

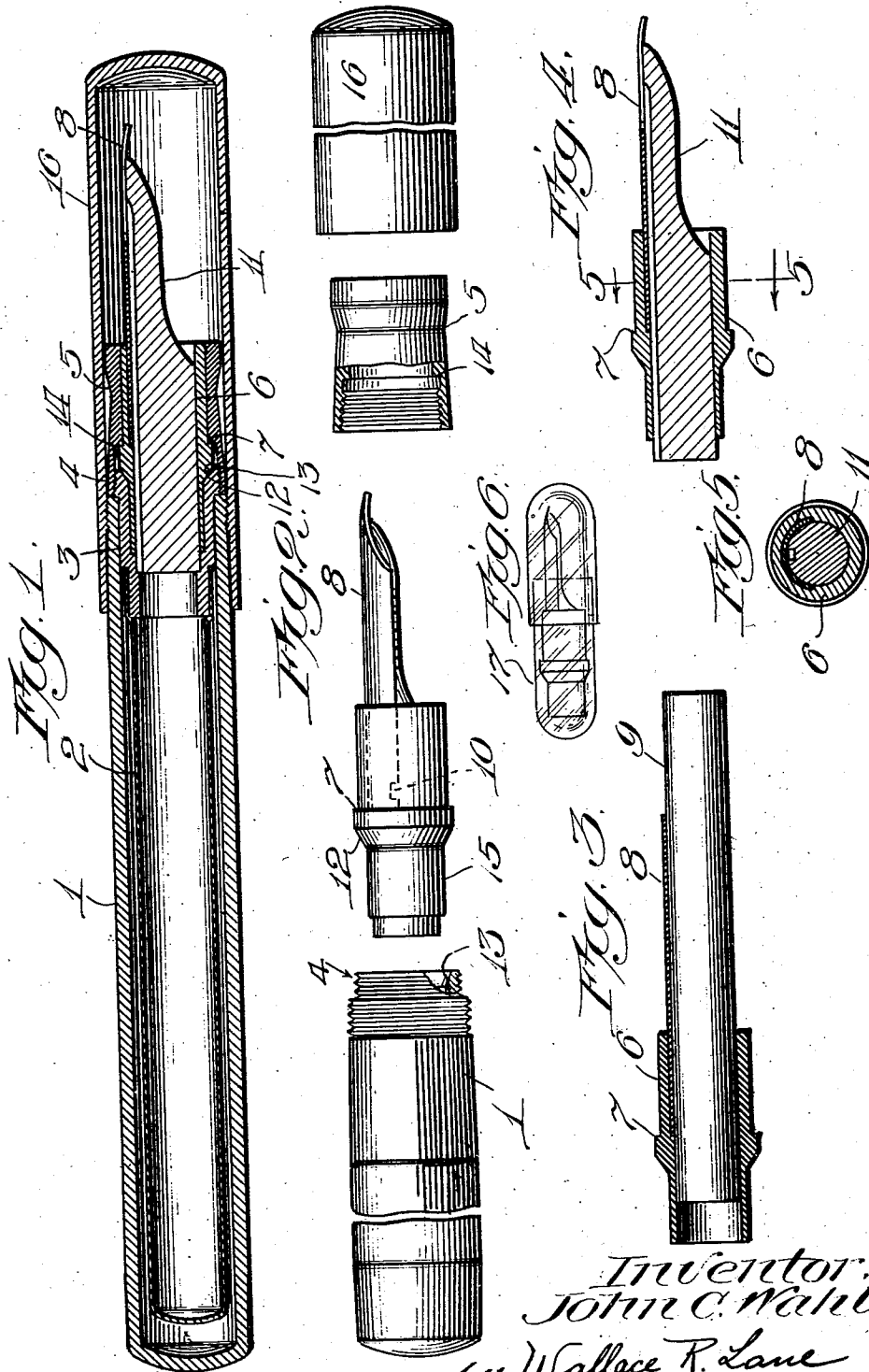
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FOUNTAIN PEN AND METHOD OF ASSEMBLING SAME

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FOUNTAIN PEN AND METHOD OF ASSEMBLING SAME

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This invention relates to a novel fountain pen and the method of assembling the same to provide an interchangeable pen section unit that may be adapted to fit any of a large variety of different styles of pens, and in which pen section an irremovable pen is mounted in fixed relation to the feed bar.

