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PROVISIONAL SPECIFICATION

Improvements in or relating to Fountain Pens

We, MENTMORE MANUFACTURING CO. LIMITED, a Company registered under the laws of Great Britain, of Tudor Grove, Well Street, Hackney, London, E.9, and

5 WILLIAM FREDERICK JOHNSON, a Subject of the King of Great Britain, of 42, Bowness Road, Barnhurst, in the County of Kent, do hereby declare the nature of this invention to be as follows:—

10 This invention relates to fountain or reservoir pens and particularly to the feed mechanism for such pens.

In a fountain pen having an ordinary pen nib the feed means for the ink to the pen nib comprises a feed bar consisting of a rod-like member which at its rear end is of circular section and which is frictionally held in a circular longitudinal hole in the nib section of the pen. This hole at its forward end is of slightly larger diameter than at the rear end so as to accommodate the pen nib between its inner face and the upper face of the feed bar. The feed bar has a main slot extending from its rear end to a point close to its front end and in the base of this slot there are formed two or three narrow capillary grooves, two of which are cut on either side of the base, which also extend for the same distance as the main slot. In using the fountain pen with such a feed bar, at the commencement of writing the capillary grooves first fill with ink and then the main slot is filled. The ink is thus delivered to the underside of the pen nib and as it flows from the nib more ink passes down the grooves and slot. As the ink flows away bubbles of air enter the main slot through the hole in the pen nib and travel to the reservoir. The ink held in the grooves and slot in the feed bar is greatly in excess of what is required for writing with the result that a heavy flow takes place and blobs of ink may drop from the pen nib. Still further, leaky conditions are produced in the pen.

To overcome the difficulties of a too free flow of ink it is usual to provide transverse slots in the forward part of

the feed bar to collect excess of ink flowing from the main slot and capillary grooves. While more-or-less satisfactory conditions have been established for certain inks there is now a tendency to use inks which flow more freely with the result that the difficulties of flooding and leaking are increased. 50 55

It is an object of the present invention to provide a feed means for a fountain pen by which more satisfactory control of the ink flow to the pen nib can be effected even when the more freely flowing inks are employed. 60

According to the present invention a feed bar for a fountain pen has a main longitudinal slot extending from its rear end to a point just short of its front end, two or more narrow capillary grooves at the bottom of said slot, of which two are positioned one on each side of the slot and a bridge extending across the main slot but spaced from the sides thereof so as to form narrow ink passages between it and the wall of the main slot. 65 70

The bridge may be constituted by a pin fixed in a hole drilled through the feed bar or it may be formed by cutting the main slot in two parts. 75

According to a still further feature two or more bridges may be provided. 80

According to a still further feature of the invention the bridge is constituted by a projection from the inner face of the nib section of the pen. This projection may be a pin passed through a hole in the section or the nib section may be produced with a projection on its inner face. 85

Forms of feed bar according to the invention will now be described by way of example. 90

In a first form the feed bar is formed in the usual way from a length of circular rod of ebonite. It is tapered at the front end in the usual way and a main slot approximately .06 inches wide and .03 inches deep is milled from the rear end where the feed bar will enter the ink reservoir to a point just short of the front 95

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Price 4s 6d

end. Two narrow capillary grooves are milled further into the bar at the bottom of the main slot. About half-way along the length a hole is drilled through the feed bar at the centre of the main slot. Into this is inserted a pin of ebonite which is of such a size that its periphery is spaced from the walls of the main slot by distances about equal to the width of the capillary grooves.

In use it is found that when commencing to write the capillary grooves first fill with ink from one end to the other of the feed bar. The main slot then fills behind the bridge, the portion of the slot in front of the bridge remaining empty. Ink is fed to the nib and as it passes away the supply is maintained through the capillary grooves. Air passes backwards from the nib along the front part of the main slot past the sides of the bridge and thence along the rear part of the main slot to the reservoir. The flow of ink is satisfactorily controlled and flooding and leaking prevented.

