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FOUNTAIN PEN

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The invention relates to fountain pens of the type comprising an ink reservoir constituted by a cylindrical sheath of rubber which is compressible by means of a pressure bar disposed within the body of the pen and provided with an extension constituting an actuating lever which permits bringing and maintaining said bar in its position corresponding to compression of the sheath or in its position corresponding to non-compression of the latter.

The object of the invention is to provide a fountain pen of this type which has a smooth outer surface devoid of any actuating means.

Another object of the invention is to provide a fountain pen in which the pressure means is small so that the body of the fountain pen can have a small diameter for a given capacity.

The fountain pen of the invention comprises a rigid tube which encloses the rubber sheath and is fixed to writing means, said tube having a slot through which extends the actuating lever of the pressure bar, said lever being in the form of a curved tab which is completely disposed in a cavity formed in the outer face of said tube and has such dimension and depth that, in the normal uncompressed state of the sheath, said lever does not protrude from said face of the tube.

It will be understood that as nothing protrudes from the outer face of the tube, a body fitted onto said tube could have a very small diameter relative to those of conventional fountain pens.

Further, said body is itself devoid of any projection or filling means and thus has a smooth surface and is clean and agreeable in appearance.

The pressure means, constituted by the pressure bar and its tab, can consist in a single rigid thin piece of metal which is suitably blanked and pressed.

According to another feature of the invention, said tube has two recesses or notches located on either side of the tab in the longitudinal direction and the tube has in its pressed-out portion two parts which are capable of being disposed in said recesses so as to constitute an articulation about which the tab is pivotable, the tab in so pivoting driving the pressure bar in rotation thereby compressing the sheath.

Further features and advantages of the invention will be apparent from the ensuing description with reference to the accompanying drawing, to which the invention is in no way restricted.

In the drawing:

Fig. 1 is a longitudinal sectional view with parts cut away of the essential part of the fountain pen according to the invention;

Fig. 2 is a cross-sectional view taken along line 2—2 of Fig. 1;

Fig. 3 is a perspective view of the rear part of the reservoir tube;

Fig. 4 is a perspective view of the pressure bar;

Fig. 5 is a partial elevational view of the part of the pen shown in Fig. 3 provided with the pressure bar;

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Fig. 6 is a cross-sectional view taken along line 6—6 of Fig. 5, and

Fig. 7 is a cross-sectional view taken along line 7—7 of Fig. 5, the pressure bar being shown in its position corresponding to a compression of the reservoir sheath.

In the illustrated embodiment, the fountain pen comprises writing means or an end piece 1 having an ink supply passageway in which is disposed a supply tube 2 on which the pen or nib 12 could be mounted. The rear of this end piece has a portion 3 of reduced section provided with a screw thread 4. The portion 3 comprises an inner chamber 5 in which is disposed an ebonite connector 6 which is a force fit on the tube 2. The rear end of the connector has a portion 6a of reduced section forming a shoulder 6b. Mounted on this rear portion 6a is the end of a rubber ink reservoir sheath 7 which is in abutting relation to the shoulder 6b and secured to the connector 6 by an adhesive. The sheath 7 is located within a metal tube 8, for example of brass. This tube, which is closed at its rear end by a cap 9, has a portion 10 of reduced section which extends from the forward end of the tube to a region slightly beyond the rear portion 6a of the connector 6.

The portion 10 is slightly tapered and is provided on its outer periphery with equidistant longitudinally extending scores or grooves 10a which co-operate with corresponding scores or grooves provided on the inner wall of the end portion 3, in which the scores 10a are a progressive force fit owing to the slight taper of the portion 10.

A cylindrical fountain-pen body 11 which surrounds the whole of the tube 8 is screw-threadedly engaged on the screw thread 4 of the portion 3 of the end member 1. Provided between the latter and the body 11 is an annular recess 12 carrying a conventional keeper ring 13 adapted to receive and hold the cap of the fountain pen in position (not shown in the drawing). Located within the tube 8 and extending alongside the rubber sheath 7 is a pressure member 14 (Fig. 4) composed of a single piece of thin blanked and pressed metal. This pressure member comprises an elongated and arcuate portion 15 which is hereinafter termed the pressure bar and extends substantially along the whole of the length of the sheath, and an actuating element 16 hereinafter called a tab which is in the form of a segment of a ring and has two recesses 17a and 17b which are disposed on the same generatrix of the tab 16 at each end of the latter.

