United States Patent

Curry

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[54] PENHOLDER ASSEMBLY

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[52] **U.S. Cl.** .....**211/69.6**, 211/69.8, 248/475 A

[51] **Int. Cl.** **A47f 7/00**

[58] **Field of Search** .....211/69.6, 69.7, 69.8, 69.5, 211/69.1; 248/475 A; 287/DIG. 5

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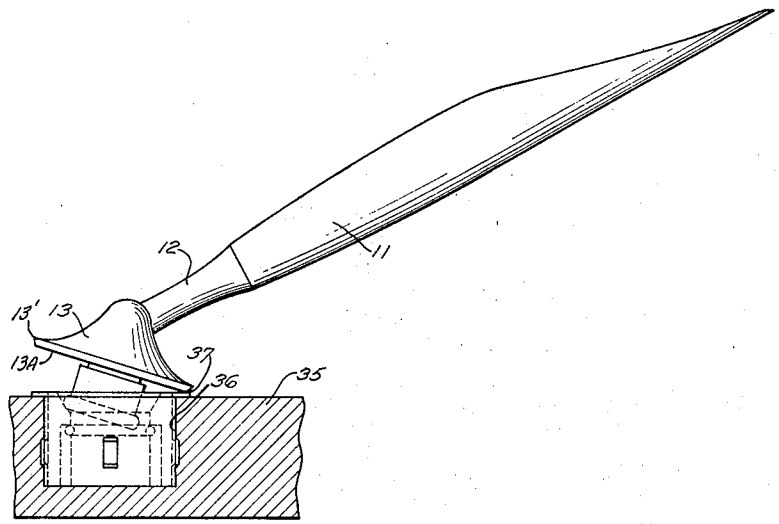
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[57] **ABSTRACT**

A penholder assembly having a funnel adaptor pivotally mounted in the top of a bonnet and a stem attached to the bottom of the bonnet having either an annular boss or annular groove which is gripped by resilient coupling means that are mounted in a bushing which releasably receives the stem.

