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J. M. WALLACE

FOUNTAIN PEN

Filed Dec. 19, 1922

Fig. 1.

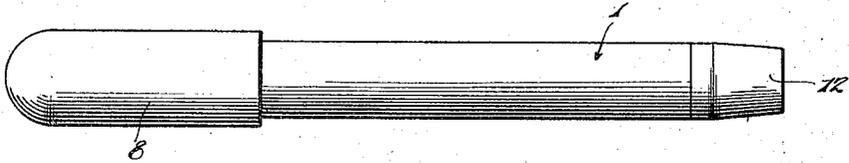


Fig. 2.

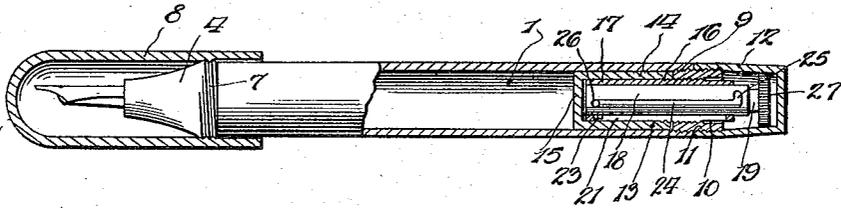


Fig. 3.

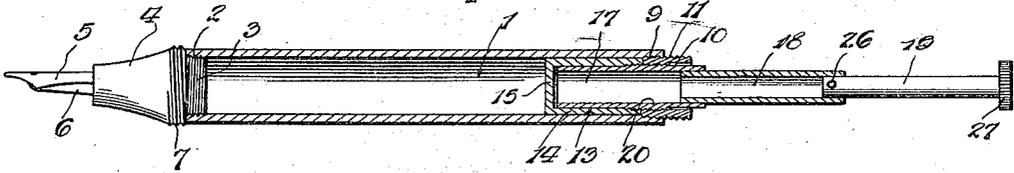
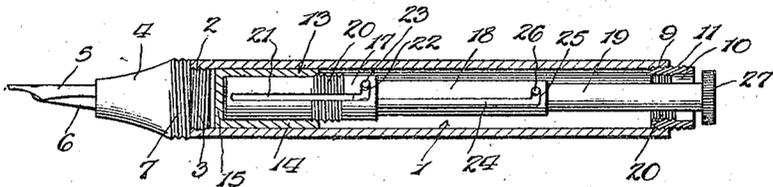


Fig. 4.



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UNITED STATES PATENT OFFICE.

JAMES M. WALLACE, OF SPARTANBURG, SOUTH CAROLINA.

FOUNTAIN PEN.

Application filed December 19, 1922. Serial No. 607,899.

To all whom it may concern:

Be it known that I, JAMES M. WALLACE, a citizen of the United States, residing at Spartanburg, in the county of Spartanburg and State of South Carolina, have invented certain new and useful Improvements in Fountain Pens, of which the following is a specification.

This invention relates to fountain pens and more particularly to that type which are self-filling.

One of the primary objects of the present invention is to provide in a fountain pen of the type referred to a novel means for creating suction to draw a supply of ink into the barrel of the pen and which means will present advantages over devices for this purpose as ordinarily constructed. Ordinarily a soft subber bulb is employed in combination with means or compressing the same to expel the air and then relieving the same of pressure to draw in a supply of ink upon expansion of the bulb, but it has been found that in the use of such devices the ink has a deteriorating effect upon the bulb with the result that the bulb will leak after a short period of use. Therefore, the present invention has as its object to provide a suction-creating means devoid of rubber bulbs or other parts subject to deterioration by the ink and which parts will not be liable to become disarranged or damaged so as to require repair or replacement.

The invention contemplates a fountain pen within the barrel of which a piston is arranged and is adapted to be manipulated so as to create a suction within the barrel to draw in a supply of ink, and it is another important object of the present invention to so construct this piston that it will be capable of being given a stroke of maximum length so that the pen will have a maximum capacity for ink and therefore less frequently require filling than would be the case if the piston had only a short stroke and occupied a considerable portion of the length of the barrel.

Another object of the invention is to so construct and mount the piston that after it has been manipulated to draw a supply of ink into the barrel of the pen, it may be fixed in its retracted position and held against displacement longitudinally of the barrel which, if permitted, would result in the ejection of the ink in undesirable volume.

An other object of the invention is to provide the piston with a stem comprising sections normally housed in collapsed form within the head of the piston and adapted to be drawn out and inter-locked to provide a solid stem of considerable length when it becomes necessary to employ the piston in refilling the pen, so that when the piston is not in use it will occupy a minimum space within the barrel of the pen, and, when its sections are extended and inter-locked, will be of sufficient length to permit of the piston head being given a full length stroke.

Another object of the invention is to so construct and connect the sections of the stem of the piston that they may be quickly and readily inter-locked both to maintain them in their extended relation and to likewise adapt the stem to be employed as a means for adjusting the piston head to lock the same in retracted position.

In the accompanying drawings—

Figure 1 is a view in side elevation of the pen embodying the invention;

Figure 2 is a vertical longitudinal sectional view therethrough, the piston stem being shown collapsed and the several sections in the positions which they will normally assume with relation to each other and to the head of the piston;

Figure 3 is a view similar to Figure 2 illustrating the stem sections extended and the piston at the limit of its retractive stroke;

Figure 4 is a similar view illustrating the piston at the limit of its forward stroke.

