

March 19, 1946.

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2,396,919

FOUNTAIN PEN

Filed Nov. 9, 1944

2 Sheets-Sheet 1

Fig. 1.

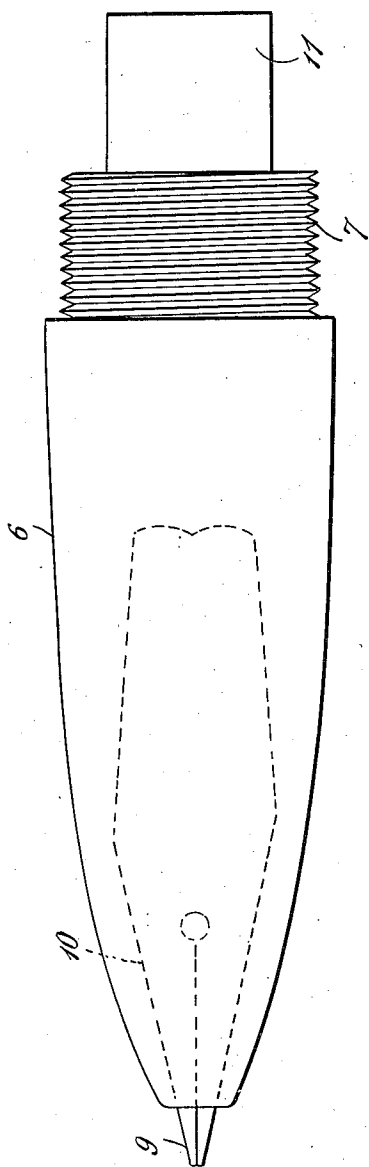
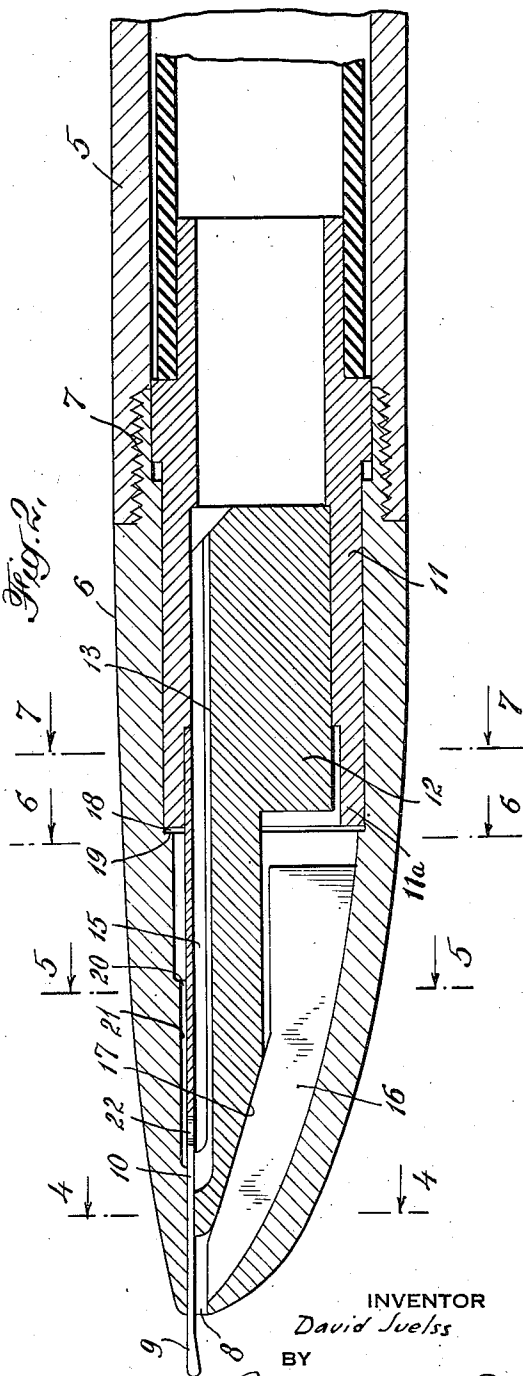


Fig. 2.



