

M. W. MOORE.
 FOUNTAIN PEN.
 APPLICATION FILED DEC. 14, 1908.

939,057.

Patented Nov. 2, 1909.

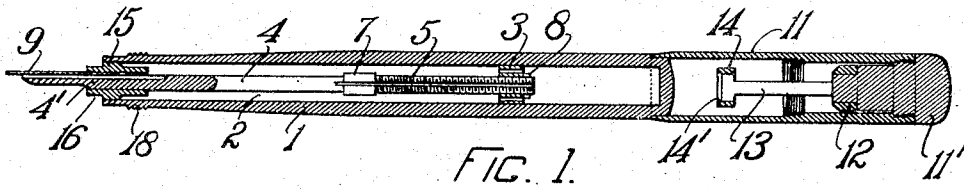


FIG. 1.

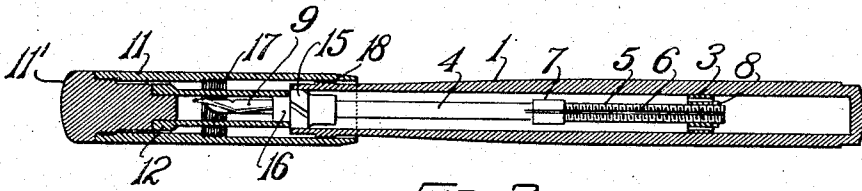


FIG. 2.

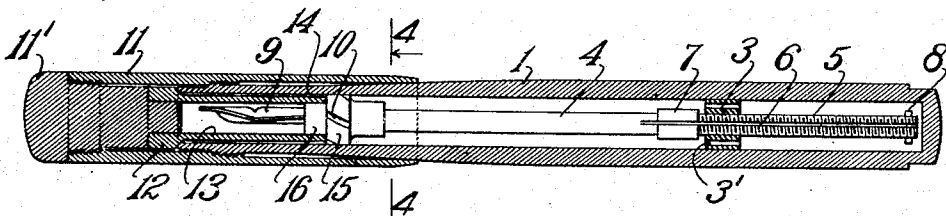


FIG. 3.

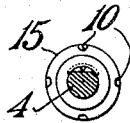


FIG. 4.

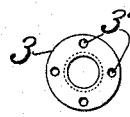


FIG. 5.

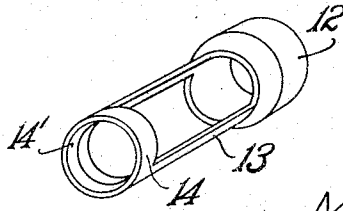


FIG. 6.

WITNESSES

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UNITED STATES PATENT OFFICE.

MORRIS W. MOORE, OF EVERETT, MASSACHUSETTS, ASSIGNOR TO SAMUEL WARD COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

FOUNTAIN-PEN.

939,057.

Specification of Letters Patent.

Patented Nov. 2, 1909.

Application filed December 14, 1908. Serial No. 467,327.

To all whom it may concern:

Be it known that I, MORRIS W. MOORE, a citizen of the United States, residing at Everett, county of Middlesex, Commonwealth of Massachusetts, have invented certain new and useful Improvements in Fountain-Pens, of which the following is a specification.

This invention relates to fountain pens and particularly to submerging fountain pens in which the pen, when not in use, is kept immersed in the ink for the prevention of drying and the insurance of immediate availability of writing fluid at the point when put into use.

Two difficulties generally encountered in this type of pen have been, first the difficulty of securing a positive and rapid submersion and emersion of the pen without violent displacement of the ink which causes syringic action or splash or spatter, and second, its structural difficulty of providing working parts which would not be liable to leakage at joints, and particularly at packing. To the end, therefore, of overcoming these various difficulties and providing a general pen structure which will be cheap and efficient I have produced a submerging pen in which the movement of the pen assists in a quiet transfer of ink so that the submersion and emersion occur by a positive transfer of the ink through the action of the parts rather than by a displacement or surge of the fluid.

In my pen also I provide for the mounting of the motive parts in a bore or chamber entirely closed at its rear end, thus avoiding the liability of rear end leakage from defective or worn packings and, by having a uniform bore wholly open at the forward end I make possible an internal engagement from the forward or muzzle end.

These various features and details of structure I will more fully set forth in the specification which follows by a description of a pen embodying my invention which, for the purposes of illustration, I have shown in the accompanying drawing:

In this drawing and throughout the specification like reference numerals are employed to indicate corresponding parts and in the drawings:—Figure 1 is a longitudinal section of the pen with parts in writing position, Fig. 2 is a similar section with parts engaged ready for closing, Fig. 3 is a sec-

tional view with the pen submerged and closed, Fig. 4 is a rear end view of the support cut off at the indicated line 4—4, Fig. 3, Fig. 5 is a plan view of the threaded bearing for the pen bar, and Fig. 6 is a view of the operating device which is contained in the cap.

1 is a pen barrel having a uniform tubular bore 2 open at the forward end and closed at the opposite end. Within the bore 2 is an internally threaded bearing 3 pierced at 3¹ for the free passage of ink. In the bearing 3 works a bar 4 externally threaded at 5 and longitudinally slotted at 6.

