July 29, 1947. H. A. BAUER ET AL 2,424,731

FOUNTAIN PEN

Filed March 8, 1945 2 Sheets-Sheet 1

Fig. 1

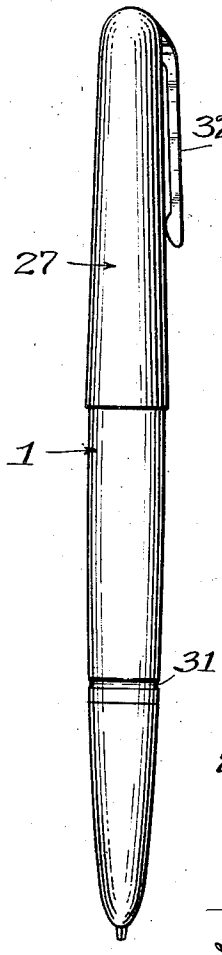
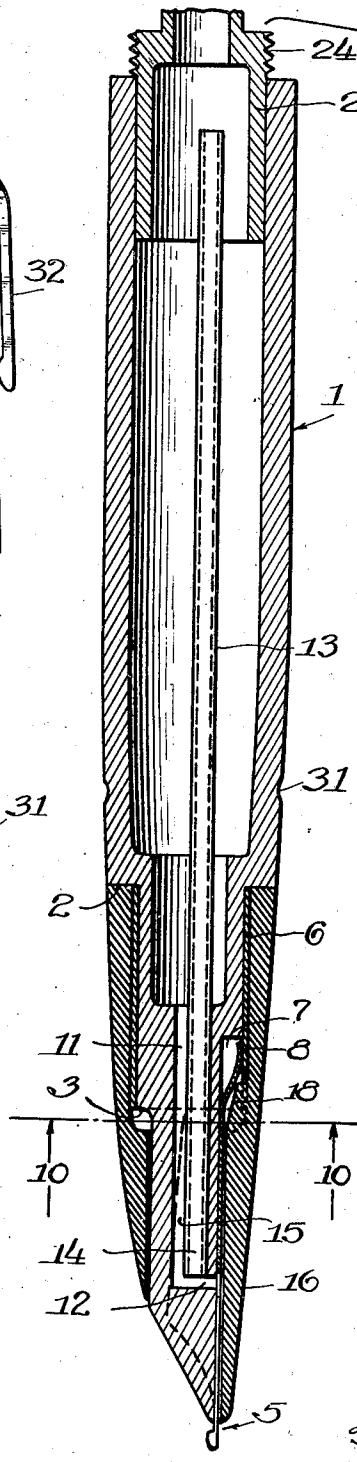
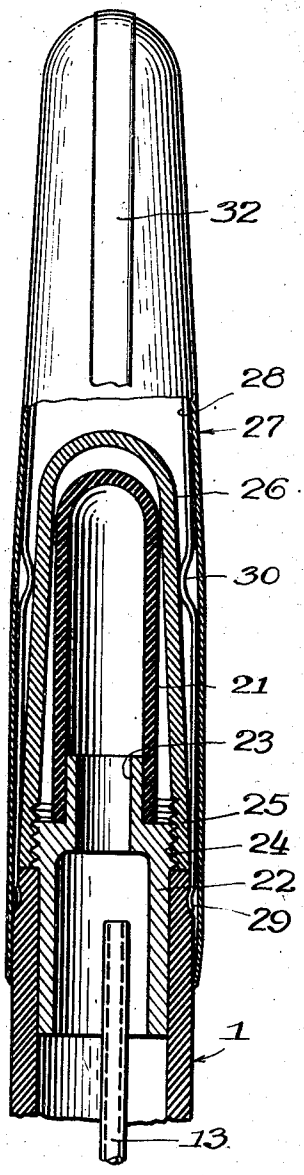