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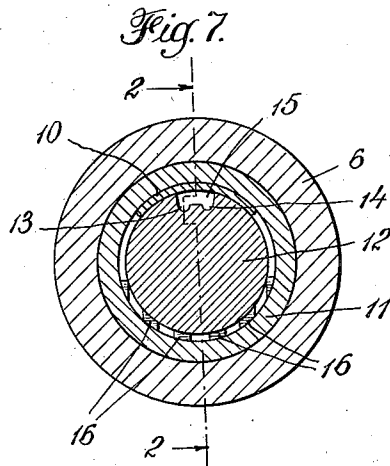
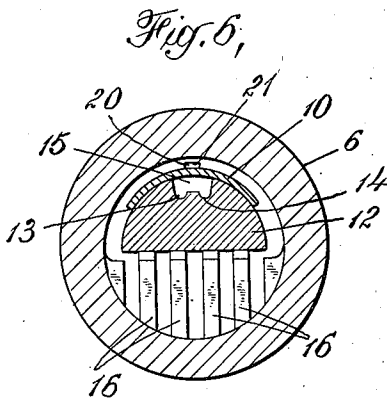
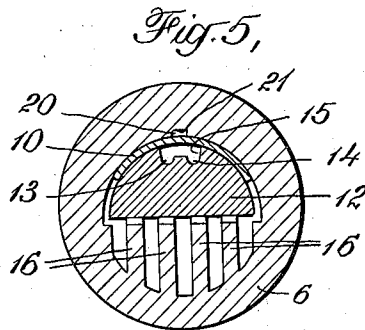
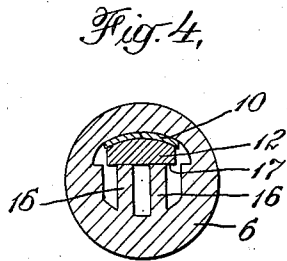
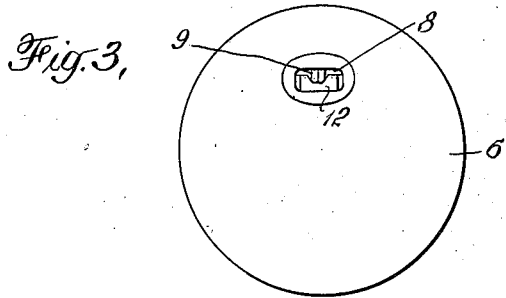
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2 Sheets-Sheet 2



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2,396,919

FOUNTAIN PEN

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Application November 9, 1944, Serial No. 562,601

13 Claims. (Cl. 120—50)

This invention relates to fountain pens and more particularly to the ink feeding mechanism thereof embodying a pen nib, feed bar and an enclosing hood completely surrounding the nib and feed bar except for an opening through which the point of the nib projects. The hood protects the nib and feed bar from accidental damage, affords effective support for the nib adjacent the point, provides a collector for surplus ink which may pass through the ink channel in the feed bar and assures the continuous maintenance of humid conditions in the feed so that the pen is always in condition for writing so long as the ink supply lasts. It also facilitates handling of the pen which may be grasped in close proximity to the writing point without danger of smearing the fingers.

One of the primary disadvantages of fountain pens of the type heretofore in general use has been the difficulty of maintaining close contact between the feed bar and the pen nib. Under pressure exerted in writing, there is a tendency to deflect the nib away from the feed bar. As a result, more ink flows from the reservoir than is required for writing if the space between the nib and feed bar is of capillary dimensions. If such space is greater than of capillary dimensions, the supply of ink will be shut off so that frequent priming is necessary. Attempts have been made to remedy this defect by utilizing pen nibs of heavier section or by resorting to tubular pen nibs. Neither solution is entirely satisfactory.

Another characteristic of fountain pens is the tendency to flood under certain conditions. Some pens of recent design have included a multiplicity of annular cell-like structures with interlocking air and ink passages in an attempt to afford a collector for surplus ink. These are fragile and difficult to manufacture and assemble. Moreover, ink sedimentation often blocks the delicate passages, which become useless for their intended purpose.

It is the object of the present invention to provide a pen feed mechanism of sturdy parts which are easy to manufacture and assemble, the structure being such as to avoid the difficulties hereinbefore mentioned and to afford numerous advantages in use.

Another object of the invention is to provide a fountain pen employing a hood extension substantially covering the writing nib, and containing novel means for trapping and storing excess ink in the gullet or underside portion of the hood.

Another object of the invention is to provide means for insuring contact of the feed bar and

pen nib, by wedging the feed bar between the nib and inner surfaces of the hood extension.

Another object of the invention is to provide a fountain pen containing a hood extension of utmost simplicity, which lends itself to molding technique, and dispenses with the need for fragile and complicated cell structures usually embodied in the feed bars of such fountain pens, for trapping and storing excess ink.

Another object of the invention is to provide a hood extension which will effectively reduce vaporization to a minimum, by providing an almost total enclosure for the feeding means; the orifice at the extreme end of the hood being of capillary proportions where the nib protrudes through it. This small opening acts as an air valve to shut off the flow when excess ink accumulates in the gullet of the hood.

