

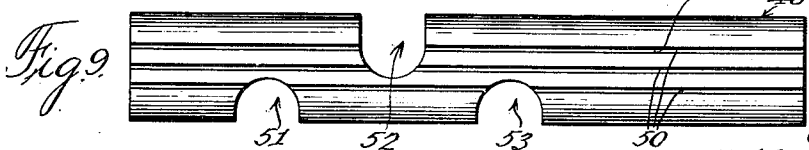
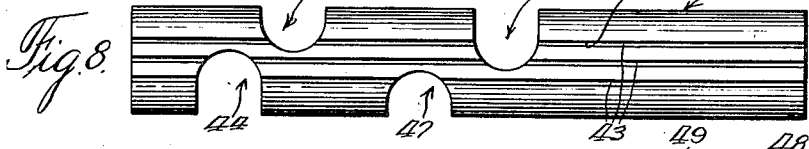
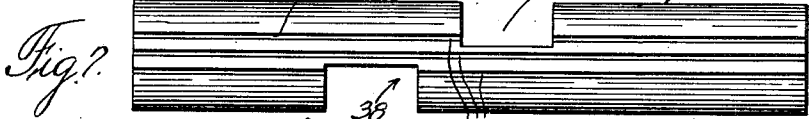
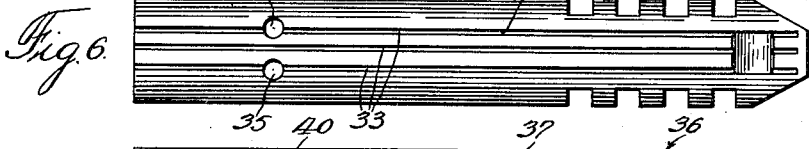
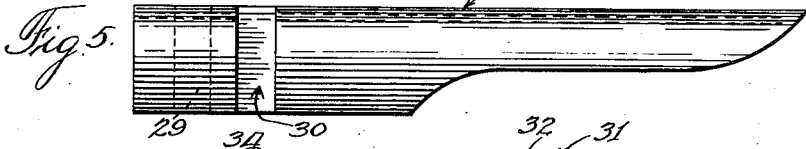
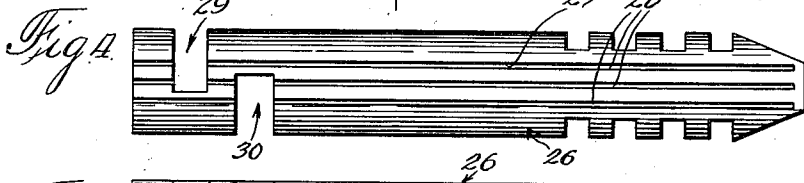
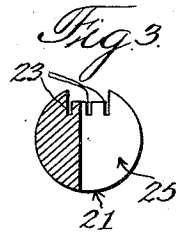
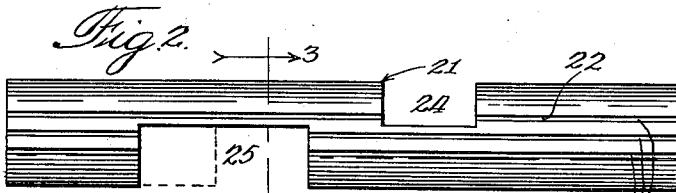
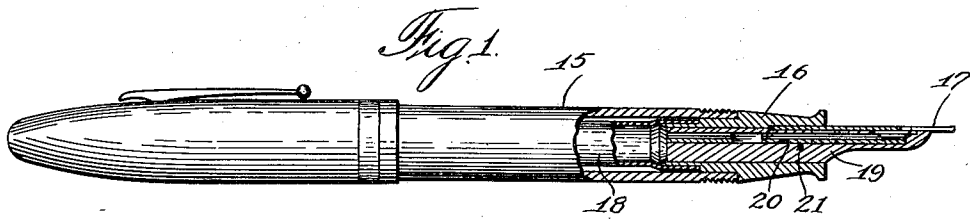
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FOUNTAIN PEN

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2,107,150

FOUNTAIN PEN

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8 Claims. (Cl. 120—50)

This invention relates to a fountain pen and has special reference to the feed bar of a fountain pen located between the reservoir or barrel and the pen nib thereof to insure the proper flow of writing fluid and at the same time to prevent the writing fluid from flooding or feeding so freely as to cause blots, smears, and the like, on the writing surface.

