

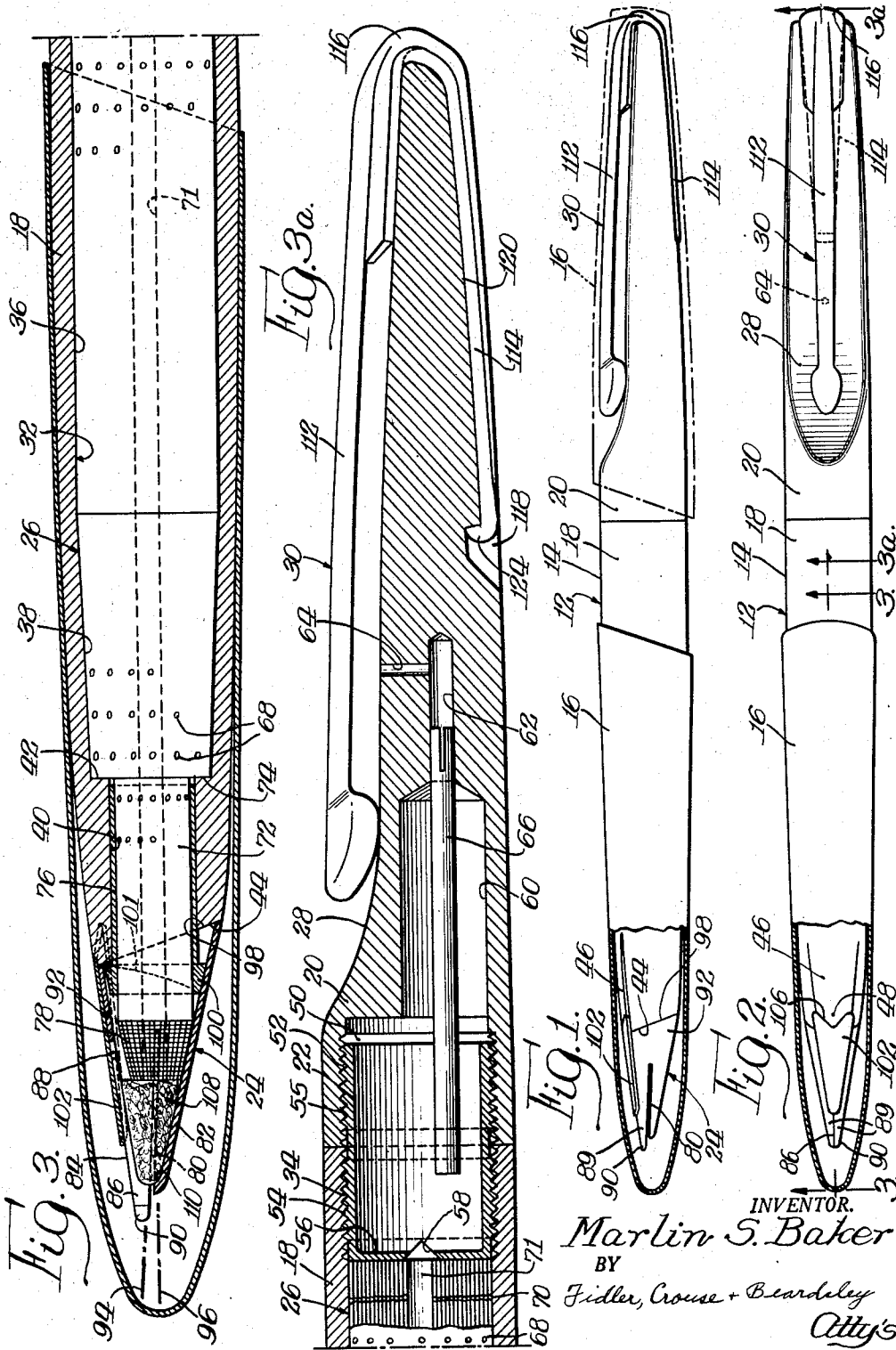
Sept. 22, 1959

M. S. BAKER  
FOUNTAIN PEN

2,905,148

Filed Jan. 17, 1952

2 Sheets-Sheet 1



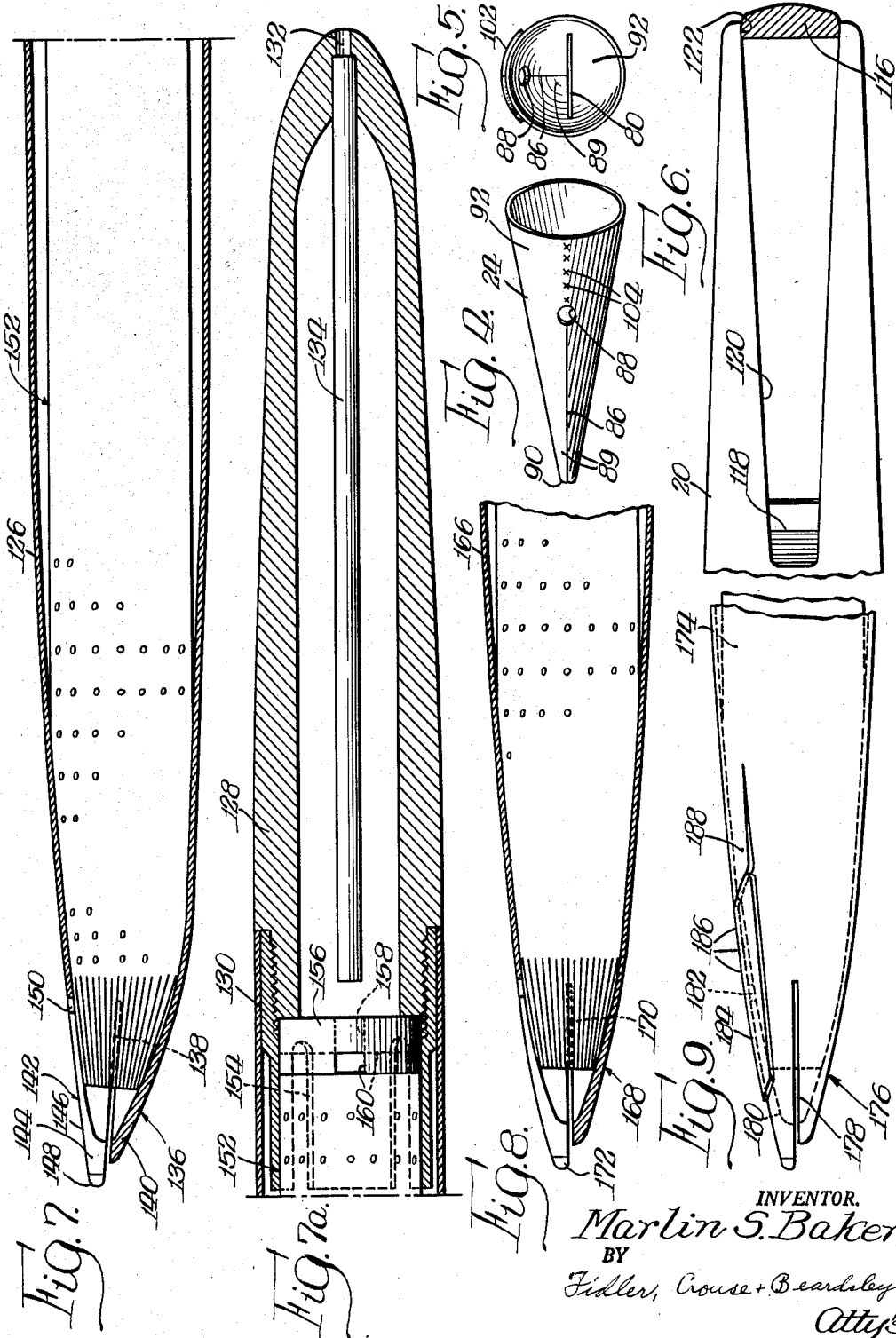
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2,905,148

**FOUNTAIN PEN**

**Marlin S. Baker, Janesville, Wis., assignor to The Parker Pen Company, Janesville, Wis., a corporation of Wisconsin**

**Application January 17, 1952, Serial No. 266,960**

**3 Claims. (Cl. 120—51)**

The present invention relates to fountain pens, and particularly to a fountain pen having a novel construction of barrel and writing nib.

An object of the invention is to provide a fountain pen having a novel writing nib of such construction as to enable the employment of means for feeding ink to the nib in an unusually effective manner.

Another object is the provision of a fountain pen having a barrel portion and a hollow conical nib forming a continuation of the barrel portion, whereby the pen is capable of containing ink reservoir and feed means with a portion of such means extending into the nib in full and intimate contact engagement therewith for establishing a highly effective ink feeding relation between the ink reservoir and feed means and the writing point of the nib.

A further object is to provide a fountain pen including a barrel portion and a conical nib having nib sections forming a writing point, in which the nib has a circumferentially continuous tubular portion forming an extension of the barrel portion.

Another object is the provision of a fountain pen having a barrel portion and a writing nib in which the nib has a circumferentially continuous portion integral therewith forming a continuation of the barrel portion, whereby the construction eliminates the necessity for a special operation for aligning the nib with respect to the other parts of the pen, in the assembly of the pen, as was necessary in the case of certain pens heretofore known.

Another object is the provision of a fountain pen having a writing nib, in the construction of which it is not necessary to observe critical dimensions as between the nib and other parts of the pen.

A still further object is the provision of a fountain pen of exceedingly simple construction in which accidental disarrangement of the parts, in normal use of the pen, is rendered virtually impossible.

Another object is the provision of a fountain pen including a barrel portion and a slitted writing nib having a portion integral therewith forming a continuation of the barrel portion, in which novel means is provided for covering a portion of the outer surface of the nib and a portion of the nib slit for maintaining the nib slit in wetted condition so that the pen is immediately effective for writing at all times so long as any ink remains in the pen.

Still another object is the provision of a fountain pen of the character just referred to, in which there is no positive limit to flexing of the nib.

Another object is the provision of a fountain pen having a construction of such character as to present a novel streamline appearance.

A further object is to provide a fountain pen having a barrel portion and a hollow conical writing nib forming a continuation of the barrel portion, of novel character enabling construction of the pen so that the writing point of the nib is positioned, as desired, either substantially on the axis of the pen, or displaced from the axis

in a position similar to that in most fountain pens heretofore known.

