

UNITED STATES PATENT OFFICE.

HENRY J. UPTON, OF WEST MEDFORD, MASSACHUSETTS.

FOUNTAIN-PEN.

1,365,131.

Specification of Letters Patent.

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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 of the type in which the writing point or pen proper is retracted within the fountain when not in use and the open end of the fountain closed by a cap of special construction.

In such pens heretofore constructed, the cap was designed to screw onto the open end of the fountain, after the pen point had been retracted, until a conical plug, secured within the closed end of the cap was forced into the open end of the fountain to close it. It was early found desirable to provide a projecting rod or guard centrally disposed in the conical end of the plug and designed to engage the pen carrier in case the pen had not been retracted, so as to prevent the cap being forced on, to the damage of the projecting pen and thus to guard the pen point. Limitations of room and strength compelled the employment of metal for the purpose of fashioning this guard or part, and imitations of cost and strength rendered it impracticable to use gold or other non-corrodible metal as the material. The consequence was that the ink, which reached this metal guard, speedily attacked and corroded it, rendering the substitution of a new cap necessary, as the expense of extracting the old plug and broken guard made it profitable to substitute a new cap rather than to repair the old cap.

My present invention consists in the provision of a specially shaped ink feed-bar in a pen of the character described, so that a suitable guard of hard rubber or wood may be used in place of the metal guard, the hard rubber guard being of sufficient size to have the necessary rigidity and being much more permanent owing to its non-corrodible character, than the metal guard.

In the drawings:

Figure 1 shows the pen end of a fountain pen of the old construction, with the cap applied, in sectional elevation;

Fig. 2 is a similar view of my improved pen;

Fig. 3 is a similar view of the cap;

Fig. 4 is a view on an enlarged scale, partly in section, of the pen end of Fig. 2 with the pen projected, the grooves of the feed-bar being shown in dotted lines;

Fig. 5 is a view of the feed-bar and carrier of Fig. 4, from below;

Fig. 6 is a section on line 6—6 of Fig. 2, on an enlarged scale and looking in the direction of the arrows;

Fig. 7 shows the feed-bar of Fig. 6 on a scale still larger. Fig. 8 is a section of the feed-bar of Fig. 1 on the scale of Fig. 7.

In the drawings, Fig. 1, A represents the fountain of the pen and B the cap, having at its inner or closed end a conical plug b , with a central axial projecting metal guard b' . P is the gold pen. The open end of the fountain A carries a pen carrier, the rear end a^1 of which is shaped to fit and slide the interior of the open end of the fountain and the forward end of which is shaped, substantially as shown to form a feed-bar a^2 . The slide a^1 and its associated feed-bar a^2 and pen point P may be moved lengthwise of the fountain to retract and project the pen, by a bar, a^4 , projecting through the rear end of the fountain. A groove is formed in the upper surface of a^1 and a^2 at a^3 . All this is as usual in pens of this type.

In Fig. 2 is shown a pen fitted with my new slide and feed-bar and carrying the large hard rubber guard. A represents the fountain, B the cap having its inner end closed and carrying at its inner closed end a conical plug, b , with a central axial projecting guard 1 of hard rubber or wood or the like, of relatively large diameter. In the open end of the fountain is mounted a slide the rear end of which a^1 is of a size to fill the interior bore of the mouth of the fountain when the pen point is projected.

The feed-bar 2 is formed with an ink groove a^3 upon its upper surface, as above described and its lower surface is also grooved, as at 22 to receive the guard 1, and at the base of the feed-bar, and in the center of the face of the slide a^1 is preferably formed a recess a^5 to receive and center the end 11 of the guard 1, when and if the cap is placed upon the fountain, before the pen is retracted, and an attempt made to slide the cap onto the fountain.

It will now be obvious that in my improved pen, a guard of any desired diameter within limits may be employed in consequence of which it is possible to use ma-

material such as hard rubber or wood, not affected injuriously by the ink nor corroded thereby.

In all prior constructions of the retracting pen type it has been necessary to form or position the feed-bar entirely to one side of the axis of the slide or carrier member in order that there might be opportunity for the metal guard to engage the slide or carrier at or near the axial center of the face of the carrier and in consequence the feed-bar was necessarily reduced in thickness and could not be made of the sturdy dimensions desirable in a part which must be adjusted from time to time, in repairs and to give the desired ink flow. In my improved device the sides 2* of the ink bar are increased in depth, stiffening the bar so that it may be manipulated as desired and at the same time forming a groove 22 on the bottom of the feed-bar 2, to receive the large guard 1 of non-corrodible material. In operation, the guard 1 will contact (see Fig. 2) or almost contact (see Fig. 6) with the feed-bar 2, rendering mutual support against any possible tendency of the guard 1 to buckle and the end 11 of the guard in contacting with the carrier a^1 will enter the recess a^5 and be securely received and centered.

In the drawings I have shown the pre-

ferred form of the under groove, in which the groove is deep enough to receive a large part of the guard, the end of which is received and centered in the axial cavity in the face of the slide, and in which when endwise pressure is applied to the guard, the feed-bar gives support to the guard against any tendency to bend. The sides of the under groove have the effect of stiffening the feed-bar and making it possible to enlarge the grooves until only a very thin partition separates the upper and under grooves, the bar in cross-section having roughly the shape of the letter H (see Fig. 7) this necessary stiffness of the feed-bar being given by the sides 2* of the feed-bar and not as is customary by the part beneath the ink groove, or, in other words the stiffness being given by the side members of the H and not by the cross member.

I claim:

In a fountain pen, the combination of a feed-bar, grooved upon its upper surface for ink, and having a longitudinal recess upon its under surface to receive a non-metallic guard attachment to the cap; that cap and guard.

Signed at Boston, Massachusetts, this 25th day of March, 1920.

HENRY J. UPTON.