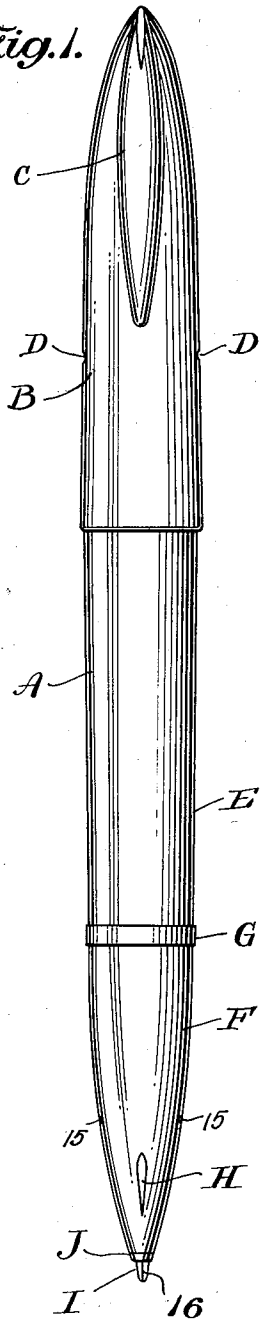
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FOUNTAIN PEN

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Fig. 1.



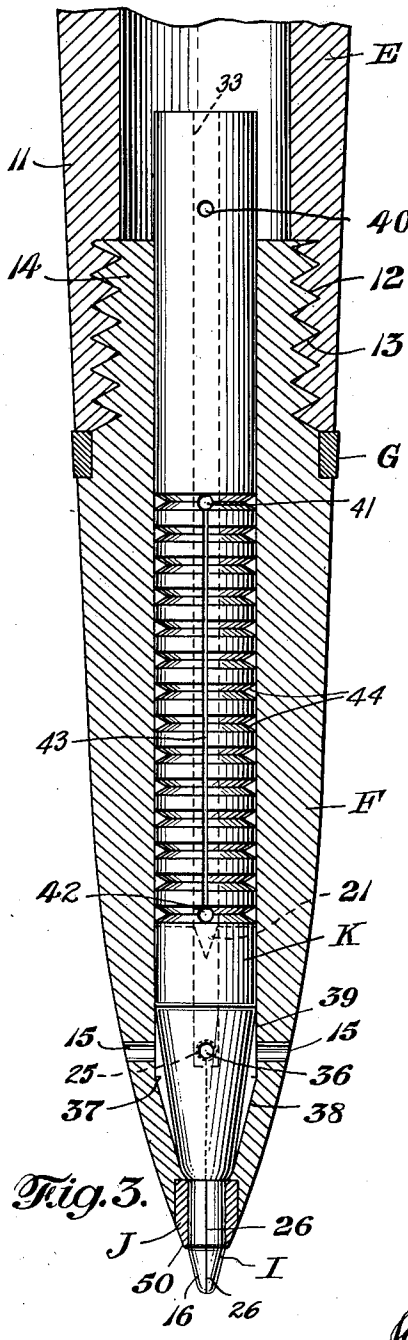
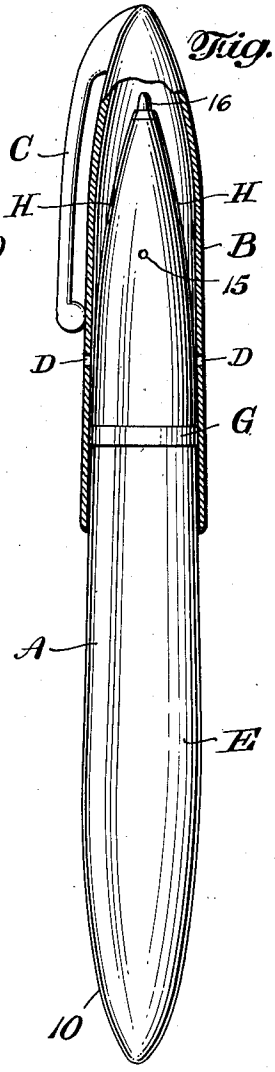


Fig. 3.