A further object is the provision of a writing instrument having a novel pocket clip arrangement and novel means for attaching the clip to the instrument.

Other objects of the invention will be apparent upon reference to the following detailed description taken in conjunction with the accompanying drawings, in which:

Figure 1 is a side view of a pen embodying one form of the present invention, showing a portion of the point-enclosing cap broken away, and showing in broken lines the cap applied to the rear end of the pen barrel;

Fig. 2 is a top view of the pen of Fig. 1 with a portion of the cap broken away;

Figs. 3 and 3a together constitute an enlarged scale longitudinal sectional view of the pen and cap of Fig. 1, taken respectively on lines 3—3 and 3a—3a of Fig. 1;

Fig. 4 is a top view of the tip or nib portion of the pen of Fig. 1 prior to attachment of the slit cover;

Fig. 5 is an interior view from the rear of the tip or nib portion of the pen of Fig. 1;

Fig. 6 is a bottom view of the rear portion of the pen showing the underside of the rear end portion of the pen barrel and a portion of the clip;

Figs. 7 and 7a together constitute a large scale longitudinal sectional view of the pen embodying a second form of the invention;

Fig. 8 is a fragmentary large scale longitudinal sectional view of the front portion of a third form of pen embodying the present invention; and

Fig. 9 is a fragmentary large scale side elevational view of a portion of a pen similar to that shown in Fig. 8 with a slit cover applied to the nib.

Each of the forms of pen illustrated in the drawings includes a hollow conical tip or nib portion, including a writing nib, forming an extension of the barrel portion of the pen. An ink reservoir element is contained within the barrel and in each case the reservoir element or an extension thereof projects into the hollow tip or nib portion in contact engagement with at least a substantial portion of the inner surface of the nib portion to the end that maximum ink feeding relation be established between the reservoir element and the nib and particularly the slit of the nib. The barrel portion and nib portion in each case together constitute an effectively integral shell-like barrel and although the nib portion in one instance is separate from the barrel portion, nevertheless the effect of a unitary barrel is achieved. Not only is there effective ink feeding relation established between the reservoir element and the nib, but the nib is automatically properly aligned with the remaining elements of the pen in the assembly of the barrel portion and nib portion, so that there is no necessity for a special operation for properly aligning the nib, or writing element, as such with the other parts of the pen in the assembly of the pen.

In the pen illustrated in Figs. 1, 2, 3 and 3a the nib is provided by a tip that is separate from the barrel proper but, as will be brought out more fully in the description to follow, the tip forms a continuation of the barrel proper and when it is fitted to the barrel the tip and barrel form an effectively unitary article, the tip being fitted to the barrel proper in a simple manipulation that renders virtually nonexistent the possibility of misaligning the nib with the remainder of the pen.

Referring in detail to Figs. 1, 2, 3 and 3a, the pen includes a barrel or body 14 and a cap 16 adapted to be fitted over either end of the pen and retained thereon by means of a friction fit between the cap and barrel. The barrel 14 is made up of a front section 18 and a rear section 20 detachably secured together by means of a threaded connecting means in the form of a tubular connecting member 22. At the forward end of the front

section 18 is the tip of nib portion 24 detachably mounted in the forward end of the barrel proper.

The ink reservoir element 26 which in the present instance is of capillary nature, as will be described in detail later, is fitted in the front section 18 of the barrel and is provided with an extension projecting into the interior of the tip 24.

The barrel 14, made of suitable material such as plastic or metal, is of elongated formation tapered at both ends while the central portion thereof has a shape approaching the cylindrical. The taper of the barrel at both ends is long and gradual, presenting a pleasing appearance, the shape also effectively retaining the cap 16 thereon by friction when the cap is so fitted as shown in Figs. 1 and 2. It will be noted that the taper of the conical tip 24 conforms with the overall tapered shape of the pen, terminating in a writing point. The rear end of the pen also is of overall tapered shape but with suitable conformations for accommodating the pocket clip 30 as hereinafter described more in detail.

The front section 18 of the barrel is provided with a bore 32 opening through both ends of the section, its rear end portion being threaded at 34 for receiving one end of the connecting means 22 for detachably securing the two barrel sections together. The bore 32 includes a rear portion 36, substantially cylindrical, extending from the rear end of the front section forwardly throughout a substantial portion of the length of the section and merges at its forward end into a slightly tapered or conical portion 38. The latter bore portion communicates with a third bore portion 40 of reduced diameter and of substantially cylindrical shape whereby a rearwardly facing shoulder 42 is formed between the bore portions 38 and 40. The forward end of the front section 18 is inclined at 44 for cooperation with a similarly inclined rear surface on the tip 24, as will be referred to later. On the upper side of the barrel section 18, with respect to the writing position of the pen, is a projection or relief conformation 46 having a convex or generally pointed forward end 48 terminating closely adjacent the forward end of the barrel section for cooperation with a slit cover 102 on the nib portion of the pen, as will be described later. The projection or relief 46 is of a height or thickness at its forward end similar to that of the slit cover and is provided with a smooth outer or upper surface merging rearwardly smoothly and continuously into the outer surface of the main portion of the barrel section 18.

