

A. O. DAHLBERG.
 FOUNTAIN PEN.
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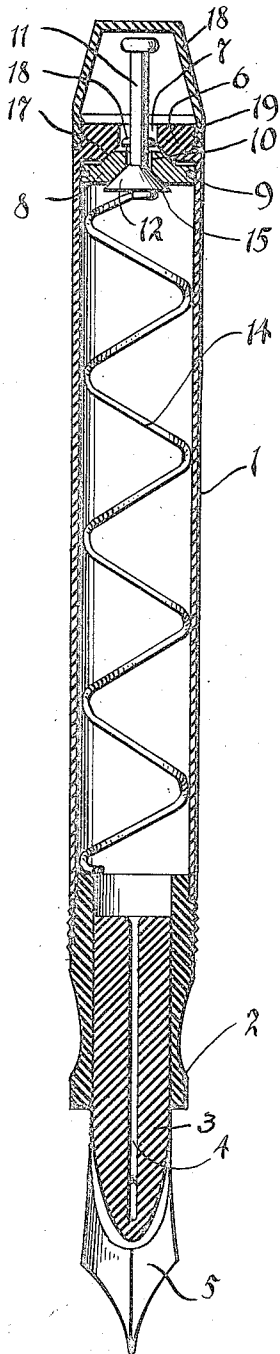


Fig. 1.

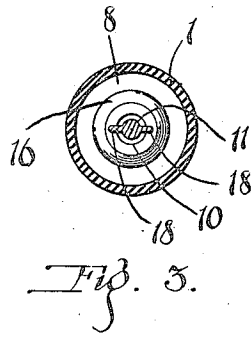


Fig. 3.

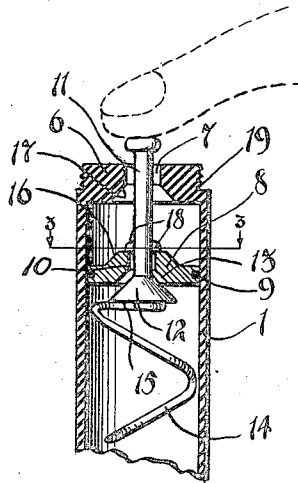


Fig. 2.

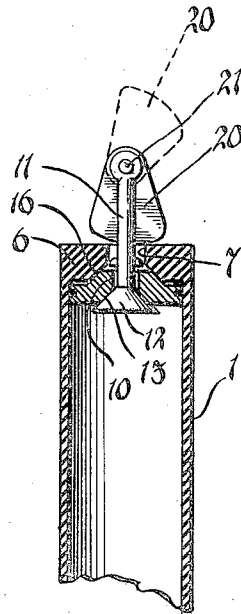


Fig. 4.

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FOUNTAIN PEN.

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To all whom it may concern:

Be it known that I, ARTHUR O. DAHLBERG, a citizen of the United States, and a resident of Madison, in the county of Dane and State of Wisconsin, have invented a new and useful Improvement in Fountain Pens, of which the following is a full, clear, and exact description.

My invention relates to improvements in self-filling fountain pens of the plunger type, and it consists in the combinations, constructions and arrangements herein described and claimed.

An object of my invention is to provide a device of the character described, in which the ink may be pumped directly into the barrel.

Another object of my invention is to provide a device of the character described which is simple in construction and has very few parts, is not likely to get out or order easily, and is thoroughly practical commercially.

Other objects and advantages will appear in the following specification, and the novel features of the invention will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings, forming a part of the application, in which

Figure 1 is a sectional view of the complete device,

Figure 2 is a partial section of the device with the plunger pressed down,

Figure 3 is a section on the line 3—3 of Figure 2, and

Figure 4 is a partial sectional view of a modified form of the device.

In carrying out my invention, I make use of a barrel 1, having a sleeve 2, in which a member 3 is fixed and provided with a canal 4 for feeding ink contained in the barrel 1 to a pen 5.

The opposite end of the barrel 1 has a thick walled closure 6 having an annular opening 7 centrally located therein.

A piston 8, having a piston ring 9 of soft rubber or other suitable material, and having a circular opening 10 centrally located therein, is slidably disposed in the barrel 1.

Means for actuating the piston 8 is provided by a plunger 11. The plunger 11 is provided with a valve head portion 12 which is normally pressed against a valve seat 13, in the piston 8, and concentric with the opening 10 therein, by means of a spiral spring 14. The spring 14, being compressed be-

tween the sleeve 2 and the lower surface 15 of the valve head 12.

The piston 8 is also provided with a valve head portion 16 which is normally pressed against a valve seat 17 in the portion 6 of the barrel 1 and concentric with the opening therein. This is brought about by means of the spring 14 pressing against the plunger 11, which in turn carries the piston 8 upward.

The plunger 11 is provided with two projections 18 positioned on the plunger 11 so that they are slightly higher than the upper surface of the piston 8 when the plunger and piston are in their normal positions.

A cap 18 is provided to protect the plunger 11 from being accidentally pressed in and is secured to the barrel by means of threads 19.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. To fill the pen, the user removes the cap 18 and inserts the pen up to the sleeve 2 in an inkwell, or the like. He then presses the plunger 11 down as is shown in Figure 2, the air in the barrel being allowed to escape through the opening 10 of the piston and between the projections 18 of the plunger, and out through the opening 7 of the barrel. The piston 8, having frictional engagement with the barrel, will remain in contact with the projections 18 on this downward stroke, thus keeping the valve head 12 away from its seat 13, and enabling the air to pass through as described.

When the plunger 11 is pressed down until its outer head strikes the opening 7, the finger is removed and the spring 14 immediately causes the valve head 12 to contact with its seat 13, and in turn raises the piston 8 back to its former position. In so raising the piston 8, a vacuum is created in the barrel 1 which lifts the ink up through the canal 4 into the barrel.

Referring now to Figure 4, in which I show a modified form of the device, it will be noted that in place of the spring 14 of the preferred form of the device, I provide a cam shaped member 20, pivotally mounted on the plunger 11 at 21 for holding the plunger 11 and the piston 8 in their normal positions.

In the operation of this modified form of the device, when the user wishes to fill the pen, he moves the cam 20 free from contact

with the portion 6 of the barrel 1 to a position as shown by dotted lines. The plunger 11 is then manually faced down and lifted up, the action of the valves being identical to the preferred form as heretofore described. He then swings the cam 20 back to the position shown in full lines, thus locking the plunger and piston in their normal positions.

10 I claim:

1. The combination with a fountain pen having a barrel, of a piston closely fitting said barrel, means for reciprocating said piston, said means comprising a plunger adapted to pass through said piston, and terminating in a valve head at the lower end thereof, projections on said plunger, on the opposite side of said piston and normally higher than the surface thereof, and adapted to engage said piston when said plunger is forced downward, a valve seat provided on said piston to receive said valve head of said plunger, means for normally holding said valve head against said valve seat.

2. The combination with a fountain pen having a barrel, of a piston closely fitting said barrel, a plunger for actuating said piston, a valve common to said plunger and said piston, and adapted to open when said plunger is pressed down, and to close when said plunger is retracted, means for normally maintaining said plunger in a retracted position.

3. The combination with a fountain pen having a barrel, of a piston closely fitting said barrel, a reciprocating plunger extending through the end of said barrel for actuating said piston, a valve common to said plunger and said piston, a spring disposed in said barrel and bearing against said plunger, to normally hold said valve closed, means for opening said valve when said piston is faced in one direction, a cap adapted to cover said extended portion of said plunger to prevent accidental movement of said plunger.

ARTHUR O. DAHLBERG.