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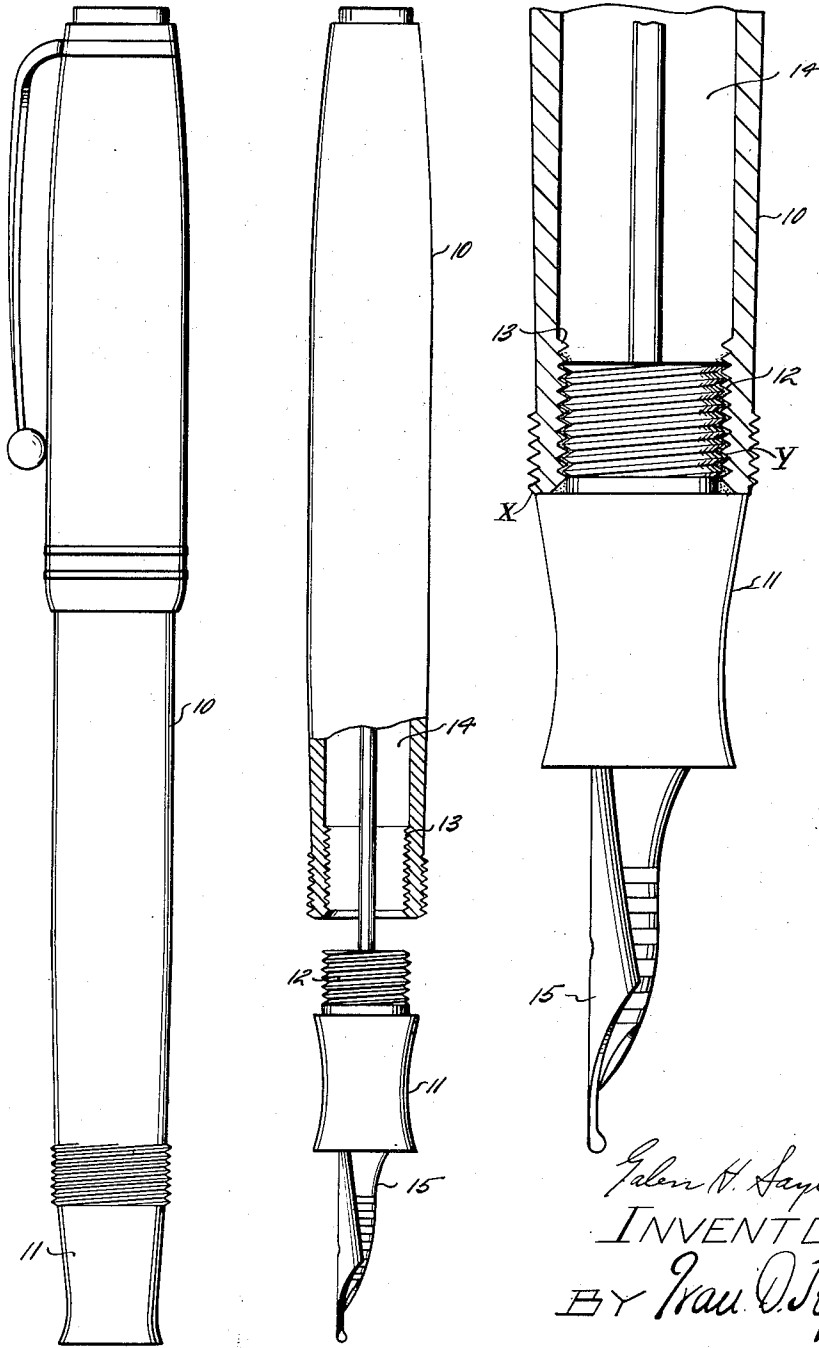
FOUNTAIN PEN

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*Fig. 1*

*Fig. 2*

*Fig. 3*



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## FOUNTAIN PEN

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2 Claims. (Cl. 120—52)

My invention relates to improvements in fountain pens and particularly to that type generally known as pump fillers in which the usual rubber ink sac is eliminated and the barrel proper is used as a reservoir for ink. A pump mechanism is positioned at the rear end of the barrel which, when actuated, causes ink to be drawn up through the section into the reservoir.

consumer's pen is usually sent to the factory where it is replaced or repaired and he or she is without the use of it for the several days required in sending, repairing and returning it.

If the retail outlet who handled the repair had in stock sections in which nibs were mounted and the section in the pen to be repaired was readily removable, he could substitute a new section in which a proper writing point had been mounted and set at the factory for the defective one while the customer waited. The defective section would be sent to the factory where the nib would be repaired or replaced, as the case may be, and returned to the dealer. The dealer would then remove the loaned section from the customer's pen and replace it with the repaired section.

The section and the barrel portions of pump filler types of pens are usually made in two pieces. The barrel is threaded internally at the front open end and the section which is externally threaded is screwed into the barrel tightly to form a leak-proof joint, a leak-proof joint being absolutely essential due to the fact that in the said pump filler type of pen the ink in the reservoir contacts the said joint and inasmuch as when the pen is held in writing position the user's fingers bear against the joint, and were it to leak even slightly, the leaking ink would eventually soil the user's fingers.

The fallacies in the known methods of joining the section to the barrel above described do not permit ready interchangeability of sections in pump fill types of pens and it is to this feature that my invention is directed.