Other objects and advantages of the invention will be apparent as it is better understood by reference to the following specification and accompanying drawings, in which:

Fig. 1 is a top plan view of the feed mechanism;

Fig. 2 is a longitudinal section through the feed

mechanism and a portion of the barrel;

Fig. 3 is a front elevation of the feed mechanism;

Fig. 4 is a section on the line 4—4 of Fig. 2;

Fig. 5 is a section on the line 5—5 of Fig. 2;

Fig. 6 is a section on the line 6—6 of Fig. 2; and

Fig. 7 is a section on the line 7—7 of Fig. 2.

Referring to the drawings, 5 indicates the barrel of a fountain pen to which the hood extension 6 is secured in any suitable manner as for example by threads 7. The hood 6 is preferably tapered or stream-lined to its free end where it is provided with an opening 8 through which the point 9 of the pen nib 10 projects. The size of the opening 8 is such that when assembled with the pen nib 10 a passage of capillary dimensions is exposed to the atmosphere.

A ferrule 11 is inserted in the barrel end of the hood 6, to receive the feed bar 12. The latter firmly holds the rear end of the pen nib 10 in a shouldered portion 11a provided at the forward end of the ferrule 11. The feed bar is preferably of the type heretofore used in fountain pens, being generally cylindrical at one end and semi-cylindrical at the other, the latter end tapering to a blunt point. It is provided with ink and air grooves 13 and 14 merging into a groove 15. The groove 15 extends longitudinally of the feed bar to a point near the tapered end and forms with the pen nib 10 a passage through

which ink descends from the barrel 5 and is replaced with air.

The hood 6 has at its forward end a plurality of fins 16 formed on its inner wall and spaced apart to provide a plurality of passages of capillary width. This affords the gullet of the hood to receive the surplus ink which may flow through the groove 15. The upper edges of the fins 16 are sloped to engage a similarly sloping surface 17 on the feed bar 12. This affords a wedging action when the parts are assembled to firmly hold the feed bar 12 against the underside of the pen nib 10 even when writing pressure is exerted on the point 9. This wedging action avoids the difficulty experienced due to flexing of the pen nib away from the feed bar in ordinary fountain pens.

At the forward end of the ferrule 11 a channel 18 is formed by a shoulder 19 on the hood 6 to permit passage of air to a channel 20 formed by a groove 21 in the hood 6 and the upper surface of the pen nib 10. This channel extends to the breather opening 22 in the pen nib 10 which permits air to enter the groove 15.

In normal operation ink flows through the groove 15 to the point of the nib 10 where it is used in writing. Air enters through the opening 8 and traversing the gullet and the channels 18 and 20 enters the groove 15 through the breather opening 22 and is delivered to the barrel to fill the space left by the ink used.

In the event of conditions which cause flooding, the ink tends to form a drop in the opening 8 and is promptly drawn by capillary action into the passages between the fins 16 where it is held. If the passages between the fins 16 are filled with ink, the flow of air is stopped and no more ink can flow from the barrel. Meanwhile in writing the ink is gradually drawn from the trapped surplus until normal conditions are restored.

One of the special advantages of the invention is that pen nibs of thinner section than those commonly used may be employed because the pen nib is firmly supported adjacent the point by the wedging action against the feed bar. Another advantage is assurance against dropping ink from the pen. The surplus flow is readily accommodated by the collector afforded in the gullet of the hood. The latter surrounds and protects the feed mechanism and keeps it moist for instant use. In a pen constructed as described, it is possible to use ink of the instantaneous drying type, since gushing is inhibited and the ink is substantially protected from the air until delivered by the pen point in writing. Finally the structure is simple, adapted to construction by molding plastic materials and is easily assembled.

It is to be understood that any materials adapted for fountain pen construction may be used. Molded plastics are preferred, but the parts may be formed from other material such as hard rubber or even metal.

Various changes may be made in the details of construction as described without departing from the invention or sacrificing the advantages thereof.

I claim:

1. In a fountain pen feed, a pen nib, a co-operating feed bar, a hood surrounding the pen nib and feed bar, engaging the upper surface of the pen nib adjacent its free end and having an opening through which the pen nib projects and means within the hood adapted to engage and firmly hold the feed bar against the under side of the pen nib adjacent the projecting end thereof.

2. In a fountain pen feed, a pen nib, a co-operating feed bar, a hood surrounding the pen nib and feed bar and having an opening through which the pen nib projects, a part of said hood engaging the upper surface of the pen nib adjacent its forward end, and means within and integral with the hood adapted to engage and firmly hold the feed bar against the under side of the pen nib adjacent the projecting end thereof.