The rear barrel section 20 has in its forward end a bore 50 interiorly threaded at 52 for receiving one end of the connecting member 22. The bore 50 preferably is of relatively short axial dimension, being of a length not substantially greater than that sufficient to accommodate the connecting member 22. The connecting member 22 is generally cylindrical in shape, having exterior threads 54 and 55 for screw-threaded connection respectively with the threads 34 and 52, and preferably has its rear end open and is provided at its forward end with a plate-like element 56 forming an abutment means for engaging the rear end of the reservoir element 26. The connecting member 22 is provided with a transverse notch or groove 58 cut through the end element 56 for establishing a vent passage to the reservoir element 26, the rear end of which is open. The barrel sections 18 and 20 are adapted to be threaded onto the connecting member 22 and brought into mutual engagement for detachably securing the barrel sections together. The relation between the threads 54, 34 and 55, 52 is such as to facilitate alignment of the barrel sections in threading them onto the connecting member and connecting them together. To this end the threads 54, 34 consist of a single thread and the threads 55, 52 consist of triple threads with greater effective pitch, producing different relative screw feeding movements between the barrel sections and connecting member, enabling easier and more precise alignment between the

barrel sections to a position in which the clip 30 is aligned with the nib.

Leading rearwardly from the bore 50 is a reduced diameter bore 60 offset with respect to the bore 50 and substantially in line with the main portion of the rear end of the barrel section 20, and leading rearwardly from the bore 60 is a small bore 62 communicating with a vent opening 64. A vent or breather tube 66 is frictionally fitted in the bore 62 and extends forwardly a substantial extent, preferably to a position adjacent the forward portion of the connecting member 22. The fit between the tube 66 and bore 62 is such as to prevent leakage of ink therethrough so that, in the event any ink from the reservoir element 26 should be shaken or jarred into the bores 50 and 60, the ink would be prevented from flowing out the vent opening 64 and soiling the exterior of the pen. As will be evident from the later description of the reservoir element 26 any such ink would be in minor quantities because of the capillary nature of the element.

The ink reservoir element 26 as indicated above is preferably of capillary nature for filling the pen by capillary action, storing ink therein by capillary action and feeding ink by capillary action to the writing nib. Any one of a number of suitable forms of capillary ink reservoir may be employed for the purpose, but I have found that excellent results have been obtained by the use of a reservoir element of the kind disclosed and claimed in Bartell Patent No. 2,522,555 issued September 19, 1950. The reservoir element therein disclosed may be referred to as a spiral wrap element and reference may be had to that patent for a disclosure of the complete details thereof. However, a brief description of the nature of the reservoir element will be given here.

The reservoir element 26 is preferably made up of a sheet of suitable material such as silver or plastic rolled into spiral or convolute form, having capillary ink storage spaces between the convolutions of the sheet. Preferably spacing means are provided for spacing the convolutions apart, which may take the form of projections on at least certain of the convolutions engaging other convolutions. It is also desirable to provide apertures in the convolutions for providing passages between adjacent radially spaced spaces. One convenient manner of forming the projections and apertures is to provide the sheet with a plurality of apertures as for example by piercing or punching, in which operation irregular legs or loose end portions of the material of the sheet formed by the punching or piercing operation extend substantially perpendicularly to the sheet. The sheet is then rolled and the irregular legs or loose end portions form the projections referred to. Such apertures are shown in the reservoir element at 68 (Fig. 3) and the projections are shown diagrammatically at 70 (Fig. 3a). The reservoir element is illustrated partially in section in Fig. 3a to show its interior construction, and in elevation in Fig. 3 in order to simplify the illustration. The ink storage spaces are actually one continuous spiral space having the effect of a plurality of radially positioned spaces with the apertures establishing communication between adjacent spaces. Both ends of the reservoir element are of course open and venting of the rear end of the reservoir element is established through the notch or groove 58 and then through the tube 66, bore 62 and vent opening 64. In the filling and writing out operation of the pen the interior pressure is balanced with respect to the atmospheric pressure by means of the venting provision. A central axial space 71 may be provided, if desired, to facilitate rolling the sheet in the forming operation.

The greater portion of the reservoir element 26 is of such dimension as to snugly fit in the portion 36 of the bore 32 while a forward portion extends into the slightly tapered portion 38 of the bore. The reservoir element may be slightly compressed, if desired, or otherwise suitably reduced in dimension to snugly fit the bore portion 38.

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The reservoir element 26 is provided with a forwardly extending feed portion 72 which may be integral with the main part of the reservoir element. A reservoir element having such a feed portion is disclosed and claimed in the copending application of Floyd E. Bartell, Serial No. 186,415, filed September 23, 1950, now Patent No. 2,648,309, to which reference may be had for complete details thereof. Briefly the feed portion 72 when integral with the main part of the reservoir element constitutes an extension of the inner convolutions of the reservoir element. However, as explained in the Bartell application referred to, the feed portion 72 may be an extension of a central spiral element separate from the remaining convolutions of the reservoir element. The reduced dimension of the feed portion 72 forms a forwardly facing shoulder 74 on the reservoir element, the shoulder being engageable with the shoulder 42 of the pen barrel, while the feed portion extends through the bore portion 40 and through a tubular nib mount 76 which will be described later. The extreme forward end portion of the feed portion 72 is tapered at 78 so as to conform in a general way with the tapered shape of the tip 24. The portion 73 may be tapered for example by a cutting operation after the reservoir element is otherwise shaped. Also the portion 78 may be shredded longitudinally so as to permit it to be compressed to a slight extent when extended into the tips or nib portions of various sizes and shapes, it being understood that modifications of the tip or nib portion may be resorted to within the scope of the invention and in all cases the reservoir element will be brought into contact engagement with a substantial portion of the inner surface of the tip or nib portion. The reservoir element may be readily inserted in and removed from the front barrel section after separation of the barrel sections and removal of the connecting means 22 from the front barrel section.

