thus alleviated. This improvement provides a material increase in the amount of conveniently usable space within the cabinet drawer itself.

As noted previously, the file cabinet in which the support is to be mounted has not been illustrated for purposes of clarity. The case mounting rails 10 must be secured within this case and this can be done in any of a number of ways. For example, the external surfaces of the mounting rails 10 may include an integral hook 80 and ring 82 cooperating with a complementary ring and hook on the interior of the case. This is convenient since it permits the entire support to be removed from the case without use of nuts and bolts or other fastening means which require tools. Also, the drawer must be secured to the drawer mounting rails 14 and, by the provision of the U-shaped channels 38, this also can be accomplished pursuant to the preferred embodiment without the use of nuts, bolts, etc. with simple pins (not shown) being inserted through suitable holes in the drawer and drawer mounting rail.

What is claimed is:

1. An extensible drawer support for use with a cabinet drawer or the like, comprising on each side

a case mounting rail having an inner horizontal flange extending from an intermediate portion thereof and terminating in a vertical upwardly extending portion,

a suspension rail generally S-shaped in cross section with the upper portion thereof being hooked over said flange,

a drawer mounting rail including a bottom flange extending toward said suspension rail and terminating in a vertically downwardly directed portion, and

at least four bearings vertically arrayed, the top one of said bearings supporting said suspension rail on said mounting rail flange, the bottom of said suspension rail flange resting on the bottom one of said bearings to support said drawer member rail on said suspension rail, the third of said bearings rolling in a track defined by the upper portion of said suspension rail and a portion of the case mounting rail below its said flange, the fourth of said bearings rolling in a track between the top of said drawer rail flange and a bottom portion of said suspension rail,

a cable roller mounted on each drawer mounting rail toward the rear thereof, and first and second stabilizing cables, said first cable being anchored to the front end of one case mounting rail and the rear end of the other case mounting rail and passing around both of said rollers, said second cable being anchored to the front end of one case mounting rail and the rear end of the other case mounting rail and passing around both of said rollers, said second cable being anchored at the front of said other case mounting rail and the rear end of said one case mounting rail and passing around both of said rollers, each of said case mounting rails being provided with at least one projecting extension containing an opening therein, at least one end of each said cable passing around the associated extension and back through said opening.

2. An extensible drawer support according to claim 1, wherein each end of each case mounting rail includes said projecting extension, and both ends of the cables pass around said extensions.

3. An extensible drawer support according to claim 1, wherein said drawer mounting rail includes a U-shaped channel for receiving a drawer flange, said U-shaped channel extending over the top of said S-shaped suspension rail.

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