

Jan. 22, 1946.

D. JUESS

2,393,251

FOUNTAIN PEN

Filed Dec. 27, 1944

2 Sheets-Sheet 1

Fig. 1,

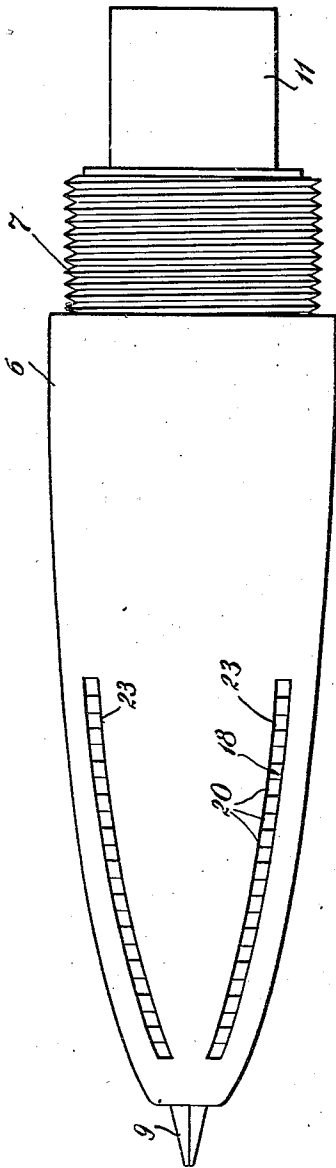
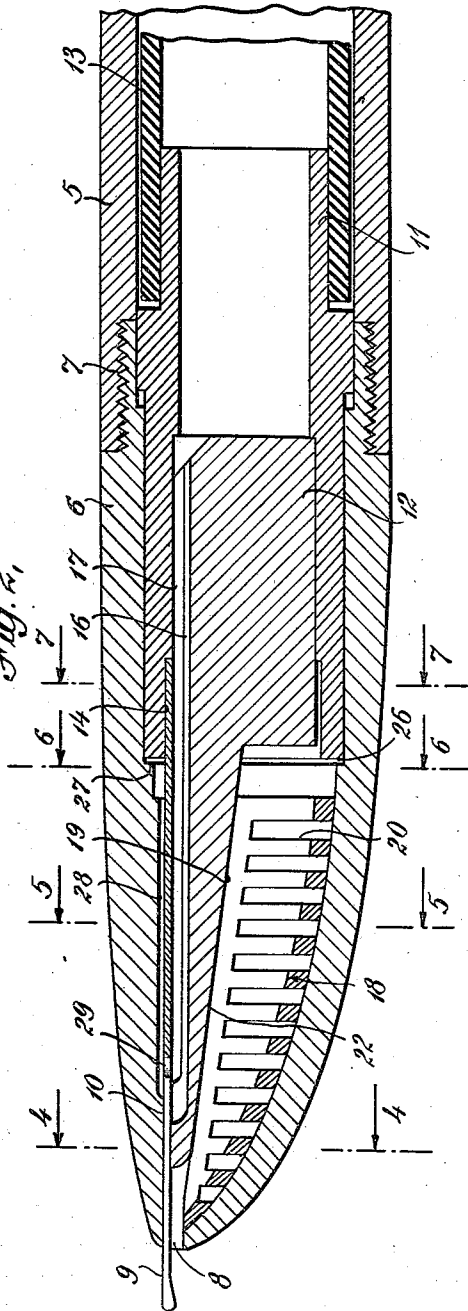