Fig. 2





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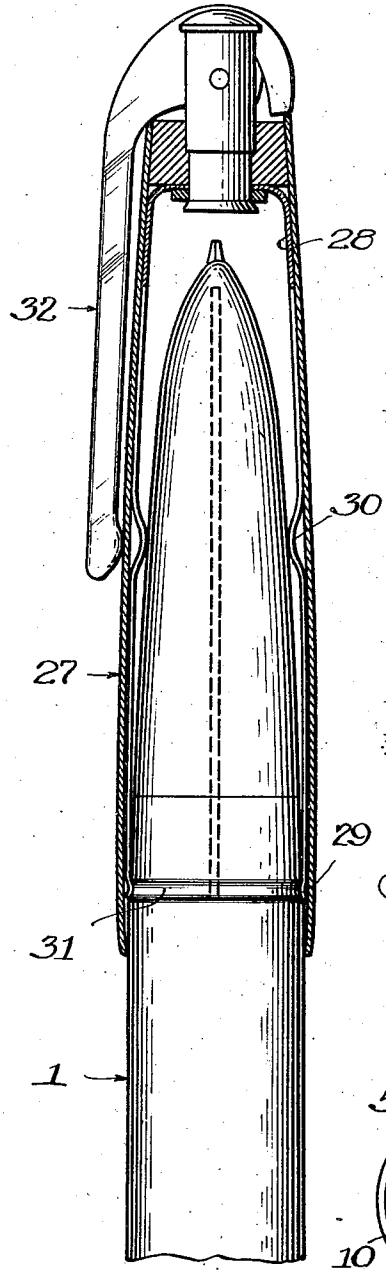


Fig. 3

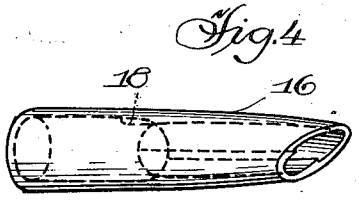


Fig. 4

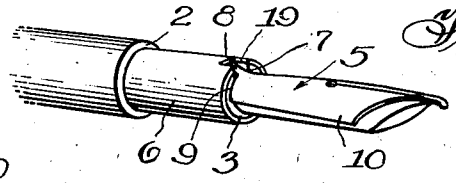


Fig. 5



Fig. 6

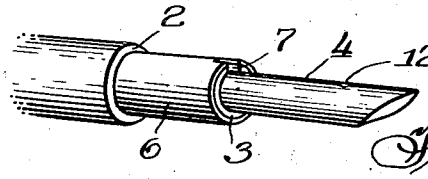


Fig. 7

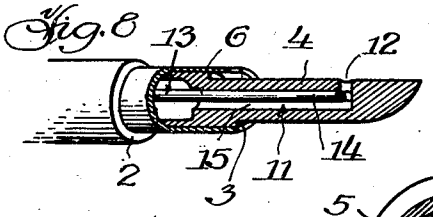


Fig. 8

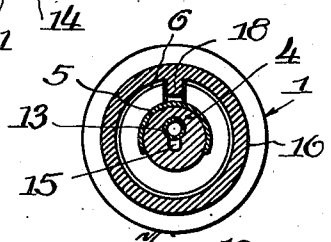


Fig. 10

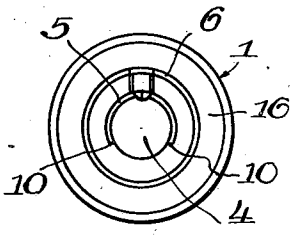


Fig. 9

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UNITED STATES PATENT OFFICE

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FOUNTAIN PEN

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6 Claims. (Cl. 120—52)

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The present invention relates to fountain pens and especially to a novel fountain pen in which removal and replacement of the pen nib may be quickly accomplished. It is, therefore, an important object of the present invention to provide a novel and simplified pen assembly in which the pen nib may be quickly and simply removed and replaced or serviced by one without previous experience and when replaced, requires no further adjustment.

The invention further comprehends a novel pen nib and removable cap assembly so constructed and arranged that the cap may be quickly and conveniently removed before and quickly replaced after filling of the pen. Such removal avoids soiling the cap as happens during the filling operation of the conventional type of pen and obviates the necessity of first wiping the pen clean before it is ready for use.

The invention further comprehends a novel barrel and nib and nib cap support formed integral and with the nib support and the removable nib cap so contoured that these parts are positively aligned upon assembly. Positive means are also provided for locating and retaining the nib upon its support in proper writing relation.

Further objects are to provide a construction of maximum simplicity, efficiency, economy and ease of assembly and operation, and such further objects, advantages and capabilities as will later more fully appear and are inherently possessed thereby.

