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FOUNTAIN WRITING INSTRUMENT

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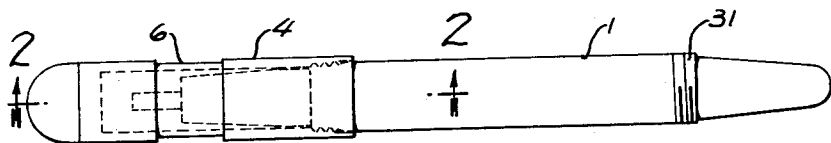


Fig. 1.

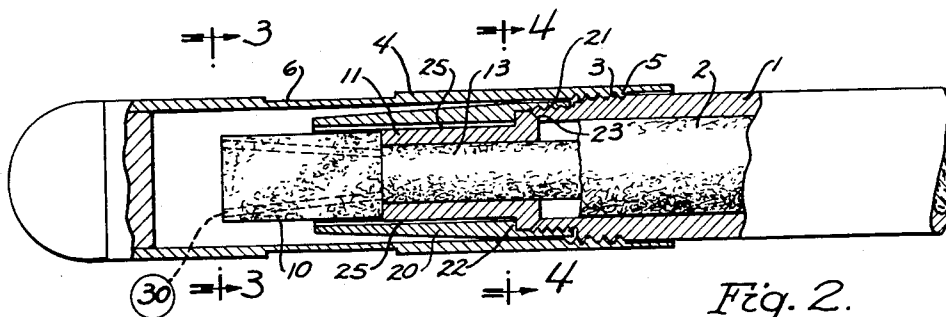


Fig. 2.

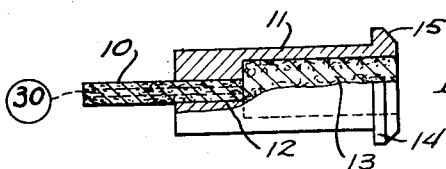


Fig. 6.

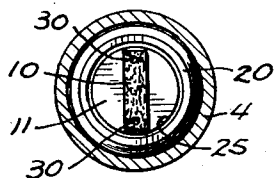


Fig. 3.

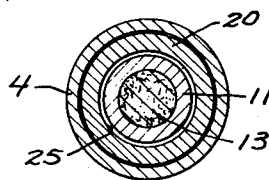


Fig. 4.

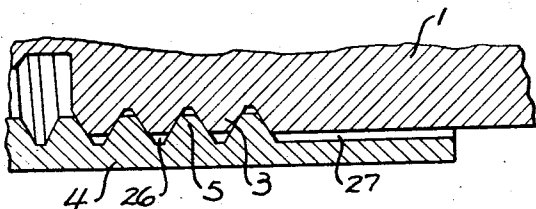


Fig. 5.

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UNITED STATES PATENT OFFICE

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FOUNTAIN WRITING INSTRUMENT

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1 Claim. (Cl. 15—134)

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This invention relates to a writing instrument in the nature of a fountain pen and it has to do particularly with an instrument having a nib or writing element of compacted porous substance, such as felt.

Writing instruments of this kind often employ a writing fluid commonly known as a pigmented fluid or dyed solutions known as instant or quick drying inks. Such fluids comprise a highly volatile carrier for a pigment of finely divided solids. One great problem with a writing instrument of this character is what is known as sweating. The carrier flows or moves from the nib backwardly therefrom over the exterior surfaces of the nib holder or other exposed portion of the instrument thus depositing the pigment and the user is liable to get the colored pigment on the hands. The presence of the pigment on any exterior part of the pen is obviously very objectionable.

The object of the present invention is to provide an improved construction which overcomes this objectionable sweating action. While the present construction of the pen does not completely prevent sweating the arrangement is such that such pigment as is deposited due to the sweating action does not deposit on exposed surfaces.

A structure made in accordance with the invention is shown in the accompanying drawings.

Fig. 1 is a general view of the writing instrument showing the body thereof with a cap applied.

Fig. 2 is an enlarged view partly in cross section showing the vital parts as pertains to the present invention.

Fig. 3 is a sectional view taken substantially on line 3—3 of Fig. 2 showing structure adjacent the nib.

Fig. 4 is a sectional view taken substantially on line 4—4 of Fig. 2.

Fig. 5 is a view of a nib and nib holder.

Fig. 6 is an enlarged sectional view showing thread structure.

As shown in Fig. 2, the body of the instrument or pen is illustrated at 1, the same being in the form of a barrel containing a body of porous material, such as felt 2, designed to be substantially saturated with writing fluid which may be a pigmented fluid or a suitable ink. With some writing fluids the porous reservoir material may not be desirable or necessary. Use of the porous material depends somewhat upon the type of writing fluid. The barrel has screw threads 3 for receiving a cap 4 with cooperating

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screw threads 5. The cap covers the nib when the instrument is not in use and it may be recessed as at 6 for receiving a clip by means of which the instrument may be carried in the pocket of a garment.

The nib or writing instrument is illustrated at 10 and it comprises a body of compacted porous material, such as felt. This felt is preferably of a hardened nature; that is, it is harder than the material 2 in order to better take writing pressure and to last longer. The nib shown is rectangular in shape. A nib holder is illustrated at 11, the same being of tubular form having a transverse slot 12 for receiving the nib and supporting a body of porous material, such as felt, at 13, which contacts with the body 2 and with the nib. Thus, it will be appreciated how the marking fluid may flow from the reservoir body 2 through the material 13 and to the nib. The nib holder has a flange 14, preferably provided with a bevelled face 15.

