

1,300,849.

Patented Apr. 15, 1919.  
 2 SHEETS—SHEET 1.

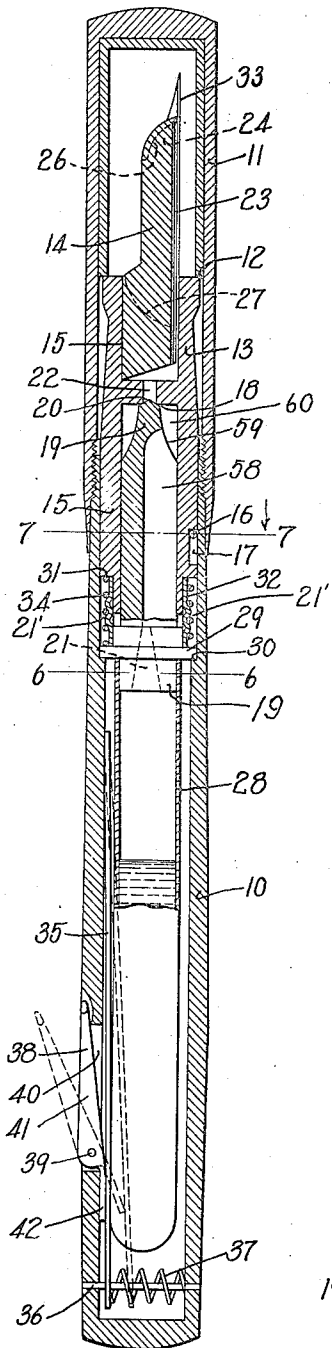


FIG. 1.

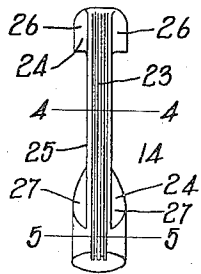


FIG. 2.

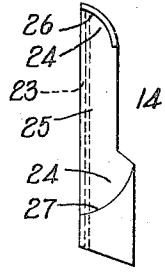


FIG. 3.

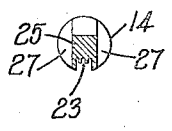


FIG. 4.

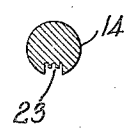


FIG. 5.

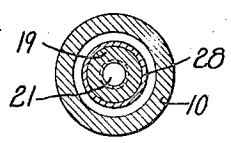


FIG. 6.

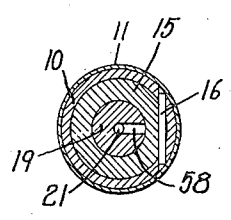


FIG. 7.

Inventors:  
 David F. La France  
 William P. De Witt,  
 by their attorney Charles S. Gooding.

D. J. LA FRANCE & W. P. DE WITT.

FOUNTAIN PEN.

APPLICATION FILED MAY 10, 1918.

1,300,849.

Patented Apr. 15, 1919.

2 SHEETS—SHEET 2.

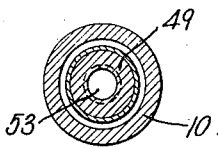
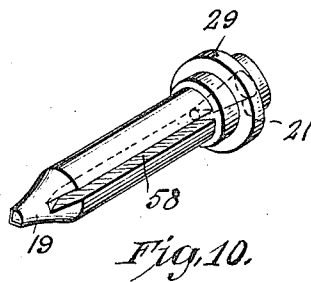
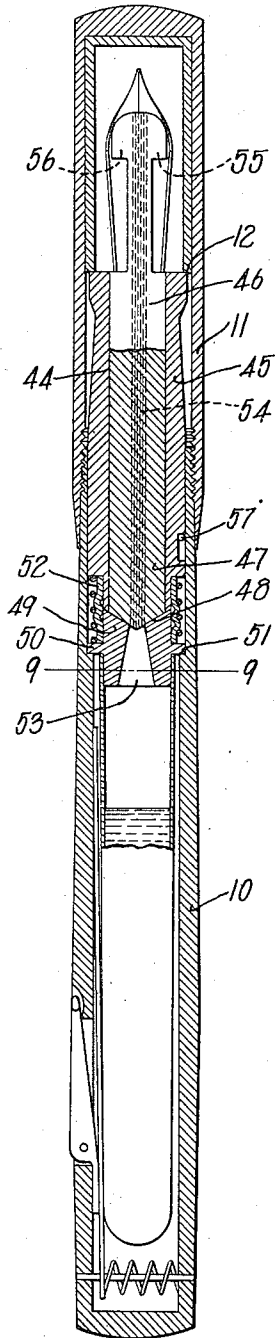


Fig. 9.

Fig. 8.

Inventors:  
David J. La France  
William P. De Witt,  
by their attorney, Charles S. Gooding.

# UNITED STATES PATENT OFFICE.

DAVID J. LA FRANCE AND WILLIAM P. DE WITT, OF SOMERVILLE, MASSACHUSETTS,  
ASSIGNORS TO DE WITT LA FRANCE CO., OF CAMBRIDGE, MASSACHUSETTS, A PART-  
NERSHIP COMPOSED OF DAVID J. LA FRANCE AND WILLIAM P. DE WITT.

