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2,498,384

FOUNTAIN PEN

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Fig. 1

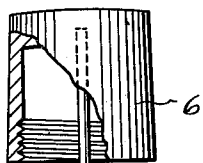
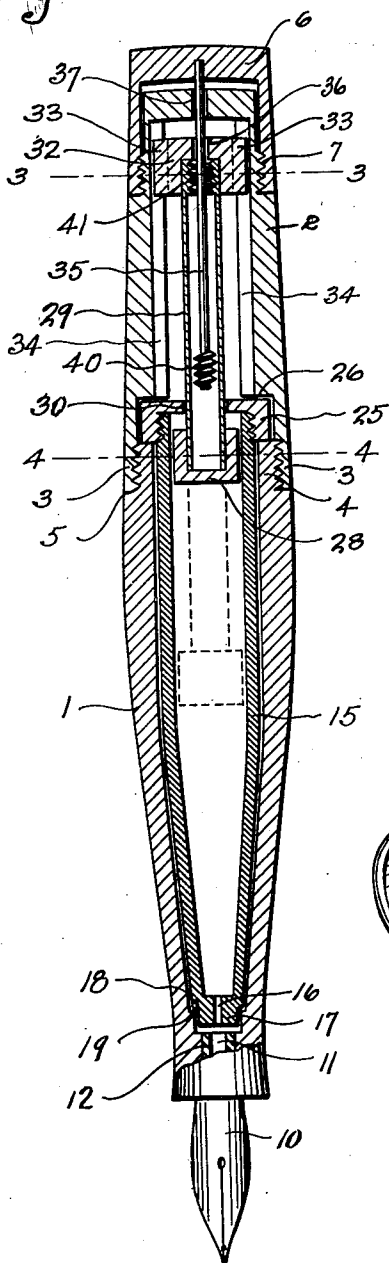


Fig. 2

Fig. 3

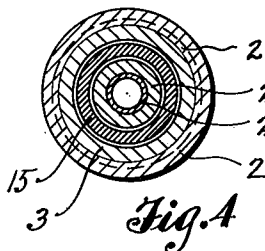
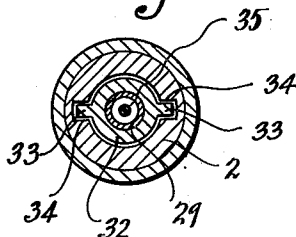


Fig. 4

Fig. 5

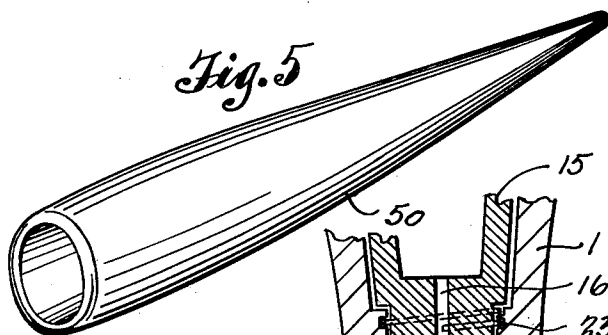
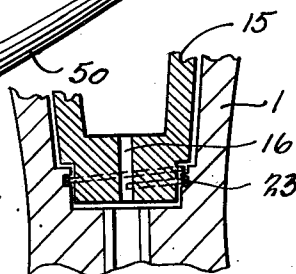


Fig. 6



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FOUNTAIN PEN

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2 Claims. (Cl. 120-47)

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This invention relates to fountain pens, and the like, and it has reference more particularly to the provision of an improved means for the filling of fountain pens with ink and to the provision of an improved form of ink reservoir designed to better control the flow of ink to the pen point, or nib.

It is the principal object of this invention to provide a fountain pen having an improved form of ink container, that is removably applicable to the barrel or body of the pen, and which container comprises a cylindrical portion within which a piston is contained for the quick filling of the container with ink by suction, also to provide the piston with an actuating rod comprising parts that may be telescoped together in the pen when not in use.

