

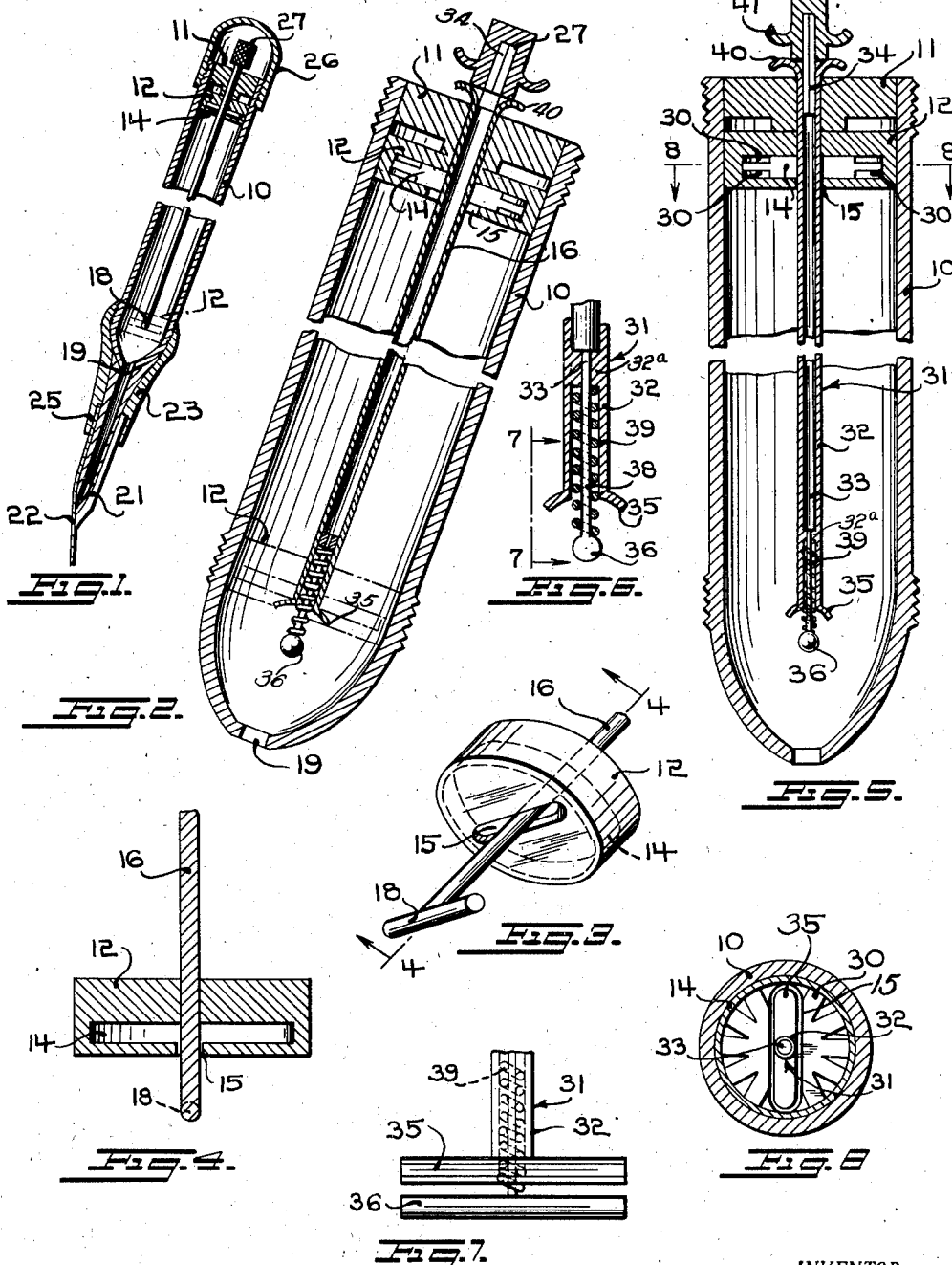
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FOUNTAIN PEN

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FOUNTAIN PEN

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4 Claims. (Cl. 120—47)

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This invention relates to new and useful improvements in fountain pens, and has more particular reference to an improved fountain pen barrel.

More specifically, the invention proposes to characterize the new barrel by a piston slidably mounted in the barrel and having a cylindrical coaxial hollow communicating with a diagonal bottom slot extending through the bottom of the piston. It is proposed to provide a piston rod slidably mounted coaxially through the closed top end of the barrel and passing through said piston and having a T-shaped bottom end for engaging through said bottom slot and then into said cylindrical hollow for releasable connection with said piston. With this construction the pen itself is enabled to hold a larger quantity of ink than is normally possible.