3. In a fountain pen feed, a pen nib, a co-operating feed bar, a hood surrounding the pen nib and feed bar and having an opening through which the pen nib projects, a part of said hood engaging the upper surface of the pen nib adjacent its forward end, and wedging means within the hood adapted to engage and firmly hold the feed bar against the under side of the pen nib adjacent the projecting end thereof.

4. In a fountain pen feed, a pen nib, a co-operating feed bar, a hood surrounding the pen nib and feed bar and having an opening through which the pen nib projects, a part of said hood engaging the upper surface of the pen nib adjacent its forward end, and wedging means within and integral with the hood adapted to engage and firmly hold the feed bar against the under side of the pen nib adjacent the projecting end thereof.

5. In a fountain pen feed, a pen nib, a co-operating feed bar, a hood surrounding the pen nib and feed bar and having an opening through which the pen nib projects, a part of said hood engaging the upper surface of the pen nib adjacent its forward end, and a plurality of fins within the hood rearwardly of the opening providing spaces of capillary width adapted to receive and hold surplus ink.

6. In a fountain pen feed, a pen nib, a co-operating feed bar, a hood surrounding the pen nib and feed bar and having an opening through which the pen nib projects, a part of said hood engaging the upper surface of the pen nib adjacent its forward end, and a plurality of fins within the hood rearwardly of the opening providing spaces of capillary width adapted to receive and hold surplus ink, the fins having edges formed to engage and wedge the feed bar against the under side of the pen nib adjacent the projecting end thereof.

7. In a fountain pen feed, a pen nib, a cooperating feed bar, a hood surrounding the pen nib and feed bar and having an opening through which the pen nib projects, a part of said hood engaging the upper surface of the pen nib adjacent its forward end, and a plurality of fins within and formed integrally with the hood rearwardly of the opening providing spaces of capillary width adapted to receive and hold surplus ink.

8. In a fountain pen feed, a pen nib, a co-operating feed bar, a hood surrounding the pen nib and feed bar and having an opening through which the pen nib projects, a part of said hood engaging the upper surface of the pen nib adjacent its forward end, and a plurality of fins within and formed integrally with the hood rearwardly of the opening providing spaces of capillary width adapted to receive and hold surplus ink, the fins having edges formed to engage and wedge the feed bar against the under side of the pen nib adjacent the projecting end thereof.

9. In a fountain pen feed, a pen nib, a co-operating feed bar, a hood surrounding the pen nib and feed bar and having an opening through which the pen nib projects, a part of said hood engaging the upper surface of the pen nib adjacent its forward end, the opening being of a dimen-

sion such that with the pen nib disposed therein an air passage of capillary dimension is provided to the interior of the hood, and means within the hood adapted to engage and firmly hold the feed bar against the under side of the pen nib adjacent the projecting end thereof.

10. In a fountain pen feed, a pen nib, a co-operating feed bar, a hood surrounding the pen nib and feed bar and having an opening through which the pen nib projects, a part of said hood engaging the upper surface of the pen nib adjacent its forward end, the opening being of a dimension such that with the pen nib disposed therein an air passage of capillary dimension is provided to the interior of the hood, and means within and integral with the hood adapted to engage and firmly hold the feed bar against the under side of the pen nib adjacent the projecting end thereof.

11. In a fountain pen feed, a pen nib, a co-operating feed bar, a hood surrounding the pen nib and feed bar and having an opening through which the pen nib projects, a part of said hood engaging the upper surface of the pen nib adjacent its forward end, the opening being of a dimension such that with the pen nib disposed therein an air passage of capillary dimension is

provided to the interior of the hood, and wedging means within the hood adapted to engage and firmly hold the feed bar against the under side of the pen nib adjacent the projecting end thereof.

12. A unitary pen feed comprising a pen nib, a feed bar and a hood surrounding and affording a support for the pen nib and feed bar, a part of said hood engaging the upper surface of the pen nib adjacent its forward end, the hood having an opening through which the pen nib projects and spaced fins within the hood adjacent the opening to receive and hold surplus ink and engaging the feed bar to hold it firmly in engagement with the pen nib.

13. A unitary pen feed comprising a pen nib, a feed bar and a hood surrounding and affording a support for the pen nib and feed bar, a part of said hood engaging the upper surface of the pen nib adjacent its forward end, the hood having an opening through which the pen nib projects and spaced fins within the hood adjacent the opening to receive and hold surplus ink, the fins having edges engaging the feed bar to hold it firmly in engagement with the pen nib.

DAVID JUELSS.