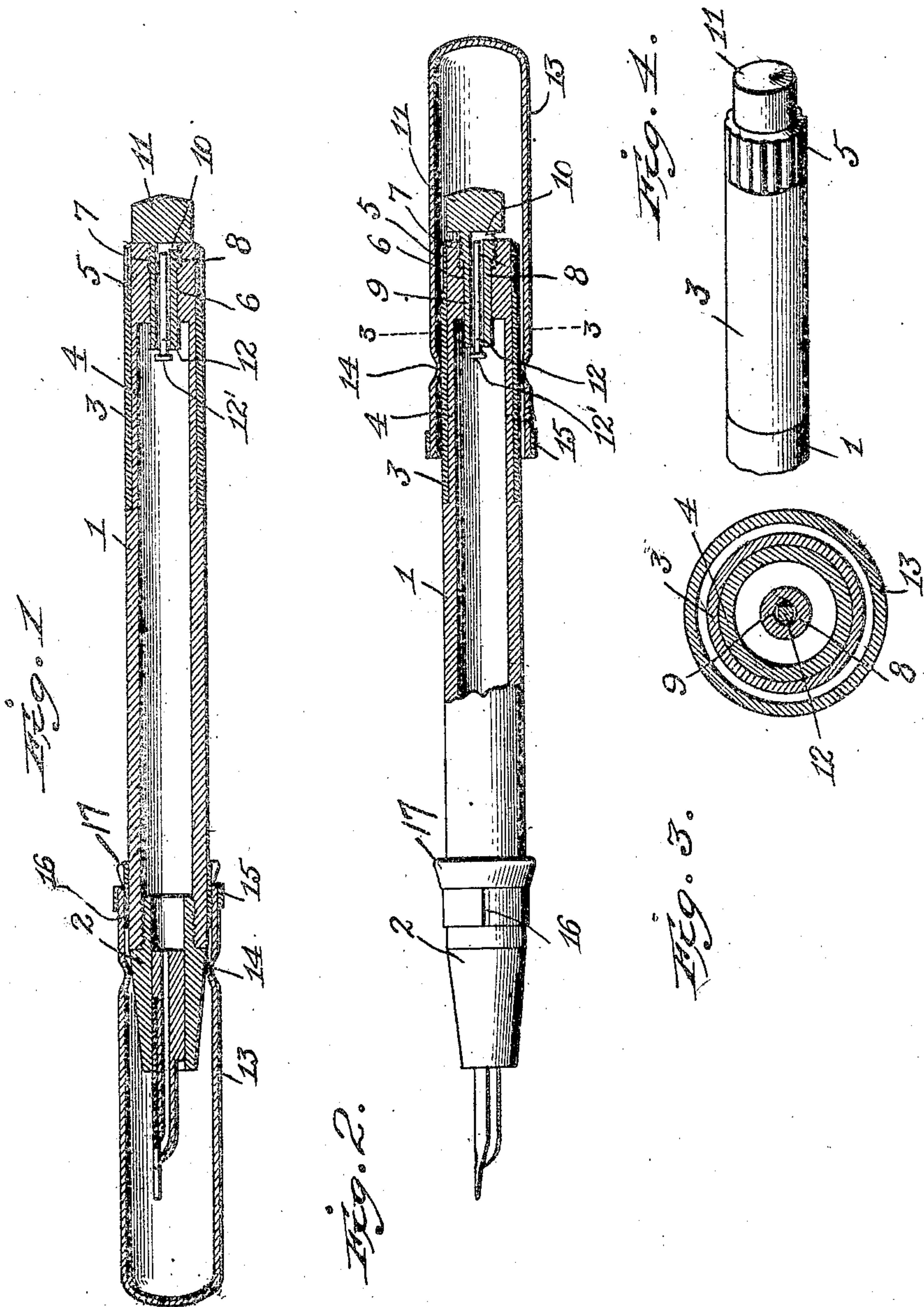


879,817.

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P. P. FLOURNOY.
SELF FILLING FOUNTAIN PEN.
APPLICATION FILED NOV. 20, 1907.



Witnesses

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SELF-FILLING FOUNTAIN-PEN.

No. 879,817.

Specification of Letters Patent.

Patented Feb. 19, 1909.

Application filed November 20, 1907. Serial No. 403,050.

