

No. 655,423.

Patented Aug. 7, 1900.

H. J. UPTON.
FOUNTAIN PEN.

(Application filed Mar. 23, 1900.)

(No Model.)

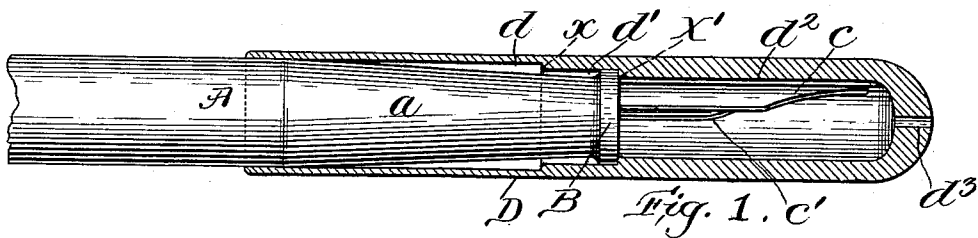


Fig. 2.

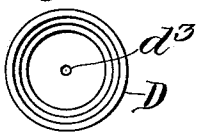


Fig. 3.

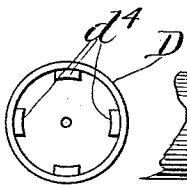
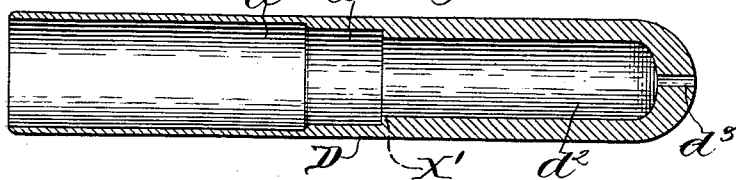
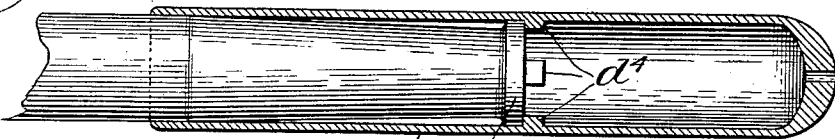


Fig. 4.

Fig. 5.



Witnesses:

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FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 655,423, dated August 7, 1900.

Application filed March 23, 1900. Serial No. 9,843. (No model.)

To all whom it may concern:

Be it known that I, HENRY J. UPTON, of Somerville, in the county of Middlesex and State of Massachusetts, have invented an Improved Fountain-Pen, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of the end of a pen embodying my invention, the cap thereon being shown in section. Figs. 2 and 3 are views of the cap of Fig. 1 in section and looking into the open end of the cap. Figs. 4 and 5 show another form of cap, the views being the same as in Figs. 2 and 3.

My invention is an improved ink and union joint and stop developed between the pen end of a fountain-pen and the cap therefor.

In fountain-pens as heretofore made one of the chief difficulties to be overcome and controlled has been the closing of the pen end when the pen was not in use. This closure has been effected by placing over the open or pen end of the fountain a cap; but owing to evaporation of the ink and spilling of the ink out of the open end of the fountain by accident or otherwise the lower end of the fountain, with which the fingers came in contact in writing, has not always been kept perfectly dry and clean, as is the ideal condition.

In many pens heretofore made the relations of the cap to the end of the fountain were such that any ink escaping from the open end of the fountain in any manner was by the action of the cap in its relations to the end of the fountain spread by surface attraction over the inner surface of the cap and the outer surface of the lower end of the fountain. This result was of course highly unsatisfactory; and it is the object of my present invention to provide a fountain-pen the end of which will under all circumstances remain dry and clean and to provide also such ink-joints between the inner surface of the cap and the outer surface of the end of the fountain as will effectually prevent the ink from getting upon the end of the fountain no matter what may accidentally befall the pen.

In the drawings, A represents the lower or

pen end of a fountain-pen, the end of the fountain being tapered, as at *a*, except at the extreme end, where the mouth of the fountain swells slightly and becomes cylindrical in its outer shape. This cylindrical extreme end of the fountain is marked B.

The cap D, which is cylindrical as to its interior shape, fits over the end of the fountain, (see Fig. 5,) and the cylindrical portion of the fountain above the tapered part *a* forms a bearing and joint with the inside and mouth of the cap, while the part B forms a bearing and joint with the inside of the cap. Within the cap, at a suitable distance within the mouth, a shoulder or stop is formed upon the inner surface of the cap, which when the cap is placed in position upon the end of the fountain will by abutting against the face of the mouth of the fountain limit the motion of the cap.

