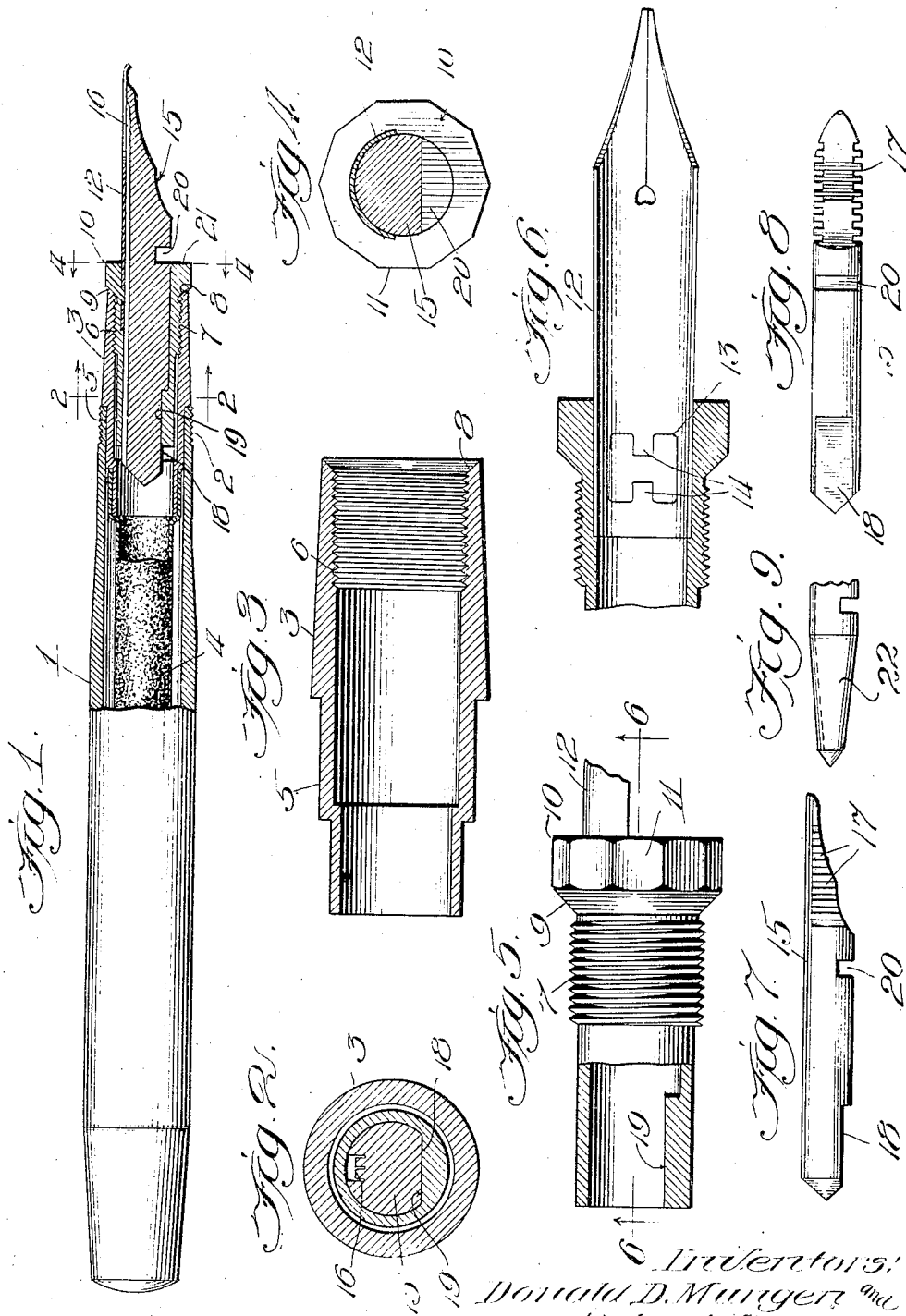


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FOUNTAIN PEN

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FOUNTAIN PEN

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This invention pertains to fountain pens having parts which may be interchanged without disturbance of the accurate relation-
ing of the several parts.