To all whom it may concern:

Be it known that I, PARKE P. FLOURNOY, a citizen of the United States, residing at Bethesda, in the county of Montgomery and State of Maryland, have invented certain new and useful improvements in Self-Filling Fountain-Pens, of which the following is a specification.

My invention relates to fountain pens and particularly to that type wherein the barrel forming the ink reservoir is adapted to be supplied with ink by a suction process.

The principal objects of my invention are, to provide a fountain pen of the class referred to wherein the necessary suction for filling is very effectually produced by manipulation of the pen parts, to provide for a maximum capacity of ink reservoir without enlarging the size of the pen as a whole, and to insure against the accidental discharge of ink during the filling operation.

Other objects are to secure ease and certainty in operation together with simplicity and a substantial construction of parts, and in order to avoid the absence of a joint or leaky connection where the fingers may be stained. Avoid the use of mechanism inside of the pen to get out of repair and take up the ink space, the taking of the pen apart during the filling operation or the use of soft rubber parts or other perishable or oxidizable material whose efficiency of operation is destroyed in a short time, and also in using the same part which performs the function of a cap for the pen when not in use, and as a suction device during the filling operation, also as a pumping means for cleansing the pen and ink reservoir.

My invention will be understood from the following description, in connection with the accompanying drawings, and thereafter more particularly pointed out in the appended claims.

Referring to the accompanying drawings, wherein like reference characters designate like parts in the several views,—Figure 1 is a central longitudinal section on a somewhat enlarged scale showing my improved pen closed, or as carried in the pocket. Fig. 2 is an elevation, partly broken away in longitudinal section, showing the parts as disposed when the reservoir or barrel is about to be filled with ink by suction. Fig. 3 is a

further enlarged transverse section on line 3—3 of Fig. 2. Fig. 4 is a fragmentary perspective view showing the rear end of the pen and the construction of an elongated metallic ferrule or sleeve which forms an important feature of my invention.

The numeral 1 designates the tubular barrel of the pen which may have a nozzle 2 of the usual or any desired type fitted thereto, or made integral with the barrel, such nozzle forming no part of my present invention. Such barrel, as well as most of the other parts of the pen, are preferably formed of hard rubber or like composition, though numerous other materials may be used, and it is to be understood that my invention is not limited in this respect. It is also to be understood that in referring to "hard rubber" hereinafter I intend to include other compositions of like properties.

Upon a reduced rear portion 4 of the barrel an elongated metallic ferrule or sleeve 3 is secured, said sleeve being of the same outside diameter as the main portion of the barrel and forming a continuation thereof. Said ferrule is smooth for the greater part of its length, but has its outer end provided preferably with corrugations as shown at 5 for a purpose hereinafter explained.

The rear end of the barrel 1 is provided with a bore shown at 6, said bore being threaded for a part of its length as at 7. A headed, hollow plug 8 is formed to fit the bore 6 and has formed thereon threads to engage with the threads 7 of the bore and the other part threadless and fitting air-tight in the bore 6. The plug 8 has its inner end extending some little distance into the barrel whereby an annular pocket is formed around the same in the end of the barrel, the purpose of this being to receive and turn back the ink sucked up along the sides of the barrel that might otherwise escape through the bore of the plug. The hollow interior of the plug shown at 9 is preferably circular in section and terminates adjacent to the solid plug head 11 in a transverse passage 10 to the exterior of the plug. As will be clearly apparent from the drawings, the screwing in of the plug so that the squared end of head 11 engages with the end of the barrel will completely and effectually close the transverse opening 10 and thus render the end of

the barrel tight, while a slight unscrewing of said plug will uncover said opening 10, thus providing a passage for air to be drawn from the barrel, as hereinafter described.

5 A small pin 12, preferably square or angular, of hard rubber or the like, is inserted in the hollow interior of plug 8 and held frictionally therein, thus restricting the area of such passage for a purpose that will appear hereinafter. Said pin may be provided with a small head 12' to facilitate withdrawal of the same and enable it to be used also as a cleaner for any obstructions lodged in the hollow interior of the plug 8.