More particularly this invention relates to a feed bar for conducting writing fluid to the pen nib of a fountain pen comprising an elongated body having a plurality of longitudinally extending fissures over a portion of the peripheral surface thereof, the body having a plurality of reservoirs of a greater depth than the fissures, each of which reservoir intersects certain only of the fissures.

While in fountain pens heretofore in use, the feed bars have been so constructed and arranged as to permit a desired flow during normal periods of use in writing, there are occasions when a slight expansion of air or a jar, or some such occurrence, will cause an abnormal flow in a device which is otherwise perfect in operation.

Difficulty has always been experienced particularly in the sackless type of fountain pen when the reservoir is partly empty since the heat of the hand in writing, or of the body in carrying, expands the air. The present invention contemplates the provision of a substantial quantity of ink adjacent the pen nib available for immediate flow to the writing surface, the flow thereof to the nib being regulated by the presence of an air bubble constantly in one of the reservoirs and the writing fluid being used from the other reservoir which is filled with a fluid from the first mentioned reservoir containing the air bubble.

The present invention teaches that by holding a bubble of air in one of the reservoirs and having that reservoir intersect certain only of the fissures, and the other reservoir into which the first reservoir empties intersect a different set of fissures, the flow of writing fluid is prevented from flooding, although a constant flow is permitted and a substantial supply is always available for immediate use.

One of the objects of this invention is to provide a fountain pen having a feed bar of the type indicated above in which, under all conditions of use, the flow of ink is regulated and a supply of ink is always immediately available to the pen nib in writing.

Other objects and advantages will hereinafter be more particularly pointed out, and for a more complete understanding of the characteristic fea-

tures of this invention, reference may now be had to the following description when taken together with the accompanying drawing, in which latter:

Figure 1 is a side view partially in section of a fountain pen construction embodying one form of this invention;

Fig. 2 is a plan elevational view of the feed bar employed in Fig. 1;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2;

Fig. 4 is a plan elevational view of a modified form of feed bar embodying this invention;

Fig. 5 is a side elevational view of Fig. 4;

Fig. 6 is a plan view of a further modified form of feed bar embodying this invention;

Fig. 7 is a view similar to Fig. 6 showing another form of feed bar embodying this invention;

Fig. 8 is a view similar to Fig. 6 of still another form of feed bar embodying this invention; and

Fig. 9 is likewise a view similar to Fig. 6 showing still another form of feed bar embodying this invention.

Referring now to the drawing and more particularly to Figs. 1 to 3, inclusive thereof, the device of this invention is illustrated as comprising a barrel 15 having an open end for receiving a feed section 16, the latter supporting at one end thereof a pen nib 17 and at the other end thereof an ink sack 18. The barrel 15 and feed section 16 are preferably formed of a composition material, rubber or the like, as is usual in present day fountain pen construction.

The feed section 16 is provided with a bore for receiving in a forced fit relation therein a feed bar housing 19. The feed bar housing is preferably formed of rubber and has a cylindrical portion at the rear end thereof for sealed engagement within the bore of the feed section, a portion of the feed bar housing extending forwardly beyond the end of the feed section in the usual manner and being of substantially semi-circular cross section. In the present embodiment, the feed bar housing 19 is provided with a bore extending over a major portion of the length thereof, the bore 20 being of substantially uniform diameter throughout and having an open rear end and a closed forward end. A feed bar 21 is provided in the bore and has snug engagement therewith, the bore preferably being of a cross section to correspond with the cross section of the feed bar.

