United States Patent

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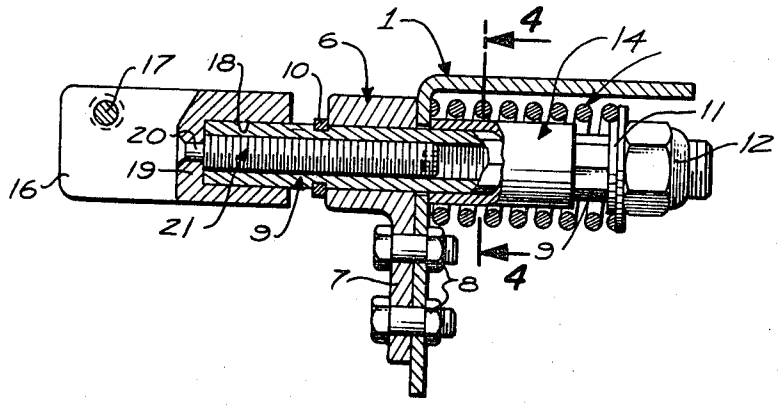
[54] **COMPENSABLE AND YIELDABLE KEEPER**
2 Claims, 4 Drawing Figs.

[52] **U.S. Cl.** **339/91,** 312/220, 292/246
[51] **Int. Cl.** **H01r 13/54**
[50] **Field of Search** 339/91, 92, 266; 292/251, 246, 155; 312/220; 24/279, 263.3; 254/67, 85; 287/61

[56] **References Cited**
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Assistant Examiner—Robert A. Hafer
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ABSTRACT: A keeper particularly adapted for multiple drawer assemblies such as used to contain electronic equipment having an elongated nonrotatably mounted and spring loaded sleeve which slidably receives a keeper fitting. A screw-threaded member is adjustably mounted in a screw-threaded bore in the sleeve and is accessible from the end of the sleeve opposite from the keeper fitting.