With the new and improved construction the piston rod may be connected and disconnected from the piston very simply and easily so that the piston may be operated for drawing in or discharging ink from the cylinder.

The invention also proposes a modified form in which the connecting elements between the piston and piston rod are improved.

Another object of the invention is the construction of a device as mentioned which is simple and durable and which may be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a longitudinal sectional view through a fountain pen constructed in accordance with this invention.

Fig. 2 is an enlarged detailed view of a portion of Fig. 1.

Fig. 3 is a fragmentary perspective view of certain of the parts shown in Fig. 2 but illustrated in different positions.

Fig. 4 is a fragmentary sectional view taken on the line 4—4 of Fig. 3.

Fig. 5 is a sectional view similar to Fig. 2 but illustrating a modified construction.

Fig. 6 is a fragmentary enlarged detailed view of a portion of Fig. 5.

Fig. 7 is a fragmentary side view of Fig. 6.

Fig. 8 is a horizontal sectional view taken on the line 8—8 of Fig. 5.

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The new and improved fountain pen, in accordance with this invention, includes an ink barrel 10 having a closed top end 11. This end is closed with a plug. A piston 12 is slidably mounted in the barrel 10 and is formed with a cylindrical coaxial hollow 14 communicating with a diametral bottom slot 15 extending through the bottom of the piston. A piston rod 16 is slidably mounted coaxially through the closed top end 11 of said barrel 10 and passes through the piston 12 and is provided with a T-shaped bottom end or bar 18 for engaging through said bottom slot 15 and then into said cylindrical hollow 14 for releasable connection with the piston 12.

The bottom end of the ink barrel 10 is provided with a passage 19 which connects up with a pen-nib supporting member 21 provided with a pen nib 22. A holding bushing 23 is threadedly mounted upon the bottom end of the barrel 10 and engages over the pen-nib supporting member 21, holding it in position against the bottom end of the barrel 10. The bushing 23 has a bore 25 about the pen-nib supporting member 21 and into which the back end of the pen nib 22 engages. A cover 26 is threadedly engaged over the top end of the barrel 10. This cover shields the top end of the stem 16. It may be removed when desired. The top end of the stem 16 is provided with a knob 27 by which the stem may be manipulated.

The operation of the improved ink barrel is as follows:

The knob 27 may be pulled out so as to move the stem 16 outwards so that the T-shaped bottom end 18 engages against the bottom of the piston 12. Then the knob 27 is turned to a position in which the T-shaped bottom 18 engages through the slot 15. The knob 27 is then turned about 90° more so as to place the T-shaped bottom 18 at right angles to the slot 15. Now the stem 16 may be moved downwards so as to move the piston 12 downwards to a bottom position, indicated by the dot and dash lines in Figs. 1 and 2. The nib 22 of the fountain pen may now be engaged in a supply of ink and then the stem 16 may be moved outwards so as to move the piston 12 back to the top of the barrel 10. This draws in a supply of ink. The stem 16 is then turned and slightly pushed downwards until the T-shaped bottom end bar 18 passes out through the slot 15. Now the stem 16 may be pushed all the way down so that the cap 26 may be engaged over the top end of the barrel 10. The pen is now full of ink.

The dominating feature of the invention re-

sides in the provision of the T-shaped bottom end bar 18, the cooperative slot 15, and the hollow 14. With this construction the stem 16 may be quickly and easily connected with the disconnected from the piston 12, as desired.

In Figs. 5-8 a modified form of the invention has been disclosed in which the top and bottom faces of the cylindrical hollow 14 are formed with a plurality of opposed radially extending grooves 30. The piston rod 31 is formed from an outer tubular section 32 and an inner section 33. These sections may be non-rotatively connected, by the fact that the upper ends of these sections have square portions 34. These square portions permit the sections to be slidably and longitudinally moved in relation with each other.

The outer tubular section 32 flanged as at 32^a has a portion of a T-shaped bottom end 35 which is cooperative with another T-shaped bottom end portion 36 formed on the bottom end of the inner section 33. The T-shaped portion 35 is semi-cylindrical, while the T-shaped bottom portion 36 is cylindrical and adapted to fit into the semi-cylindrical portion 35.

