Oct. 25, 1966 SHUNICHI NAKATA 3,280,797

RETRACTABLE CLOSURE FOR PEN CASINGS

Filed Sept. 22, 1965

FIG. 1

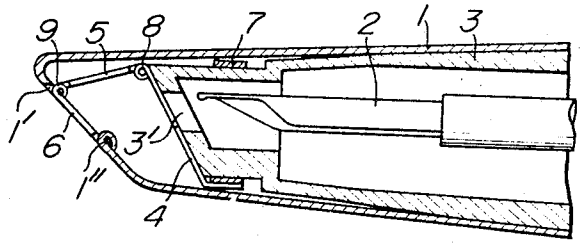


FIG. 2

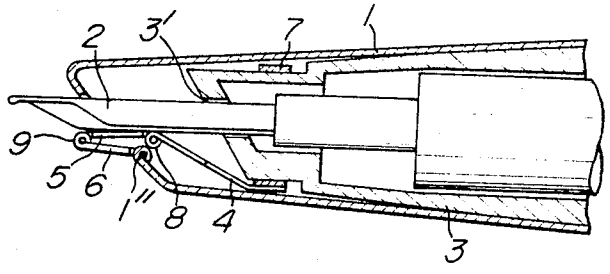
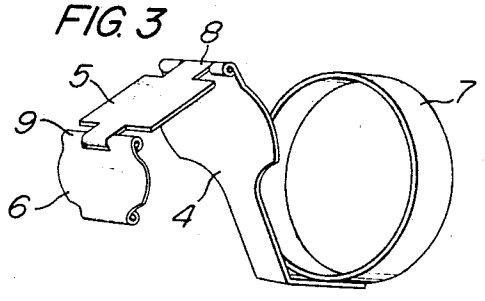


FIG. 3



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RETRACTABLE CLOSURE FOR PEN CASINGS

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2 Claims. (Cl. 120—42.03)

This invention relates to a capless type of fountain pens and more particularly to an improved end closure device for openably closing the pen point passage through such fountain pen.

Conventional fountain pens of capless type have invariably a structure such that a single end cover member is provided to openably close the pen point passage aperture at the front end of the fountain pen. This prior structure, however, has been defective in that drying of ink at the pen point takes place more or less soon and intrusion of dust from outside brings forth a hindrance to satisfactory opening and closing operation of the end cover member.

It is therefore the primary object of the present invention to provide an improved end closure device which can overcome the above-described prior drawbacks experienced with this type of fountain pens.

Briefly, the present invention contemplates to provide an end closure device including two end cover-members which are disposed at different places in a fountain pen and are interengaged with each other so that they can simultaneously be actuated by a single action to positively effect the opening and closing of the pen point passage in the fountain pen.

The above and other objects, advantages and features of the present invention will become apparent from the following description with reference to the accompanying drawings, in which:

FIG. 1 is an enlarged longitudinal sectional view of the end closure device according to the present invention, the view showing a state in which the pen point is completely retracted into the fountain pen body;

FIG. 2 is a view similar to FIG. 1, but showing a state in which the pen point is advanced to its writing position; and

FIG. 3 is a perspective view of the end closure device of the invention.

Referring to the drawings, reference numeral **1** designates a hollow outer head portion of the body of a fountain pen. At a portion of the front end of the outer head portion **1**, an aperture **1'** is bored to allow for passage therethrough of the pen point **2** and has its lower end suitably bent or curled as at **1''**. A hollow inner head member **3** is snugly fitted in the outer head portion **1**. At a portion of the front end of the inner head member **3**, there is also bored an aperture **3'** in aligned relation with the aperture **1'** to allow for passage therethrough of the pen point **2**.

A cover member **4** of resilient material for openably closing the aperture **3'** consists of a cover plate portion and a resilient leg portion of integrally connected structure. One end or the leg portion of the cover member **4** is firmly secured on an outer peripheral portion near the front end of the inner head member **3** by means of a fixing ring **7** while the other end thereof is hinged to one end **8** of a connecting member **5** so that the connecting member **5** can make pivotal movement about the hinged end **8**. The cover member **4**, by its own resiliency, normally bodily abuts the pen point passage aperture **3'** of the inner head member **3** to hermetically close the same.