3 Claims, 6 Drawing Figures



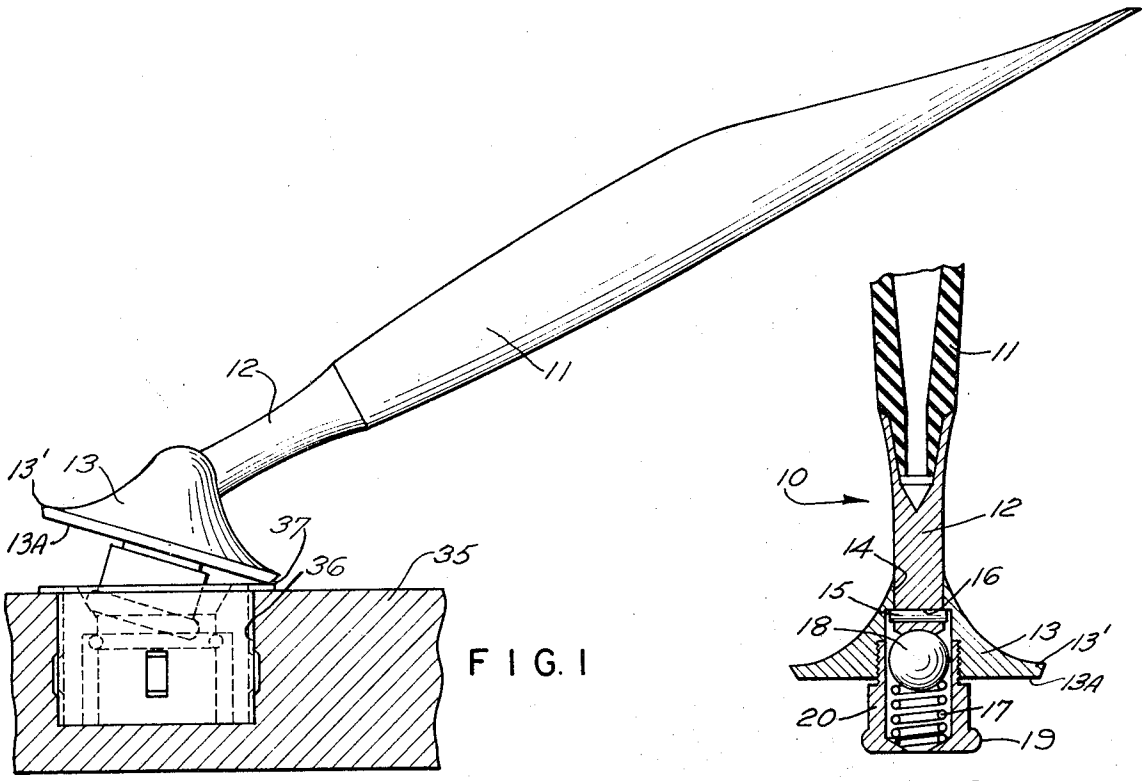


FIG. 1

FIG. 2

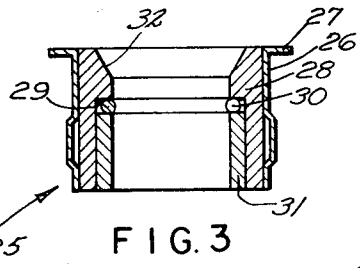


FIG. 3

FIG. 4

FIG. 6

FIG. 5

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PENHOLDER ASSEMBLY

BACKGROUND OF THE INVENTION

This invention relates to penholders and more particularly to penholders used in desk sets. A feature that is incorporated into almost every desk set penholder today is its ability to be adjusted universally. Many penholders have a spherical ball and socket unit with a funnel adaptor attached to the spherical ball. The socket is normally mounted in some manner in the base of the penholder. The angular position at which the funnel adaptor and funnel extend from the base is maintained by frictional or resilient means between the ball and the socket.

Another type of structure used to give universal adjustability to the funnel is to have the funnel adaptor mounted in a bonnet and having it pivotable only in a single plane around a given axis. Attached to the bottom of the bonnet then is a cylindrical stem that mates with a cylindrical sleeve in the base and allows the stem to be rotated 360°.

A problem of much concern to the pen industry is the fact that the funnel adaptors are frequently broken when a heavy book or object is accidentally dropped thereon. The time involved and the nuisance of the whole process in obtaining a new funnel adaptor from the manufacturer often sours the user's disposition toward the manufacturer's products generally. Many a potential repeat customer is lost in this manner.

SUMMARY OF THE INVENTION

The maneuverability of the penholder of the present invention retains the basic ability to be universally adjusted while incorporating the advantage of preventing the funnel adaptor from being broken as a result of a heavy blow against it. The funnel adaptor is mounted in a bonnet in such a manner that it may be pivoted only within a single plane. A stem attached to the bottom of the bonnet cooperates with a bushing mounted in the base of the penholder to form a coupling unit and the stem is revolvable therein throughout 360°. The bushing contains resilient means that act against an annular groove or annular boss on the stem to provide sufficient tension to retain the stem in the bushing when subjected to normal forces. When a greater force is applied to the funnel adaptor, the outer edge of an annular flange on the sleeve surrounding the bushing acts against the bottom surface of the bonnet as the bonnet is being rocked upwardly from the base. The point at which the bonnet pivots about the flange is the fulcrum and as force on the funnel adaptor becomes greater than the forces resiliently holding the stem in the bushing, the stem will rise up out of the bushing. This safety disengagement feature prevents the funnel adaptor from being broken each time an accidentaL blow is struck against the adaptor.

DESCRIPTION OF THE DRAWINGS

FIG. **1** is a side elevation of the preferred embodiment showing a partial cross section through the base;

FIG. **2** is a cross section illustrating the removable penholder unit;

FIG. **3** is a cross section of the fixed penholder unit;

FIG. **4** is a side elevation of an alternative embodiment showing a partial cross section through the base;

FIG. **5** is a cross section illustrating the alternative removable penholder unit; and

FIG. **6** is a cross section of the alternative fixed penholder unit.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIGS. **1–3**, the preferred embodiment of the penholder will be discussed. Basically the penholder consists of a removable unit **10** and a fixed unit **25** mounted in a base **35**. The removable unit has a funnel **11** mounted at the top of the funnel adaptor **12**. A pen is normally received in the top of the funnel. Bonnet **13** having a slotted bore **14** in its top surface receives the lower end of the adaptor **12** and pin **15** passing through a horizontal bore **16** in the lower end of the adaptor prevents it from being pulled out of the bonnet. The bonnet is flanged radially outward slightly as at **13'** and screw threaded into the bottom wall **13A** of the bonnet is a stem **20** having a bored out area that receives a spring **17** and ball **18**. The action of the spring against the ball maintains the bottom of the funnel adaptor in its uppermost position within the bonnet. The action of the annular boss **19** will be explained later when its relationship to the fixed unit **25** is discussed.