The feed bar 21 is provided with a longitudinally extending channel 22 over a portion of

the peripheral surface thereof, the channel having fissures 23 therein extending in the same direction and below the level thereof. Further, the feed bar is provided with a pair of cut-away portions 24 and 25 which form reservoirs when the feed bar is assembled within the feed bar housing 19. These cut-away portions are preferably segments of substantially semi-circular cross section, and in the instance of the reservoir 25, the cut-away portion extends to intersect two of the fissures 23, the reservoir 24 intersecting but one fissure. Since the segments cut from the feed bar are of semi-circular form, the reservoirs are, of course, of greater depth than the fissures, and as will hereinafter be recited in the specification and claims, the reservoirs are of greater depth than the fissures and each reservoir intersects certain only of the fissures.

It will be noted that the reservoir 25 is of greater size or capacity than the reservoir 24, two different sizes of reservoirs being used in the same feed bar, and the one toward the forward end of the feed bar being smaller than the other at the rear end thereof. The large reservoir at the rear end of the feed bar intersects two fissures and the other reservoir intersects one fissure. In use, the writing fluid is, of course, used from the lower reservoir 24, the lower reservoir being filled with a fluid from the upper reservoir. The upper reservoir, in turn, is filled from the fluid contained in the barrel of the fountain pen. However, a constant air bubble is held in the upper reservoir and this air bubble assists in controlling or regulating a desired flow of writing fluid to the writing surface through the pen nib.

Referring now more particularly to Figs. 4 and 5, the feed bar illustrated therein serves in the same capacity as the combined feed bar and feed bar housing of the previously described form. In this instance, the feed bar 26 is of the same external shape as the feed bar housing 19, the rear end thereof being of circular cross section for fitting in the bore of the feed section and the forward end extending beyond the end of the feed section and being of substantially semi-circular cross section.

The upper peripheral surface of the feed bar 26 is provided with a longitudinally extending channel 27 having a plurality of fissures 28 extending in the same direction and below the level thereof. The fissures and channel extend over a major portion of the length of the feed bar from one end to a point near the other end thereof. The rear cylindrical portion of the feed bar 26 is provided with cut-away portions 29 and 30, the cut-away portions being of substantially semi-circular cross section. These cut-away portions form wells or reservoirs when assembled in the feed section, the location of the reservoirs being substantially rearwardly of the feed bar and thereby located differently than that of the previously described embodiment.

While the previously described embodiment shows wells of different capacities, the present embodiment shows wells or reservoirs of substantially the same capacity which has been found to be desired in some instances of use. Were the reservoirs 24 and 25, of the previously described embodiment, to be of the same size, such size would be indicated by the dotted lines shown in Fig. 2. Also, while the embodiment previously described shows the larger well 25 as intersecting two fissures and the smaller reservoir 24 intersecting but one fissure, in the present embodiment both reservoirs 29 and 30 cut

two fissures. This, of course, has a decided bearing also on the size of the reservoirs so arranged.

Referring now to Fig. 6 of the drawing, the construction therein illustrated shows a feed bar 31 of the same type as that of Figs. 4 and 5 wherein the channel 32, extending over a portion of the peripheral surface longitudinally of the feed bar, is provided with fissures 33, the outer fissures of which are intersected by reservoirs 34 and 35. In this embodiment, one fissure is independent of intersection by a reservoir, while the other two fissures are intersected, the wells being of substantially greater depth than the depth of the fissures.

In Fig. 7 the feed bar 36 thereof is similar to the feed bar shown in Fig. 2 and is for use in a feed bar housing similar to the housing 19. The reservoirs 37 and 38 are of substantially the same size and capacity and are cut in the same manner as those previously described in Fig. 2 to intersect the outer fissures 39 broached in the base of the channel 40 extending longitudinally over a portion of the peripheral surface of the feed bar. In this instance, as in Fig. 6, one of the fissures is free from intersection of the reservoir, while the outer fissures are intersected independently by separate reservoirs.