Fig. 2,



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Fig. 3,

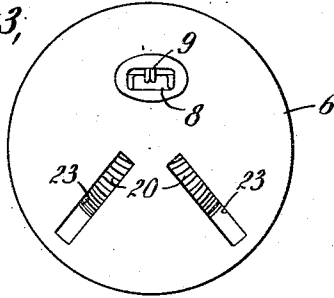


Fig. 4,

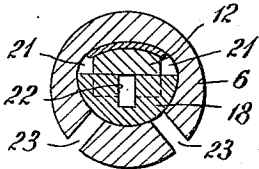


Fig. 5,

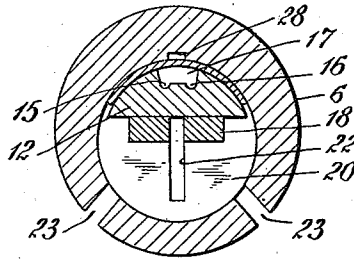


Fig. 8,

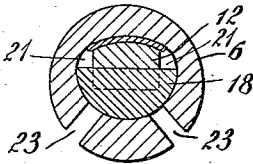


Fig. 6,

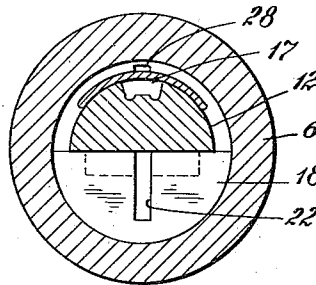


Fig. 9,

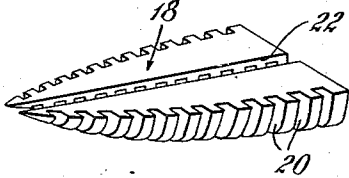


Fig. 7,

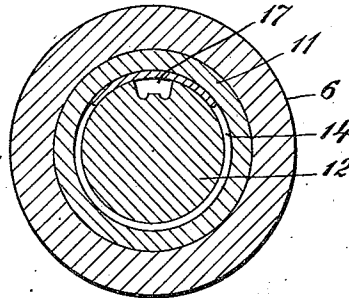


Fig. 10,

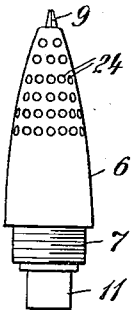
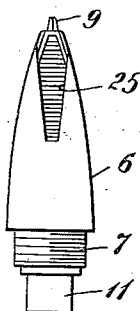


Fig. 11,



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UNITED STATES PATENT OFFICE

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FOUNTAIN PEN

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Application December 27, 1944, Serial No. 569,959

14 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 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 incidental 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 greater, 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 within the under portion of the hood.

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

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

Another object of the invention is to provide a fountain pen including a hood extension of utmost simplicity which lends itself to molding technique and dispenses with the need for fragile and complicated cell structures for trapping and storing excess ink.

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 plan view of the under side of a pen embodying the invention;

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;

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

Fig. 8 is a section similar to Fig. 4, illustrating a modification of the structure;

Fig. 9 is a view in perspective illustrating the ink collecting device within the hood; and

Figs. 10 and 11 are small scale views similar to Fig. 1 illustrating modifications of the hood.

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 streamlined 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. A sac 13 for the ink supply may be supported on the end of the ferrule 11 within the barrel 5. The feed bar 12 firmly holds the rear end of the pen nib 10 in a recess 14 provided in 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 15 and 16 merging in a groove 17. The groove 17 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 sac 13 and is replaced with air.

Within the hood 6 an ink collector 18 (Fig. 9) is

disposed with its upper surface engaging the lower surface 19 of the feed bar 12 with a wedging action which forces the feed bar into close engagement with the pen nib 10, particularly near the point 9. The nib is thus firmly held even when writing pressure is exerted on the point 9, and the difficulty experienced due to flexing of the pen nib away from the feed bar in ordinary fountain pens is avoided.

As indicated in the drawing and particularly in Fig. 9, the collector 18 is provided with a plurality of transverse slots 20 in the under side thereof, the slots extending around the sides to the upper face which bears against the feed bar 12. The feed bar 12 is narrower than the space within the hood 6, affording channels 21 at the sides through which ink may flow into the transverse slots 20. The slots 20 and the channels 21 are of capillary dimensions. In the normal operation, ink flows through the groove 17 to the point of the nib 10 where it is used in writing, the ink being replaced by air entering as hereinafter described. In the event of conditions causing flooding, the ink tends to form a drop in the opening 8 and is promptly drawn by capillary action into the channels 21 and slots 20 where it is held. Thereafter this surplus ink gradually flows to the point 9 and is utilized.

To facilitate this movement of the ink to and from the transverse slots 20, it is desirable to provide a longitudinal slot 22 extending through the collector 18 and communicating with the transverse slots 20. However, as indicated in Fig. 8, the slot 22 may be omitted, since the ink will flow through the channels 21 to the slots 20 whenever a surplus is discharged through the feed.

As indicated in Fig. 1, a plurality of openings 23 are provided preferably on the under side of the hood 6, communicating with the transverse slots 20 in the collector 18. Instead of the openings as shown in Fig. 1, a plurality of holes 24 may be provided as indicated in Fig. 10 or the lower portion of the hood may be partially cut away as indicated at 25 in Fig. 11. In either case, the openings permit air to enter the transverse slots 20.