Heretofore in the manufacture of fountain pens, it has been customary to assemble the pens permanently in proper writing position upon the feed member, and then to mount the assembled pen and feed member permanently in the pen section of the fountain pen barrel. It was deemed necessary to assemble the completed pen at the factory because of the required nicety of adjustment of the pen on the feed member of the fountain pen. However, in the retailing of fountain pens it frequently happens that a prospective purchaser desires a pen with a type of pen point different from that which is assembled on the particular barrel which happens to suit his fancy. Heretofore, in order to accommodate the customer, it has been necessary to maintain in stock a large assortment and variety of fountain pens because of the demand for different barrel designs and pen points. Furthermore, dealers have frequently undertaken to change the pen point, using whatever tools were at hand with resulting damage to the pen point and frequently resulting in an adjustment of the pen point on the feed member different from that adjustment which would yield the most accurate and desirable flow of ink.

My invention will render it impossible to withdraw the pen from the pen section, at once eliminating the trouble which ensues from inaccurate adjustment of the pen point and the feed bar. By means of this interchangeable pen section unit it is also possible for any user of a fountain pen to have at hand more than one pen section each carrying a pen point suitable for his various needs. He can then interchange them according to the circumstances of use without any damage to the pen and in a very convenient manner.

A primary object of my invention is to provide an interchangeable pen section in which the pen is mounted permanently at the

factory in order that the proper adjustment to yield a suitable flow of ink may be assured once and for all.

Another object of my invention is to provide an interchangeable pen section unit of comparatively low cost of production and adapted to yield itself to interchanging without damage to the parts or adjustment of the flow.

A further object is to provide a novel means and method for casting or fixing the nib in position in the pen section.

Further objects, advantages and capabilities of this invention will hereinafter become more readily apparent.

My invention further resides in the combination, construction and arrangement of parts illustrated in the accompanying drawings, and while I have shown therein a preferred embodiment of my invention, I wish it understood that the same is susceptible of modification and change without departing from the spirit of my invention.

In the drawings, Fig. 1 is a longitudinal central sectional view of the fountain pen completely assembled with a cap over the end.

Fig. 2 is an elevation of a disassembled view of the same pen, a part being in section for the sake of clearness.

Fig. 3 is a longitudinal cross section showing a pen point or nib disposed on a mandrel and inserted within a pen section, preparatory to being cast or cured in place therein.

Fig. 4 is a longitudinal central section of a portion of a pen section having a nib and feed member mounted ready for insertion in the fountain pen.

Fig. 5 is a cross-section taken on the line 5-5 of Fig. 4.

And, Fig. 6 is a side elevation of a transparent capsule containing a complete interchangeable pen section unit.

Referring now to the drawings in detail, 1 is the usual fountain pen barrel illustrated here without self-filling means but, of course, it is contemplated that such means may be added. Within the barrel is located an expansible ink reservoir 2, suitably attached to the reservoir sleeve 3 which is adapted to

have a slight frictional fit within the barrel. The sleeve has a seat 13 and an exterior thread 4 whose purposes will later be discussed. It will become apparent upon further study of this specification that the method of assembling the reservoir inside of the barrel may be changed considerably without departing from the essence of this invention.

