Nov. 29, 1938. J. N. WHITEHOUSE 2,138,650

FOUNTAIN PEN

Filed Jan. 6, 1938

Fig. 1.

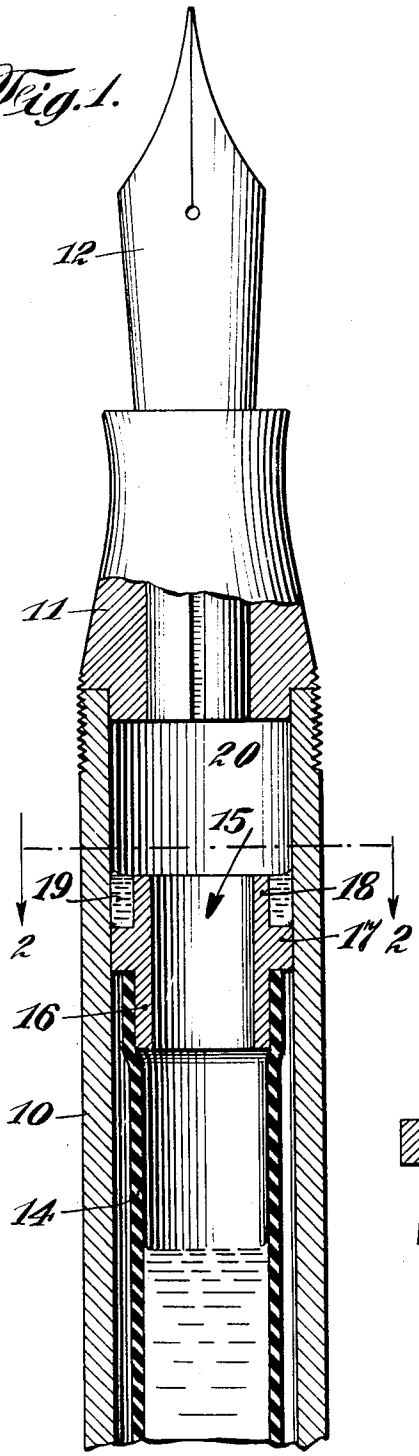


Fig. 2.

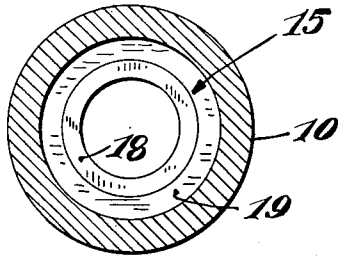


Fig. 3.

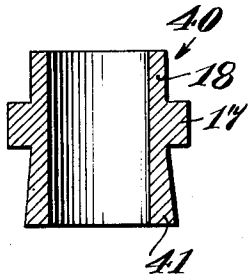
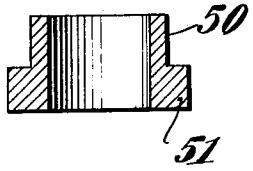


Fig. 4.



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FOUNTAIN PEN

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12 Claims. (Cl. 120—42)

This invention relates to improvements in fountain pens, and more particularly to such improvements in fountain pens as will expedite feeding of ink to the nib thereof.

Fountain pens are customarily carried, when not in use, in an inverted position so that the ink supply is at rest at a point relatively remote from the nib. If the ink supply runs low and the fountain pen is turned to writing position some time may be consumed in permitting the ink to travel from its remote resting place to the nib.

An object of the present invention is to provide an improved fountain pen construction wherein supply of ink to the nib is facilitated especially after the pen has been in an inverted position.

Another object of the invention is to provide a fountain pen of such character that a chamber is provided adjacent the inner end of the feed channel, which chamber has as a part thereof a trap-like portion to retain some ink when the pen is inverted.

A further object of the invention is to provide a chamber adjacent the inner end of the feed channel, which chamber is partially defined by a tubular member extending thereinto and having a part thereof spaced from the wall of the barrel to provide an annular trap for ink.

In carrying out the foregoing and other objects of the invention, a fountain pen may be constructed of a barrel, a pen section, feed bar, nib and collapsible reservoir, all of which portions are well-known. However, the collapsible reservoir instead of being secured to the inner end of the pen section is secured to one end of a separate tubular member. This tubular member has an annular external shoulder intermediate its ends with the external diameter of such shoulder approximately the same as the internal diameter of the barrel. This tubular member with collapsible reservoir thereto is introduced into the barrel and when properly located is securely locked in place by some suitable cement applied to and between the periphery of the flange of the tubular member and the annular wall of the barrel. The end of the tubular member extending beyond the flange and toward the open end of the barrel is spaced some suitable distance from the end of the barrel so that when the pen section is secured in the end of the barrel a chamber is formed by the tubular member and the pen section. The external diameter of that portion of the tubular member extending from the flange thereof toward the pen section is such that an annular space or trap is formed between the outer wall thereof and the inner wall of the barrel. This trap serves to retain a limited quantity of ink when the pen is inverted so that when the pen is moved from inverted position to writing position this limited quantity of ink flows immediately into contact with the feed bar and hence can be dispensed almost instantaneously by the writing operation.