Fig. 2.



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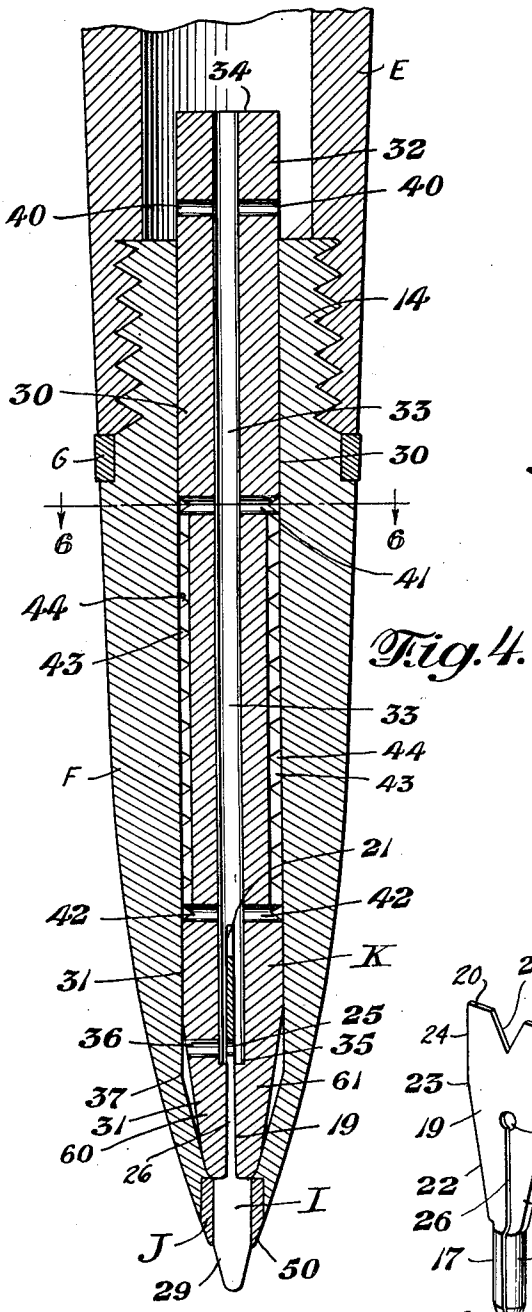


Fig. 4.

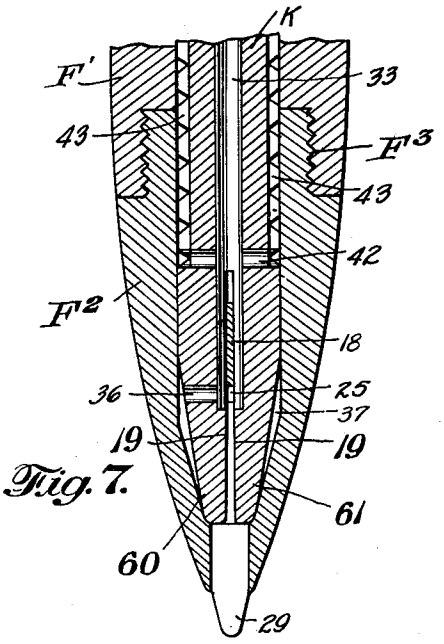


Fig. 7.

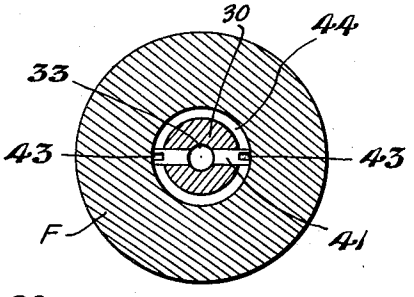


Fig. 6.

Fig. 5.