The nib and its holder are assembled to the barrel, as by means of a ferrule 20. The ferrule has internal threads at one end for engaging threads on the barrel, as shown at 21. These threads are on a smaller diameter than the threads 3 and 5 between the barrel and the cap so that the cap may freely slide thereover with some clearance. The ferrule has an internal shoulder 22 for engaging the shoulder 14 of the holder so that when the ferrule is screwed tightly in position the bevelled face 15 engages a cooperating bevelled face 23 of the barrel to thus provide a sealed contact preventing any leakage or sweating at this point.

The ferrule is preferably tapered on its exterior surface as shown and the interior diameter of the ferrule is slightly larger than the outside diameter of the holder 11 and larger than the maximum dimension across the tip 10. This provides a small circumferential space 25 between the inside walls of the ferrule and the outside walls of the holder and from the surfaces of the nib.

The cap 4 has an inside diameter such as to freely slip over the ferrule and provide a small clearance with respect thereto and the attachment between the cap and the barrel is such that the same is not air tight. One way of accomplishing this is by using distorted or mutilated threads. It will be seen by reference to Fig. 5, that the threads 3 and 5 are flattened or have metal removed from their apices to thus provide a helical channel 26 which forms a communication between the outside atmosphere and

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the interior of the cap when the cap is mounted on the barrel. The cap, as shown, does not tightly grip the barrel, but to the contrary, has clearance with respect thereto thus providing a space 27.

Where a pigmented fluid is used, the nib is preferably provided with one or more passages or channels therethrough as shown at 30. Since the tip is relatively hardened and compacted material, that is, relative to the material 2 and 13, the pigment in finely divided form may not reach the end of the nib in the proportion that the pigment and solvent enter the nib. The solvent may flow quite readily through the nib but pigment solids may be entrapped in the porous structure of the nib. By providing the channel or channels the fluid may readily flow therethrough and these channels are of such size that the finely divided pigment particles will flow therethrough so that a full supply of pigment reaches the end of the nib for application to the work.

The manner of use of the instrument will, it is believed, be fairly obvious to most anyone. The cap may be removed and may be applied to the opposite end of the barrel, as by means of the threads 31. Thus, the nib is exposed and the nib is applied to suitable surface which may be paper, wood, metal or any other substance and the writing fluid is applied thereto as the nib is drawn along the surface. The sweating may take place both when the cap is applied and while the instrument is in use. The volatile solvent flows to the nib and then tends to flow on or over any surface with which it can make contact. With the present arrangement the solvent which wets the nib flows into the space 25 and back into this space on the exterior surfaces of the holder. But the solvent cannot flow across the space 25 and, therefore, the exterior of the ferrule remains clean. After the pen of this construction has been in use for some time, it can be observed, when the elements are taken apart, that the exterior surface of the nib holder is colored by the sweating action, but over an indefinite period of time such sweating and coloration will not reach the exterior surfaces of the ferrule. Conceivably, the sweating action could proceed back along the exterior surfaces of the nib holder to the bottom of the space 25 and then proceed along the interior surfaces of the ferrule to the opened end thereof and thence over the exterior surfaces of the ferrule. But this path of travel is too long and the solvent is evaporated before it has traversed this length of surface. The evaporation is permitted while the cap is in place because the space within the

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cap is not sealed but is open to the atmosphere through the space between the cap and the ferrule and through the distorted or mutilated threads.

I claim:

A writing instrument in the nature of a fountain pen especially useful with a pigmented writing fluid which includes a volatile solvent and finely divided solid pigment carried thereby comprising, a barrel constituting a reservoir for the writing fluid, a nib of substantially cylindrical porous material, a nib holder, said holder being of tubular formation and having a flange for engaging the end of the barrel, the nib being held by the holder so as to project therefrom, a ferrule of substantially cylindrical tubular form fitting over and enclosing the holder, one end portion of the ferrule and the barrel having cooperating threads for mounting the ferrule to the barrel with said end portion of the ferrule overlying an end portion of the barrel, the ferrule having an internal shoulder for engaging the flange on the holder and holding the same in sealed relationship against the end of the barrel, the inside diameter of the ferrule being greater than the outside diameter of the holder to provide a circumferential clearance space adapted to receive deposits incident to the sweating of the writing fluid, whereby the outside surfaces of the ferrule remain substantially free of such deposits, and a cap applicable to the barrel for covering the nib and ferrule and having clearance relative to the barrel to provide for communication from said circumferential clearance space to the outside of the barrel for evaporation of the solvent of the writing fluid from said circumferential clearance space.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
426,622	Madden	Apr. 29, 1890
534,011	Sampson	Feb. 12, 1895
644,848	Cline	Mar. 6, 1900
955,875	Morian	Apr. 19, 1910
1,098,976	Rosenstein	June 2, 1914
1,413,827	Briggs	Apr. 25, 1922
2,330,053	Herb	Sept. 21, 1943
2,416,596	Rosenthal	Feb. 25, 1947
2,453,201	Cushman	Nov. 9, 1948
2,593,599	Patch	Apr. 22, 1952

FOREIGN PATENTS

Number	Country	Date
157,012	Austria	Sept. 25, 1939