The principle of this invention can be applied not only to fountain pens utilizing a collapsible reservoir, such as a rubber sack, but also can be applied to fountain pens in which use is not made of such a collapsible reservoir. Moreover, the auxiliary tubular member which is necessary in the formation of the desired trap may be of a number of different forms and may be inserted either in the barrel as previously described, or in the hollowed-out pen section if desired, in which event a portion of the pen section becomes in effect a part of the barrel of the device.

Other features, objects and advantages of the invention will be apparent by reference to the detailed description of the accompanying drawing illustrating the same, wherein:

Fig. 1 is a fragmentary view partially in vertical section of a fountain pen construction embodying the present invention;

Fig. 2 is a section taken substantially on the line 2—2 of Fig. 1;

Fig. 3 is a vertical section of a slightly modified form of auxiliary tubular member, which form differs only in minor details from that shown in Fig. 1, and

Fig. 4 is a similar view of a still further modification of the invention.

Referring now to the drawing, 10 indicates generally the barrel of a fountain pen which is initially open at one end for the reception of a pen section 11 hollowed out to receive a feed bar and a portion of a nib 12 in the usual fashion. Use is made in this particular embodiment of the invention of a collapsible reservoir such as a rubber sack indicated at 14. However, this sack 14 instead of being secured directly to the inner end of the pen section 11 is secured to an auxiliary tubular member indicated generally at 15. This tubular member has a portion 16 to the periphery of which the sack 14 is cemented or otherwise secured. The member 15 has an annular external flange 17 intermediate its ends, which flange has an external diameter substantially the same as the internal diameter of the barrel 10. The member 15 has a second end portion 18 extending beyond the flange 17.

The member 15 with a sack 14 secured thereto

is introduced into the open end of the barrel and located at a desired distance from the end of the barrel. This member can be locked in place by some suitable cement and if the barrel is of a material which can be treated with a solvent, the tubular member may be made of a similar material, so that application to these parts of a solvent of these parts results in a firm union thereof. After the member 15 and the sack 14 have been properly located in the barrel, the end thereof can be closed by cementing the pen section 11 therein. Again this pen section may be made of the same material as the barrel and if desired, these two parts may be subject to a solvent which, when applied thereto, will cause the two parts to become firmly into more or less of a homogeneous structure.

The operation and use of this device is substantially as follows: The fountain pen can be filled with ink in the usual fashion, that is by collapsing the reservoir 14 and permitting it to expand while the nib is immersed in an ink supply to thereby suck a quantity of the ink into the bag. The pen will operate in the usual fashion during use thereof, but when the same is inverted to be carried in the user's pocket the ink supply will flow through the opening of the tubular member 15 into the sack 14. However, all of the ink supply which is normally positioned immediately behind the pen section cannot flow into the sack since some of the ink will be trapped in the annular trap 19 located between the inner wall of the barrel 10 and the outer wall of the end portion 18. When the pen is moved from inverted to writing position this relatively small quantity of ink held in trap 19 flows immediately down the barrel into contact with the pen section and consequently with the feed channel. This arrangement has the advantage that if the ink supply is relatively low, that is, if a relatively small amount is held in the closed end part of the sack, writing can be accomplished almost immediately without waiting until this quantity of ink can flow down the wall of the sack through the opening of the member 15 and thence to the feed channel. The trapped quantity of ink is always available for immediate use so that the undesired delays heretofore common in the use of fountain pens is eliminated.

If desired, the barrel 10 may be so formed that the portion thereof forming the wall for the chamber indicated generally at 20 may be transparent so that a user can visually determine the quantity of ink in the pen when in the writing position and may also see the small quantity trapped in the trap 19. Furthermore, if desired, any suitable member may be introduced into the chamber 20 in such fashion that a portion thereof will extend into the bore of the member 15 to break up the meniscus which might be formed by the capillarity of the wall of the bore member 15, so that flow of ink through this bore through the sack can be expedited.

In Fig. 3 a slightly different form of auxiliary tubular member has been illustrated. This form which is designated generally at 40 differs from the member 15 in that one end portion 41 thereof has its outer wall flared outwardly as shown to facilitate the attachment of the throat of a rubber sack thereto. In other details this member corresponds to that shown in Fig. 1.

In Fig. 4 a still further modified form of auxiliary member has been shown. This member comprises a tube 50 having an external flange 51 at one end thereof. If desired a sack can be attached to the flanged end of this member in some suitable fashion or the member can be used in a fountain pen construction wherein a sack is not provided.