The bottom end portion 38 of the inner section 33 is reduced in outer diameter. An expansion spring 39 is engaged on this reduced portion 38 and acts between the flange 32^a of the tubular inner section 33 and the T-shaped bottom end bar 36, for normally urging the T-shaped bottom end bar 36 downwards relative to the T-shaped bottom end channel 35. The outer top end of the outer tubular section 32 is provided with a downwardly flared handle portion 40 which is opposed to and upwardly flared handle portion 41 mounted upon the top outer end of the inner section 33.

It will be possible, by looking at the top members 40 and 41, to tell if the parts 35 and 36 are aligned and in order to close them or align them so that they will pass into or out of the slot 15, it is only necessary to turn the parts 40 and 41 until they snap together, which is caused by the spring 39, when the parts 35 and 36 come into alignment.

The operation of this form of the invention is somewhat similar to the prior form. Its operation distinguishes in the fact that when the T-shaped portions 35 and 36 are to be passed through the diagonal bottom slot 15 into the piston 12, it is necessary that the T-shaped rod portion 36 be aligned with and seated in the T-shaped channel portion 35 by pressing the fingers between the flared portions 40 and 41, which forces the inner section 33 upwards relative to the outer tubular section 32, against the resistance of spring 39. Now the stem 31 may be turned and when the finger is removed from between the flared portions 40 and 41, the spring 39 will force the T-shaped portions 35 and 36 apart and engage them in certain ones of the opposed grooves 30. This will tightly connect the piston rod 31 with the piston 12.

When it is desired to disconnect the piston rod 31 from the piston 12 it is necessary to force the flared parts 40 and 41 slightly apart so as to engage the T-shaped portion rod 36 into the T-shaped channel 35 and now the stem 31 may be turned until these portions are passed out from the slot 15.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifica-

tions coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by United States

5 Letters Patent is:

1. In a fountain pen barrel, an ink barrel having a closed top end, a piston slidably mounted in said barrel and having a cylindrical coaxial hollow communicating with a diagonal bottom slot extending through the bottom of said piston, and piston rod slidably mounted coaxially through the closed top end of said barrel and passing through said piston and having a T-shaped bottom end for engaging through said bottom slot and then into said cylindrical hollow for releasable connection with said piston, the top and bottom faces of said cylindrical hollow having radially extending opposed grooves and said piston rod comprising an outer tubular section having a portion of said T-shaped bottom end and an inner section having another portion of said T-shaped bottom end, resilient means for separating said T-shaped portions, and handles on the outer ends of said sections by which said T-shaped portions may be aligned and moved together.

2. In a fountain pen barrel, an ink barrel having a closed top end, a piston slidably mounted in said barrel and having a cylindrical coaxial hollow communicating with a diagonal bottom slot extending through the bottom of said piston, and a piston rod slidably mounted coaxially through the closed top end of said barrel and passing through said piston and having a T-shaped bottom end for engaging through said bottom slot and then into said cylindrical hollow for releasable connection with said piston, the top and bottom faces of said cylindrical hollow having radially extending opposed grooves, and said piston rod comprising an outer tubular section having a portion of said T-shaped bottom end and an inner section having another portion of said T-shaped bottom end, resilient means for separating said T-shaped portions, and handles on the outer ends of said sections by which said T-shaped portions may be aligned and moved together, said resilient means comprising a spring.

3. In a fountain pen barrel, an ink barrel having a closed top end, a piston slidably mounted in said barrel and having a cylindrical coaxial hollow communicating with a diagonal bottom slot extending through the bottom of said piston, a piston rod slidably mounted coaxially through the closed top end of said barrel and passing through said piston and having a T-shaped bottom end for engaging through said bottom slot and then into said cylindrical hollow for releasable connection with said piston, the top and bottom faces of said cylindrical hollow having radially extending opposed grooves, and said piston rod comprising an outer tubular section shaped to provide the channel portion of said T-shaped bottom end and an inner section having another portion of said T-shaped bottom end shaped to provide a cross bar for engagement in said channel, resilient means for separating said T-shaped portions, and handles on the outer ends of said sections by which said T-shaped portions may be aligned and moved together, said resilient means comprising a spring, mounted upon a reduced portion of said inner section and acting between a flange of the outer tubular section and the T-shaped bottom cross bar end.

4. In a fountain pen barrel, a plug for closing the

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top end of said barrel and having a central bore therethrough, a piston having an annular hollow chamber therein and a slot in its lower face opening outwardly from said chamber, a piston rod extending through said plug and said piston, a cross member on the lower end of the piston for passage through the slot and turning movement in said chamber to releasably connect the piston and piston rod for unitary movement and a finger knob on the end of the piston rod above and exteriorly of said barrel.

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