5 One of the objects of this invention is to provide an interchangeable pen section which may be so standardized in manufacturing as to be readily fitted into any of a large number of fountain pens.

10 Another object of this invention is to provide a pen section having a pen irremovably and firmly secured therein.

Another object of this invention is to provide a pen section having an irremovably
15 secured pen and a feed bar which may be easily removed or inserted, together with means to aid the withdrawal of such a feed bar or its insertion and accurate positioning in the pen section.

20 Another object of this invention is to provide means whereby this pen section may be easily assembled in leak proof communication with a fountain pen barrel.

Another object of this invention is to make
25 provision whereby a removable ink reservoir may be easily removed from a fountain pen barrel without the use of special tools and without danger of damage to the fountain pen and any of its parts.

30 Another object of this invention is to provide a fountain pen in which a pen may be firmly secured in such a manner as to make possible the use of a smaller amount of material, such as metallic material in a metallic
35 pen, than has hitherto been possible in pens which are satisfactorily constructed.

Further objects, advantages and capabilities will later appear and are inherently pos-
40 sessed by this invention.

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

50 In the drawings, Fig. 1 is a longitudinal view of a pen with a portion in central lon-

gitudinal section illustrating an embodiment of this invention.

Fig. 2 is a transverse sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a longitudinal central sectional
55 view of a retaining sleeve adapted to receive an ink reservoir on one end and into the other end of which may be screwed a pen section, such as the pen section illustrated in Fig. 5.

Fig. 4 is a transverse sectional view taken on the line 4—4 of Fig. 1.

Fig. 5 is an elevation of the pen section and a portion shown in longitudinal central
65 cross section.

Fig. 6 is a sectional view taken on the line 6—6 of Fig. 5 illustrating in particular the aperture provided in the pen.

Fig. 7 is a side elevation of the feed bar which is adapted to be inserted into the pen
70 section shown in Fig. 5. This view is shown on a reduced scale.

Fig. 8 is likewise on a reduced scale showing the bottom view of the feed bar.

Fig. 9 is a side elevation with the outer
75 end broken away, of a modified form of the feed bar.

Referring now in greater detail to the drawings, the fountain pen barrel is indicated generally as 1 and is provided with
80 external threads 2 for the attachment in the usual manner of a fountain pen cap which is not shown. A sleeve 3 is adapted to receive on one of its ends an ink reservoir 4 and is provided with a reduced portion 5 which is
85 adapted to snugly fit inside of the fountain pen barrel. This sleeve may or may not be provided, as desired. Internal threads 6 are provided near one end of this sleeve and are adapted to cooperate with external
90 threads 7 on the pen section. Other means may be employed for suitably engaging the pen section with this sleeve. If the sleeve is omitted entirely it is apparent that the pen section may be secured directly to the fountain pen barrel. A seat 8 is provided on the sleeve against which the tapered shoulder 9
95 may be seated when the pen section is screwed into this sleeve. In this manner a tight and leak proof joint is provided.

An enlarged portion 10 may be provided on the pen section and may have a plurality of faces 11 which will aid in the rotation of the pen section by means of the fingers or an ordinary wrench or other instruments. These faces may be as illustrated having a symmetrical design or may be of some other desired useful and ornamental shape.

A pen generally indicated as 12 may be provided with an aperture 13 of the shape illustrated or of some other desired shape and it is contemplated that this pen will be seated in the pen section in the manner shown by the sectional view of Fig. 4, whereby the lower interior surface of the pen cooperates with the interior of the pen section to form a continuous and smooth circle which adapts itself to the snug fitting of a feed bar and the easy insertion or withdrawal of that feed bar from the pen section. Hitherto it has been a practice in the art to clamp a pen into a pen section by means of fitting a feed bar tightly into the opening of the pen section in such a way as to hold the pen by friction. This has resulted generally in a distortion of the pen section, in unsatisfactory and inaccurate fitting and relationing of the pen section, the pen and the feed bar, and has resulted in leaving apertures alongside the lower edges of the pen, in which apertures dust may readily accumulate to the detriment of the pen. Further disadvantages of the old style of fitting pens, feed bars and pen sections together need not be recited here.