In a second form of the invention the main slot is milled in two parts so as to leave a bridge extending between them. The capillary grooves are then milled in the bottom of the two part main slot and also past the bridge.

It will be understood that the present invention also comprises a fountain or reservoir pen having a feed bar as described above.

While the usual transverse slots may be provided at the front end of the feed bar it is nevertheless believed that by the present invention such transverse slots will be unnecessary and that whether a free flowing or other ink is employed in the pen satisfactory control of the flow will be obtained.

Dated this 11th day of June, 1946.

For the Applicants,
RAWORTH, MOSS & COOK,
 75, Victoria Street, London, S.W.1,
 Chartered Patent Agents.

COMPLETE SPECIFICATION

Improvements in or relating to Fountain Pens

We, **MENTMORE MANUFACTURING Co. LIMITED**, a Company registered under the laws of Great Britain, of Tudor Grove, Well Street, Hackney, London, E.9, and **WILLIAM FREDERICK JOHNSON**, a Subject of the King of Great Britain, of 42, Bowness Road, Barnehurst, in the County of Kent, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to fountain or reservoir pens and particularly to the ink feeding arrangements for such pens.

In a fountain pen having an ordinary pen nib the feed means for the ink to the pen nib comprises a feed bar consisting of a rod-like member which at its rear end is of circular section and which is frictionally held in a circular longitudinal hole in the nib section of the pen. This hole at its forward end is of slightly larger diameter than at the rear end so as to accommodate the pen nib between its inner face and the upper face of the feed bar. The feed bar has a main slot extending from its rear end to a point close to its front end and in the base of this slot there are formed two or three narrow capillary grooves, two of which are cut on either side of the base, which also extend for the same distance as the main slot. In using the fountain pen with

such a feed bar, at the commencement of writing the capillary grooves first fill with ink and then the main slot is filled. The ink is thus delivered to the underside of the pen nib and as it flows from the nib more ink passes down the grooves and slot. As the ink flows away bubbles of air enter the main slot through the hole in the pen nib and travel to the reservoir. The ink held in the grooves and slot in the feed bar is greatly in excess of what is required for writing with the result that a heavy flow takes place and blobs of ink may drop from the pen nib. Still further, leaky conditions are produced in the pen.

To overcome the difficulties of a too free flow of ink it is usual to provide transverse slots in the forward part of the feed bar to collect excess of ink flowing from the main slot and capillary grooves. While more-or-less satisfactory conditions have been established for certain inks there is now a tendency to use inks which flow more freely with the result that the difficulties of flooding and leaking are increased.

It is an object of the present invention to provide a feeding arrangement for a fountain pen by which more satisfactory control of the ink flow to the pen nib can be effected even when the more freely flowing inks are employed.

According to the present invention a feed bar for a fountain pen, has a main

longitudinal slot extending from the rear end thereof to a point just short of the front end thereof, at least two narrow capillary grooves at the bottom of said slot, of which two are positioned, one on each side of the slot, and a bridge extending transversely of the slot, dividing said slot into two parts, but spaced from the sides of the slot so as to form narrow ink passages between it and the walls of the slot. Conveniently, the bridge is constituted by a pin fixed in the longitudinal slot in the feed bar. Alternatively, the bridge may be formed by cutting the main slot in two aligned parts, separated by the bridge, and wherein the capillary grooves are formed past the sides of the bridge. A plurality of bridges may be provided.

The invention further envisages the combination with a feed bar having a longitudinal main slot extending from the rear end thereof to a point just short of the front end thereof, and at least two narrow capillary grooves at the bottom of said slot, of which two are positioned, one on each side of the slot, of a nib section having a projection from the inner face thereof extending into the main slot to constitute a bridge with narrow ink passages between said bridge and the walls of the main slot. The projection in the nib section may be a pin fixed in a hole in said nib section.

Forms of feed bar according to the invention will now be described by way of example and with reference to the accompanying drawings in which:—

Figure 1 is a perspective view, partly sectioned of a feed bar having a pin bridge.