The base **35** permanently receives within a bore **36** in its top surface the fixed unit **25**. Outermost in the unit is a sleeve **26** having a flange **27** that limits the distance the fixed unit may be pushed into the bore. A bushing **28** having a chamfered mouth sets within sleeve **26** and has an internal annular shoulder **29** against which a split ring **30** is held in place by a second sleeve **31**. Although the mouth of the bore of the bushing is depicted as being chamfered as at **32**, it is to be realized that the design of the relief is not to be so restricted. The relief could also be in the form of a counterbore for example, and as long as the configuration of the relief allows the stem to be rocked laterally, its design is unlimited.

The action which occurs when the removable unit is coupled to the fixed unit is as follows. The stem of unit **10** is first lowered into the bushing **28** and since the outer diameter of annular boss **19** is slightly less than the diameter of the bore of bushing **28**, the stem will descend freely until the annular boss **19** engages the split ring **30**. By increasing the downward force applied to the stem the round surface of the boss **19** cams against the curved surface of the split ring forcing the ring to expand into the annular groove formed between the top surface of sleeve **31** and the bushing shoulder **29**. The annular boss then passes through the split ring which then springs back to engage the stem **20** and the bottom wall of the bonnet rests upon flange **27** of sleeve **26**.

For a proper understanding of how the removable unit releases from the base, it is necessary to refer to FIG. **1**. As seen in the figure, the funnel and funnel adaptor are depicted in an attitude similar to one that would result from the force of a heavy blow across the top of the funnel or funnel adaptor. Point **37** which is spaced from the center of the flange **13'** becomes the fulcrum around which the different forces act and the effect of a sufficiently large force causes the stem **20** to rise up out of the bushing with the boss **19** sliding up the chamfered mouth when the resisting force of the split spring against the annular boss has been overcome. This therefore prevents the funnel adaptor from being broken as the result of heavy objects falling on the penholder.

An alternative embodiment is illustrated in FIGS. **4–6**. As seen there, the outer configuration of the lower end of the stem **20'** is different. It is in the form of an inverted frusto-conical section and has an annular groove **19'** therearound. The upper end of bushing **40** is bored out to matingly receive the frusto-conical stem **20'** and has a plurality of bores **41** extending radially outwardly. Positioned within these bores are springs **42** that bear against balls **43**. When the stem **20'** of the removable unit is pressed into bushing **40**, the balls **43** compress springs **42** until the balls ride into the annular groove **19'** of the stem. The force of the spring loaded balls against the groove of the stem retains the stem within bushing **40** against any normal forces which may strike the funnel or funnel adaptor. When a force larger than normal is applied against the funnel or funnel adaptor, point **37** becomes the fulcrum around which the different forces act. As the gripping force applied against the stem by the resilient coupling means is overcome, the stem becomes disengaged and rocks up out of the bushing and thus prevents the adaptor from being broken.

It will be seen that I have provided a construction of a penholder held in a bushing in a base which has a fulcrum point for rocking a funnel adaptor out of its bushing and has its cooperating parts of a shape to permit this rocking action.

What is claimed is:

1. A penholder comprising

a funnel having a bore for receiving a pen,

a funnel adaptor attached to the bottom of the funnel,

a bonnet having an axial bore in which one end of the funnel adaptor is received and having a radially extending flange with a bottom wall,

a stem attached to and projecting from the bottom wall of said bonnet and extending axially perpendicular to said bottom wall,

annular means on the outer surface of said stem,

a bushing having a bore for receiving said stem,

resilient spring means mounted within said bushing cooperating with said annular means releasably coupling said stem to said bushing,

said bore of the bushing having an enlarged opening at its top,

the radius of said flange and the axial extent of said stem being so related relative to the size of said bore and position of said resilient spring means that rocking of the stem about a point spaced from the center of said flange will force the stem upwardly and force said resilient means radially outward to release said stem whereby the stem may be rocked out of said bore about a point on the lower surface of said bonnet.

2. A penholder as recited in claim 1 wherein said resilient spring means comprises a split ring that may be expanded into a groove in said bushing.

3. A penholder as recited in claim 1 wherein said resilient spring means comprises a plurality of spring loaded balls that are received in bores in said bushing.

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