It is also an object of the invention to provide an ink container or reservoir from which ink will flow in an even and regulated amount, and which container is of rigid character and may be easily and readily applied to or removed from the pen.

Another object is to provide a telescopic piston rod assembly for use with piston filled pens or injection syringes.

Yet another object is to provide a pen from which the contained parts may be easily and readily removed for repair or replacement.

Still other objects of the invention reside in the details of construction of the various parts and in the relationship and mode of use of these parts, as will hereinafter be fully described.

In accomplishing these and other objects of the invention, I have provided the improved details of construction, the preferred forms of which are illustrated in the accompanying drawings, wherein—

Fig. 1 is a longitudinal, sectional view of a fountain pen embodying the improvements in accordance with the objects of the present invention.

Fig. 2 is a view, with part broken away, showing the manner of extending the telescoping sections of the piston actuating rod and the means for joining them in extended relationship.

Fig. 3 is a cross section on line 3-3 in Fig. 1.

Fig. 4 is a cross section on line 4-4 in Fig. 1.

Fig. 5 is a perspective view of the cap that is applicable to the end of the pen for protection of the nib.

Fig. 6 is an enlarged detail of parts of the barrel and reservoir.

Referring more in detail to the drawings—

The present fountain pen comprises a tubular

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barrel portion that is made up of a lower or main section 1 and an upper end section 2; these parts being joined together by applying the internally threaded end portion 3 of section 2 over the externally threaded end portion 4 of section 1. The joined parts are tightened together in a closed joint, as at 5 in Fig. 1, and the outer surfaces at the joint are flush as shown, so as not to interrupt the external smoothness of the barrel.

At its upper end, the tubular section or part 2 has a cap 6 threaded thereto as at 7, and this cap also joins the section 2 in a flush external surface. As noted in Fig. 1, the cap 6 is hollow and encloses the closed upper end portion of the section 2 therein.

At its lower end, the barrel section 1 mounts a pen nib 10 therein in the usual manner, and ink is fed to the nib through a channel 11 in a tubular insert 12 which may serve to hold the nib in place. Ink is supplied to the channel 11 from a tubular reservoir 15 that is removably contained in the barrel section 1, and which has a central, axial port or channel 16 in its lower end wall 17 directly aligned with the channel 11 of the insert 12.

It is shown in Figs. 1 and 6, that the lower end portion of the reservoir 15 is somewhat diametrically reduced and thus a downwardly facing annular shoulder 18 is formed near its end. Also it is observed that an upwardly facing, annular shoulder 19 is formed in the lower end portion of barrel 1 adjacent the channel 11. In the assembling of parts, the shoulder 18 is engaged against the shoulder 19 and provides a sealed joint at this point. It is desirable also that the reduced lower end portion of the reservoir below the shoulder 18 be formed with a thread, as at 23, for threading into the barrel chamber below shoulder 19, as seen in Fig. 6, to hold these parts together when the section 2 is removed from the section 1.

At its upper end, the tubular reservoir 15 is closed by a cap 25 that is threaded thereon and this cap is engaged by an annular, downwardly facing shoulder 26 inside the lower end portion of the tubular barrel section 2. When section 2 is threaded onto part 1, it holds the ink containing reservoir 15 tightly in place.

Reciprocally fitted in the upper end portion of the reservoir 15 is a piston 28. This is fixed to the lower end of a tubular shaft, or rod, 29 that extends upwardly through a central opening 30 in the cap 25. Fixed to the upper end of shaft 29 is a cross head 32 that is movable, up

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and down, in the tubular section 2. As noted best in Fig. 3, the cross head has longitudinal flanges 33—33 on opposite sides and these are slidably contained in guide channels 34—34 formed longitudinally in the inner wall surfaces of the section 2. Thus, the shaft or rod 29 will be held against relative rotation in the barrel but may be reciprocally actuated as required to move the piston 28 in the reservoir 15 for the indrawing of a supply of ink.

