

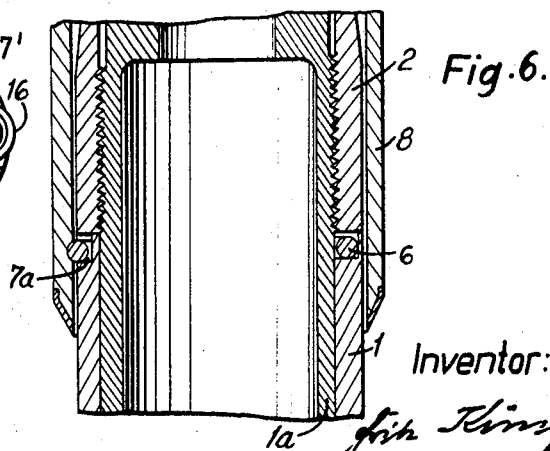
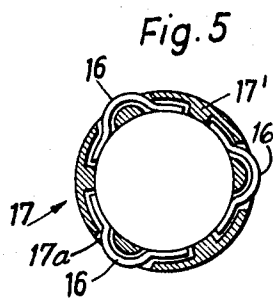
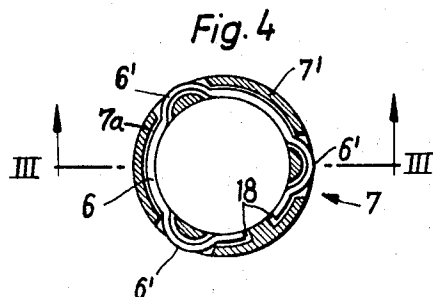
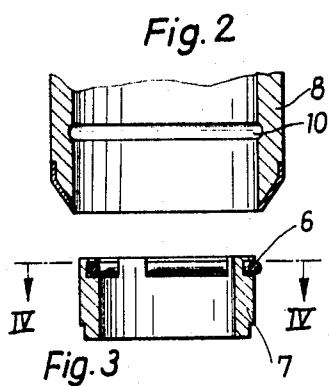
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WRITING INSTRUMENT

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WRITING INSTRUMENT

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1 Claim

ABSTRACT OF THE DISCLOSURE

The present invention relates to a writing instrument, especially a fountain pen and is specifically directed to the shape of and the assembly of spring means for holding the cap of the writing instrument to the barrel thereof. The invention is characterized primarily in that at least one of the sections forming the barrel has an end face thereof provided with recess means on the inside of said section which recess means communicates through passage means with the outside of said section while spring means located within said recess means has rounded protruding portions passing through said passage means for displaceable engagement with a groove in the cap when said cap is mounted on said barrel.

This invention relates to a writing instrument and more particularly to a writing instrument, comprising a barrel provided with a writing point, a cap detachably affixable to the barrel, and a spring type detent means in the form of a peripheral groove in the cap and a co-operating spring ring having spring portions which resiliently project radially with respect to the groove, said ring being slipped over the barrel of the instrument for location thereon by engagement of the spring ring in the groove.

It is an object of this invention, with a writing instrument of the above mentioned type to simplify the spring ring and its assembly.

It is a further object of this invention to improve the external appearance of a writing instrument as set forth in the preceding paragraph.

These and other objects and advantages of the invention will appear more clearly from the following specification in connection with the accompanying drawing, in which:

FIGURE 1 is an axial section on an enlarged scale of a portion of a writing instrument comprising a fountain pen provided with detent means according to the invention for retaining the cap on the barrel.

FIGURE 2 is an axial section of a portion of the cap of the pen according to FIGURE 1 still further enlarged.

FIGURE 3 is an axial section of a transparent ring and a spring ring according to FIGURE 1 on a correspond scale to that of FIGURE 2, said section being taken along the line III—III of FIG. 4.

FIGURE 4 is a section taken on the line IV—IV in FIG. 3.

FIGURE 5 is a corresponding section to FIG. 4 of a modified embodiment of the invention.

FIGURE 6 shows a modification of the mounting of the detent means which differs from that of FIGURE 1 in that the detent means is not arranged in a separate ring member but in one of the major barrel parts.

According to the invention the spring ring is inserted between two connected parts of the barrel in a manner providing the necessary spring clearance and so to conceal the spring that only the outwardly projecting portions of the spring are exposed. Preferably the spring ring is received into a support ring which may be wholly or partly translucent and may be located between the parts of the barrel.

Suitably the spring ring is a split ring in the form of a piece of steel wire bent into circular shape. Alternatively the spring ring may consist of a plurality, e.g. of three peripherally spaced arcuate steel wire sections.

