Feb. 20, 1923. 1,445,900.

R. S. McKAY.

FOUNTAIN PEN.

FILED AUG. 22, 1921.

Fig. 1.

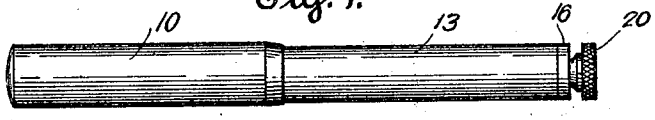


Fig. 2.

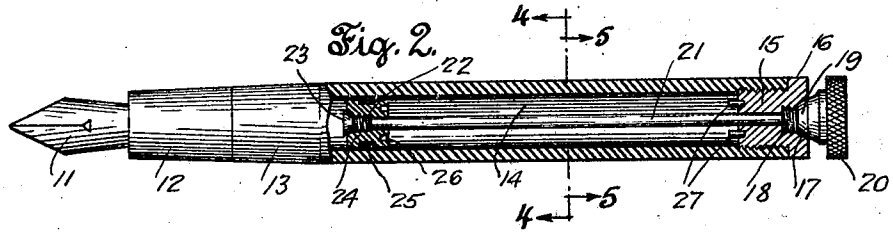


Fig. 3.

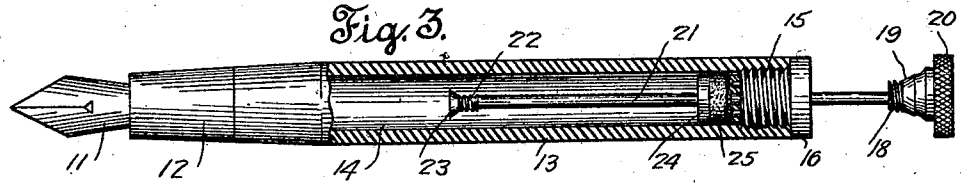


Fig. 4.

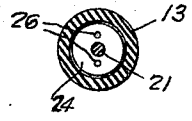


Fig. 5.

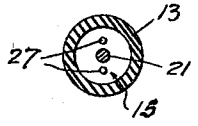


Fig. 6.

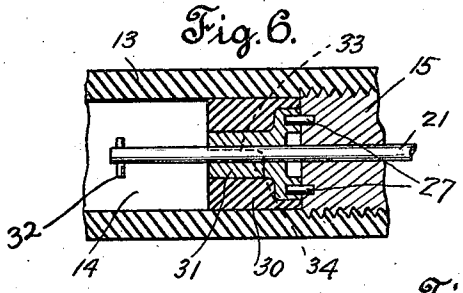


Fig. 7.

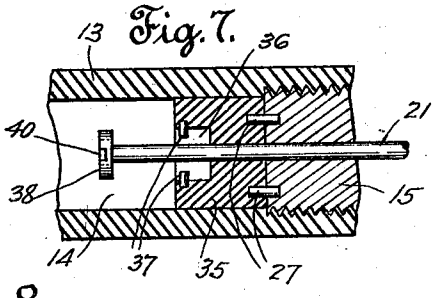
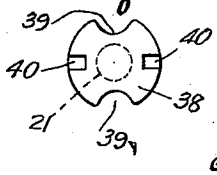


Fig. 8.



Inventor

Robert S. McKay

By his Attorney

Maxwell E. Sparrow

Patented Feb. 20, 1923. 1,445,900

UNITED STATES PATENT OFFICE.

ROBERT S. McKAY, OF DUNELLEN, NEW JERSEY.

FOUNTAIN PEN.

Application filed August 22, 1921. Serial No. 494,139.

To all whom it may concern:

Be it known that I, ROBERT S. McKAY, a citizen of the United States, and resident of Dunellen, in the county of North Middlesex and State of New Jersey, have invented certain new and useful Improvements in Fountain Pens, of which the following is a specification.

This invention relates to self-filling fountain pens.

The primary purpose of this invention is to provide self contained means for filling the hollow barrel of a fountain pen with ink from any convenient source at will.

Another object is to form a suction pump within the barrel, the piston of the pump being positively and readily disengageable relative to the actuating rod, the operating head of which is arranged to be non-leakable when not in actual use.

These and further objects and advantages, which will become further on apparent, are attained by the novel construction and combination of parts hereinafter described and shown in the accompanying drawing, forming an essential portion of this disclosure, and in which:—

Figure 1 is a side elevational view of a fountain pen made in accordance with the invention.

Figure 2 is a partial side, partial longitudinal sectional view of the same drawn to an enlarged scale and showing the parts as preparatory to the filling operations.

Figure 3 is a similar view of the same but showing the piston as disengaged from its rod, as in normal use.

Figure 4 is a transverse sectional view looking from line 4—4 of Figure 2.

Figure 5 is a like view looking from line 5—5 of Figure 2.

Figure 6 is a further enlarged, fragmentary, longitudinal sectional view, showing a modification in piston and rod construction.

Figure 7 is a similar view showing a further modification of piston and rod.

Figure 8 is a front view of the disk shown in Figure 7.

Referring to the drawing in detail, the numeral 10 designates a cylindrical cap removably engaged over the pen point or nib 11, fixed in a holder 12 carried at the operative end of the fountain pen body 13, the same being made of common material, as hard rubber and tapered towards the point as usual.