In the drawings, the barrel of the pen is indicated in general by the numeral 1, this barrel, as well as the other component parts of the pen to be presently described, being made of hard rubber, or any other material found suitable for the purpose. The barrel 1 is of hollow cylindrical form and in itself is open at both ends, being interiorly threaded at its forward end, as at 2, to receive the reduced threaded end 3 of the pen holding ferrule 4 in which is fitted the usual pen 5 and feeder 6. The ferrule 4 may be exteriorly threaded, as at 7, to provide for the application to the ferrule and to the forward end of the barrel, of the usual cap 8 which, when in place, will protect the pen point 5.

The other end of the barrel 1 is interiorly threaded as indicated by the numeral 9, and fitted into this end of the barrel is a nipple

10 which is exteriorly threaded as at 11 to fit the threads 9 and also to provide for the application to this end of the barrel of a cap 12 which serves, when in place, to close and protect the outer end of the piston stem.

The piston is indicated in general by the numeral 13 and the same comprises a head 14 which is of hollow cylindrical form and closed at its forward end, as indicated by the numeral 15, the head being of a diameter to fit snugly in a fluid-tight manner and slidably in the bore of the barrel 1. The head at its open end is interiorly threaded as at 16, and fitted into the head is one section of the stem of the piston which section is indicated by the numeral 17, other sections being indicated by the numerals 18 and 19. The section 17 of the stem is of hollow cylindrical form and for a portion of its length at one end is exteriorly threaded, as at 20, the threads 20 fitting the threads 16 and the said section 17 being in this manner secured within the head 14. A slot 21 is formed longitudinally in the wall of the section 17 and, in the portion of the said section which projects beyond the open end of the head 14, is provided with a laterally turned branch 22 which extends for a short distance circumferentially of the section 17. The section 18 of the piston stem is fitted at one end into the section 17 and is provided at its said end with a short radially projecting stud 23 which fits and works in the slot 21 and its branch 22. This section of the stem is likewise of a hollow cylindrical form and is provided with a longitudinally extending slot 24 having, near the other end of the said section, a lateral branch 25, corresponding to the branch 22 of the slot 21. The section 19 of the stem is likewise of cylindrical form and may be either hollow or solid and is fitted at one end into the outer end of the stem section 18 and provided at its said end with a stud 26 working in the slot 24 and its branch 25 and corresponding to the stud 23. At its outer end the stem section 19 is provided with a knurled head 27 constituting a finger piece whereby the stem may be adjusted and manipulated as will presently be explained.

Referring now to Figure 2 of the drawings it will be observed that normally the section 18 will be practically completely housed within the section 17, and the section 19 will be practically completely housed within the section 18, all of these sections being telescopically movable as will be evident by reference to the drawings. In this arrangement of the parts the studs 23 and 26 will be located respectively at the forward ends of the slots 21 and 24. Also under these conditions the projecting rear end of the section 17 will be threaded into and received within the nipple 10, this engage-

ment of the parts being effected by rotating the knurled finger knob 27, it being understood that rotative movement of this knob will be imparted finally to the section 17 because of the engagement of the studs 23 and 26 in the slots 21 and 24. Therefore, with the cap 12 applied, the piston will be protected and concealed and will occupy a minimum space within the bore of the barrel 1. When the supply of ink requires replenishment, the cap 12 is removed, the knurled finger knob 27 is rotated so as to unthread the section 17 from the nipple 10, and thus release the said section 17 from the nipple, and the sections 18 and 19 are then drawn out until the studs 23 and 26 engage in the rear ends of the slots 21 and 24, respectively, whereupon the finger knob 27 is again rotated in a reverse direction so as to cause the studs to enter the branches 22 and 25 of the said slots thus locking all of the sections of the stem in their extended relation as shown in Figure 3 of the drawings. Forward pressure may then be exerted against the finger knob so as to move the head of the piston forwardly in the bore of the barrel until the parts have assumed about the position shown in Figure 4, and the point or forward end of the pen may then be dipped into the ink to be taken up and the piston then retracted so as to create suction and draw a supply of the ink into the barrel. After the piston has reached the limit of its suction stroke, the knob 27 is rotated to disengage the studs from the branches of the slots in which they work, and the sections of the piston stem are then telescoped to the collapsed condition shown in Figure 2 whereby the piston in its entirety may be rotated so as to again thread the section 17 into the nipple 10, the cap 12 being of course reapplied so as to cover and conceal the piston and protect the same.

Having thus described the invention, what is claimed as new is:

1. In a fountain pen, a barrel equipped with the usual writing point, the barrel having interior threads at one end, a nipple formed exteriorly and interiorly with threads, the said nipple being threaded at one end into the threaded end of the barrel, a piston comprising a head, and a stem for the piston comprising connected telescopic sections, one of said sections being exteriorly threaded and screwed into the head, the said section having a part of its exteriorly threaded portion extending beyond the end of the head into which the said section is threaded, whereby, when the piston head is retracted, the projecting end of the said stem section may be rotated through the connection provided between the telescopic stem sections and threaded into the said nipple.

2. In a fountain pen, a barrel equipped

with the usual writing point, the barrel having interior threads at one end, a nipple formed exteriorly and interiorly with threads, the said nipple being threaded at one end into the threaded end of the barrel and projecting at its opposite end beyond the said end of the barrel, a piston comprising a head, and a stem for the piston comprising connected telescopic sections, one of said sections being exteriorly threaded and screwed into the head, the said section having a part of its exteriorly threaded portion extending beyond the end of the head into which the said section is threaded, whereby when the piston head is retracted, the projecting end of the said stem section may be rotated through the connection provided between the telescopic stem sections and threaded into the said nipple, and a cap interiorly threaded and fitted onto the projecting end of the said nipple and enclosing the outer ends of the said telescopic stem sections when the sections are telescoped together.

In testimony whereof I affix my signature.

JAMES M. WALLACE. [L. s.]