A cover member **6** for closing the pen point passage aperture **1'** of the outer head portion **1** has a shape as best shown in FIG. 3. The cover member **6** has a surface area

substantially equal to that of the aperture **1'** and has one end thereof hinged to the curled portion **1''** of the aperture **1'**, while the other end thereof is pivotally connected to the other end **9** of the connecting member **5**. The connecting member **5** may be of any shape either a bar or a plate so long as the opening and closing movement of the cover member **6** normally closing the pen point passage aperture **1'** of the outer head portion **1** can be caused in interengaging relation with the opening and closing movement of the cover member **4** normally hermetically closing the pen point passage aperture **3'** of the inner head member **3** by the action of the connecting member **5**. Further, the connecting member **5** must have a length which equals the linear distance between the free ends of the cover members **4** and **6** when they are at the respective positions at which they completely close the aperture **3'** of the inner head member **3** and the aperture **1'** of the outer head portions **1**.

The end closure device of the invention having the structure as described above operates in the following manner. Under a state in which the fountain pen is not in use, the pen point **2** is completely retracted in the inner head member **3** as shown in FIG. 1 and the cover member **4** by its own resiliency firmly abuts the pen point passage aperture **3'** of the inner head member **3** to hermetically close the same while the cover member **6** likewise closes the pen point passage aperture **1'** of the outer head portion **1** by being pulled rearwardly by the connecting member **5**. In use, however, force applied from the rear end of the fountain pen causes advancing movement of the pen point **2** and the support therefor towards the pen point passage aperture **3'** of the inner head member **3**, and in its advancing movement, the pen point **2** urges the cover plate portion of the cover member **4** hermetically closing the aperture **3'** away from the aperture **3'**. As soon as the cover member **4** starts to open, the cover member **6** closing the aperture **1'** is also urged forwardly by the connecting member **5** and its opening becomes greater as the cover member **4** is opened more. Both the cover members **4** and **6** are finally entirely opened under a state in which the connecting member **5** is bodily forced onto the underside wall of the pen point support as shown in FIG. 2 and the pen point **2** is brought to its writing position by being completely projected outwardly of the pen point passage aperture **1'** at the front end of the outer head portion **1**. The pen point **2** after use can be retracted into the inner head member **3** by an operation just reverse to that described above.

From the foregoing description it will be understood that the device of the invention consisting of a few simple parts can easily be assembled and a simple mechanism employed therein can cause opening and closing movement of one cover member in interengaging relation with opening and closing movement of the other cover member so that the two cover members can positively and smoothly be controlled by a single action for simultaneous opening and closing.

The double cover member structure according to the invention offers advantages over the conventional single cover member structure in that a more perfect protection can be provided against drying of ink at the pen point and complete elimination of dust intrusion into the fountain pen can be attained.

What is claimed is:

1. An end closure device for openably closing the pen point passage through a fountain pen comprising a first aperture provided at the front end of a hollow outer head portion of the pen body, a second aperture provided at the front end of a hollow inner head member snugly fitted in said outer head portion, said inner head member accommodating the pen point therein when the pen point is in its retracted position, said first and second apertures

being bored in aligned relation with the longitudinal axis of the pen point so as to permit the passage of the pen point therethrough when the pen point is advanced to its writing position, a first cover member hingedly mounted at one end thereof on the lower end edge of said first aperture and normally urged onto said first aperture to close the same, a second cover member openably secured at one end thereof on a portion near the lower end edge of said second aperture and normally bodily abutting said second aperture to hermetically close the same, and means hingedly connected between the free ends of said first and second cover members, whereby the advancing and retracting movement of the pen point can cause simultaneous opening and closing movement of said first and second cover members in interengaging relation with each other.

2. An end closure device according to claim 1, in which said second cover member is of resilient material so that it can normally resiliently abut said second aperture to hermetically close the same.

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