At the forward end of the ferrule 12, a channel 26 is formed by a shoulder 27 of the hood 6 to permit passage of air to a channel 28 formed by a groove in the hood 6 and the upper surface of the pen nib 10. This channel extends to a breather opening 29 in the pen nib 10 which permits air to enter the groove 17 and thus pass to the sac 13.

Among the special advantages of the invention is the assurance that surplus ink flowing to the point 9 in the event of flooding will immediately collect in the transverse slots 20, ample capacity being provided to take up the ink and hold it until it can be utilized. Moreover, the invention permits the use of pen nibs of thinner section than those commonly used because the pen nib is firmly supported adjacent the point by the wedging action of the collector. 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 excessive evaporation. 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, 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, and a separable wedging member within the hood and adapted to engage and to firmly hold the feed bar against the under side of the pen nib adjacent the projecting end thereof.

2. In a fountain pen, 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, and a separable wedging member within the hood having recesses to receive and hold surplus ink and adapted to engage and to firmly hold the feed bar against the under side of the pen nib adjacent the projecting end thereof.

3. In a fountain pen, 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, and a separable wedging member within the hood having a plurality of transverse slots and adapted to engage and to firmly hold the feed bar against the under side of the pen nib adjacent the projecting end thereof.

4. In a fountain pen, 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, and a separable wedging member within the hood having a plurality of transverse slots and a longitudinal slot and adapted to engage and to firmly hold the feed bar against the under side of the pen nib adjacent the projecting end thereof.

5. In a fountain pen, 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 and openings spaced rearwardly on the under side thereof, and a separable wedging member within the hood and adapted to engage and to firmly hold the feed bar against the under side of the pen nib adjacent the projecting end thereof.

6. In a fountain pen, 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 and openings spaced rearwardly on the under side thereof, and a separable wedging member within the hood having recesses to receive and hold surplus ink and adapted to engage and to firmly hold the feed bar against the under side of the pen nib adjacent the projecting end thereof.

7. In a fountain pen, 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 and openings spaced rearwardly on the under side thereof, and a separable wedging member within the hood having a plurality of transverse slots and adapted to engage and to firmly hold the feed bar against the under side of the pen nib adjacent the projecting end thereof.

8. In a fountain pen, 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 and openings spaced rearwardly on the under side thereof, and a separable wedging member within the hood having a plurality of transverse slots and a longitudinal

slot and adapted to engage and to firmly hold the feed bar against the under side of the pen nib adjacent the projecting end thereof.

9. In a fountain pen, a pen nib, a co-operating feed bar, a hood surrounding the pen nib and feed bar having an opening through which the pen nib projects and a separable member within the hood having a flattened upper surface adapted to engage the under side of the feed bar and recesses to receive and hold surplus ink.

10. In a fountain pen, a pen nib, a co-operating feed bar, a hood surrounding the pen nib and feed bar having an opening through which the pen nib projects, and a separable member within the hood having a flattened upper surface adapted to engage the under side of the feed bar and a plurality of transverse slots to receive and hold surplus ink.

11. In a fountain pen, a pen nib, a co-operating feed bar, a hood surrounding the pen nib and feed bar having an opening through which the pen nib projects, and a separable member within the hood having a flattened upper surface adapted to engage the under side of the feed bar and a plurality of transverse slots and a longitudinal slot to receive and hold surplus ink.

12. In a fountain pen, a pen nib, a co-operating

feed bar, a hood surrounding the pen nib and feed bar having an opening through which the pen nib projects and openings spaced rearwardly on the under side thereof, and a separable member within the hood having a flattened upper face adapted to engage the under side of the feed bar and recesses to receive and hold surplus ink.

13. In a fountain pen, a pen nib, a co-operating feed bar, a hood surrounding the pen nib and feed bar having an opening through which the pen nib projects and openings spaced rearwardly on the under side thereof, and a separable member within the hood having a flattened upper surface adapted to engage the under side of the feed bar and a plurality of transverse slots to receive and hold surplus ink.

14. In a fountain pen, a pen nib, a co-operating feed bar, a hood surrounding the pen nib and feed bar having an opening through which the pen nib projects and openings spaced rearwardly on the under side thereof, and a separable member within the hood having a flattened upper surface adapted to engage the under side of the feed bar and a plurality of transverse slots and a longitudinal slot to receive and hold surplus ink.

DAVID JUELSS.