The mode of operation is as follows: The cap D is placed upon the end of the fountain A, the mouth of the cap passing up beyond the tapered portion *a* upon the cylindrical portion of the barrel or fountain, while the cylindrical end B of the fountain enters the interior of the cap, and the parallel surfaces formed by the walls of the cap cooperating with the parallel surfaces formed by the surface of the fountain A and part B serve to form a double ink and union joint. The mouth of the cap forms a tight driving fit with the cylindrical portion A of the fountain, while the cylindrical end B of the fountain forms a tight driving fit with the inner surface of the cap.

As shown in Fig. 1, the limitation of the movement of the cap upon the fountain is secured by the shoulder *x'*, which marks the inner and outer limits, respectively, of the chambers *d'* *d''*. This shoulder as the cap is forced on the fountain end engages or abuts against the outer end or face of the part B and stops the cap. It will now be obvious that on the fountain-pen end, as is shown in Fig. 1, there will be formed two cylindrical joints and one annular joint, one cylindrical joint between the mouth of the cap and the cylindrical portion of the fountain A and the

other cylindrical joint between the outer surface of the part B and the inner surface of the chamber d' , and an annular joint between the face of part B and the face of the shoulder. These two cylindrical joints above mentioned serve to prevent the passage of ink and to unite the cap to the fountain-pen. Both joints being tight joints are ink, air, and union joints, while the annular joint is an ink and air joint merely, the parts being held in operative relations by the friction developed between the cap and fountain at the cylindrical joints. It will also be obvious that ink escaping from the open end of the fountain by evaporation or otherwise must be confined to the chamber of the extreme inner end of the cap—that is to say, that portion of the cap which is between the front end of the part B and the extreme inner end of the cap.

The stop action developed between the part B and the projection within the cap is a very essential matter in my device, inasmuch as without this stop the cap might be forced indefinitely upon the fountain to the damage of the nibs of the pen proper, and the joint action between the shoulder within the cap and the face of the part B is also of considerable importance and renders yet more certain the effectiveness of the device in absolutely containing all moisture or ink which may accumulate at the inner end of the cap within the chamber of the cap and preventing it from in any manner passing onto the tapered portion a of the fountain.

The organization of the parts of the pen and the cap shown and described herein is such as to be especially favorable to the long life and utility of the joints formed between the cap and the fountain end, for the leverage tending to work the cap loose is reduced by the contact between the part B and the cap to the smallest possible effect, while the engagement of the mouth of the cap with the cylindrical portion A supports and sustains the engagement of the cap with the fountain end, taking this engagement between the mouth of the cap and the fountain A in connection with the engagement between the cap and the part B.

In Fig. 1 I have shown the cap as formed of three interior diameters, the interior being thus divided by two shoulders x and x' . This construction is adapted to meet the fact that

the cylindrical surface of B is smaller in diameter than the cylindrical portion of the fountain A, where the mouth of the cap engages, and it will be obvious that where, as in Fig. 5, the cylindrical portions A and B of the pen are of the same diameter, the formation of the cap, as shown in Fig. 1, of three diameters, is unnecessary. In Fig. 5 I have shown the projections d^t to serve as stops in lieu of the shoulder shown in Fig. 1.

Although I have shown and described the part B as cylindrical and the chamber d' to receive it as also cylindrical, it will be clear that this form is only the preferred form, and, if desired, other shapes might be employed, it being sufficient if there is a proper correspondence between the outer shape and size of the part B and the inner shape and size of the inside of the cap to develop a joint when the one is forced into or upon the other. It is obvious also that the same principle is applicable to the joint formed between the outer surface of the fountain A and the mouth of the cap.

The usual vent-hole d^b is shown in the drawings, while the pen is marked c and the feed c' .

I claim—

1. A fountain-pen having a cylindrical body portion A; a tapered nozzle portion a ; and a cylindrical mouth portion B; in combination with a cap adapted to engage and cooperate with the cylindrical portions of the fountain to form a double cylindrical ink and union joint, and having within it a stop adapted to abut against the cylindrical mouth portion B, to limit the movement of the cap upon the fountain, substantially as described.

2. A fountain-pen having a cylindrical body portion A; a tapered nozzle portion a ; and a cylindrical mouth portion B; in combination with a cap adapted to engage and cooperate with the cylindrical portions of the fountain, and having within it an annular shoulder adapted to abut upon and cooperate with the outer end face of the fountain-mouth B, to form a double cylindrical and annular ink and union joint, substantially as described.

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