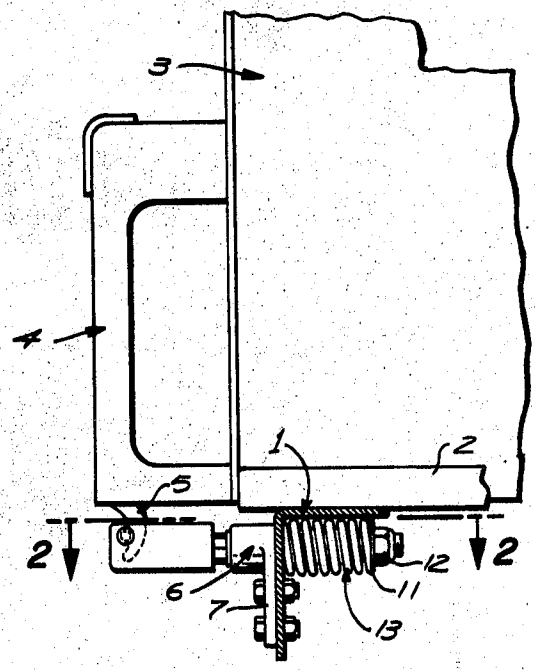


FIG. 1

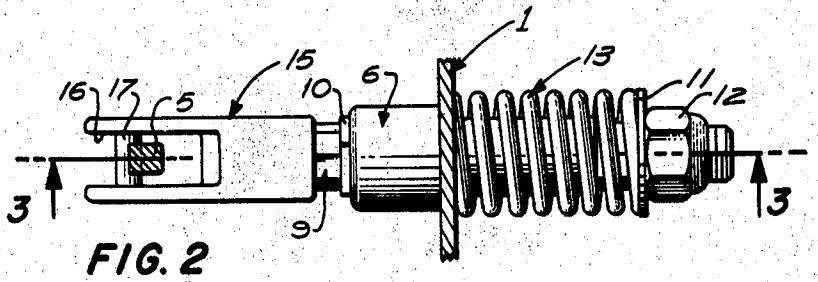


FIG. 2

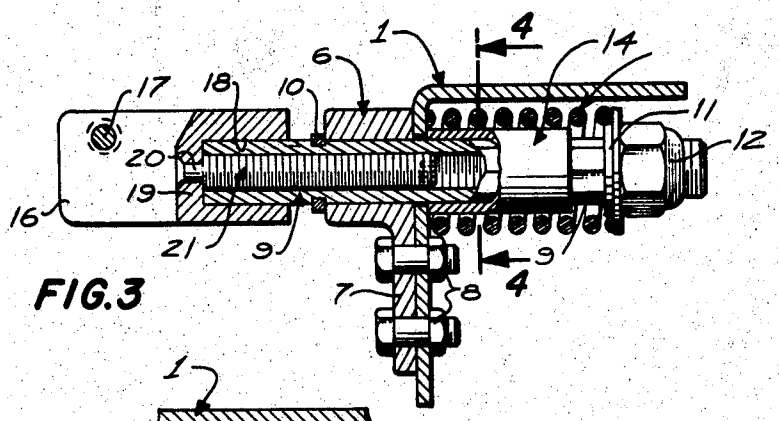


FIG. 3

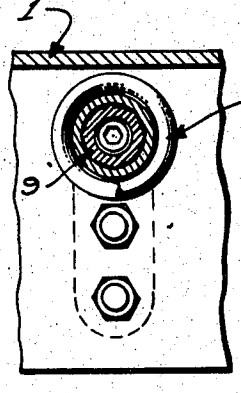


FIG. 4

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COMPENSABLE AND YIELDABLE KEEPER

BACKGROUND OF THE INVENTION

Electronic components of complex electronic equipment, such as but not limited to computer assemblies, are often divided into subassemblies carried by drawers which are mounted in supporting racks much like the drawers of a filing cabinet. The rear ends of the drawers have pin or socket connecting elements which join mating elements at the rear of the racks. In order that the connecting elements mate properly, the drawers must be accurately guided; more particularly, insofar as the present invention is concerned, the drawers must be capable of being locked in place when the connecting elements have engaged to the proper depth.

Each drawer is usually provided with a pair of handles, one located adjacent each side. Each handle is provided with a latch lever which, when in latch position, is locked in place. Heretofore, each drawer latch and its keeper have required individual fitting, due to the problem of maintaining precise tolerances in each drawer and the rack structure.

SUMMARY OF THE INVENTION

The present invention provides a solution to the problem indicated and is summarized in the following objects:

First, to provide a keeper which is intended to be engaged by the standard latches employed on drawers used for computer assemblies or the like and which includes novel adjustment means capable of accurate axial adjustment which is maintained although the drawer and the latch means may be operated many times.

Second, to provide a keeper of this type which, though readily adjustable, employs a hidden adjustment means to avoid tampering.

Third, to provide a keeper of the type indicated in the preceding objects wherein the keeper pin and its holder are maintained at the correct attitude with respect to the latch irrespective of the adjustment which may be made.

Fourth, to provide a keeper which is spring loaded so that a predetermined force may be maintained on the latch elements and drawer tending to hold the drawer in its closed position.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a fragmentary side view of a drawer intended to house electronic equipment, and showing a handle as well as adjacent portions of the framework, and also showing a side view of the compensable yieldable keeper.

FIG. 2 is an enlarged plan view of the keeper, taken through 2–2 of FIG. 1, and showing the framework and the latch hook in section.

FIG. 3 is a longitudinal sectional view, taken through 3–3 of FIG. 2, with portions in elevation.

FIG. 4 is a transverse sectional view, taken through 4–4 of FIG. 3, with the framework on which the keeper is mounted shown fragmentarily.

The compensable and yieldable keeper is intended primarily for use in conjunction with multiple drawer assemblies such as used to contain electronic equipment, but it is not necessarily limited to such use. The drawers are supported on suitable racks, here represented in part by a horizontally disposed supporting member 1 of L-shaped cross section, on which are mounted pairs of drawer guides 2, each pair supporting a drawer 3. Each drawer is provided at each side margin of its front side with a handle 4. Each handle 4 is provided with a latch lever structure, not shown except for a depending latch hook 5. The structure so far described is conventional.

