

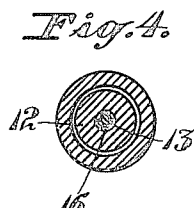
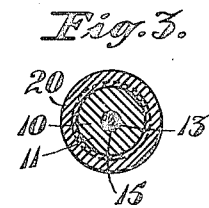
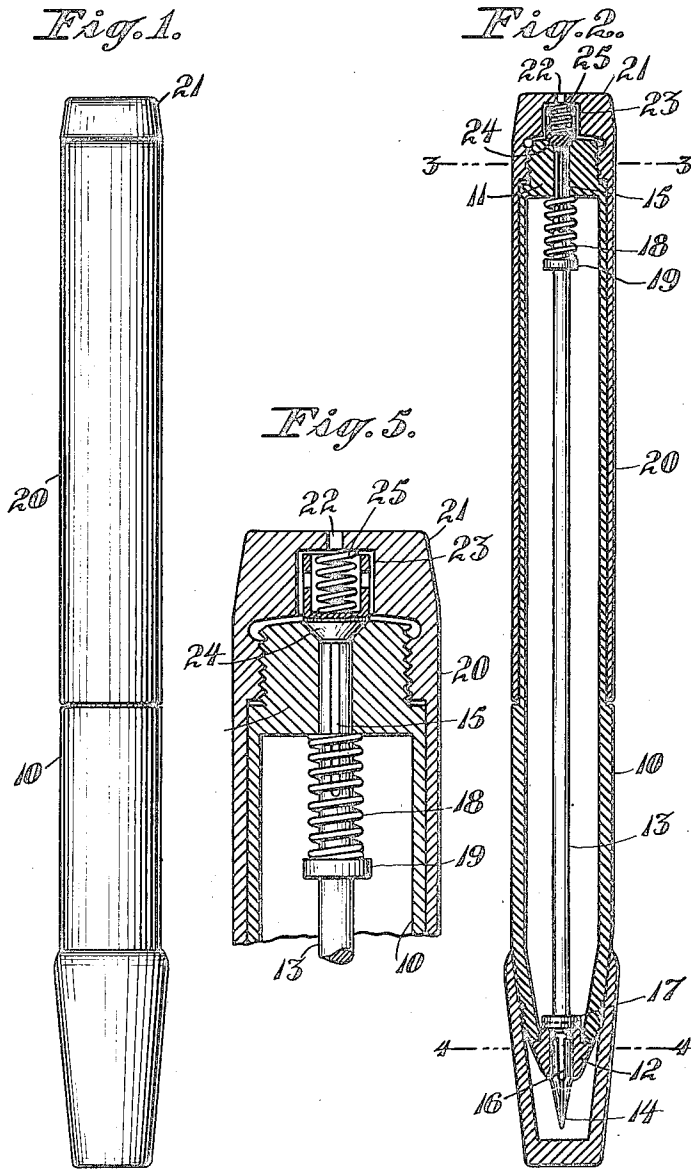
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N. H. COATES

STYLOGRAPHIC FOUNTAIN PEN

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Inventor  
Noel H. Coates  
By Sewing Strong,  
Townsend and Loftis,  
Attorneys

# UNITED STATES PATENT OFFICE.

NOEL H. COATES, OF OAKLAND, CALIFORNIA.

STYLOGRAPHIC FOUNTAIN PEN.

Application filed September 26, 1922. Serial No. 580,724.

*To all whom it may concern:*

Be it known that I, NOEL H. COATES, a citizen of the United States, residing at Oakland, county of Alameda, and State of California, have invented new and useful Improvements in Stylographic Fountain Pens, of which the following is a specification.

This invention relates to stylographic fountain pens, and has for its object to simplify and improve the construction and operation of a device of this sort.

These pens being provided with rigid points, the problem is to control the flow of ink thereto in a simple and effective manner, and at the same time insure against leakage when the pen is not in use. In the present invention I have provided a novel and simple valve action for controlling the flow of ink, the valves automatically opening when the pen is in use and remaining closed at all other times.

I have also embodied a simple and effective self-filling feature in the pen.

One form which my invention may assume is exemplified in the following description and illustrated in the accompanying drawings, in which—

Fig. 1 shows a side elevation of a pen.

Fig. 2 shows a longitudinal, central, sectional view of the same.

Fig. 3 shows a cross section on the line 3—3 of Fig. 2.

Fig. 4 shows a cross section on the line 4—4 of Fig. 2.

Fig. 5 shows an enlarged section of the upper end of the pen.

Referring in detail to the accompanying drawing, it will be seen that the pen comprises a barrel 10 closed at its upper end by a head 11, which preferably is formed integral with the barrel and having at its lower end a plug 12, which preferably is screw-threaded into the barrel. Extending longitudinally through the barrel is a stem 13 which has its upper end fitted slidably in an opening in the head 11, and at its lower end is provided with a stylus 14, which extends through an opening in the plug 12. The portion of the stem extending through the head 11 is fluted or grooved, as shown at 15, to admit air to the interior of the barrel, and the stylus is also provided with grooves 16 to allow ink to flow out. The lower end of the stem has a flange-like

member 17 forming a valve which seats against the upper end of the plug 12, and is pressed thereagainst by a spring 18 encircling the upper end of the stem. This spring presses against a flange 19 on the stem and against the inner end of the head 11.