Figure 2 is a plan view of the feed bar shown in Figure 1.

Figure 3 is an enlarged cross section on the line 3—3 of Figure 2.

Figure 4 is a longitudinal section along a line similar to line IV—IV of Fig. 3 but of a feed bar having the main slot milled in two parts.

Figure 5 is a longitudinal section similar to Figure 4 but having two bridges formed by milling the main slot in three parts.

Figure 6 is a section of a nib section with projecting pin assembled with a feed bar and nib.

Figure 7 is a section of a fountain pen with a feed bar as shown in Figure 1.

Referring now to Figures 1, 2, 3 and 7 the feed bar 1 is formed in the usual way from a length of circular rod of ebonite. It is tapered at the front end 2 in the usual way and a main slot 3 approximately 0.06 inches wide and 0.03 inches deep is milled from the rear end wall 4 where the feed bar 1 will enter the ink

reservoir 5, see Figure 7, to a point 21 just short of the front end 2. Three narrow capillary grooves 6 are milled further into the bar 1 at the bottom of the main slot 3. About half way along the length of the feed bar, a hole is drilled therethrough at the centre of the main slot. Into this is inserted a pin 7 of ebonite which is of such a size that its periphery is spaced from the walls 8 of the main slot 3 by distance about equal to the width of the capillary grooves 6.

The feed bar together with a nib 9 is assembled in a nib section 10 which is threaded into the front end of the fountain barrel 11 in usual manner, as shown in Fig. 7.

In use, it is found that when commencing to write, the capillary grooves 6 first fill with ink from one end to the other of the feed bar. The main slot then fills behind the bridge 7, the portion of the slot in the front of the bridge remaining empty. Ink is fed to the nib 9 and as it passes away, the supply is maintained through the capillary grooves. Air passes backwards from the nib along the front part of the main slot, past the sides of the bridge and thence along the rear part of the main slot to the reservoir 3. The flow of ink is satisfactorily controlled and flooding and leaking is prevented.

In Figure 4, the main slot is milled in two parts 3a, 3b leaving a bridge 12 extending between them. Capillary grooves 13 are milled in the bottom of the two-part main slot and also through the bridge 12.

In the form of the invention shown in Figure 5, the main slot is milled in three parts leaving two bridges 12a and 12b. Capillary grooves are milled in the bottom of the three part main slot and also through the bridges.

The action and assembly of the feed bars shown in Figures 4 and 5 is similar to that shown in Figures 1 and 2 as will be understood.

Figure 6 shows an alternative arrangement in which a feed bar of usual form, having a main slot 14, and capillary grooves 15 is assembled with a nib 16 in a nib section 17. The nib section has a radial hole formed in it, and in this hole is inserted a pin 18 of ebonite which projects into the main slot 14, to contact the bottom thereof and which is of such size that it is spaced from the walls of the main slot by an amount about equal to the width of the capillary grooves.

The action of the nib assembly shown in Figure 6 will be understood to be similar to that of the nib assembly shown in Figure 7 and described above.

Transverse slots 19 may sometimes be

provided in the front end of the feed bar, though usually they may be omitted.

In all the constructions described it is to be understood that the bridge extends
5 fully between the base of the main slot of the feed bar and the inner surface of the nib section.

Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to
10 be performed, we declare that what we claim is:—

1. A feed bar for a fountain pen, having a main longitudinal slot extending
15 from the rear end thereof to a point just short of the front end thereof, at least two narrow capillary grooves at the bottom of said slot, of which two are positioned, one on each side of the slot, and a bridge
20 extending transversely of the slot, dividing said slot into two parts, but spaced from the sides of the slot so as to form narrow ink passages between it and the walls of the slot.

2. A feed bar according to claim 1 wherein the bridge is constituted by a pin
25 fixed in the longitudinal slot in the feed bar.

3. A feed bar according to claim 1 wherein the bridge is formed by cutting
30 the main slot in two aligned parts, separated by the bridge, and wherein the capillary grooves are formed past the sides of the bridge.