The invention further resides in the construction, combination and arrangement of parts illustrated in the accompanying drawings, and while there is shown therein a preferred embodiment, it is to be understood that the same is susceptible of modification and change, and comprehends other details, arrangements of parts, features and constructions without departing from the spirit of the invention.

In the drawings:

Figure 1 is a view in side elevation of a fountain pen embodying the present invention.

Figure 2 is an enlarged longitudinal sectional view with a part in elevation of the pen and with the view broken to more clearly illustrate the assembly.

Figure 3 is an enlarged fragmentary view of the pen with the end cap or closure applied to protect the nib.

Figure 4 is a view in perspective of the nib cap or hood.

Figure 5 is a fragmentary perspective view

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showing the pen nib assembled on the nib support.

Figure 6 is a perspective view of the nib.

Figure 7 is a view similar to Figure 5 but with the pen nib removed.

Figure 8 is a view similar to Figure 7 but with the nib support broken away to show the positioning and assembly of the air vent tube and the slot to guide and receive the end of the nib tail spring.

Figure 9 is an end view of the nib end of the pen with the nib cap removed.

Figure 10 is a view in horizontal cross section taken in a plane represented by the line 10—10 of Figure 2.

Referring more particularly to the detail disclosure in the drawings, the embodiment selected to illustrate the invention comprises a barrel 1 having its cross section reduced to form stepped shoulders 2 and 3 providing therebetween a nib cap support and its forward end further reduced and contoured to provide a nib support 4 having its upper surface contoured to receive a pen nib 5. This combined barrel and nib and nib cap support is formed integral and preferably molded of a plastic material, either thermoplastic or thermosetting, although any material suitable for the purpose and having the desired physical properties, may be used.

As shown more clearly in Figures 2, 5, 7 and 8, the end of the barrel forming the nib cap support is reduced in cross section and provided with a sleeve 6 formed of a suitable non-corrosive metal such as stainless steel or the like. This reduced portion is also longitudinally slotted at 7 adjacent the shoulder 3 for receiving a tail spring 8 formed or provided at the inner end of the pen nib 5. This tail spring 8 locates the nib when it is directed into the slot 7 and when the rear or inner end 9 of the nib abuts the shoulder 3, pressing downwardly upon the forward end of the pen nib causes this nib to tilt or pivot about the end 9 until the nib assumes the position shown in Figures 2 and 5, with the opposite sides 10 of the nib snapped tightly over the curved upper surface of the nib support and resiliently held thereon.

The nib support 4 is provided with a longitudinally extending channel 11 opening into the barrel proper and a lateral or transverse passage 12 opening into the channel for the discharge of ink from the hollow interior of the barrel, this channel 11 being of substantially keyhole shape as shown in Figure 10 with an air vent tube 13 having its lower end 14 conformably seat-

ing within the channel and suitably held in place as by means of cement or other adhesive. This provides an ink channel 15 of the desired size.

To permit removal or replacement of the pen nib, the invention contemplates use of a removable nib cap 16 adapted to be quickly pushed on or slipped off of the nib and nib support and retained thereon by a friction fit upon the sleeve 6. This cap is so contoured and has a relatively tight fit over the nib and its support whereby to maintain these parts in their proper aligned and writing relationship. It permits the removal of the cap before refilling the pen in order to prevent soiling of the pen section which is used for holding the pen when writing. After refilling of the pen, the nib cap is replaced and the pen is ready for use without the necessity of first wiping it clean.

In order to insure proper positioning and alignment of the nib cap when replaced, this cap is provided with a positioning key or lug 18 (see Figures 2 and 10) adapted to enter the slot 7 of the reduced cross section and the aligned slot 19 in the adjacent end of the sleeve 6. As this key or lug in assembled relation is positioned adjacent to and forwardly of the nib tail spring, it prevents any outward or forward movement of the pen nib. Due to the simple manner of removing this frictionally held cap and thereafter permitting the removal of the pen nib by simply lifting its forward end to disengage the sides 10 and then to withdraw the nib, it may be quickly replaced by inexperienced hands and without any further adjustment as heretofore required with prior types of pens. As previously stated, the nib tail spring 8 entering the slot or groove 7 accurately locates the pen nib, and by contouring the opposite sides or edges 10 of the nib to substantially encompass and frictionally grip the nib support when it is snapped thereover as will be evident from Figure 9, assures proper contact between the top of the nib support and the inner surface of the nib and thereby prevents leakage therebetween.