For the actuation of piston 28, I have provided an extension rod 35 for the connection to the rod 29. The extension rod is telescopically contained in the tubular rod 29, and it extends from the latter through a central opening 36 in the cross head 32 and also through a central opening 37 in the upper end wall of the section 2 and is permanently fixed in the end wall of cap 6.

At its inner end, the rod 35 is provided with a threaded head 40 and this may be threaded into an internally threaded upper end portion 41 of the shaft 29, as it has been shown in Fig. 2. By reason of the cross head 32 being held against relative rotation in the barrel, the threading of the head 40 into and from the threaded part 41 of shaft 29 may be easily and readily accomplished by turning the cap 6, assuming of course that the cap has been unthreaded from the barrel and the parts 40 and 41 brought into proper relationship.

Assuming the parts of the pen to be in the position of Fig. 1, and that it is desired to fill the pen, the procedure would be as follows: First, the cap 6 is unthreaded from the upper end of the barrel section 2 and the rod 35 drawn out until the head 40 at its inner end is engaged with the threads 41 at the upper end of shaft 29. Then by turning the cap, the parts are joined as in Fig. 2. When the parts 29 and 35 have been so joined, the piston 28 is pushed inwardly into the reservoir to the dotted line showing of its position in Fig. 1. Then the pen nib is properly inserted into a supply of ink, and the piston then pulled back to the outer end of reservoir. Thus, by reason of suction created by this movement of the piston, ink is drawn into the reservoir through the ink channel 11 and channel 16 in the lower end of the reservoir. The extension rod is then unthreaded, by turning cap 6, and is telescoped back into tube 29 and the cap threaded into the barrel as in Fig. 1.

The point 10 may be protected while the device is not in use by applying a cap 50 as shown in Fig. 5 to the barrel end. This is also applicable to the upper end.

This type of piston and rod mechanism may likewise be applied to pens wherein the barrel chamber serves as the ink reservoir and wherein the piston would operate therein instead of in a separate receptacle. Also, it is applicable to various types of hypodermic syringes and need not be confined to structures as in Fig. 1.

It is possible to apply the present construction to medical syringes of various kinds where a hypodermic needle or other injection instrument is applied at the position of the pen nib 10. Therefore, it is intended that the invention here-

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in disclosed be understood to apply not only to pens but to such syringes. Manifestly the piston 28, under control of the rods 29 and 35 may be used to fill the reservoir and also to expel the liquid therefrom.

Furthermore, it is to be understood that proportions, sizes, details and materials employed may be varied without departing from the invention.

Having thus described my invention, what I claim as new therein and desired to secure by Letters Patent is:

1. A pen comprising a tubular barrel having a tubular lower end section mounting an axially channeled pen nib in its lower end, a tubular upper end section, threaded at its lower end onto the said lower end section and having a closed upper end formed with a central opening and having longitudinally extending keyways formed interiorly thereof, a cap removably applied to the upper end of said upper end section, a cylindrical ink container removably fitted within the lower end section of the barrel, having a lower end filling opening through which the nib will be fed, a cap applied to the upper end of the ink container to seat against the end of the lower section and having a central opening therein and said upper end section of the barrel having a shoulder therein to engage against said cap to hold the ink container seated in the barrel; a piston reciprocally fitted in the ink container, a tubular piston rod extended from the piston and through the container cap opening and having an internally threaded outer end portion, a cross head fixed on the outer end of the piston rod and engaging the keyways, an extension rod telescopically applied to the piston rod and extended through the outer end opening of the outer section of the barrel and fixed to the cap thereon, said rod having a threaded head at its lower end adapted to be engaged with the threaded end of the tubular rod, when the barrel cap is removed and said rod drawn out, thus to provide an actuating means for the piston.

2. A pen as recited in claim 1 wherein the lower section of the barrel is formed near the nib mounting end with an internal upwardly facing annular shoulder, and said ink container has a downwardly facing shoulder near its lower end to engage in a tight joint against said upwardly facing shoulder.

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