The main body or barrel contains a cylindrical bore 14 and acts as a handle or stock by which the pen as a whole is manipulated.

The outer, opposite end of the barrel is screw-threaded interiorly to receive a plug 15 having a flange 16 adapted to cover the end and forming a tight closure, this plug having an axial bore, threaded at its outer end and containing a conical or beveled countersunk opening 17.

Fitting the threads in the plug is a short screw 18 at the end of a cone or beveled element 19 formed with a head 20, knurled or corrugated to provide an efficient grip in manipulating the screw and a piston rod 21 fixed axially in the screw element 18, neatly fitting the opening in the plug 15 and having, at its outer end, a screw-thread 22 terminating in a bevelled element 23 the base or head of which is outermost.

A piston 24, fitting the bore 14 of the barrel, contains an annular recess in which is disposed a packing ring 25 and is axially drilled to permit the rod 21 to pass; it is also threaded to engage the screw 22 and countersunk to receive the conical element 23.

In the side of the piston facing the plug 15 are two opposed openings 26 adapted to receive tapered pins 27 extending from the plug 15 and which acts as a spanner wrench in holding the piston from rotating when engaging or disengaging the piston rod in an obvious manner. Obviously a single pin may be used to obtain similar results.

In operation, if it be desired to refill the pen, the screw 18—20 is released from the plug 15, the rod 21 drawn outwardly by it until the screw 22 engages the threads in the piston and has become united to it. Then the piston is forced into the barrel as far as possible, expelling the air, which, upon withdrawing the piston, sets up a suction, causing ink to enter the barrel past the pen point then filling the pen.

By rotating the head 20, in an opposite direction, the pins are caused to engage and hold the piston, whereupon the rod may be released and entered within the barrel and the screw 18 secured forming a tight joint at the conical surfaces.

In the modification, shown in Figure 6, the piston 30 is made of pliable material and fixed on a metal center 31 bored to receive the rod 21 and fitted with openings for the pins.

The end of the rod has set in it a transverse pin 32, the same being engageable in recesses 33, having angularly turned ends 34 in the manner of the well known Bayonette joint device, this modification being constructed in other respects as the foregoing and operated in the same manner.

The other modification, shown in Figures 7 and 8, exhibits a similar construction except that the piston 35 is made wholly of one material and contains an axial recess 36 in which are fixed a pair of oppositely disposed aligned pins 37.

Fixed on the end of the piston rod, which passes freely through the piston, is a disk 38, having opposed lateral recesses 39 suited to pass the pins 37 permitting the disk to enter the recess 36, when these parts are in proper register, and formed in the outer face of the disk, at points equi-distant from the recesses 39, are radial slots 40, the same extending partially through the disk and adapted to engage the pins 37 thus providing means for rotating the piston in order to cause engagement of the pins 27.

From the foregoing it will be seen that a simple and effective device has been disclosed in its preferred embodiments, and in which changes may be made in the form, arrangement, proportions and details without departing from 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 Letters Patent, is:—

1. In combination with a self-filling fountain pen of the plunger type, a screw threaded element terminating in an enlarged beveled head on one end of the piston rod adapted for fluid tight removable engagement with a complementary beveled seat in the piston, and a conical and screw threaded element at the other end of the piston rod adapted for removable fluid tight engagement with a complementary threaded and beveled seat in the plug.

2. A fountain pen comprising a barrel having a cylindrical bore, a pen point and holder at one end of said barrel, a plug cap at its opposite end provided with an internal threaded and beveled seat, a piston operable in said barrel, a piston rod passing through said plug cap engageable with said piston when rotated in one direction and disengageable when turned in the opposite direction, means on said plug cap engaging said piston to prevent rotation when attaching or detaching said rod, and a screw threaded and conical head on said rod exterior of said plug cap, for engagement with said plug cap.

3. A fountain pen comprising a barrel having a cylindrical bore, a pen point and holder at one end of said barrel, a plug cap at its opposite end, a piston operable in said barrel, said piston having an axial bore and containing recesses in its end adjacent said plug, pins in said plug cap engageable in the mentioned recesses, a piston rod operable through said cap and piston, means on said rod engageable with said piston whereby the latter may be moved reciprocatively, a head on the extending end of said rod adapted for manual operation, a screw on said head engageable in said plug cap, and a cone on said head adapted to fit a corresponding recess in said cap when said screw is in engagement.

4. A fountain pen comprising a barrel, a pen holder at one end thereof, a piston moving in said barrel, a piston rod operable through said plug, means for manually actuating said rod to said piston, and means for forming a liquid tight joint between said rod and said piston, said means comprising a screw threaded element terminating in an enlarged beveled head on one end of the piston rod adapted for removable engagement with a complementary beveled seat in the piston.

5. A fountain pen comprising a barrel having a cylindrical bore, a pen point and holder at one end of said barrel, a plug cap at its opposite end, a piston operable in said barrel, said piston having an axial bore and containing recesses in its end adjacent said plug, pins in said plug cap engageable in the mentioned recesses, a piston rod operable through said cap and piston, means on said rod including a screw threaded and conical element engageable in said piston for transmitting reciprocating motion, and an operating head on said rod exterior said plug.

Signed at New York in the county of New York and State of New York this 4th day of August A. D. 1921.

ROBERT S. McKAY.