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FOUNTAIN PEN

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Application October 11, 1946, Serial No. 702,717

5 Claims. (Cl. 120—52)

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The invention relates to improvements in fountain pens, and more particularly to fountain pens of the type disclosed in my prior patents, Nos. 2,149,557 and 2,234,812. The invention will be more readily understood by reference to the accompanying drawings and the following detailed description in which are set forth illustrative embodiments of the inventive thought, but which are not intended as limiting the invention to the particular details set forth therein.

In the drawings:

Fig. 1 is a front view of the pen embodying my invention showing the pen in working position;

Fig. 2 is a side elevation of the pen in closed position and with the cap applied thereto, the cap being shown partly in section;

Fig. 3 is a central axial view of my pen showing the salient features thereof, a portion of the barrel being broken away and the cap being removed;

Fig. 4 is a sectional vertical view similar to Fig. 3 but taken on a plane removed 90° from the plane of Fig. 3;

Fig. 5 is a detail view showing the pen point member;

Fig. 6 is a section on line 6—6 of Fig. 4; and

Fig. 7 is a sectional view on a plane similar to that in which Fig. 4 is taken but showing a modification, portions being broken away.

Referring to the drawing, A denotes generally a fountain pen embodying my invention to either end of which may be applied a cap member B provided with a holding clip C which is streamline in form and shaped to correspond with the shape of a fountain pen. The clip is designed to hold the pen in the pocket of the user. A pair of ventilating openings D are provided in the cap. In Fig. 1 the cap is shown applied to the pen in operative position, and in Fig. 2 the cap is shown applied to the pen in inoperative position.

The pen A comprises a barrel portion E which is preferably of plastic material and may be tapered at one end so as to give a streamlined appearance while the remainder of the barrel is of substantially cylindrical form. The cylindrical end 11 of the barrel E may be internally threaded as at 12 to receive corresponding external threads 13 of the plug portion 14 of a combined nipple and barrel plug member F which is tapered so as to give the pen a streamlined and attractive appearance. The member F is so formed as to prevent ink from getting on the fingers and also serves to prevent dust, lint, etc., from getting inside of the pen and is designed to prevent ink

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in the pen from drying when the pen is not in use. The member F is also designed to reinforce the pen point so that the nibs thereof will not spread or bend out of their original shape. By reason of this reinforcement carbon copies may be made without damage to the pen point.

The barrel plug member F may be made substantially of one piece, preferably of plastic material as indicated in Figs. 1 to 4, or may be partly of plastic material F^1 and partly of metal F^2 as indicated in Fig. 7, the two portions of the barrel being suitably secured together by threaded connections F^3.

As shown the member F is provided with a pair of lateral openings 15, 15 which serve to prevent condensation within the interior of the member F.

Between the barrel plug member E and the member F there is provided a metal friction ring G the outside diameter of which is slightly larger than the upper end of the tapered part of the combined nipple and barrel plug F and of the lower end of the barrel E. The function of this friction ring is to firmly hold the cap B in position when the same is applied, as indicated in Fig. 2. If desired the cap may be attached to the pen by means of threads, in which case the friction ring G may be omitted. However, by the use of the friction ring, assembly of the cap and pen is facilitated and the attaching threads become unnecessary.

The pen point member I constitutes one of the characteristic features of my invention. This member is best shown in Fig. 5 and comprises a split tapered point 16 which projects beyond the nipple F and the metal sleeve J which is fitted within the end of the nipple F. The point merges into a split cylindrical portion 17 which is held within the metal sleeve J and is carried by tapered wing member 18 which is adapted to fit within the holder member K, the lower portion of which is split to receive the wing member. The wing member 18 is shaped to correspond with the cross section of the holder K at the split portion. The wing member 18 comprises opposed flat faces 19 and is slightly wedge-shaped in cross section or end elevation, as best indicated in Figs. 4 and 7, whereby a snug fit of the wing member within the split lower portion of the holder K is provided. The sides of the wing member 18 taper upwardly and outwardly from the cylindrical portion 17 as indicated at 22, 22 in Figs. 3 and 5, and merge into parallel sides 24, 24 beyond the point 23. The sides 24 are at right angles to the upper edge 20 of the wing