The tip 24 as brought out above is of conical shape, being hollow and receiving the forward end of the feed portion 72 of the reservoir element. The tip includes a nib proper and a rearward circumferentially continuous portion, both forming an extension of the pen barrel. The tip is preferably a deep drawn cone and may be of any suitable material, such for example as gold, or gold alloy and is provided with a transverse slit 80 extending from the extreme forward writing point end rearwardly, forming a lower part 82 and an upper part 84. The upper part 84 is provided with an ink feed slit 86 extending from the writing point end rearwardly terminating in a pierce 88, dividing the upper part into nib sections 89, the forward end of both of which forms a writing point 90 extending forwardly beyond the lower part 82 of the nib. The writing point 90 may be provided with a hardened wear-resistant material in accordance with usual practice in forming pen nibs. The tip or nib portion in its final form is provided with the circumferentially continuous tubular portion 92 rearwardly of the pierce 88, shaped to merge into the barrel. Preferably, for convenience in manufacture, the slit 86 is extended longitudinally through the tip, and thereafter the portion rearwardly of the pierce is welded, whereby the nib sections 89 are brought to the proper position relative to each other for providing the desired capillary dimension of the slit 86. It may be desired by certain users to have the writing tip displaced from the axis of the pen as a whole in a position somewhat adjacent the periphery of longitudinal projection of the main portion of the pen. For producing that effect, the tip 24 is so constructed and positioned as to place the writing point 90 offset with respect to the axis of the pen as a whole. The tip 24 is preferably symmetrical about an axis indicated by the line 94 which, as will be noted, is disposed at an angle with respect to the longitudinal axis of the pen as a whole as indicated by the line 96. The transverse slit 80 is disposed preferably parallel with but offset from the axis 94 and the writing point 90 is therefore disposed sub-

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stantially on the axis of the nib, as represented by the line 94, while being disposed above the axis of the barrel sections relative to the writing position of the pen. The rear end of the tip 24 is inclined at 98 to conform to and engage the inclined surface 44 of the pen barrel, the relation being such that when the two surfaces mentioned are properly abutted the tip 24 is bodily disposed at a slight angle with respect to the axis of the barrel sections.

The means for mounting the tip 24, as mentioned above, includes the tubular nib mount 76 which may be of silver for example. The nib mount is provided at its forward end with a flange or enlargement 100 having a frusto-conical outer surface for conforming generally with the inner surface of the tip. The forward end of the nib mount is inserted into the rear open end of the tip and secured thereto by appropriate means such as by the use of silver solder. The nib mount is disposed at a slight angle with respect to the tip whereby when the nib mount is fitted in the bore portion 40 and disposed coaxial therewith, the tip will be disposed at the desired angle referred to above relative to the axis of the barrel. The outer surface of the flange 100 engages the inner surface of the tubular portion 92 throughout a substantial part of its area. Since the flange 100 and the tubular portion 92 are not concentric, the contact between the two elements will not be existent throughout the entire surface of the flange. At the lower part (Fig. 3) the contact will extend throughout the longitudinal dimension of the flange, while at the top there may be only point contact, forming an area of contact similar to that represented at 101 (Fig. 3). There is of course line contact between the elements throughout their entire periphery. However in the use of silver solder, the solder material flows into the space between the elements throughout the area of the flange and forms a secure bond. The nib mount therefore need not be concentric with the tip in order to effect the desired connection between the two elements, and accordingly a single kind of nib mount may be used in connection with tips or nib portions of various shapes. The rear tubular portion of the nib mount is preferably such as to have a snug fit in the bore portion 40 so as to be normally retained therein by friction and similarly the feed portion 72 has a snug fit with the nib mount, further aiding in frictionally retaining the nib mount and tip in the desired mounted position.

The pen is provided with means for at least partially covering the nib slit and adjacent portions of the nib sections so as to retain the ink in the nib slit in liquid condition, enabling the pen to write immediately even after not having been used for writing for a considerable period of time, so long as any ink remains in the pen. The slit cover 102 is preferably in the form of a tapered piece, arcuate in cross section to conform to the outer surface of the conical tip 24. The slit cover is preferably welded at one or more points 104 (Fig. 4) adjacent its rear end to the portion 92 and thereby rearwardly of the pierce 88 and nib slit 86. The forward portion is free but closely adjacent the tip, extending forwardly over a portion of the nib sections and preferably in contact engagement therewith, and over the pierce and a portion of the nib slit, establishing between itself and the nib sections a capillary space enabling ink to enter thereinto. The ink in such capillary space forms a film on the outer surface of the nib and maintains the ink in the nib slit or at least a substantial portion thereof in liquid condition preventing the nib from drying out and enabling immediate flow of ink in a writing operation.

