

H. J. UPTON,
 FOUNTAIN PEN,
 APPLICATION FILED MAY 4, 1921.

1,395,878.

Patented Nov. 1, 1921.

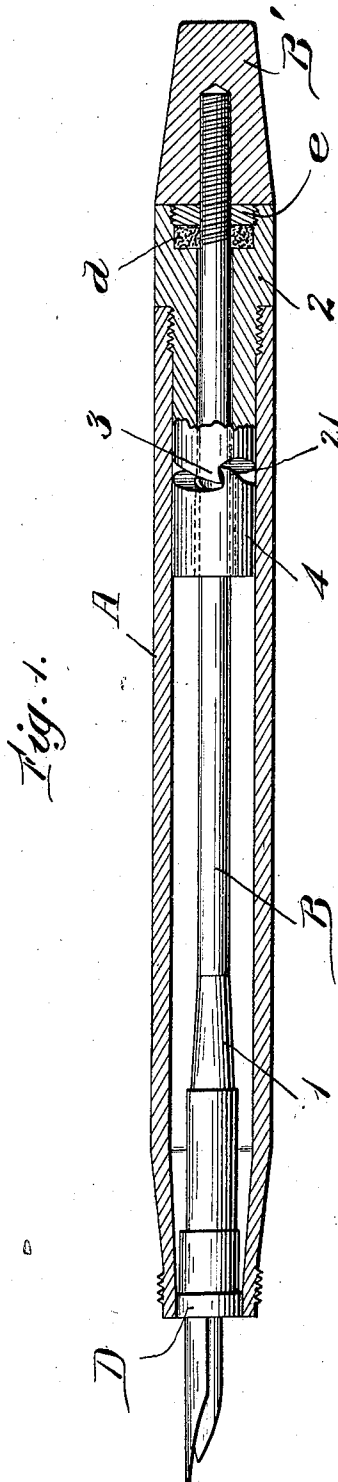


Fig. 3.

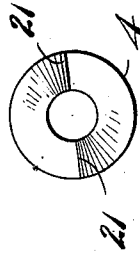


Fig. 2.

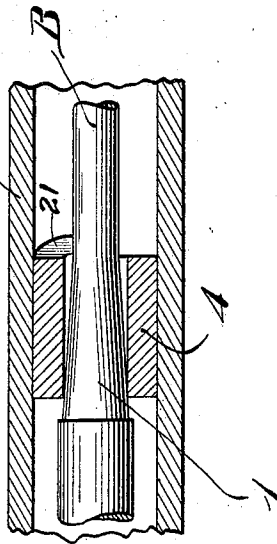
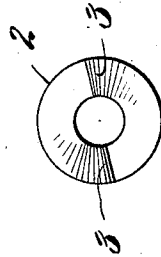


Fig. 4.



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UNITED STATES PATENT OFFICE.

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FOUNTAIN-PEN.

1,395,878.

Specification of Letters Patent.

Patented Nov. 1, 1921.

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To all whom it may concern:

Be it known that I, HENRY J. UPTON, a citizen of the United States, residing at West Medford, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Fountain-Pens, of which the following is a specification.

My invention is an improvement in fountain pens, particularly applicable to those pens in which the metal writing point, be it stylus or pen, is secured to an axial rod, passing through a stuffing box at the rear end, by means of which the writing point may be withdrawn into the fountain and the open end of the fountain closed by a plug within the cap, but it is also applicable to any fountain pen, fitted with an axial rod.

In the drawings:

Figure 1 is a longitudinal central section of a fountain pen, of the type mentioned, embodying my improvement;

Fig. 2 is a detail on an enlarged scale of the conical member on the actuating rod and the piston member, the view being in part sectional;

Fig. 3 is an end view of the piston member, showing the engaging teeth; and

Fig. 4 is an end view of the stuffing box member, showing the teeth for cooperating with the piston teeth.

The type of pen in which the writing point is connected to an actuating rod passing through the fountain, by means of which the writing point may be withdrawn into the fountain and the fountain closed by a plug, is well known in the art, and needs no particular elaboration of description.