member, the central portion of which is provided with a central V-shaped notch 21 therein. About the center of the wing member 18 there is provided an opening 25 from which extends a slit 26 dividing the lower portion of the wing member and extending through the cylindrical and tapered portions 17 and 16 dividing them into halves or nibs 29. The metal sleeve or ring J may be cut from tubing and is preferably of non-corrosive material such as stainless steel or gold. The metal sleeve is fitted closely around the two halves or nibs 29 so that ink will not collect. The sleeve J reinforces and strengthens the nibs, which accordingly cannot spread or bend out of their original shape. Accordingly, the type of ink line for which the pen is originally designed will be insured throughout the life of the pen. Moreover, carbon copies may be made without damage to the pen point. The metal sleeve insulates or seals the nibs, thereby preventing ink within the slit of the pen point from drying. Accordingly, the writing end of the pen point is always moist and will write instantly. As will be noted from Figs. 3 and 4, the lower end 50 of the metal sleeve is tapered and forms a continuation of the streamlined taper of the outside of the combined nipple and barrel plug member F.

As previously stated, the point member I shown in Fig. 5 coacts with the holder member K. This member K combines the functions of a pen point holder, a pen point insulator and a feed and ink collector unit. The member K is fitted within the barrel plug member F and may be formed of plastic or other suitable material. The member K is cylindrical throughout most of its length 30, but the lower portion 31 thereof is tapered and is split into two halves 60 and 61 which are adapted to frictionally engage the tapered wing portion 18 of the pen point member I. The interior of the split portion 31 of the member K corresponds in shape with that of the wing portion 18 of the pen point member I, and the combined elements fit snugly within the lower end of the nipple and barrel plug member F. The cylindrical portion 30 of the holder member K projects upwardly at 32 above the top of the threaded plug portion 14 of the member F into the barrel A, and any suitable filling means may be employed for supplying ink. A central axial feed passageway 33 extends through the member K from the top portion thereof 34 to a point 35 within the split lower portion 31 thereof. Adjacent the lower end of the passage 33 and in line with the opening 25 in the pen point member I is a lateral opening 36 which communicates with an annular chamber 37 formed in the nipple member F, which annular chamber tapers upwardly and downwardly at 38 and 39. The ventilating apertures 15 previously referred to communicate with this chamber and thus through the opening 36 with the central passageway 33 of the member K, and also with the opening 25 in the pen point and the slit 26 which extends from opening 25 through the lower part of the wing portion 18 and thence between the two halves or nibs of the portions 17 and 16 of the pen point.

As shown, a pair of lateral openings 40 are provided in the projecting upper portion of the member K communicating with the central feed passageway 33. Intermediate the upper openings 40, 40 and the lower opening 36 are two additional sets of radial passageways or openings 41, 41 and 42, 42, both communicating at their inner ends with the feed passageway 33 and at their outer ends communicating with a pair of longitudinal grooves 43, 43 formed in the surface of the member K which connect a series of circular grooves 44, 44, the series of grooves 44, 44 extending from the upper pair of intermediate openings 41, 41 to the lower pair 42, 42 so that the central passageway 33, the openings 41 and 42, the longitudinal grooves 43, 43 and the circular grooves 44, 44 are in communication with each other. The circular grooves 44, 44, together with the longitudinal grooves 43, 43 and apertures 41, 41 and 42, 42, constitute the ink collector portion of the member K and serve to prevent the ink from drying when the pen is carried in the pocket or in any position and insure an instant start and even flow of the feed. The ink cannot pass from the barrel to the ink collector except through the feed. At high altitude the ink may pass from the barrel through the feed to the collector and prevent the pen from having any tendency to drip or overfeed.

In assembling the pen the point member I is first interfitted with the holder member K, the wedge shaped wing portion 18 of the point member being forced between the flexible halves 60, 61 at the lower portion of the holder K until the notch 21 is in line with the openings 42, 42 at the lower end of the ink collector, and the opening 25 in the point member I is in line with the lower radial passage 36 in the holder K.