The barrel 1 is connected to a resilient sack 21 by means of a fitting or coupling 22 suitably joined by a press fit or otherwise secured in the upper end of the barrel and provided with a reduced upper end 23 to which the resilient or rubber sack 21 is cemented or adhesively connected. This fitting is preferably threaded at 24 to receive the threaded end 25 of a filler cap 26. A pen cap, hood or closure 27 is provided for protecting the pen nib when not in use, and which when the pen is being used, may be mounted upon the opposite end as shown in Figure 2. This pen cap or hood may be of metal or other material suitable for the purpose and is preferably provided with a resilient metal liner 28 having spaced annularly arranged indentations or detents 29 and 30 adapted to resiliently grip the barrel and thereby retained thereon. To facilitate such mounting, the barrel is preferably provided with an annular recess or groove 31 adjacent each end thereof for receiving the indentation or detent 29 when the cap or hood is positioned upon either end of the pen. A clip 32 is shown mounted on the hood or cap.

From the above description and the disclosure in the drawings, it will be apparent that the present invention comprises a novel pen assembly provided with a removable nib cap as well as a readily removable and replaceable nib.

Having thus disclosed our invention, we claim:

1. In a fountain pen, a nib and nib cap support, an annular shoulder provided on the support, a forwardly opening slot provided in the support and extending rearwardly from the shoulder, a pen nib having a contour conforming to the contour of the support and its opposite sides embracing the support for detachably connecting the nib and support, and a tail spring projecting from the end of the nib adapted to enter the slot and fit conformably therein for correctly locating the nib on the support and with the end of the nib adapted to abut the annular shoulder whereby to assure accurate positioning and alignment of the nib upon its support and permit its replacement.

2. In a fountain pen, a nib and nib cap support, a forwardly opening slot provided in the support, a pen nib contoured in conformity with the contour of the support and with the opposite sides of the nib embracing the support for detachably connecting the nib to the support, and a tail piece on the end of the nib and projecting rearwardly therefrom adapted to enter the slot and confined therein against turning or lateral movement by the sides of the slot whereby the nib is accurately located on the support.

3. In a fountain pen, a barrel providing an ink reservoir, a nib and nib cap support at one end of the barrel, an annular shoulder provided adjacent the inner end of the support, a slot provided in the shoulder, a readily removable and replaceable pen nib having its opposite sides embracing the nib support and having a projecting part adapted to enter the slot and confined by the walls of the slot to thereby align the nib on the support, and a nib cap adapted to encompass the nib and support and frictionally retained thereon to thereby retain the nib in proper position for writing, with the nib cap readily removable for replacement of the nib and when filling the pen.

4. In a fountain pen, an integral barrel and nib and nib cap support formed of a plastic material, the barrel having spaced offsets with one offset located adjacent the support, a metal sleeve encompassing the part intermediate the offsets, a forwardly opening slot formed in said part at the offset adjacent the support, a replaceable pen nib adapted to partially encompass and removably mounted upon the support and provided with a resilient projection adapted to enter the slot and engage the undersurface of the metal sleeve with the sides of the slot retaining the projection against rotation and the end of the nib adjacent the projection engaging the last mentioned offset to thereby align the nib on the support, and a nib cap adapted to be readily slipped over the nib and support with its inner end abutting the other offset and frictionally retained on the metal sleeve.

5. In a fountain pen, a barrel having a nib and nib cap support, a pen nib removably mounted on the nib support, a slot in the nib support, a projection on the nib adapted to be received in the slot and held against rotation by the sides of the slot, and a nib cap removably mounted on the nib cap support and provided with a key adapted to be conformably received within the slot for proper positioning and alignment of the nib cap when replaced upon its support.

6. In a fountain pen, a nib and nib cap support, a pen nib removably mounted on the nib support, interengaging parts on the nib support and nib for aligning and positioning the nib on the support, a nib cap removably mounted on the nib cap support and enclosing all but the writing point of the nib and a part on the nib cap adapted to

interengage with the first mentioned parts for locating and aligning the cap in its operative position and for retaining the nib in proper writing relation, said nib cap being readily removable for withdrawal or replacement of the nib and for filling of the pen.

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