35 4. A feed bar according to claim 1, 2

or 3 in which a plurality of bridges is provided.

5. In or for a fountain pen the combination with a feed bar having a longitudinal main slot extending from the rear
40 end thereof to a point just short of the front end thereof and at least two narrow capillary grooves at the bottom of said slot, of which two are positioned, one on each side of the slot, of a nib section having
45 a projection from the inner face thereof extending into the main slot to constitute a bridge with narrow ink passages between said bridge and the walls of the
50 main slot.

6. The subject matter of claim 5 wherein the projection in the nib section is a pin fixed in a hole in said nib section.

7. A feed bar substantially as described herein with reference to Figure 1, 2 and
55 3 or 4 or 5 of the accompanying drawings.

8. The combination of a feed bar and nib section substantially as described herein with reference to Figure 6 of the
60 accompanying drawings.

9. A fountain pen having a feed bar according to claim 1, 2, 3, 4 or 7.

10. A fountain pen having the combination of feed bar and nib section
65 according to claim 5, 6 or 8.

Dated this 10th day of June, 1947.

For the Applicants,

RAWORTH, MOSS & COOK,
75, Victoria Street, London, S.W.1,
Chartered Patent Agents.

[This Drawing is a reproduction of the Original on a reduced scale.]

FIG. 7

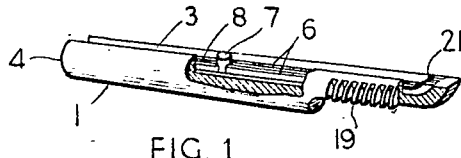
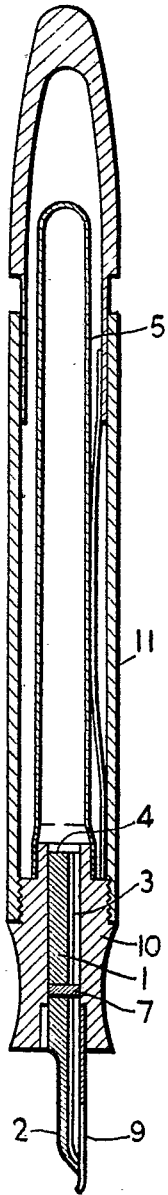


FIG. 1

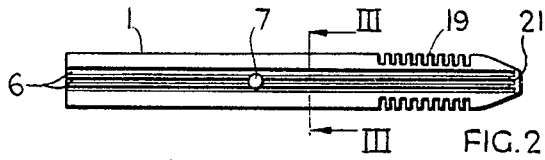


FIG. 2

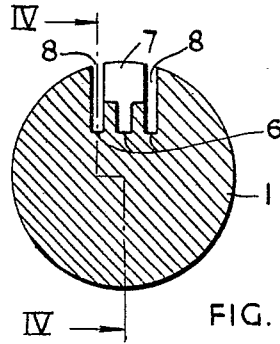


FIG. 3

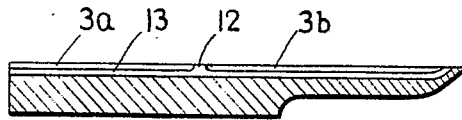


FIG. 4

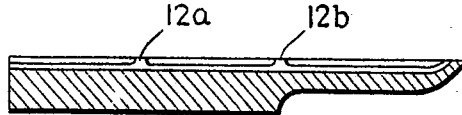


FIG. 5

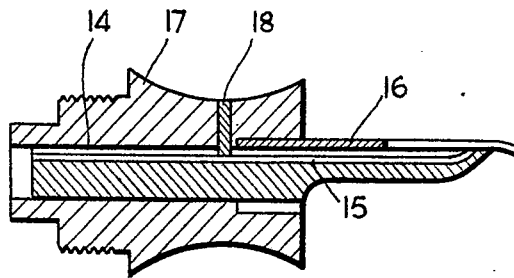


FIG. 6