

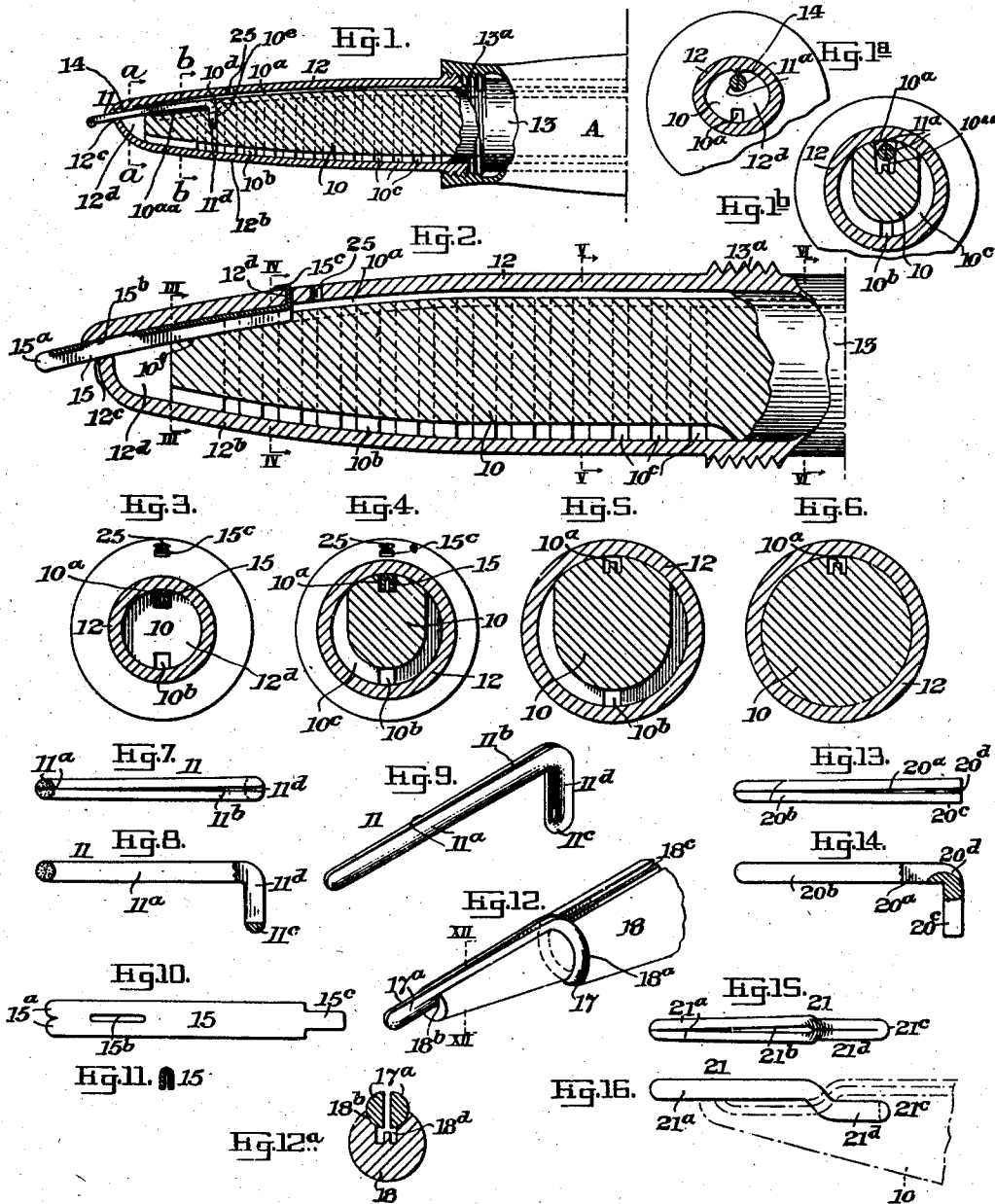
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WRITING IMPLEMENT

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## WRITING IMPLEMENT

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My invention relates to writing implements of the type more familiarly known as fountain pens.

One object of my invention is to reduce the amount of metal employed in the construction of the writing point element.

A further object of my invention is to employ a feed-bar as a part of the pen assembly and to associate with such feed-bar a small metal writing tip member or point mounted or supported with respect to the forward end of the same.

A further object of my invention is to wholly enclose the feed-bar in a sheath which may form a continuation of a tubular element of a character heretofore employed, with a pen point, as a unit insert for fountain pens, so that the complete structure constituting my present improvements may be applied to the barrel of a fountain pen in a manner exactly like the application of said unit inserts.