15 The cap designated at 13 is of novel construction and with its arrangement for cooperation with the other novel elements, constitutes an essential feature of my invention. Said cap is preferably made of hard rubber or the like, and is contracted and made thin at a point near its open end as shown at 14. The inner diameter of this contracted portion is such as to cause it to have a close sliding fit over the metallic ferrule or sleeve 3. The reason for thinning the material at this point is to secure greater elasticity to the end that the cap may have a closer fit upon the ferrule end of the barrel while being capable of sliding easily upon it. A metal band 15 may be secured around the open end of the cap to prevent splitting or other injury thereto, when in use in its usual capacity of protecting the pen point, as shown in Fig. 1.

35 16 is a corrugation or depression at the pen end of the barrel 1 in order to avoid a suction and drawing the ink from the pen when the cap 13 is removed from its position shown in Fig. 1. The cap 13 is adapted to engage the stop 17 when placed in position to protect the pen point as shown in Fig. 1.

When the pen is to be filled the plug 8 is unscrewed enough to uncover passage 10; the cap 13 is then slid over ferrule 3, virtually forming therewith a pump cylinder and piston. Upon now withdrawing the cap the air will be drawn from barrel 1, through the hollow plug 8, and, the pen point having been previously inserted in ink, the ink will be drawn by suction into the barrel 1 and fill the same. The passage 9 being constricted by pin 12, the inflowing ink will fill and close said passage upon the withdrawal of the cap, thus preventing the influx of air and consequent discharge of ink before plug 8 could be screwed down.

The purpose of the corrugations 5 on ferrule 3 is to admit a small quantity of air and thus gradually break the suction within cap 13 upon its withdrawal and thus enable it to be removed gently without violent reaction. It will be apparent that by the employment of the metallic ferrule 3 in conjunction with the cap 13 of hard rubber or the like, I provide two substances of unlike composition

which are therefore much better adapted to avoid unnecessary friction and thus form a closer fit so insuring a better suction effect with easy movement one upon the other, than would be the case were the sliding fit between two substances of the same or like composition. Another important feature of my arrangement and which avoids the necessity of knocking or jarring the pen in order to force the ink through and start the pen is effected by first unscrewing the plug 8 more or less depending how much pressure is to be exerted on the ink within the barrel 1 and then screwing it back into its normal position when the ink will force towards and through the pen without scattering or spilling the ink as is usual during similar operations.

I do not desire to be limited as to the particular material of ferrule 3. Various metals or alloys may be selected for ornamental or utilitarian considerations, and I even contemplate the possible employment of certain non-metals therefor, the essential point being that the materials of cap 13 and ferrule 3 be of sufficiently unlike composition to insure effective fitting with the least friction.

Having now fully described my invention and set forth its advantages, what I claim as new and desire to secure by Letters Patent is as follows:—

1. A combined closure and suction cap for self-filling fountain pens having a portion of its length of contracted and thinner cross section and adapted to engage at that point only the exterior surface of a fountain pen barrel.

2. A combined closure and suction cap for self-filling fountain pens having formed thereon a drawn in and thinned annulus adjacent its open end for the purposes described.

3. A fountain pen comprising a barrel having an elongated metallic ferrule secured upon an end thereof, and a suction cap adapted for close sliding fit with said ferrule, said ferrule having air inlets adjacent its outer end.

4. A fountain pen comprising a barrel having an elongated metallic ferrule secured upon an end thereof, and a suction cap adapted for close sliding fit with said ferrule, said ferrule having corrugations formed thereon adjacent its outer end.

5. A fountain pen comprising a barrel having a bore through its rear end and a headed plug for engagement with said bore, and extending a little way into the reservoir and forming an annular recess with the barrel during the filling operation of the pen, said plug having a normally closed passage there-through arranged to be uncovered upon a partial withdrawal of the plug.

6. A fountain pen comprising a barrel having a partially threaded bore through its rear

end, a headed plug threaded for engagement with said bore, said plug having a normally closed circular passage therethrough arranged to be uncovered upon a partial withdrawal of said plug, and an angular pin adapted for frictional engagement with the walls of said passage.

7. A fountain pen comprising a barrel having a pen at one end and a bore through its other or rear end, a plug adapted for airtight engagement with said bore and having a section adapted to project into the barrel

and form an annular recess with the same during the filling operation of the pen, and means for withdrawing and inserting said plug into said bore for forcing the ink within the barrel to or through the pen.

In testimony whereof I affix my signature in presence of two witnesses.

PARKE P. FLOURNOY.

Witnesses:

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