7 is a stop formed on the bar 4 to prevent the movement of the pen too far in and 8 is a pin through the inner end to prevent the pen bar from working out of the bearing 3. At the forward end 4¹ of the bar 4 is formed the pen seat and feed duct and near the end 4¹ and preferably at the base of the pen 9 is a piston 15 of the size of the bore 2 but freely working therein.

10 are spiral ducts cut on the edge of the piston 15 which have approximately the same pitch as the threading 5 of the bar 4. The forward end of the piston 15 is extended with a slight taper 16 to furnish frictional engagement.

11 is a cap fitted with an end plug 11¹ having on its inner end a sleeve 12 with supports 13 carrying at their end a ring 14 having an inner beveled friction surface 14¹ adapted to contact with the coned portion 16. The cap 11 is internally threaded at 17 and the barrel 1 externally threaded at 18 for interengagement when the cap is finally in place, as shown in Fig. 3.

19 is the usual reduced portion on the end of the barrel 1 for the reception of the cap when the pen is being used.

The operation of the pen is as follows:—When it is desired to close the pen from the writing position shown in Fig. 1 the cap 11 is removed from the rear end 19 of the barrel 1 and slipped on over the pen end of the barrel. The beveled face 14¹ of the friction ring 14 thereupon is brought against the beveled contact surface 16 of the piston 15 and upon the turning of the cap 11 the pen and piston will be drawn into the operation of the threaded bar 5 in its bearing 3. The threading of the cap 11 and the barrel 1 is so disposed as to permit the cap to travel down the barrel a sufficient distance before

the screw threads 17, 18 engage each other, to back the pen well within the chamber 4. In this inward travel of the piston 15 during which it rotates, the ducts 10 pass the ink forward to the front side of the piston, being practically an Archimedean screw. In this manner the pen is submerged without a sudden or disturbing displacement of ink in the chamber.

10 To fill the pen the cap is withdrawn by a direct pull as soon as the threads 17, 18 are disengaged. The ink may then be poured or dropped into the open end of the pen. The entire chamber 2 may be filled in this way as the ink readily passes the ducts 10 in entering and works back through the passages 4 in the bearing 3. The pen may then be sealed again by screwing on the cap or may be put into operative position by working out the pen by a reversed screwing of the cap.

When the pen is out in writing position the barrel may be safely inverted as the atmospheric pressure will prevent leakage through the ducts 10.

I am aware that in various pen and pencil, and even fountain pen structures a writing point has been moved to a position within the holder and that a cap has been used to operate parts to move such pen, but I am not aware that anyone has produced a submerging fountain pen in which the pen is turned back into the ink of the reservoir by an engagement from the pen end of the barrel.

What I therefore claim and desire to secure by Letters Patent is:—

1. A submerging fountain pen comprising a barrel having a tubular bore uniform throughout, a cylindrical piston fitting said bore and movable therein, said piston having a longitudinal passage for the transfer of ink, a rearwardly extending threaded bar on said piston, a threaded bearing for said bar in said barrel, a cap and means in said cap for producing a submerging or emerging rotation of said bar.

2. A submerging fountain pen comprising a barrel having a tubular bore uniform throughout, a cylindrical piston fitting said bore and movable therein, said piston having a passage therethrough for the transfer of ink, an annular engaging surface about the

pen end of said piston, a rearwardly extending threaded bar on said piston, a threaded bearing for said bar in said barrel, a cap and an annular ring in said cap for contacting with said engaging surface to rotate said pen bar.

3. A submerging fountain pen comprising a barrel having a tubular bore uniform throughout, a cylindrical piston fitting said bore and movable therein, said piston having a longitudinal passage for the transfer of ink, a rearwardly extending threaded bar on said piston, a threaded bearing for said bar in said barrel, a cap and means in said cap for engaging said piston to cause the pen to submerge or emerge.

4. A submerging fountain pen comprising a barrel having a tubular bore uniform throughout, a cylindrical piston fitting said bore and movable therein, said piston having a spiral duct longitudinally of the same for the transfer of ink, a rearwardly extending bar on said piston having a thread corresponding to said spiral duct, a threaded bearing for said bar in said barrel, and means for operating said parts to cause said piston to be submerged or emerged.

5. A submerging fountain pen comprising a barrel open at one end only, a cap, a pen support having a longitudinal ink duct and a screw thread, a thread bearing for engaging said thread for the longitudinal adjustment of said support in said barrel, an external annular friction surface on said pen support, and a ring in said cap for frictionally engaging said annular surface to operate said screw adjustment.

6. A submerging fountain pen comprising a barrel open at one end only, a cap, a pen support having a longitudinal ink duct and a screw thread, a threaded bearing for engaging said thread for the longitudinal adjustment of said support in said barrel, an externally beveled annular friction surface on said pen support, and a beveled ring in said cap for frictionally engaging said annular surface to operate said screw adjustment.

In testimony whereof, I affix my signature in presence of two witnesses.

MORRIS W. MOORE.

Witnesses:

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R. B. ELLMS.