The keeper which constitutes the present invention is intended to cooperate with the latch hook 5. The keeper includes a mounting guide 6, having a horizontal bore of polygonal cross section, and also includes a depending tongue 7 which is secured to the supporting member 1 by bolts 8.

The mounting guide 6 slidably receives a tubular sleeve 9 which externally is polygonal so as to slide in the guide 6 but

be held against rotation. The sleeve 9 is provided with a split collar 10 which fits within a groove formed on the sleeve 9. The collar 10 bears against the outer end of the guide 6 to limit inward movement of the sleeve 9. The inner end of the sleeve which projects through the vertical portion of the supporting member 1 is turned to provide an externally screw-threaded portion which receives a washer 11 and a nut 12.

A spring 13 extends between the vertical portion of the supporting member 1 and the washer 11 so as to urge the sleeve 9 inwardly. A movement limiting collar 14 is slidably and if desired rotatably mounted on sleeve 9 within the spring 13 so as to limit awkward movement of the sleeve 9 in opposition to the force of he spring 13.

A keeper yoke 15 is provided which includes a yoke end 16, forming a vertical slot traversed by a keeper pin 17. The keeper pin is engaged by the latch hook 5. The keeper yoke 15 is provided with a polygonal socket 18 which receives the outer end of the sleeve 9. The sleeve 9 and its connection with the mounting guide 6 and the keeper yoke 15 prevents rotation of he keeper yoke so that the yoke end aligns with the latch hook 5.

The socket 18 terminates short of the yoke end 16 forming an end wall 19 in which is journaled a rivet 20, forming one end of an adjustment screw 21. The sleeve 9 is internally screw-threaded to receive the adjustment screw within the sleeve 9, that is opposite from the journal rivet 20, is provided with an Allen socket 22, which is accessible from the rear end of the sleeve 9.

Operation of the keeper is as follows:

After the rack structure and drawers have been assembled and the keepers have been mounted as indicated in FIG. 1, each keeper is adjusted with respect to its latch lever structure by inserting an Allen wrench into the back side of the sleeve 9 and turning the adjustment screw 21 until the keeper pin 17 is in proper functional relation with the corresponding latch hook 5. Once the adjustment is made, the adjustment does not change and the keeper yoke remains in proper orientation to the latch hook 5 by reason of the fact that the sleeve 9 cannot rotate but is free to move axially. Later, should a new drawer be substituted for the previous drawer, and readjustment is required, the same procedure is followed to reposition the keeper yoke 15.

While a particular embodiment of this invention has been shown and described, it is not intended to limit the same to the details of the construction set forth, but instead, the invention embraces such changes, modifications and equivalents of the various parts and their relationships as come within the purview of the appended claims.

I claim:

1. A keeper for a cooperating latch, comprising:
   a. a mounting member;
   b. a tubular internally screw-threaded sleeve carried by said member and restrained against rotation and slidable within predetermined limits in respect to said mounting member;
   c. a keeper support slidably mounted on said sleeve and restrained against rotation and including a keeper pin;
   d. yieldable means mounted on said sleeve to urge said keeper support toward said mounting member; and
   e. an adjustment member screw-threaded within said sleeve for longitudinal adjustment therein and rotatably connected to said keeper support to move said keeper support axially, said adjustment member being accessible from the end of said sleeve remote from said keeper support.

2. A keeper for a cooperating latch, comprising:
   a. a mounting guide;
   b. a sleeve slidably but nonrotatably mounted in said guide, said sleeve including an axially outer part and an inner part, at least the outer part being internally screw-threaded;
   c. a keeper support slidably but nonrotatably mounted on the outer part of said sleeve, and including a keeper pin;

d. an adjustment member screw-threaded in said sleeve and rotatably but nonslidably connected to said keeper support, said adjustment member being accessible from the inner part of said sleeve; and

e. yieldable means carried by the inner part of said sleeve tending to retract said keeper support toward said mounting guide.