The nib sections 88 preferably have a limited degree of flexibility for varying the thickness of the line in writing. Similarly the slit cover 102 is possessed of a limited degree of flexibility for flexing in response to flexing of the nib sections whereby the nib sections are without positive limit to flexing.

The slit cover 102 is also utilized in initially aligning the tip with respect to the remainder of the pen and in

normally retaining it in aligned position. The slit cover extends rearwardly beyond the tip 24 where it is provided with a generally concave conformation 106 which may be in the form of a V-shape notch, engageable with the convex or pointed portion 48 on the relief element 46. The complementary inclined edges of the convex and concave conformations enable the nib portion to be readily properly positioned angularly in the operation of mounting the tip in the barrel section. In mounting the tip in the barrel section, the two parts are first positioned with the slit cover and relief element in generally aligned position and the tip is mounted in the barrel by inserting the nib mount in the bore portion 40. As the slit cover and relief element approach each other, the inclined surfaces of the convex and concave conformations accurately align the tip and barrel portion in such position that the inclined surfaces 44 and 98 are in full and complete abutment, which otherwise may not be the case considering the fact that the nib mount is rotatable about an axis inclined to the axis of the tip. The convex and concave elements of the relief element 46 and slit cover 102 also normally retain the tip against rotation with respect to the barrel section in the normal use of the pen. It will be noted that the height or radial thickness of the relief element 46 is substantially the same as that of the slit cover so that the outer surfaces of the two are flush and present a neat and finished appearance to the pen. The slit cover serves as an indication of the top side of the pen, to the convenience of the user in picking up the pen and immediately holding it in a writing position, and accordingly the slit cover may also be referred to as an index.

It is desirable of course that the conical tip 24 be substantially entirely filled with capillary ink feeding material so as to establish maximum effective ink feed to the nib slit 86. For this purpose I preferably employ a capillary insert element 103 of suitable absorbent material having capillary properties such as to be effective for feeding ink to the nib slit 86. One such material is rubber sponge; other materials having similar capillary ink feed properties are also considered satisfactory. The insert 103 is inserted in the tip or nib portion and suitably compressed so as to be forced against the inner surface of the nib and be in position for feeding ink to the nib slit 86. The reservoir element 26 is effective for retaining the insert 103 in the desired position, the reservoir element being held against the insert by the connector element 22 when the latter is threaded into the rear end of the front barrel section. The shoulder 74 on the forward end of the reservoir element may engage the shoulder 42 to limit the forward position of the reservoir element and the feed portion 72 is of proper length that when the shoulders 74 and 42 are in abutting engagement the forward end of the feed portion 72 engages the insert 103 and retains the latter in the desired position for fully engaging the entire corresponding inner surface of the nib. It will be noted that the interior space of the tip 24 terminates in a generally rounded surface 110, and opens forwardly out to the exterior only through the slits 80 and 86. It will be obvious that the extreme forward end surface of the feed portion 72 engages the insert 103 throughout a sufficient area to establish the desired capillary feed relation therebetween. Furthermore, the peripheral surface of the end 78 of the feed portion 72 engages the inner surface of the tip throughout a substantial area establishing a capillary space between itself and the tip throughout that area, aiding in capillary feed of ink from the feed portion to the insert and to the nib slit. The end portion 78 may be somewhat compressed or deformed to engage the inner surface of the tip or nib portion throughout the greater part of its area.

The conical and tapered shape of the tip 24 and nib forming a continuation of the tapered shape of the barrel, as noted, creates a unique and pleasing streamline

effect. The nib has a circumferential surface broken only by the slits.

The pocket clip 30 as above mentioned has a portion positioned in the recess or cutout area 28 of the barrel or pen body and inwardly of the circumferential projection of that portion of the pen, so as to enable the cap 16 to be placed over the pocket clip and entirely concealing the latter. The cap when so fitted on the pen has friction engagement with that portion of the barrel or body immediately forward of the recess, so as to be normally retained on the pen in a writing operation. The clip is of U-shape having legs 112 and 114 interconnected by a portion 116. The legs of the clip are normally spring-biased toward each other so that when the clip is fitted on the pen, the leg 112, which is disposed in the recess 28, forms a pocket engaging element. The rear end of the pen barrel or body is provided with a recess 118 on the side opposite the cutout portion 28 merging into a groove 120 leading to the rear end of the pen and terminating in a groove portion 122 (Fig. 6) on the end surface of the pen. The clip is fitted over the rear end portion of the pen, with the legs straddling the pen, to a position wherein the connecting portion 116 enters the groove 122 and the leg 114 enters the groove 120, while the leg 112 enters the recess or cutout portion 28. On the extended or free end of the leg 114 is a projection 124 which enters into the recess 118. The projection or lug 124 in the recess 118, and the leg 114 and connecting portion 116 being disposed in the respective grooves, retain the clip in position on the pen body or barrel against displacement therefrom by ordinary forces encountered in using the pen. The projection 124 prevents the clip from being withdrawn longitudinally rearwardly from the pen while the projection and the leg 114 and connecting portion 116 all cooperate with the associated elements of the pen body in restraining the clip from displacement transversely of the pen body.