When placing the pen in the pen section, the interior surface of the pen section is softened in some manner, as by heat or as by a solvent, and the pen is carefully placed in the proper position and pressed into the surface of the section to the depth illustrated in Fig. 4. Referring to Fig. 6, it will be evident that the material on the inner surface of the pen section opposite the aperture 13 will not be compressed and will engage the edges of this aperture at every point thereof. The tongues 14 provided along the edge of this aperture may be pressed into the interior surface of the pen section even more deeply or in such a manner as to be partially or wholly covered by the material. In this manner, after the pen section material has become hardened a firm union is formed between the pen section and the pen and the pen will thereafter be held firmly and permanently in the position in which it was accurately adjusted at the factory.

It is evident that the pen section now retaining the pen securely in position and having a smooth cylindrical bore may be provided with a feed bar having a correspondingly smooth cylindrical exterior of the correct diameter and which may be slid into the pen section. In this manner a proper relation between the pen and the feed bar will always be maintained, the pen originally hav-

ing been correctly and expertly fixed in the pen section at the factory. No matter how many times the feed bar may be removed by unskilled persons for cleaning purposes, it is apparent that it can be reinserted in the pen section in none but the correct manner.

The feed bar generally indicated as 15 may be provided with a groove 16, or grooves on its upper surface for carrying the ink along the under surface of the pen. Ink retaining channels 17 may be provided on the side of the feed bar if desired. In order that the grooves 16 will always be accurately positioned under the longitudinal center line of the pen, a reduced portion 18 is provided on the feed bar which is adapted to cooperate with a raised portion 19 on the interior surface of the pen section. It will be seen by reference to Fig. 2 that the feed bar cannot be revolved within the pen section and must always be inserted in the correct position.

In order that the feed bar may be readily inserted or withdrawn, a groove 20 is provided in the lower portion of the feed bar, into which groove may be inserted an instrument such as a coin. When force is exerted longitudinally the feed bar, which has a snug fit within the pen section, will readily be withdrawn. Upon insertion of the feed bar the same instrument may be used and as the feed bar enters the pen section the instrument which is seated in the groove 20 will eventually come to rest against the face 21 on the enlarged portion 10 of the pen section. In this manner provision is made whereby the feed bar will be inserted only to the proper extent, yet without requiring any expert knowledge of the particular fountain pen on the part of the person who may be inserting the feed bar. As a consequence, the user of a fountain pen is enabled to withdraw the feed bar easily and frequently for cleaning and is assured that his insertion of the feed bar will always result in its accurate positioning in relation to the pen and pen section.

Other means than the groove 20 may be employed in order to effect the withdrawal or positioning of the feed bar. Likewise, an aperture of different shape than the one illustrated may be used in securing the pen into the interior surface of the pen section and, if desired, other means than those which contemplate the use of apertures in the pen itself. In the present instance pyralin has been found to be very satisfactory as the material from which to make the pen section, while other material such as hard rubber or any suitable material may be so employed.

There are several advantages arising out of the use of the special shoulder 10 provided on the pen section. Not only is this enlarged portion 10 found to be ornamental, but it is also of assistance in screwing the pen section into the sleeve 3 and unscrewing this part.

Further, it is of great aid in helping to remove the sleeve 3 and its attached ink reservoir from the fountain barrel. The fit of the sleeve 3 in the barrel is quite snug and it is found that if a force is applied to the shoulder 10 in a clockwise direction, such as will screw the pen section into the sleeve, when the tapered portion 9 has become firmly seated against the tapered seat 8 of the sleeve, further rotation of the enlarged shoulder 10 will cause the sleeve to rotate in the barrel and hence will free the sleeve from sticking within the barrel. This latter feature is of great practical importance. A slight outward pull then exerted as the shoulder 10 is rotated will suffice to extract the sleeve from the fountain pen barrel.

The pen section unit carrying the irremovable pen may be standardized and adapted to fit into any of a large number of fountain pens. Consequently a dealer in pens need not carry a large assortment of complete fountain pens in order to meet the demands of his customers. Inasmuch as the taste in fountain pen nibs varies greatly among users, a dealer will find it necessary to carry only a reasonable amount of complete pens and may then meet the whims of a client by having an assortment of pen section units such as are illustrated in Figs. 5 and 6. This should enable him to carry a stock of less value and he may thus serve his clientele more efficiently.