All forms of auxiliary members which are necessary in the provision of a trap can be located either directly in the barrel portion of the pen as shown in Fig. 1, or any thereof can be located in a hollowed-out pen section in such fashion that the chamber with its trap formed thereby will be directly in the pen section and adjacent the end of the feed channel. In such an arrangement the pen section obviously will constitute an actual part of the barrel, and it is to be understood that the term "barrel" used in the claims is to be construed in such fashion.

From the foregoing it will be seen that the present invention provides an improved fountain pen so constructed that the delays incidental to flow of ink from a reservoir to a feed channel when the pen is moved from inverted to writing position are substantially eliminated, or in other words a pen in which flow of ink is expedited. It is to be understood that modifications of the illustrated embodiments can be made without departing from the scope of the invention. Accordingly, any limitations imposed thereupon are to be only those set forth in the following claims.

What is claimed is:

1. A fountain pen comprising a barrel, a collapsible reservoir therein, a pen section in one end of said barrel, said barrel being provided with a chamber intermediate said collapsible reservoir and said pen section, said chamber having formed as a part thereof a trap for retaining a relatively small quantity of ink when said pen is moved from writing to inverted position.

2. A fountain pen comprising a barrel, a collapsible reservoir therein, a pen section in one end of said barrel, said barrel being provided with a chamber intermediate said collapsible reservoir and said pen section, said chamber having formed as a part thereof a trap for retaining a relatively small quantity of ink when said pen is moved from writing to inverted position, that portion of the barrel surrounding said chamber being substantially transparent.

3. A fountain pen comprising a barrel, a pen section in one end thereof, an auxiliary tubular member secured in said barrel in spaced relation to said pen section, a collapsible reservoir secured to one end of said auxiliary member, the other end of said auxiliary member cooperating with said barrel to form an annular trap between the inner wall of said barrel and the outer wall of an end portion of said tubular member.

4. A fountain pen comprising a barrel, a pen section in one end thereof, an auxiliary tubular member secured in said barrel in spaced relation to said pen section, a collapsible reservoir secured to one end of said auxiliary member, the other end of said auxiliary member cooperating with said barrel to form an annular trap between the inner wall of said barrel and the outer wall of an end portion of said tubular member, the portion of said barrel between said pen section and part of said tubular member being substantially transparent.

5. A fountain pen comprising a barrel, a pen section in one end thereof, an auxiliary tubular member having a peripheral flange, said flange being secured to the inner wall of said barrel, a collapsible reservoir secured to one end of said tubular member, the other end of said tubular member being in spaced relation to said pen section and having the outer wall thereof spaced

from the inner wall of said barrel to form an annular trap to retain a relatively small quantity of ink when the pen is moved from writing to inverted position.

6. A fountain pen comprising a barrel, a pen section in one end thereof, an auxiliary tubular member having a peripheral flange, said flange being secured to the inner wall of said barrel with said tubular member spaced from said pen section to define a chamber, a collapsible reservoir secured to one end of said tubular member, the other end of said tubular member having the outer wall thereof spaced from the inner wall of said barrel to form an annular trap to retain a relatively small quantity of ink when the pen is moved from writing to inverted position.

7. A fountain pen comprising a barrel, a pen section in one end thereof, an auxiliary tubular member having a peripheral flange, said flange being secured to the inner wall of said barrel, a collapsible reservoir secured to one end of said tubular member, the other end of said tubular member being in spaced relation to said pen section and having the outer wall thereof spaced from the inner wall of said barrel to form an annular trap to retain a relatively small quantity of ink when the pen is moved from writing to inverted position, said barrel having a chamber intermediate the pen section and the tubular member with the barrel wall of said chamber being substantially transparent.

8. A fountain pen comprising a barrel, a pen section in one end thereof, said pen section being provided with a feed channel, said barrel being provided with a chamber adjacent the inner end of said channel, said chamber having as a part thereof a trap for retaining a relatively small quantity of ink when said pen is moved from writing to inverted position.

9. A fountain pen comprising a barrel, a pen section in one end thereof, said pen section having a feed channel therein, said barrel being provided with a chamber adjacent the inner end of said feed channel, said chamber having as a part thereof an annular trap for retaining a relatively small quantity of ink when said pen is moved from writing to inverted position.

10. An auxiliary member for insertion in the barrel of a fountain pen, said member comprising a tube having a neck portion and having a peripheral flange adapted to be secured to the inner wall of said barrel, said neck portion cooperating with the inner wall of said barrel to provide an annular trap.

11. An auxiliary member for insertion in the barrel of a fountain pen, said member comprising a tube having a peripheral flange intermediate the ends thereof adapted to be secured to the inner wall of said barrel, one end of said tube cooperating with the inner wall of said barrel to provide an annular trap.

12. An auxiliary member for insertion in the barrel of a fountain pen, said member comprising a tube having a peripheral flange intermediate the ends thereof adapted to be secured to the inner wall of said barrel, one end of said tube cooperating with the inner wall of said barrel to provide an annular trap, the other end of said tube being insertable into a collapsible reservoir.

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