Referring now more specifically to the drawings, the two parts 1 and 2 of the fountain pen are connected in any standard manner, e.g. by screwing and together form the barrel containing the ink reservoir of the writing instrument. Interposed between the axial end faces of the front part 2 and of the rear part 1 is a wholly or partly translucent or transparent ring 7 through which the level of the ink can be observed, said ring being held in position by the two parts 1 and 2 being threadedly connected together.

For holding the cap 8 on the barrel of the writing utensil, the cap is formed with an internal peripheral groove 10 which co-operates with a spring ring 6.

It will be understood from FIGURES 3 and 4 that the split spring ring 6 which is preferably constituted by a piece of steel wire, though it may be formed from steel strip, is arranged in a corresponding groove 7a provided in the axial end face of the transparent ring 7 which thus serves as a spring supporting ring. The recesses or groove in the end face of the transparent ring are or is so formed that only the outwardly projecting spring portions 6' which provide the clamping effect are visible. The lands 7' between the projecting portions 6' of the spring ring conceal the major part of the spring ring 6 and prevent the same from rotating on the transparent ring. As shown in FIGURE 4, the wall thickness of the ring 7 need not at all or only slightly be enlarged, since the portions of the spring ring which cannot be seen from the outside are supported by bearing against the ink reservoir which is enveloped by the barrel forming parts 1 and 2. In the axial direction, the length of the lands 7' slightly exceeds the axial length of the spring ring so that the latter is not axially compressed. Adjacent the ends of the split spring ring 6, some clearance is likewise provided at 18 to permit the spring to function in the manner desired. Sufficient clearance is also available in the radial direction.

In a modified embodiment of the invention as shown in FIGURE 5, the one-part split spring ring is replaced by three arcuate peripherally spaced steel wire or strip sections 16. For the reception of the several spring elements 16 and for their concealment, the transparent ring 17 is so shaped that lands 17' of T-shaped cross section remain between the several spring sections. Also in this instance, the corresponding recesses 17a receiving the spring elements 16 are provided in one of the end faces of ring 17 similar to the ring 7 of FIGURES 3 and 4.

Instead of supporting the spring 6 or spring portions 16 in ring 7 or 17 respectively, the spring or spring portions may also be supported directly in one of the abutting portions of the barrel parts 1 and 2. In this instance, one or both of the abutting parts of the barrel is or are formed with recesses similar to those of FIGURES 4 or 5 to receive the spring or spring portions as to conceal all but the parts thereof which project radially outwardly of the barrel. Such arrangement is shown in FIGURE 6 in which the elements corresponding to those of FIGURE 1 have been designated with the same reference numerals as in FIG. 1. It will be seen that the wire 6 (which could also be replaced by the wire 16) is arranged directly in the end face of barrel part 1. Of course, if desired, corresponding groove means 7a could instead be located in the barrel part 2.

As with the embodiment of FIG. 1, it is necessary that the groove means receiving the spring is higher than the extension of the spring in the axial direction of the barrel as shown in FIG. 6 so that the spring will not be clamped in the axial direction of the barrel which would impede its action.

The improved spring ring according to the invention on a writing instrument constitutes a very reliable detent means which is easy to use and which does not necessitate enlarging the radial dimensions of the writing instrument. A very useful feature is the clearly audible snap which indicates that the cap has been pushed home on the pen.

It is, of course, to be understood that the present invention is, by no means, limited to the particular constructions shown in the drawings, but also comprises any modifications within the scope of the appended claims.

I claim:

1. In a writing instrument, particularly a fountain pen, including a cap having an inner surface with a peripheral groove means extending radially in a plane transverse to the longitudinal axis of the cap and extending complementary to curved steel-wire spring means having major body portions spaced radially inwardly away from the groove means and joined by substantially U-shaped radially-outwardly extending projection exposed to coplanar interengagement with the groove means upon telescoping axial interfit of the cap onto a barrel composed of a pair of axially aligned sections fastened to each other, the improvement therewith which comprises: in combination with the barrel and spring means, and intermediate end land-forming means in a curved outer peripheral configuration complementary with the axially aligned sections fastened to each other forming the barrel, said intermediate land forming mean having only periodic radially outward openings complementary to only the radially-outwardly extending projection of the curved steel-wire springs, said curved land-forming means providing alternate opening radially inwardly for

the major body portion of the curved steel-wire spring means and axial abutment with respect to at least one of the axially aligned sections of the barrel and thereby assuring limited axial and radial resilient freedom of the curved steel-wire spring means in the openings, said land-forming means being radially outside for protecting and for concealing the major body portions of the curved steel-wire spring means retained exclusively radially inwardly of said land-forming means and substantially flush peripherally radially outwardly of one of the axially aligned sections of the barrel, said land-forming means also preventing rotation of the curved steel-wire spring means by abutting the projection thereof laterally at each opening.

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U.S. Cl. X.R.

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