In the foregoing embodiment of the invention, the nib is formed by a tip separable from the pen barrel. It is contemplated within the scope of the present invention to form the barrel and nib as an integral article, that is to say, at least a portion of the barrel is integral with the nib, the barrel being separable at another point in order to admit of insertion of the reservoir element into the pen and removal therefrom. Such a pen is shown in Figs. 7 and 7a where the pen barrel is made up of a front section 126 and a rear section 128. The front section 126 is preferably made of metal having a nib portion that is preferably of gold or gold alloy, while the rear barrel section 128 may be made as desired, for example of metal or plastic. The two barrel sections are secured together by means of a connecting member 130 having an exterior surface frictionally engaged by the inner surface of the rear end portion of the front barrel section 126 and having internal threads engaging the forward exteriorly threaded and reduced end portion of the rear barrel section 128. In the rear end of the rear barrel section 128 is a vent opening 132 in which is inserted a tube 134 in a manner and for the purpose described in connection with the tube 66.

The pen of Figs. 7 and 7a has an overall tapered shape continuing forwardly into the nib portion or tip 136, which is of hollow conical form similar to that described above and, as shown, is integral with the barrel section 126. The tip 136 is provided with a transverse slit 138 forming a lower part 140 and an upper part 142. The upper part is provided with a nib slit 144 terminating in a pierce 150, forming a pair of nib sections 146, together forming a writing point 148 similar to the point 90 referred to above and extending forwardly beyond the lower part 140. The tip or nib portion 136 preferably is directed generally at an angle with respect to the longitudinal axis of the main portion of the pen, and the transverse slit 138 is inclined slightly relative

to the longitudinal axis of the pen barrel and so positioned that the writing point 148 is displaced upwardly from the longitudinal axis of the pen as a whole, relative to the writing position of the pen.

The pen of the present modification includes a reservoir element 152 which may be of the type disclosed in the Bartell patent mentioned above. The reservoir element is preferably mounted in a portion of the connecting member 130, the latter having a plurality of fingers 154 preferably having a limited degree of flexibility, frictionally and releasably engaging the rear end of the reservoir element. The reservoir element may be easily removed by separating the barrel sections by pulling them apart and removing the reservoir element from the fingers 154. A new or replacement reservoir element may be easily inserted in an obvious manner. Rearwardly of the reservoir element is a plug 156 which may be frictionally fitted in the connector element 130 and provided with a central axial bore 158, the latter communicating with transversely extending grooves 160 communicating with the interior of the reservoir element. The bores 158 and 160 provide venting of the reservoir element through the tube 134 and opening 132. The plug 156 is engaged by the forward end of the rear barrel section 128 and in turn engages the rear end of the reservoir element 152 whereby the latter is retained forwardly in the desired position. The reservoir element closely approaches the forward end of the nib portion, and preferably extends well forward of the pierce 150 and underlies a substantial portion of the slit 144 for efficient capillary ink feeding relation with the slit. The forward end of the reservoir element may be shredded as indicated so as to enable it to be compressed to conform to the reduced dimension of the nib portion at that position. A great part of the nib portion is filled by the reservoir element, establishing a large area capillary space between the surfaces of the two elements and consequent efficient ink feed from the reservoir element to the nib slit.

From the above it will be seen that in the pen of Fig. 7, the nib portion forms a continuation of the barrel portion with the same effect as in the pen of the first embodiment. In the first case the nib portion is separate from the barrel portion, while in the second, the two corresponding elements are integral. However, in both cases the effect is the same in that the hollow conical nib portion forms a continuation of the barrel portion, and a reservoir element is disposed in the barrel portion with an extension projecting into the nib portion in contact engagement with the inner surface of the latter and in ink feeding relation with the nib pierce and slit.

Many users may desire a pen having a writing point substantially on the axis of the pen as a whole, as it is disposed for example in most ball-pen pens. The pen illustrated in Fig. 8 includes a writing point disposed in a position as just referred to. The pen differs from the pen of Fig. 7 in that the former is provided with a writing point which lies on the axis of the pen barrel. In all other respects, the two pens are similar. In the pen of Fig. 8 the forward barrel section 166 has a tip or nib portion 168 that is substantially symmetrical about the axis of the barrel section 166. The transverse slit 170 is substantially on the axis whereby the writing point 172, or at least the lower surface thereof, is substantially on the axis of the barrel section 166.