The combined pen point I and holder K are then fitted into the member F from the open top thereof until the tapered nibs extend beyond the ring 50, the cylindrical portion being reinforced by its snug fit within the ring member. The points of the indicators H should be in line with a dividing line 26 separting the nibs of the point member I. In this position the axis of the openings 15 in the member F will be 90° removed from the axis of the opening 36 in the member K which communicates with the opening 25 in the pen point member and the lower end of the feed passage 33. It will be noted that when the member K carrying point member I is assembled within the member F the lower portion 31 of the part K serves as a plug which cuts off flow of fluid from the collector portion of the member K except through the feed and the slit in the pen point. It will be noted that close frictional contact is maintained between the split lower portion of the member K both above and below the annular air chamber 37. This air chamber, together with the outer openings 15 in the member F and the passage 36 in the member K, serves to ventilate the inside of the lower part of the combined tapered nipple and barrel plug and prevent condensation, thereby preventing the pen from dripping or overfeeding.

The pen may be filled by any suitable means through the upper end of the member K. When a rubber sack or the like is employed as the feeding means a sleeve or the like (not shown) may be applied to the upper end of the member K to cooperate with the sack.

The friction ring G is preferably carried by the member F and forms a shoulder for contact with the end of the barrel member E.

When the cap B is applied over the nipple end of the pen as indicated in Fig. 2 the interior of the cap frictionally engages ring G, holding it in position. For writing purposes the cap B is applied to the other end of the pen as indicated in Fig. 1.

It will be noted that the writing end of the pen

point is at the center of the pen structure rather than eccentrically mounted as in prior art devices. Such eccentric mounting throws the fountain pen structure in the writer's hand off balance, whereas in the present device the fountain pen structure and the writer's hands are constantly in balance. Accordingly, the present device will be popular with those who seldom use the prior art type of fountain pen. Regular users of fountain pens will appreciate this feature as well.

It will be noted that the air space 37 ventilates and therefore air conditions the inside of the lower part of the combined tapered nipple and barrel plug member F. The upper end of the pen point member I is insulated by the lower part of the pen point holder-pen point insulator-feed-ink collector-unit K and the lower part of the pen point is insulated by the metal sleeve J. By reason of ventilation which air conditions the inside of the lower part of the combined tapered nipple and barrel plug, and by insulating the pen point, condensation is prevented and accordingly the pen will have no tendency to drip or overfeed. The ink collector portion of the unit K is entirely enclosed within the combined nipple and barrel plug member F and the feed and upper part of the pen point member I are enclosed within the unit K, while the lower part of the pen point is enclosed in the metal sleeve I so that the entire feeding system is enclosed except a fraction of the writing end of the pen point. Accordingly, quick drying ink may be employed with this pen without drying occurring in the feeding system and without loss from evaporation.

The invention has been described in detail for the purpose of illustration but it will be obvious that numerous modifications and variations may be resorted to without departing from the spirit of the invention.

No filling device is shown in connection with the pen as any suitable filling device may be employed. For example, the pen may be filled by a filling device enclosed in the barrel; or the pen may be filled by removing the combined tapered nipple and barrel plug and placing an ink cartridge in the barrel; or ink may be sold in containers holding just enough ink to fill the barrel by pouring the ink into the barrel. These methods are mentioned simply as illustrative and other filling means may be employed as desired.

It will be apparent that while the cylindrical portion 17 of pen point member I is retained within the ring member J so that undue expansion of the nibs is avoided, there will be some clearance and play between the nibs and the sleeve J. The nibs and sleeve, however, are fitted so that ink will not collect between the nibs and sleeve. The sleeve, however, is adapted to reinforce and strengthen the nibs so that they will not spread or bend out of their original shape.