A further object of my invention is to so mount the writing point with respect to the end of the feed-bar—loosely or permanently secured in place—that when the feed-bar and writing point are associated with the enclosing sheath, the writing point will be firmly held in such manner as to permit its nib portion to freely flex when in the act of writing.

A further object of my invention is to employ a writing point in the form of a bifurcated metal member providing separate nib portions and so associated with the feed-bar and sheath as to properly flex in the act of writing.

A further object of my invention is to provide a form of writing tip or point of metal of channel shape arranged to lie in a groove at the forward end of the feed-bar after assembly with the sheath, and to be permanently attached to the latter in a manner that will align its channel with the capillary passage of the feed-bar.

A further object of my invention is to provide a form of writing tip or point made of a doubled wire, half-round in cross section, and having a looped end fitting over the reduced end of a feed-bar, with the space between the substantially parallel fingers which constitute the nibs and which space may be tapered, in line with the capillary passage of the feed-bar.

A further object of my invention is to provide the sheath enclosing the feed-bar with an air vent communicating with the capillary passage of the feed-bar.

And a still further object of my invention is to employ material of a thermosetting or thermoplastic type for the feed-bar and the enclosing sheath whereby the writing point of metal may

be permanently secured to one of said elements by a heat treatment.

These and other features of my invention are more fully set forth hereinafter; reference being had to the accompanying drawing, more or less diagrammatic in character, in which:

Figure 1 is a side elevation, partly in section, of an improved writing implement within the scope of my invention; such view showing the tubular sheath enclosing the feed-bar with which the writing point is associated and its relation with the barrel of a fountain pen.

Figs. 1<sup>a</sup> and 1<sup>b</sup> are cross sectional views on the lines *a—*a** and *b—*b**, respectively, Fig. 1, on a larger scale.

Fig. 2 is a sectional view on a larger scale of the tubular sheath forming part of my improved writing implement and illustrating another form of writing point which may be employed therewith.

Figs. 3, 4, 5 and 6 are cross sectional views on the lines III—III, IV—IV, V—V and VI—VI, Fig. 2, respectively.

Fig. 7 is a plan view, and Fig. 8 is a side elevation, partly in section, of the form of writing point shown in Fig. 1; both views being on a slightly larger scale.

Fig. 9 is a perspective view of the form of writing point shown in Figs. 7 and 8.

Fig. 10 is a plan view of a blank, and Fig. 11 is a cross-sectional view of a writing point made from the same of the type illustrated in Fig. 2.

Fig. 12 is a perspective view of another form of writing point made of metal wire within the scope of my invention.

Fig. 12<sup>a</sup> is a cross sectional view on the line XII—XII, Fig. 12.

Fig. 13 is a plan view, and Fig. 14 is a side elevation, partly in section, of another form of metal writing point within the scope of my invention.

Fig. 15 is a plan view, and Fig. 16 is a side elevation, of still another form of metal writing point within the scope of my invention.

Referring to the drawing, and more particularly to Fig. 1, my improved writing implement comprises a feed-bar 10; a writing point 11 associated with the forward end of the same, and an enclosing sheath 12; the latter having an opening through which the writing point projects. As illustrated, the structure follows what may be termed a streamlined taper, although it will be understood that the sheath may have parallel walls throughout its extent with a suitably tapered end and that the feed-bar may be similarly

shaped to closely fit within the same and in the same relation as the parts illustrated. The feed-bar of my present construction may be of the same character as that disclosed in my Patent No. 2,292,381, issued August 11, 1942, and is so illustrated. Other forms of feed-bars arranged to receive the writing point in a similar manner are within the scope of my invention.

When these feed-bars are employed as part of unit elements or inserts, such as set forth in my patent referred to, they are received into tubular shells or thimbles which are usually threadedly engaged with the end of a fountain pen barrel. In the present instance I make use of this shell or thimble construction and the sheath 12 which encloses the feed-bar is a continuation of such shell or thimble, which is indicated at 13, and has a threaded portion 13<sup>a</sup> for engagement with the end of the fountain pen barrel A.