It is also contemplated that a slit cover be provided on a pen in which the nib is intergral with the pen barrel. The pen of Fig. 9 is similar to that of Fig. 8, with a slit cover added and a projection or relief element on the pen barrel having a surface flush with the outer surface of the slit cover. In the pen of Fig. 9 the forward barrel section 174 is provided with a tip or nib portion 176 similar to the tip or nib portion 168 of Fig. 8, having a transverse slit 178 and a nib slit 180 terminating rearwardly in a pierce 182. The slit cover 184 may be similar in all material respects to the slit cover 102 and is

preferably welded to the barrel section at one or more points 186 in a manner above described. The forward portion of the slit cover is detached from the pen and overlies the pierce 182 and a portion of the nib sections as well as a portion of the nib slit 180 for a purpose similar to that described in connection with the first embodiment. In a similar manner, the barrel section 174 may be provided with a raised or relief portion 188, formed in any suitable manner, having an upper surface flush with the outer surface of the slit cover to provide a finished appearance to the pen. The interengaging surfaces between the slit cover and relief portion may be of any desired shape, for example of concave and convex shape respectively, similar to the shape of the corresponding elements of Fig. 2, being so made that a single slit cover can be applied to any of the different forms of pen, the particular shape having no utilitarian function when applied to the pen of Fig. 9 where the nib and barrel are integral.

A slit cover such as just described in connection with the pen of Fig. 9 may also be applied if desired to the pen of Fig. 7 having the off-axis writing point.

In all of the embodiments illustrated, the writing nib is effectively unitary with the barrel or at least a portion of the barrel. In Fig. 1, while the tip 24 is a separate element from the barrel proper, still the circumferentially continuous portion 92 forms an extension of the barrel and in so far as the integrity of the nib and barrel is concerned, the parting line between the tip and the barrel may be disposed rearwardly at any desired point so that the nib is intergral with the barrel or at least a portion thereof. In the latter three forms (Figs. 7, 8 and 9) the barrel in its forward portion is integral with the nib, while the barrel is made of separable sections to enable the insertion of the ink reservoir element into the pen and removal therefrom.

The pen is such that no critical dimensions need be observed as between the nib and other portions of the pen. The nib is formed as an integral part of another portion of the pen, in one case as a portion of the tip 24 and in all of the other cases as a portion of the barrel section. In the pen of the first embodiment it is practically impossible, in a normal writing operation, for the nib to become misaligned with respect to the remaining portions of the pen, and in the pens of the latter three embodiments, such is impossible short of destruction of the pen. The ink reservoir element has such contact engagement with the nib portion as to establish effective capillary ink feeding relation with the nib slit.

I claim:

1. A fountain pen comprising a barrel portion, a hollow conical nib portion slitted to form nib sections, a capillary ink reservoir element in the pen having a portion extending into the nib portion in ink feeding relation with the slit between the nib sections, and an arcuate slit cover on the nib portion secured thereto adjacent its rear end at a position rearwardly of and adjacent the nib sections with its forward portion overlying a portion of the nib sections and the slit therebetween, said barrel portion having a projection in engagement with the rear end of the slit cover with a surface flush with the outer surface of the slit cover and extending rearwardly and merging into and forming a continuous smooth surface with the surface of the barrel.

2. A fountain pen comprising a barrel having a forwardly opening bore, a hollow conical nib portion slitted from its forward end to form nib sections disposed upwardly relative to a writing position, the nib portion having a circumferentially continuous portion rearwardly of the nib sections, a tubular nib mount having a frusto-conical surface at its forward end engaging and secured to the inner surface of said circumferentially continuous portion, said nib mount being removably and frictionally fitted in said bore, said barrel and nib portion having interengaging end surfaces lying in a plane inclined at an



acute angle to the longitudinal axis of the pen, a slit cover secured adjacent its rear end to the nib portion rearwardly of and adjacent the nib sections with its forward portion overlying a portion of the nib sections and the slit therebetween, said barrel having a projection engageable with said slit cover; said slit cover and projection having a flush outer surface extending rearwardly and merging into and forming a continuous smooth surface with the surface of the barrel, and the projection and slit cover having interengaging convex and concave conformations operative for restraining rotation of the nib portion relative to the barrel, and a capillary ink reservoir element in the pen having a portion extending into the nib portion in ink feeding relation with the nib sections.

3. A fountain pen comprising a barrel having separable front and rear sections, the front section having a longitudinal bore therethrough with a relatively large portion opening through the rear end and a reduced portion opening through the forward end, a hollow conical nib portion having a transverse slit extending rearwardly from its forward end parallel with its longitudinal axis to form upper and lower parts relative to a writing position of the pen, the upper part being slitted to form nib sections projecting forwardly beyond the lower part and together forming a tapered writing point, the interior space of the nib portion opening forwardly only through the slits, the nib portion having a circumferentially continuous portion rearwardly of the slits, a tubular nib mount having its forward end secured to the inner surface of said circumferentially continuous portion in longitudinally inclined relation thereto, said nib mount being removably and frictionally fitted in said reduced bore portion in coaxial relation therewith whereby the nib portion is inclined longitudinally relative to the barrel and said writing point is displaced upwardly from the axis of the barrel relative to the barrel axis, said barrel and nib portion having inclined interengaging surfaces, a slit cover secured adjacent its rear end to the

nib portion rearwardly of and adjacent the nib sections with its forward portion overlying a portion of the nib sections and the slit therebetween in capillary relation therewith, the barrel having a projection engageable with the rear end of the slit cover, the projection and slit cover having interengaging convex and concave conformations effective for restraining rotation of the nib portion relative to the barrel, a capillary ink reservoir element in said barrel, and capillary ink feed means leading from the reservoir element substantially filling the space in the nib portion in capillary ink feeding relation with the inner surface thereof.

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