In Fig. 8 a feed bar 41 similar to that shown in Fig. 7 is provided with a channel 42 extending longitudinally over a portion of the peripheral surface of the feed bar, the channel having fissures 43 broached in the base thereof and extending in the same direction below the surface of the channel. In this modified form of the invention, the feed bar is provided with four reservoirs, the reservoir 44 adjacent the rear end of the feed bar being of substantially the same size and capacity as the reservoir 45 at the forward end, each reservoir intersecting two fissures. The reservoirs have, in this instance, been notched out in a U-shaped formation and extend diametrically across the feed bar so that the reservoirs are of greater depth than the fissures. The intermediate reservoirs 46 and 47 are of smaller size and capacity than the reservoirs 44 and 45 and intersect but one fissure each. Each of the fissures 43 is thereby intersected by two reservoirs. However, the intersection of the fissures occurs at different points throughout the length of the feed which appears to have a very desired effect on the flow.

Referring now to Fig. 9, the feed bar 48 shown therein is of the same type as that of Fig. 8, it being provided with a channel 49 which extends longitudinally of the length thereof over a portion of the peripheral surface. The channel is broached with fissures 50 extending in the same direction and below the surface thereof, and the fissures are, in turn, intersected by cut-away portions 51, 52 and 53. The cut-away portion 52 forms a reservoir when the feed bar 48 is assembled in the feed section, the reservoir intersecting two of the fissures, the oppositely disposed reservoirs 51 and 53 intersecting the third fissure on opposite sides of the reservoir 52. These reservoirs are, in effect, notched portions extending diametrically across the feed bar, the cut-away portions being of the same width. In this instance one of the fissures is intersected at two different points thereon while the remaining fissures are intersected by one reservoir at only one point thereof. This construction in practice is found to be very desirable in many instances of use.

While several embodiments of this invention

are herein shown and described, it is, of course, to be understood that various modifications thereof will be apparent to those skilled in the art without departing from the spirit and scope of this invention and therefore the same is to be limited only by the prior art and the scope of the appended claims.

I claim:

1. A feed bar for fountain pens comprising an elongated body having a plurality of longitudinally extending fissures over the peripheral surface thereof, said body having a plurality of reservoirs of a greater depth than said fissures and each of which intersects certain only of said fissures.

2. A feed bar for fountain pens comprising an elongated body having a plurality of longitudinally extending fissures lying closely together to form a group on the peripheral surface thereof, said body having a plurality of reservoirs of greater depth than said fissures on opposite sides of said group and extending toward each other to intersect certain only of said fissures.

3. A feed bar for fountain pens comprising an elongated body having a channel extending longitudinally over the peripheral surface thereof, said channel having fissures therein extending in the same direction below the level thereof, said body having a reservoir of a greater depth than said fissures intersecting certain only of said fissures.

4. A feed bar for fountain pens comprising an elongated body having a channel extending longitudinally over the peripheral surface thereof, said channel having fissures therein extending in the same direction below the level thereof, said body having a plurality of reservoirs of a greater depth than said fissures and each of which intersects certain only of said fissures.

5. A feed bar for fountain pens comprising an elongated body having a plurality of longitudinally extending fissures lying closely together to form a group on the peripheral surface thereof, said body having a pair of reservoirs of greater depth than said fissures on opposite sides of said group and extending toward each other to intersect certain only of said fissures, one of said reservoirs being of greater capacity than the other.

6. A feed bar for fountain pens comprising an elongated body having a cylindrical portion from which segments are cut away to provide a plurality of reservoirs, said body having a plurality of longitudinally extending fissures over the peripheral surface thereof certain only of which fissures are intersected by each of said reservoirs, said reservoirs being of greater depth than said fissures.

7. A feed bar for fountain pens comprising an elongated cylindrical body for disposal in the bore of a housing thereof, said body having a plurality of longitudinally extending fissures over the peripheral surface thereof and a plurality of reservoirs of greater depth than said fissures confined by said bore, each of said reservoirs intersecting certain only of said fissures.

8. A feed bar for fountain pens comprising an elongated cylindrical body for disposal in the bore of a housing thereof, said body having a channel extending longitudinally over the peripheral surface of said body and having fissures extending in the same direction below the level thereof, and a plurality of reservoirs in said body of greater depth than said fissures confined by the bore of said housing, each of said reservoirs intersecting certain of said fissures.

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