The writing point shown in Fig. 1 is in the form of a bifurcated member of metal wire, and may be of the type illustrated in Figs. 7, 8 and 9. This form of my improved writing point comprises a section of half-round metal wire of a character suitable for writing purposes and may be of gold, silver, stainless steel, or any other available metal, semi-precious or otherwise. In addition, it may be tipped with an iridium point in a manner substantially like the tipping of gold and other pen points with iridium or other wear-resisting metal. As shown in Figs. 7, 8 and 9, this half-round wire is bent to form a pair of fingers substantially in parallel relation, indicated at 11<sup>a</sup> and functioning as nibs; such fingers by preference being slightly separated by a space 11<sup>b</sup>, tapering from the point toward the rear end of the same. Such rear end, which includes the loop 11<sup>c</sup> of the doubled wire, is bent substantially at a right angle to the fingers to provide a depending projection 11<sup>d</sup> for a purpose hereinafter described.

The feed-bar which I may employ may be of the type illustrated in my patent before referred to; being longitudinally grooved on its upper side as indicated at 10<sup>a</sup> to provide the usual capillary passage and vent for ink and air, also longitudinally grooved on its underside as indicated at 10<sup>b</sup>, and its body provided with semi-annular grooves 10<sup>c</sup> communicating with the groove 10<sup>b</sup>. The forward end of the feed-bar is deeply grooved at 10<sup>d</sup>, in line with the groove 10<sup>a</sup> forming the capillary passage, and the writing point 11 is received in this groove 10<sup>d</sup>, as clearly illustrated in Fig. 1; the space 11<sup>b</sup> between the finger nibs at the rear end of the same being aligned with the forward portion of the groove 10<sup>a</sup> which has an extension 10<sup>aa</sup> disposed beneath the writing point. A recess or socket 10<sup>e</sup> is formed in the feed-bar at the junction between the capillary passages 10<sup>a</sup> and 10<sup>aa</sup>, and the depending portion 11<sup>d</sup> of the writing point is fitted into the same. Such inserted end may be cemented in place or, as the feed-bar is usually made of some form of thermosetting or thermoplastic body, the writing point may be firmly secured thereto by a heat treatment of the same.

The end of the feed-bar is preferably of tapered form as illustrated in Figs. 1 and 2, and it is snugly enclosed by the sheath 12 comprising the extended portion of the shell or thimble 13 fitting the end of the pen barrel A; such shell being detachably mounted with respect to the pen barrel as the unit inserts before referred to. The sheath extension 12 is tapered to nicely and snugly fit over the tapered end of the feed-bar, as indicated at 12<sup>b</sup>, and it is provided with an open

end 12<sup>c</sup> through which the writing point extends. A small reservoir or chamber is provided at the forward end of the sheath for the collection of ink in addition to the reservoir formed by the semi-annular grooves 10<sup>c</sup> of the feed-bar and the longitudinal communicating groove 10<sup>b</sup> on the under side of the same.

In order that the fingers which constitute the nibs of the writing point shown in Fig. 1 (or writing points of the type shown in Figs. 12-16) may be separated during flexure thereof in the act of writing, the inner and upper wall of the sheath 12 at the open end of the same may be provided with a wedge-shaped projection 14, longitudinally thereof, which overlies said fingers or nibs and is in nominal contact therewith in line with the space between the same, as indicated in Fig. 1<sup>a</sup>. When pressure is applied to the writing point in the operation of writing, the forward end of the same rises slightly with respect to the sheath and upon the fingers contacting with the beveled faces of the wedge-shaped projection 14, they are spread sufficiently to insure the flow of ink to the paper-contacting end of the writing point whereby writing of any character may be effected including shaded strokes desired by many penmen.

The construction of my improved writing implement illustrated in Fig. 2 is similar in most respects to that shown in Fig. 1, except that the form of writing point shown in Fig. 2 may be developed from a blank of the type shown in Fig. 10, comprising a strip 15 of suitable metal having a pair of rounded projections 15<sup>a</sup> in spaced relation at the forward end of the same; a slot 15<sup>b</sup> constituting a pierce hole, and a narrow projection or tab 15<sup>c</sup> at the opposite end. This strip of metal is bent into channel shape, as shown in Fig. 11; preferably with a rounded upper surface, and the rounded projections 15<sup>a</sup> are brought into meeting relation and constitute the paper-engaging portion of such writing point. The metal between the pierce hole and the writing tip may be slit or not, as may be desired. The narrow projection or tab 15<sup>c</sup> at the rear end of the strip is bent upwardly away from the writing point shank and is connected to the sheath 12 in such manner that the writing point member will lie in the longitudinal axis of the same and occupy the groove 10<sup>d</sup> at the forward end of the feed-bar. Such connection may be effected by passing the tab projection 15<sup>c</sup> through an opening 12<sup>d</sup> in the sheath and bending the same over its surface, and the opening for the passage of such projecting tab may be subsequently sealed in any suitable manner to insure proper anchorage and firm mounting. The central space longitudinally of the channel-shaped writing point illustrated in Figs. 2 and 11 is in alignment with the groove 10<sup>a</sup> forming the capillary passage of the feed-bar.