My improvement consists in providing means whereby the actuating rod may be utilized as a piston rod by engagement of the rod with a detachable piston, which is normally carried at the closed end of the barrel, but which, when desired, may be engaged with the rod and the rod and piston employed as a pump, for filling the fountain with ink or for cleaning the same.

In the drawings, A is the fountain or barrel, B the actuating rod, the stuffing box through which the rod passes at the rear of the fountain is made up of a member 2 which screws into the rear end of the barrel and has a cavity at its outer end to receive a packing *d*, and a compressing washer *e*; D is the pen point of either the ordinary

pen type or the stylo type, secured upon the end of the actuating rod, so that it moves forward or backward, longitudinally of the barrel, as the rod is actuated.

Upon the rod B, at a point just behind the writing-point connection therewith, I form a conical seat, 1, the point or small end of which is directed toward the closed end of the fountain (see Figs. 1 and 2). In the drawings I have shown this coned seat very much exaggerated. It is in fact a very slight departure from the generally cylindrical surface of the rod B and by this small conicity its wedging action is made much more powerful. Upon the rod B I mount a piston 4, loosely fitting the rod B, normally. A loosely fitting cylindrical bore will be found practical and satisfactory in making and use. At the other end of rod B, from the writing point, I provide a finger piece B' for convenient operation of the rod.

Upon that end of the piston 4, facing to the closed end of the fountain I provide engaging teeth 21, which are preferably ratchet shaped and spaced to cooperate with teeth 3 formed upon the inner end of the stuffing box member 2. The piston 4 is of a size to form a working fit between the longitudinal outer walls of the piston and the inner walls of the fountain and normally to be sustained by the frictional engagement of the piston with the fountain.

The operation is as follows: The parts are normally, when the pen is in operation, in the positions shown in Fig. 1, that is, the actuating rod B and pen point D are pushed forward, to project the pen point into position for writing. At the other end of the fountain A, against the stuffing box member, the piston 4 rests, fitting the actuating rod B loosely, but frictionally supported by engagement with the interior walls of the fountain A. When it is desired to fill the fountain with ink, the operator retracts the actuating rod until the conical seat 1 enters the bore of the piston 4. A firm pull upon the rod causes the contacting seats on the two parts to engage by the wedging action of the conical seat, the engagement being by a narrow line contact, the conical member putting considerable pressure upon the opposing material of the piston, so that the engagement is of a biting character. The effect is a wedge-joint of considerable fixity, by which the piston is joined to the rod, so

that when the motion of the rod is reversed, and the pen point and actuating rod forced toward the open end of the fountain, the piston travels with the rod B, the interior conical joint being sufficiently firm to overcome the friction between the piston and the walls of the fountain.

The forward movement of the piston expels all fluid before the piston and rarefies the air behind the piston. The lower or open end of the fountain is now dipped in the ink or water supply and the actuating rod and piston withdrawn again, causing the liquid to be forced into the fountain by atmospheric pressure.

It is now necessary to disconnect the piston from the rod and this is accomplished by drawing the piston against the inner end of the stuffing box member 2, at the same time rotating the rod B to the right, or clockwise, to cause the teeth 21 on the piston and the teeth 3 on the stuffing box member to ride into engagement. Continued turning of the rod, after the engagement is effected, breaks the joint between rod and piston, the piston being held from rotation by its engagement with the stuffing box. The pen point D and rod B are now moved to-

ward the open end of the pen, leaving the piston in its original position at the inner end of the fountain, sustained by its frictional engagement with the inner walls of the barrel.

I claim:

1. In a fountain pen, a fountain barrel; an axial rod extending through the closure at the rear end of the barrel and carrying a conical boss adjacent the pen-end of the rod; that closure, having a tooth upon its inner end; a piston loosely mounted upon the rod frictionally engaging the inside of the barrel and having a tooth upon one end to cooperate with the tooth on the closure, all organized and operating as and for the purpose described.

2. In a fountain pen, the combination of a piston rod having a conical bearing surface formed thereon; a piston having a cylindrical bore, loosely mounted upon the piston rod, the conical bearing being adapted to enter the cylindrical bore and make a biting line engagement therewith, substantially as described.

Signed at Boston, Massachusetts, this second day of May, 1921.

HENRY J. UPTON.