Referring now in particular to the pen section unit, and especially to the method of assembling the same, it will be noted that the pen section 6 has a circumferential shoulder 7 arranged thereon. The interior of this section is accurately formed and thereafter, while the interior surface is in somewhat softened condition, a pen or nib, 8 is disposed on a mandrel 9 and pressed into the interior surface of the section. This pressing operation forms a recess in the surface and accurately positions the pen in accordance with the design most suitable for a predetermined flow of ink. In Fig. 2 I have shown a recess 10, formed in the nib, which I may or may not customarily employ or may vary in any of many ways in order to secure greater permanency of the positioning of the pen within the pen section. It is apparent that, when the curing of the hard rubber or pyralin or bakelite section is completed, this pen will be locked in a position from which it cannot be removed by any ordinary means, and from which it will not be dislodged by any ordinary or even considerable extraordinary wear and tear. After the mandrel is withdrawn an accurately formed feed member 11 is then inserted into the pen section, and is located at the proper position and held there by a tight friction fit. The pen section unit is then ready to be assembled with the rest of the fountain pen.

Inasmuch as a suitable seat 12 is provided on the exterior of the pen section 6 and another seat 13 is provided at the interior edge of the ink reservoir sleeve, it is apparent that a leak proof joint may be made by securing the pen section tightly in this reservoir and drawing one seat against the other. To accomplish this I employ a pen section retaining sleeve 5. This sleeve fits fairly tightly on the circumference of the pen section 6, and is provided with an internal circumferential shoulder 14 which is adapted to abut against the shoulder 7. When the interior threads of the pen section retaining sleeve come into tightened engagement with the exterior threads of the ink reservoir sleeve, the pen section is drawn tightly against the seat of the ink reservoir. The portion 15 of the pen section 6 fits into the ink reservoir sleeve with a slip fit, thus holding the pen section in rigid alinement with the ink reservoir sleeve. The ink reservoir sleeve itself is in turn held in rigid alinement with the barrel by the fit of the surface of the sleeve. The drawing up of the sleeve 5 therefore gives an

assembled structure which is rigid enough for the most strenuous kind of use.

A cap 16 is provided as usual to be disposed over the end of the pen to protect the point and to prevent leakage. A shoulder may or may not be provided, as desired, on the interior of this surface to seal the chamber at the exterior end of the pen section retaining sleeve.

A single pen section retaining sleeve 5 may be designed to harmonize with the barrels of various models of fountain pens employed with a great number of pen designs, and the pen section which fits within the sleeve and is entirely concealed therein may be a standard size for a large number of models of pens. Or, on the other hand, the exterior contour of the sleeve 5 may vary considerably to suit the various styles of pens, while its interior may be uniform in order to cooperate with pen sections of a single diameter. The seat of the ink reservoir sleeve and the seat of the pen section may be uniform in design and thereby rendered interchangeable. This invention, therefore, lends itself readily to standardization of parts, economy in manufacturing, and interchangeability of pen sections.

This invention also contemplates the furnishing of the pen section units with the assembled feed bar, nib and pen section, in individual capsules or other transparent containers, all ready upon removal from the container to be applied to any pen barrel desired. In this way the customer can view and select any desired pen section assembly or unit without removing the same from the capsule or container until ready to apply it to a barrel. In Fig. 6 I have illustrated such a capsule 17 containing a pen section unit.

Having thus described my invention, I claim:

1. A fountain pen comprising an ink reservoir, a sleeve on said reservoir and having a seat, a pen section provided with a feed bar and a nib irremovably secured thereto, a seat on said section adapted to cooperate with the seat of said reservoir sleeve, a circumferential shoulder about said section, and a section retaining sleeve cooperative with said shoulder for retaining said section in leak proof communication with said reservoir.

2. In a fountain pen, a barrel comprising an ink reservoir, a sleeve on said reservoir and having a seat, a pen section provided with a feed bar and a pen irremovably secured thereto, said section having a seat adapted to cooperate with the seat of said reservoir sleeve, a circumferential shoulder about said section, and a section retaining sleeve cooperating with said shoulder for retaining said section in leak proof communication with said barrel.