The end of the tube 8 has, as shown in the Fig. 3, a cavity 18 which has been obtained by a press operation and is defined by two rectilinear lateral faces 19a and 19b and two arcuate faces 20a and 20b, this cavity having such dimensions and shape that the tab 16 is perfectly contained therein. The face 19b, which is adjacent the free edge 16a of the tab, is however curved (Fig. 6) so as to permit introduction of a finger nail between this face and the edge 16a. The end 8a (Fig. 5) of the tube 8 has a portion 21 of reduced diameter on which the cap 9 can be fitted.

A slot 22 is provided in the wall of the bottom of the cavity 18 and this slot communicates with the interior of the rear end of the tube 8 so that if the pressure bar 15 is introduced into the tube, the tab 16 may be caused to extend through the slot 22 and be positioned in the cavity 18.

The bottom of the pressed-out portion 18 is extended beyond the slot 22 by two pressed-out portions 23a and 23b which are short in the longitudinal direction and constitute an extension of the part-cylindrical bottom face 18 of the cavity. These portions 23a, 23b form hooking and articulation means for the tab 16 when the latter is in position in the cavity 18.

It will be observed that the pressure bar comprises a portion 15a corresponding to the reduced portion of the tube 8 created by the cavity 18 and a portion of larger diameter 15b corresponding to the portion of the tube 8 forward of the cavity 18 relative to the writing end of the pen.

The fountain pen of the invention operates in the following manner:

To put the pressure means in position, the pressure bar is introduced into the rear end of the tube in the space between the rubber sheath and the inner wall of the tube 8, the tab 16 being introduced into the slot 22 by separating if desired the edges of this slot; the tab is pushed in until it comes into abutting relation to the wall 20b. This tab is thereafter swung transversely of the tube 8 in such manner that the two recesses 17a and 17b engage with the articulation means 23a and 23b, after which the tab may be swung back so as to be wholly disposed in its housing or cavity 18, as shown in Fig. 5. The cap 9 can now be placed on the portion 21, after which the body 11 of the fountain pen is screwed in position on the screw thread 4.

To fill the reservoir or sheath 7 with ink, the body 11 is unscrewed so as to expose the tab 16, and the end of a finger nail is introduced into the gap between the face 19b and the edge 16a of the tab. The writing end of the member 1 being immersed in the ink, the tab 16 is pivoted about the articulation means 23a and 23b until it assumes the position shown in Fig. 7, in which position the pressure bar 15 compresses the sheath 7. By releasing the tab 16, the rubber sheath is filled with ink owing to the suction effect known in conventional sheath reservoir devices and the tab 16 automatically resumes its position in the cavity 18 shown in Fig. 5. In this position, the tab is flush with the outer face of the tube 8 so that the body 11 can be slipped over the latter and screwed on the screw-threaded portion 4. The space between the body 11 and the tube 8 can be very small, since the latter has no projection.

Although a specific embodiment of the invention has been described, many modifications and changes may be made therein without departing from the scope of the invention as defined in the appended claims.

Having now described my invention what I claim as new and desire to secure by Letters Patent is:

1. Fountain-pen reservoir comprising, writing means, a rigid tube fixed to said writing means, an elastic sheath fixed to said writing means within said tube, and pressure-applying means; said pressure-applying means comprising a pressure bar disposed within said tube against the wall of said sheath and a lever consisting of a tab connected to said bar, said tab having the form of a segment of a ring and extending out of said tube through a longitudinal slot formed in the latter; said tube having on its outer face a cavity whose contour and depth substantially correspond to the contour and thickness of said tab, whereby in the inoperative position of said tab the latter is completely housed within said cavity and does not protrude from the outer face of said tube.

2. Fountain-pen reservoir comprising, writing means, a rigid tube fixed to said writing means, an elastic sheath fixed to said writing means within said tube, and pressure-applying means; said pressure-applying means comprising a pressure bar disposed within said tube against the wall of said sheath and a lever in the form of a curved tab connected to said bar, said tab extending out of said tube through a longitudinal slot formed in the latter; said tube having on its outer face a cavity whose contour and depth substantially correspond to the contour and thickness of said tab, whereby in the inoperative position of said tab the latter is completely housed within said cavity and does not protrude from the outer face of said tube; said tab having two recesses situated on both sides of said tab in the longitudinal direction and said tube having in said cavity two portions engaging said recesses and thereby forming an articulation about which said tab is pivotable for pivoting said pressure bar so as to compress said sheath; and a hollow fountain-pen body surrounding said tube and detachably connected to the latter.

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