An elongated cap or tube 20 is fitted over the upper portion of the barrel and is provided at its upper end with interior screw threads to co-operate with screw threads on the head 11. This tube has an end portion 21 formed with a vent opening 22 and a pocket 23. In the pocket is mounted a valve 24 adapted to seat in the opening in the head 11, the upper end of the stem 13 terminating short of the end of the barrel. The valve is suspended by a helical spring 25, which spring, in turn, is secured to the end of the tube 20 and serves to keep the valve 24 seated when the parts are assembled, as shown in Fig. 2.

In operation, the pressure exerted on the stylus 14 in writing will move the stem 13 upwardly and unseat the valve 17, so that ink will flow from the barrel to the tip of the stylus. At the same time the upper end of the stem 13 will contact with the valve 24 and raise the latter, so that air will be admitted through the vent opening 22 to the interior of the barrel.

When it is desired to fill the barrel, this can be done by unscrewing the tube 20 and sliding it back and forth on the barrel so as to create a suction within the barrel, the suction being sufficiently strong to lift the stem 13 so as to unseat the valve 17. The pen can also be filled by removing the plug 12. The adjustment of the upper valve can be varied through the screw-threaded connections between the tube 20 and the barrel.

The above-described device is simple and inexpensive to construct. When not in use no leakage of ink can occur, due to the closing of the valves 17 and 24 by spring action. The opening of these valves for writing purposes is entirely automatic. Also the construction shown herein permits the tube 20 to be used for creating suction to fill the pen.

Various changes in the construction and arrangement of the several parts herein shown and described may be employed without departing from the spirit of my in-

vention as disclosed in the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

5 1. A stylographic fountain pen comprising a barrel, a stylus, a spring-pressed stem on the stylus extending longitudinally of the barrel and guided in openings in the opposite ends of the barrel, a valve carried  
10 by the stem to control the opening in the bottom of the barrel, a vented cap fitted over the upper end of the barrel and a valve carried by the cap to control the opening in the upper end of the barrel, both of said  
15 valves being held normally closed by spring pressure and adapted to open when the stem is moved upwardly under the pressure exerted on the stylus in writing.

20 2. A stylographic fountain pen comprising a barrel, a stylus, a spring-pressed stem on the stylus extending longitudinally of the barrel and guided in openings in the opposite ends of the barrel, a valve carried  
25 by the stem to control the opening in the bottom of the barrel, a vented cap fitted over the upper end of the barrel and a valve carried by the cap to control the opening in the upper end of the barrel, both of said  
30 valves being held normally closed by spring pressure and adapted to open when the stem is moved upwardly under the pressure exerted on the stylus in writing, said cap being  
35 slidable on the barrel and adapted to create suction within the barrel whereby to raise the stem and permit automatic filling of the barrel.

3. A stylographic fountain pen comprising a barrel, a stylus having a stem extending longitudinally of the barrel and guided  
40 in openings in the opposite ends of the barrel, a valve on the stem to control the opening in the lower end of the barrel, spring means exerting downward pressure on the stem to maintain the stylus projected and  
45 the valve thereon closed, a vented cap for the upper end of the barrel and a spring-pressed valve carried by the cap to control the opening in the upper end of the barrel, said last-named valve being so positioned  
50 with relation to the stem as to be raised thereby when the stem is depressed, due to the pressure on the stylus in writing.

4. A stylographic fountain pen comprising a barrel, a stylus, a spring-pressed stem on the stylus extending longitudinally of the barrel and guided in openings in the  
55 opposite ends thereof, a valve carried by the stem to control the opening in the bottom of the barrel, the lower end of the barrel being formed by a screw-threaded plug,  
60 which plug forms at its inner end a seat for the valve, a cap fitted over the upper end of the barrel and a valve carried by the cap to control the opening in the upper end of the barrel, both of said valves being  
65 held normally closed by spring pressure and adapted to open when the stem is moved upwardly under pressure exerted on the stylus in writing.

5. A stylographic fountain pen comprising a barrel, a stylus, a spring-pressed stem on the stylus extending longitudinally of the barrel and guided in openings in the  
70 opposite ends thereof, a valve carried by the stem to control the opening in the bottom of the barrel, a cap fitted over the upper end of the barrel, a spring-pressed valve carried by the cap to control the opening in the upper  
75 end of the barrel, the upper end of the barrel being formed with exterior screw threads to co-operate with interior screw threads on the cap, both of said valves being  
80 normally closed by spring pressure and being adapted to open when the stem is moved upwardly by pressure exerted on the stylus in writing.

6. A stylographic fountain pen comprising a barrel, a stylus, a spring-pressed stem on the stylus extending longitudinally of the barrel and guided in openings in the  
85 opposite ends thereof, a valve carried by the stem to control the opening in the bottom of the barrel, a cap fitted over the upper end of the barrel, said cap having a vent and a pocket in its end, a valve in said  
90 pocket adapted to seat against the opening in the upper end of the barrel and a spring connected to the cap for pressing the valve against its seat, both of said valves being  
95 opened by an upward movement of the stem produced by pressure on the stylus in writing.

NOEL H. COATES.