3. A fountain pen comprising a barrel, a removable ink reservoir adapted to fit within

said barrel, a pen, a pen section and a feed member, a recess in the interior surface of said section, a portion of said pen being seated in said recess in a substantially irremovable manner, and a removable sleeve adapted to removably secure said pen section to said barrel establishing leak proof communication between said member and said reservoir.

4. A fountain pen comprising a feed member, a pen, a pen section disposed about said feed member, a portion of said pen being embedded in the surface of said section in a substantially irremovable manner, an ink reservoir, and a removable sleeve adapted to retain said feed member in leak proof communication with said reservoir.

5. The method of assembling a pen section unit consisting of inserting a pen disposed on a mandrel, into a pen section and pressing a portion of said pen into the interior surface of said section while the latter is in a softened condition, completing the curing of the section with the mandrel in place therein, thereafter withdrawing said mandrel and inserting in said section with frictional fit a feed member, thereby establishing a fixed spaced relation of said feed member and said pen.

6. The method of assembling a pen section unit consisting of pressing a portion of said pen into the interior surface of a pen section while the latter is in a somewhat softened condition, completing the curing of the section with the pen in place, thereafter inserting a feed member into said section with frictional fit, thereby establishing a fixed relation of said member and said pen.

7. The method of assembling a fountain pen consisting of pressing a portion of said pen into the interior surface of a pen section while the latter is in a somewhat softened condition, completing the curing of the section with the pen held in place, thereafter inserting a feed member into the section with frictional fit, thereby establishing a fixed spaced relation of said feed member and said pen, and removably securing the pen section to the ink reservoir with means including leak proof cooperative seats.

8. The method of assembling a fountain pen consisting of pressing a portion of a pen into the interior surface of a pen section while the latter is in a somewhat softened condition, completing the curing of the section with the pen held in place therein, thereafter inserting a feed member into said section with frictional fit, thereby establishing a fixed relation of said member and said pen, and removably securing the pen section to the ink reservoir with means including a pen section retaining sleeve and leak proof cooperative seats.

9. An interchangeable pen section unit for fountain pens having a feed member forming a friction tight fit therewith and a

nib embedded in the inner circumferential wall portion of the pen section whereby the nib is irremovably attached to the unit.

10. In a fountain pen the combination of a barrel, a reservoir sleeve in the barrel, a pen section fitting into the sleeve and carrying an assembled feed bar and nib and a pen section retaining sleeve screwing onto the reservoir sleeve and firmly securing the pen section to the reservoir sleeve.

11. In a fountain pen the combination of a barrel, a reservoir sleeve in the barrel and provided with an annular seat and a thread, a pen section formed with a cooperative annular seat and having a feed bar and nib assembled thereto, and a pen section retaining sleeve formed with a thread adapted to engage the thread of the reservoir sleeve and arranged to draw the pen section seat tightly against the seat of the reservoir sleeve.

12. In a fountain pen the combination of a barrel, a reservoir sleeve in the barrel and provided with an internal annular seat and an external thread, a pen section formed with an external annular seat and external shoulder and having a feed bar and nib assembled thereto, a pen section retaining sleeve formed with an internal shoulder and a thread engaging the thread of the reservoir sleeve whereby the shoulder of the pen section retaining sleeve serves to force the annular seats of the pen section and reservoir sleeves tightly together.

13. In a fountain pen the combination of a barrel, a reservoir sleeve in the barrel and formed with an externally threaded shoulder overlying the end of the barrel and an internal annular seat, a pen section formed with an external annular seat and an external shoulder and having a feed bar and nib assembled thereto, a pen section retaining sleeve formed with an internal shoulder and a thread, the end of the latter sleeve engaging the end of the barrel with the thread of the pen section retaining sleeve engaging the thread of the reservoir sleeve and the shoulder of the pen section retaining sleeve engaging that of the pen section whereby to force the annular seats of the reservoir sleeve and the pen section into liquid tight engagement.