I claim:

1. In a fountain pen in combination with an outer casing comprising a barrel member and a tapered nipple member detachably connected thereto, an inner pen holding member fitting within the nipple member having a split portion at the lower end thereof snugly fitting within the tapered end of the nipple member, said split portion providing a slit, a pen point member comprising a flat surfaced wing portion frictionally retained within the slit in the holding member, and a pointed cylindrical tip integral with the wing portion extending beyond the holding member and through an end opening in the nipple member, said holding member having a central axial ink feeding passageway extending from the interior of the barrel portion into the slitted portion of the holding member, said pen point member being split from a point adjacent the lower end of the axial ink feeding passageway to the tip of the pen to provide the sole path for ink to said tip from said central passageway.

2. In a fountain pen in combination with an outer casing comprising a barrel member and a tapered nipple member detachably connected thereto, an inner pen holding member fitting within the nipple member having a split portion at the lower end thereof snugly fitting within the tapered end of the nipple member, said split portion providing a slit, a pen point member comprising a flat surfaced wing portion frictionally retained within the slit in the holding member, and a pointed cylindrical tip integral with the wing portion extending beyond the holding member and through an end opening in the nipple member, said holding member having a central axial ink feeding passageway extending from the interior of the barrel portion into the slitted portion of the holding member, said pen point member being split from a point adjacent the lower end of the axial ink feeding passageway to the tip of the pen to provide the sole path for ink to said tip from said central passageway, said nipple having a retaining ring secured at the lower end thereof fitting snugly around the cylindrical portion of said pen member.

3. In a fountain pen in combination with an outer casing comprising a barrel member and a tapered nipple member detachably connected thereto, said tapered nipple member providing an annular chamber in its interior adjacent the lower or writing end of the pen, an inner pen holding member fitting within the nipple member having a split portion at the lower end thereof snugly fitting within the tapered end of the nipple member, said split portion providing a slit, a pen point member frictionally retained within the slit in the holding member and having a pointed tip extending beyond the holding member and through an end opening in the nipple member, said holding member having a central axial ink feeding passageway extending from the interior of the barrel portion into the slitted portion of the holding member, said pen point member being split from a point adjacent the lower end of the axial ink feeding passageway to the tip of the pen to provide the sole path for ink to said tip from said central passageway, said pen holder having a passage therethrough at about the level of the top of the slit in the pen point member communicating with said annular chamber, said nipple having an air passage therethrough establishing communication between said annular chamber and the atmosphere.

4. In a fountain pen in combination with an outer casing comprising a barrel member and a tapered nipple member detachably connected thereto, an inner pen holding member fitting within the nipple member having a split portion at the lower end thereof snugly fitting within the tapered end of the nipple member, said split portion providing a slit, a pen point member frictionally retained within the slit in the holding member and having a pointed tip extending beyond the holding member and through an end opening in the nipple member, said holding member having a central axial ink feeding passageway extending from the interior of the

barrel portion into the slitted portion of the holding member, said pen point member being split from a point adjacent the lower end of the axial ink feeding passageway to the tip of the pen to provide the sole path for ink to said tip from said central passageway, said pen point holding member having external circular grooves intermediate the ends thereof, said grooves being connected at top and bottom with the central ink feeding passageway by means of radial passageways penetrating the wall of said holder, the lower radial passageway being at about the level of the top of the pen point when the same is fitted within said holder, and the pen point holding member being further provided with shallow longitudinal grooves communicating with each of the circular grooves and extending only between the upper and lower radial passageways.

5. In a fountain pen, in combination with a nipple member and a barrel member to which said nipple member is detachably connected, a pen holding and ink feeding member fitting within the interior of said nipple and having a split lower end, a pen point member having a retaining portion frictionally held by the split portion of said holder and also having a pointed portion extending beyond the holder and projecting through an end opening in said nipple, said holder having a central ink feeding passageway extending from the upper end to the pen point member, upper and lower radial passageways penetrating said holder and communicating with said central passage, said holder also having external shallow grooves extending longitudinally and circumferentially of the holder, the longitudinal groove intersecting the circumferential grooves and communicating at their ends with said radial passageways.

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