It is practically impossible to produce a threaded joint in production that will not leak and for that reason in many pump fill types of pens the section is tightly cemented into the barrel or a washer is used which eventually disintegrates due to the corrosive action of ink, causing the pen to leak at the joint. The usual cement used hardens and forms a bond between the section and the barrel which makes it practically impossible to unscrew or otherwise remove the said section from the barrel without the use of heat and instruments which often mar the exterior finish of the barrel and section, necessitating the replacing of either or both with new parts.

As stated above, in a great many instances cement is used to effect the seal at the threaded joint of the section and barrel, said cement having the characteristic of hardening and forming a bond between the said section and barrel, thus necessitating extreme measures to remove the said section from the barrel.

In the type of pen shown and described in the accompanying drawing, it is desirable that the section be readily removed from the barrel as to enable retail outlets to change a section having a particular style of pen point mounted therein for another which is better adapted to a purchaser's writing requirements. For instance, when the customer picks out a particular color and size of pen and tries it, he or she may find that the point therein writes too broad a line, in which event it is desirable that the point may be readily changed and a finer one substituted.

I employ a plastic which, when brushed onto the threaded joints and the said joints are screwed together, actually seals the joint, yet permits of ready removability of the section, the latter for the reason that the plastic is inherently non-hardening. It is not only essential that the plastic be non-hardening; it must be absolutely impervious to ink.

While it is possible to conceive of several plastic combinations that would be non-hardening, it has taken years of development to find a plastic that has the characteristics of non-hardening, sealing and imperviousness to ink. Many of the experiments carried out were successful as respects the attributes of non-hardening and sealing, yet when ink was introduced into the barrel it attacked the sealing plastic causing it to break down and the joint eventually leak.

Furthermore, oftentimes a consumer brings a dealer a pen in which the nib has become damaged and requests that a new nib be substituted for the damaged one. Most retail outlets are not equipped to change or repair nibs. This requires special tools and a person skilled in the adjusting and setting of nibs. The result is that the

In other instances, some chemical in the sealing plastic would react on the ink as to discolor it.

In still other instances, the fluidity of the said sealing plastic was such that it would permeate the ink solution and eventually clog the feed.

The above are merely a few instances of the difficulties attendant the production of a sealing

plastic which would meet all the contingencies present.

To more readily understand my invention, reference should be had to the accompanying drawing in which:

Fig. 1 is a plan view of a fountain pen with the cap mounted on the rear end of the barrel disclosing the section end thereof;

Fig. 2 is a view partially in plan and partially fragmentary of a separated section and barrel showing the manner of engaging the section to the barrel; and

Fig. 3 is a fragmentary plan view of an assembled section and barrel, the barrel portion and the threaded end of the section being shown in a longitudinal sectional view.

In the drawing the numeral 10 is generally used to indicate the barrel and the numeral 11 to indicate the section. The section is externally threaded as at 12 and the barrel internally threaded as at 13. The barrel is hollowed out to form a reservoir 14 and it is to be noted that when the section and barrel are assembled, ink from the reservoir contacts the joint formed in the assembly of the section and the barrel. It is this joint that must, of necessity, be ink tight and for ready removability be so assembled as to permit unscrewing of the section from the barrel without the use of instruments.

The drawing further discloses a nib and feed assembly 15 which is assembled and fitted into the section at the factory. The sealing plastic that I use is brushed onto the threaded portion of the section 12 and the internally threaded portion of the barrel 13 and the said section is then screwed into the barrel. The sealing plastic has sufficient tensile strength to prevent the section from jarring loose from engagement with the said barrel, yet the section may be unscrewed from the said barrel without the use of instruments.

The plastic sealing medium or cement employed in space Y between the interfitting threads of the shank 12 and the barrel 10 is inherently non-hardening to permit of the convenient and expeditious removal of the section for any purpose, such for example, as repair or for the substitution of a new section. In addition, the constantly plastic cement constitutes a cushioning film taking up looseness between the mating threads of the barrel and section so that even though the annular shoulder X formed at the forward portion of the section shank is not

squarely and firmly in engagement with the forward end of the barrel, as is sometimes the case, there will be no looseness of parts, that may be noticed in using the pen. The plastic cement comprises a material rendered constantly plastic by a softening agent and is insoluble in ink or is impervious thereto and is impregnable to attack by the ink.

Thus, it will be seen that the plastic cement serves first, to establish an effective seal between the section and the barrel, second, to permit of occasional and expeditious removal of the section, third, to define a cushioning film between the mating threads to avoid inconvenience in writing should there be an absence of a firm pressure contact between the shoulder of the section and the adjacent end of the barrel and finally, that the cement is impregnable to attack by the ink contained within the barrel.

Having described my invention, what I claim and desire to secure by Letters Patent is:

1. In a fountain pen, an ink containing barrel having one end portion provided with internal screw threads, a section having a shank received in said barrel and having threads mating with the threads of the barrel, and a constantly plastic cement between the threads of the shank and those of the barrel and extending for a substantial portion of the length of the threads for occasional and expeditious removal of the section and defining a cushioning yieldable film between the same for taking up looseness between the mating threads, said cement being insoluble in ink and being impregnable to attack thereby.

2. In a fountain pen, an ink containing barrel having one end portion provided with internal screw threads, a section having a shank received in said barrel and having threads mating with the threads of the barrel, and a constantly plastic cement between the threads of the shank and those of the barrel and extending for a substantial portion of the length of the threads for occasional and expeditious removal of the section and defining a cushioning yieldable film between the same for taking up looseness between the mating threads, said cement being insoluble in ink and being impregnable to attack thereby, said shank being provided with a shoulder bearing flatly against the forward end of the barrel to cooperate therewith in forming a cement confining means.

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