In the event that gold pens are used in the fountain pens or if the pens are made of other precious metal, this invention makes it possible to reduce the total weight of metal required in the pen in order to provide a firm and satisfactory positioning of the pen in the pen section. In carrying out this invention, a pen need not be inserted as far into the pen section as is ordinarily required with other fountain pens, and furthermore when an aperture such as the aperture 13 is cut in the pen without weakening the grip of the pen section on the pen and in fact aiding it, it is evident that a great saving of precious metal is effected.

The modified feed bar 22, as shown in Fig. 9, may be employed as desired in place of the feed bar illustrated in Figs. 7 and 8. When this modified feed bar is used, having the tapers illustrated, or any other suitable tapers, it is evident that the interior of the pen section will accordingly be modified to conform. The tapered surface may be so designed as to prevent, in conjunction with the interior of the pen section, the rotation of the feed bar.

The front end of the feed bar may be tapered as illustrated in profile in Fig. 7 to conform to the nib.

Having thus shown and described our invention, we now claim,

1. In a fountain pen, a removable pen section unit comprising a pen section, a pen irremovably secured thereto, and a feed mem-

ber detachably positioned in said section and means associated with said member for effecting the easy withdrawal of said member from said section.

2. In a fountain pen, a removable pen section unit comprising a pen section, a pen irremovably secured thereto, a feed member, and means associated with said member for effecting the sliding positioning of said member in said section, said means being further adapted to effect the easy withdrawal of said member from said section.

3. In a fountain pen, a pen section unit comprising a pen section, a pen irremovably secured thereto, and a feed member slidably positioned in said section and means associated with said member for effecting the easy withdrawal of said member from said section.

4. In a fountain pen, a pen section unit comprising a pen section, a pen irremovably secured thereto, a feed member, and means associated with said member for effecting the sliding positioning of said member in said section, said means being further adapted to effect the easy withdrawal of said member from said section.

5. In a fountain pen, a barrel, a pen section having means including a non-circular shoulder for engaging said section with said barrel, a removable feed member engageable with said section, and means on said member cooperative with said shoulder for positioning said member in operative relation to said section and for effecting the easy withdrawal of said member from the barrel.

6. The method of assembling a fountain pen comprising in part forming a generally cylindrical pen section provided with a non-circular shoulder at one end thereof, rotating the section by means of said shoulder into removable engagement with the barrel of the pen, and slidably inserting a feed member into the pen section by means of an instrument placed in a recess in the feed member, the recess, the instrument and said shoulder cooperating to establish the longitudinal operative position of the feed member.

7. In a fountain pen the combination of a pen section, a pen irremovably secured thereto, and a feed member removably secured to the pen section.

8. In a fountain pen the combination of a barrel, a sleeve frictionally fitting the barrel, a pen section threadedly engaging the sleeve, a pen irremovably secured to the pen section, and a feed member removably secured to the pen section.

9. In a fountain pen the combination of a pen section, a pen irremovably secured thereto, a feed member removably secured to the pen section and provided with means for longitudinally positioning it in said pen

section and for preventing rotation of said member.

10. In a fountain pen the combination of a pen section, a pen irremovably secured thereto, a feed member removably secured to the pen section and means for preventing rotation of the feed member in the pen section.

11. In a fountain pen, a pen section, a pen secured thereto, a grooved feed bar, means for determining the longitudinal position of said feed bar in said pen section and means for positioning the grooves of the feed bar under the longitudinal center of the center line of the pen.

12. In a fountain pen, a pen section, a pen secured thereto, a grooved feed bar, and means for positioning the grooves of the feed bar under the longitudinal center line of the pen.

13. In a fountain pen, a removable feed member, and a groove on said member having a side cooperative with an end of said pen for longitudinally positioning said member in the pen and for effecting the easy withdrawal of said member from the pen.

In witness whereof, we hereunto subscribe our names to this specification.

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