

UNITED STATES PATENT OFFICE

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FOUNTAIN PEN

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This invention relates to improvements in fountain pens and is directed more particularly to fountain pens of the self-filling type.

The principal objects of the invention are the provision of a pen comprising a novel combination and arrangement of parts which not only aids in the production of a pen at nominal cost but which provides a pen structure that is durable, strong, easily operable and has a pleasing appearance.

The novel features and advantages of the invention will be observed from the following description thereof in the form at present preferred, which for purposes of disclosure are illustrated in the accompanying drawings, wherein:

Fig. 1 is a side elevational view of a fountain pen embodying the novel features of the invention.

Fig. 2 is a similar view with the cap removed.

Fig. 3 is a side elevational view of the pen with the barrel in open position and partially shown in section.

Fig. 4 is a sectional elevational view at the outer end of the inner barrel.

Fig. 5 is a perspective view of the expansion ring, one of the details of construction.

Referring to the drawings the novel features of the invention will now be described in detail.

In Fig. 1 I have shown a fountain pen which includes a barrel 2 and cap 4. The inner end of the barrel and of the cap are provided with interfitting screw threads which may be of usual form to secure the parts together and to facilitate the easy and ready separation thereof when it is desired to use or fill the pen.

In Fig. 2 the cap is removed from the barrel to show a pen holder 6 which carries a pen point 8 and an ink feeding element 10 which are arranged in the regular manner. The barrel 2 as distinguished from ordinary construction is movable towards and away from the holder. To facilitate this the barrel is slidable on an inner barrel 12 which is secured to the holder in some suitable manner, such as by screw threads, as shown.

This inner barrel 12 is preferably of metal

tubing such as brass tubing and serves to receive an ink sack 18 as well as supports the outer barrel. The outer barrel is preferably provided with an interior metallic lining or shell 14 which slidably embraces the inner barrel.

In the form of the invention shown the cap, outer barrel and holder are preferably made of some non-metallic material such as rubber, celluloid or the like while the inner barrel and lining are of metal to facilitate accurate fitting of the relatively slidable parts and avoid excessive wear, warping and the like.

The ink sack 18 is of yieldable or resilient material such as rubber and is secured to the inner end of the pen holder to extend longitudinally through the inner barrel.

The outer end of the inner barrel is provided with slits such as 20 which are spaced therearound so that the end portion may yield or expand against the lining of the outer barrel.

An outwardly extending bead 22 is provided around the inner barrel adjacent its outer end and may be formed by running a tool around the inner side of the wall of the barrel. This makes an annular groove around the inner wall of the barrel (see Fig. 4), which is desirable for the following reason:

An annular ring member 24 of spring-like material best shown in Fig. 5 is inserted in the end of the inner barrel. This is split longitudinally as shown and has a bead 26 therearound which fits within the annular groove inside the inner barrel whereby the member 24 is held in place. By being of spring-like material and split as it is, the ring 24 tends to expand and yieldingly urge the split end of the inner barrel against the lining of the outer barrel. A tongue or keeper 28 carried by the expansion ring 24 and extending inwardly thereof is received in an aperture at the outer end of a pressure bar 30 which extends inside the inner tube and rests upon the ink sack 18. This keeper holds the bar against appreciable endwise movements and yet allows the pressure bar to be

depressed inwardly to press the ink bag to deflate it.

A finger opening 30' through the inner barrel and disposed over the pressure bar provides an opening through which a finger may be inserted for actuating the said bar.

As shown in Fig. 3 the barrel may be moved rearwardly of the inner barrel to expose the finger opening in the inner tube or barrel. This position of the barrel may be called its open position (as shown). A groove is provided around the lining of the outer barrel into which the bead of the inner barrel is forced by action of the expansion spring. Thus as the barrel is pulled rearwardly of the inner barrel the bead will be snapped into the groove and tend to lock the outer and inner barrels against further relative movements. Of course since the end of the inner barrel is yieldable against the action of the expansion ring the outer barrel may be pulled entirely off the inner barrel but the snapping of the bead into the groove will warn against this and serve to stop the relative movement of the outer barrel to adequately expose the finger opening for the purpose of filling the pen.

As the outer barrel is moved forwardly of the inner barrel from the position shown in Fig. 3 to that shown in Fig. 2 or from a sack filling position to a closed position the inner end of the outer barrel is disposed adjacent or against the inner end of the holder 6. This is desirable because the inner barrel is completely enclosed and the holder appears to be integral with the inner barrel while the screw thread of the barrel is in suitable position for screwing into the cap.

To prevent relative rotative movements of the inner and outer barrels so as to not interfere with the screwing of the cap onto or off of the outer barrel the said inner barrel is provided with a key 36 and the interior of the barrel lining with a longitudinal groove which is in sliding engagement with the key.

By providing an outer barrel which encloses the inner barrel and which is movable as a unit relative to the upper part or holder of the pen as distinguished from a barrel which is separable midway between its ends, the pen presents a pleasing appearance and is more easily and therefore more economically manufactured. In fact not only are the parts which operate for filling the sack concealed by this single barrel, but the barrel is easily movable to a position where the operating parts are readily accessible.

An opening 50 in the wall of the inner barrel is provided as a vent to relieve pressure which may be built up and depress the ink bag as the outer barrel is moved from the position in Fig. 3 to a closed position.

By providing a single barrel for completely enclosing the inner barrel the pen as a whole bears a pleasing appearance and since the

filling parts are concealed thereby they are not likely to be caught by the parts of the clothing.

The expansive ring not only strengthens the outer end of the inner barrel, but functions to expand the same and cause the positive engagement of the bead of the inner barrel with the groove of the outer barrel.

Having described the invention what I desire to claim and secure by Letters Patent is:

1. A fountain pen comprising in combination, a pen holder having the inner end of an inner barrel member secured thereto which encloses a sack secured to said holder, a presser bar in said barrel having an aperture in its outer end adjacent the outer end of said inner barrel member, the outer end of said barrel member being provided with longitudinal slots and an external annular bead, a ring-like spring member in the outer end of said barrel for expanding the same, an inwardly projecting part associated with one of said members receivable in the aperture of said presser bar to hold the same against axial movements and an outer barrel slidable on the inner barrel having an internal annular groove for receiving said bead.

2. A fountain pen comprising in combination, a pen holder having the inner end of an inner barrel member secured thereto which encloses a sack secured to said holder, a presser bar in said barrel having an aperture in its outer end adjacent the outer end of said inner barrel member, the outer end of said barrel member being provided with longitudinal slots and an external annular bead, a ring-like spring member in the outer end of said barrel for expanding the same, an inwardly projecting part associated with one of said members receivable in the aperture of said presser bar to hold the same against axial movements, an outer barrel slidable on the inner barrel having an internal annular groove for receiving said bead and the said barrel provided with an interfitting slot and projection to hold the same against relative rotation and to permit relative sliding movements thereof.

In testimony whereof I affix my signature.
EUGENE LE BOEUF.