In the form of writing point illustrated in Fig. 12, made of half-round metal wire, the looped end of the same is shown as developed in the form of a ring, indicated at 17, and this ring may be slipped over the reduced end of a feed-bar 18 and rest against a shoulder 18<sup>e</sup> of the same. The writing point may be similar in all other respects to the form of writing point illustrated in Figs. 7, 8 and 9, and it will lie in a groove 18<sup>b</sup> formed at the end of the feed-bar in the same manner as the writing point illustrated in Fig. 1, with the groove 18<sup>c</sup> forming the capillary space of the feed-bar aligned with the space between the fingers 17 of the same which constitute the nibs. As in the form of structure illustrated in Figs. 1 and 1<sup>a</sup>, the capillary groove of the feed-bar will

be extended beneath the nib portion of the writing point, as indicated at 18<sup>d</sup>, Fig. 12<sup>a</sup>.

In Figs. 13 and 14 I have shown another form of writing point which may be formed from a strip of flat metal 20, which is slotted or slit at 20<sup>a</sup> to form separate fingers 20<sup>b</sup>, which function as nibs; such slot or slit being widened toward the rear connected portion 20<sup>c</sup>, which is grooved at 20<sup>d</sup> in line with the slit or slot 20<sup>a</sup>. The rear end of this structure is bent over at a suitable angle to provide a projection for engagement with a feed-bar as, for instance, by inserting the same in a recess therein and securing it to the feed-bar in a suitable manner which may include the application of cement or a heat treatment. The groove in the rear portion of this writing point structure in line with the space between the finger nibs will also align with the groove forming the capillary passage of a feed-bar, when mounted in the same.

In Figs. 15 and 16 I have also shown another form of writing point, indicated at 21, made of half-round metal wire, which is shaped or bent to provide the desired tapered space between the fingers 21<sup>a</sup> which function as nibs; such space being indicated at 21<sup>b</sup>. In this construction, the looped portion 21<sup>c</sup> is bent downwardly and then rearwardly substantially in a plane parallel with the main portion thereof; providing an extension 21<sup>d</sup> for engagement with a feed-bar and in such relation therewith that the capillary space of the latter will be aligned with the tapered space between the fingers. For this purpose the feed-bar may be socketed to receive the end 21<sup>d</sup>.

The several forms of writing points illustrated may receive at their paper-contacting ends pellets of iridium or other wear-resisting metal, welded thereto, and subsequently slit in accordance with well-known practice. Such application is indicated by dotted lines in Fig. 7, which may be considered as illustrative of all forms of writing points shown.

In assembling my improved writing implement, a writing point, which may be any of the types illustrated, is placed in the groove at the forward end of the feed-bar and in such relation that a small portion of the writing point will extend beyond the sheath extension into which the feed-bar with the writing point is entered. Such writing point may be anchored to the feed-bar, in the manner illustrated in Fig. 1, with the upper portion substantially flush with the upper surface of the same and with the space between the fingers of the writing point which constitute the nibs aligned with the capillary passage of the feed-bar for the proper flow of ink to the paper-contacting portion of such writing point. These writing points may be permanently fixed to the feed-bar by cementing the same in place or, since the feed-bar will be usually of some form of thermosetting or thermoplastic material, they may be confined thereto by a heat treatment. On the other hand, the writing point may be relatively loose with respect to the feed-bar, with a rear projecting portion engaging a seat in the feed-bar and being held thereto in the grooved end of the same and in proper position for writing purposes by the sheath 12 forming an extension of the shell or thimble 13 fitting the end of the pen barrel.

In the construction illustrated in Fig. 2, the writing point is anchored to the sheath; such form of writing point lying within the groove at the forward end of the feed-bar and projecting through the opening at the forward end of the sheath.

The shell or thimble 13 with the sheath extension 12 may be made of any suitable form of plastic material; synthetic or otherwise, or it may be made of metal, without departing from my invention.