14. In a fountain pen the combination of a barrel, a reservoir sleeve frictionally fitting therein and formed with an external thread, a pen section carrying a feed bar and a nib mounted in the reservoir sleeve and a pen section retaining sleeve having a thread engaging the thread of the reservoir sleeve and holding the pen section assembled to the reservoir sleeve.

15. In a fountain pen the combination of a barrel, a reservoir sleeve mounted therein and having a shoulder overhanging the end of the barrel and formed with a thread, said reservoir sleeve having two spaced apart shoulders in its bore and an annular seat at its end, a

pen section frictionally fitting in the reservoir sleeve with the end of the pen section resting against one of the internal shoulders of the reservoir sleeve, said pen section having an external seat engaging with the seat on the reservoir sleeve and also formed with an external shoulder, a feed bar frictionally fitting within the pen section with the end of the feed bar engaging the other shoulder in the internal bore of the reservoir sleeve, a nib assembled between the feed bar and the pen section, and a pen section retaining sleeve having an internal shoulder engaging the shoulder of the pen section and having a thread engaging the thread of the reservoir sleeve whereby tightly to draw the annular seats of the pen section and reservoir sleeve together.

16. In a fountain pen the combination with a barrel, a reservoir sleeve frictionally fitting therein and formed with an overhanging shoulder engaging the end of the barrel and with a thread, a pen section frictionally fitting within the reservoir sleeve and having an enlargement forming a seat against the reservoir sleeve, a feed bar assembled within the pen section with a nib therebetween, and a pen section retaining sleeve having a shoulder engaging the enlargement of the pen section to force it against the reservoir sleeve, said pen section retaining sleeve having its inner end abutting the end of the barrel and threading onto the reservoir sleeve with the outer end of the pen section retaining sleeve terminating substantially flush with the outer end of the pen section.

17. In a fountain pen the combination of a barrel, a reservoir sleeve frictionally fitting therein, a pen section frictionally fitting in the reservoir sleeve and carrying a feed bar and a nib, and a pen section retaining sleeve threading onto the reservoir sleeve and serving to assemble the pen section tightly to the reservoir sleeve.

18. In a fountain pen the combination of a barrel, a pen section adapted to be attached thereto and having a conical enlargement forming an annular tapering seat and a shoulder spaced therefrom, and an interchangeable pen section retaining sleeve having an internal shoulder adapted to engage the shoulder of the pen section and having a thread adapted to engage a portion of the barrel for forcing the tapering seat on the pen section into tight engagement with a portion of the barrel.

19. In a fountain pen the combination of a barrel provided with a sleeve, a pen section adapted to be inserted in said barrel and sleeve and a pen section retaining sleeve adapted to engage said sleeve for detachably assembling the pen section to the barrel.

20. In a fountain pen the combination of a barrel provided with a threaded sleeve, a pen section frictionally fitting therein and a

pen section retaining sleeve threadedly engaging the sleeve for detachably assembling the pen section to the barrel.

21. In a fountain pen the combination of a barrel provided with a sleeve, a pen section frictionally fitting therein and a pen section retaining sleeve threadedly engaging a portion of the first mentioned sleeve for detachably assembling the pen section to the barrel, the outer end of the retaining sleeve substantially hiding the outer end of the pen section.

22. The method of assembling a pen section unit for a fountain pen, comprising the steps of pressing a portion of a nib into the interior surface of a pen section to position it substantially irremovably therein, and thereafter inserting a feed member in said section.

23. The method of assembling a pen section unit for a fountain pen, comprising the steps of forcibly imbedding a nib in a wall of a pen section, and thereafter inserting a feed member in said section.

24. In a fountain pen, a pen section, a pen having portions irremovably embedded in the surface of the pen section.

25. A pen section, a pen having a tongue irremovably embedded in the material of the pen section.

In witness whereof, I hereunto subscribe my name to this specification.

JOHN C. WAHL.

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