The feed-bar may be of hard rubber; usually employed for the purpose, or it may be made of any suitable form of plastic material, synthetic or otherwise. While I prefer to employ a feed-bar of the type or character illustrated in my patent before referred to, which will have the semi-annular grooves as illustrated in said patent to form a storage reservoir for ink and a longitudinal groove on the underside of the feed-bar communicating with said semi-annular grooves and leading to the space 12<sup>d</sup> within the sheath at the forward end of the feed-bar directly communicating with the under portion of the writing point, any form of feed-bar which will provide a reservoir for excess ink is within the scope of my invention.

It will be understood of course that when a tapered or streamlined sheath is employed enclosing a similarly shaped feed-bar that the writing point will be slightly curved longitudinally to follow the curve of the feed-bar and sheath.

For the purpose of insuring access of air to the ink reservoir within the pen barrel during a writing operation, the sheath is provided with a suitable aperture or vent, indicated at 25, for the entrance of air as the ink is displaced from said reservoir.

While I have shown and described with some particularity the construction and operation of my improved writing implement, it will be understood that modifications may be made in the same without departing from my invention; all of which is deemed to be within the scope of the appended claims.

I claim:

1. In a writing implement, the combination with the barrel of a fountain pen, of an open-ended tubular member in engagement with the end of the same, a feed-bar snugly fitting within the tubular member and conforming throughout with the contour of the same, and a section of metal carried by the feed-bar and projecting through the end of the tubular member in position to serve as a writing point.

2. In a writing implement, the combination with the barrel of a fountain pen, of a tubular member in engagement with the end of the same; said member having a tapered tubular extension integral therewith projecting beyond the end of the barrel and having an open end, a feed-bar snugly fitting within the tubular member; said feed-bar conforming throughout with the contour of the same and extending substantially to its outer end, and a section of metal carried by the feed-bar and projecting through the end of the tubular extension in position to serve as a writing point.

3. A structure as set forth in claim 1, wherein the writing point element is loosely mounted in the end of the feed-bar and confined between the end of the same and the tubular member.

4. A structure as set forth in claim 1, wherein the tubular member frictionally engages the writing point element and confines the same in place.

5. A structure as set forth in claim 1, wherein the writing point element is in the form of a bifurcated member comprising flexible fingers of half-round wire with their flat faces in juxtaposed relation and functioning as nibs.

6. A structure as set forth in claim 1, wherein the writing point element is in the form of a bifurcated member comprising flexible fingers of half-round wire with their flat faces in juxtaposed relation and functioning as nibs with their rear ends integrally connected.

7. A structure as set forth in claim 1, wherein the tubular member is tapered and the feed-bar is complementally tapered to closely fit within said tubular member.

8. The combination with the barrel of a fountain pen, of a tubular member projecting beyond said barrel and having an open end, a feed-bar fitting within the tubular member and extending substantially to the open end of the same, and a writing point comprising a bifurcated metal element composed of half-round wires with their flat faces in juxtaposed relation; said element having its rear end anchored in the feed-bar and projecting through the end of the tubular member.

9. A structure as set forth in claim 8, wherein the tubular member is provided internally with a projection at its outer end arranged to overlie the bifurcated metal writing point longitudinally thereof and in position to spread the fingers of the same when pressure is applied thereto in the operation of writing.

10. The combination, of a feed-bar of plastic material, a metal writing point element of bifurcated form comprising half-round wires with their flat faces in juxtaposed relation and providing a pair of flexible fingers constituting nibs anchored in the end of said feed-bar, and an open-ended sheath enclosing the feed-bar and

the writing point and confining the latter in position with respect to the feed-bar.

11. A structure as set forth in claim 10, wherein the feed-bar tapers at its outer end and is enclosed in a complementally tapered sheath closely fitting the same.

12. A structure as set forth in claim 10, wherein the writing point is in the form of a metal wire bent to form a pair of flexible fingers constituting nibs, with the bight of such wire bent angularly with respect to said fingers and anchored in the feed-bar.

13. A structure as set forth in claim 10, with a wedge-shaped projection carried by the sheath and overlying the bifurcated writing point element and serving to separate the nibs of the same when pressure is applied in the operation of writing.

14. A writing point element for fountain pen structures comprising a bifurcated member of half round metal wire having a pair of separated fingers functioning as nibs; said nib portions having flat faces in juxtaposed relation and terminating in an integrally connected projecting portion for permanent association with a feed-bar support.

15. A writing point element for fountain pens, comprising a section of metal wire half-round in cross section and bent to form a bifurcated member having a pair of fingers functioning as nibs; said nib portions having flat faces in juxtaposed relation and terminating in a connecting loop or bight bent angularly for permanent association with a feed-bar support.

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