## FOUNTAIN-PEN.

1,300,849.

Specification of Letters Patent.

Patented Apr. 15, 1919.

Application filed May 10, 1918. Serial No. 233,692.

*To all whom it may concern:*

Be it known that we, DAVID J. LA FRANCE and WILLIAM P. DE WITT, citizens of the United States, residing at Somerville, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Fountain Pens, of which the following is a specification.

This invention relates to improvements in fountain pens, the object of the invention being to provide a fountain pen which is so constructed as not to leak when closed, either when laid upon a desk in a horizontal position or when in the pocket in a vertical position with the pen pointing downwardly.

The object of the invention is further to provide a fountain pen in which very little, if any, ink is left within the feed section when the pen is closed.

The invention consists in an improved construction of the pen section and the feed section, whereby said pen section and feed section are provided, preferably, with a valve seat located within the pen section and at a comparatively short distance from the pen.

The invention further consists in providing means whereby the pen section and feed section form together a member which is arranged to slide longitudinally in the casing of the pen and by so sliding to open or close the passage for the ink by bringing the valve and valve seat into contact with each other.

The invention further consists in connecting one end of the pen section to the valve plunger by a flexible sleeve which forms a liquid tight joint surrounding the space between the lower end of the pen section and the valve plunger.

With these ends and improved constructions in view the invention further consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims thereof.

Referring to the drawings:

Figure 1 is a sectional elevation of one embodiment of our invention.

Fig. 2 is a rear elevation of the feed section.

Fig. 3 is a side elevation of the feed section viewed from the right of Fig. 2.

Fig. 4 is a sectional plan taken on line 4-4 of Fig. 2.

Fig. 5 is a detail section taken on line 5-5 of Fig. 2.

Fig. 6 is a detail section taken on line 6-6 of Fig. 1.

Fig. 7 is a detail section on line 7-7, Fig. 1.

Fig. 8 is a sectional elevation of a modified form of our invention.

Fig. 9 is a sectional plan taken on line 9-9 of Fig. 8.

Fig. 10 is a detail perspective view of the plunger valve shown in Fig. 1.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, referring to the form of our invention illustrated in Figs. 1 to 6 inclusive, 10 is the casing of the pen, 11 is a cap having screw-threaded engagement with said casing and having on its interior an annular shoulder 12 adapted to bear against the upper end of a pen section 13.

The pen section 13 consists of a hollow sleeve, within one end of which is secured a feed section 14, said pen section and feed section forming together a member 15 which is slidable longitudinally within the casing 10 and is prevented from rotating within said casing by a transversely extending pin 16 which projects into a slot 17 in the pen section 13 and is fastened at its opposite ends in the casing 10.

Within the pen section 13 is a valve seat 18 located adjacent to the lower end of the feed section 14 and adjacent to the upper end of a plunger valve 19 which terminates at its upper end at 20 in a conical portion adapted to engage the seat 18.

The passage 21 for liquid extends from the lower end of the plunger valve 19 into a slot 58 which opens out of one side of the plunger valve 19 and extends upwardly to a point adjacent the upper end of said plunger valve. The upper end of the plunger valve is tapered at 59, leaving a chamber 60 in the pen section 13 adjacent to a passage 22 which extends through the valve seat 18, said passage leading to the grooves 23 in the periphery of the feed section 14, said grooves 23 extending upwardly from the lower end of the feed section and between two independent pockets 24 located in the periphery of the feed section on opposite sides thereof, said pockets being separated by a partition 25 in the outer edge of which are located the grooves 23, said pockets terminating at their opposite ends in walls 26 and 27 inclined in opposite directions to each other and at an acute angle to the grooves 23.

The object of the two inclined walls 26 adjacent the point of the pen is to hold back the surplus amount of ink that is liable to gather at the point of the pen and prevent the same from blotting while the pen is held in writing position, while the two rear inclined walls 27 are for directing the flow of ink back into the grooves 23 when the pen is not in use, whereby the ink is caused to flow back through the passages 22 and 21 and into the sack 28.

The plunger valve 19 is enlarged at its lower end to form a flange 29 which fits within the casing 10 and rests against a shoulder 30 provided in said casing.

The lower end of the pen section 13 is reduced in diameter to form a shoulder 31 and a sleeve 32 of flexible material surrounds and is fastened to the reduced lower end portion of the pen section 13 and to the lower end of the plunger valve 19 immediately above the flange 29, and is thus rigidly connected at its lower end by means of the lower portion of the valve 19 to the casing 10 so that the space 21' between the lower end of the pen section 13 and the casing is at all times closed against the passage of liquid thereinto from the passage 21.

The sliding member 15, consisting of the pen section 13 and the feed section 14, together with the pen 33 attached thereto, is moved upwardly or outwardly from the casing 10 by a spiral spring 34, one end of which bears against the pen section 13 and the other against the flange 29 of the valve section 19.

The ink is held in the rubber sack 28, the lower end of which is closed and the upper end of which is fastened to the lower end of the plunger valve 19, and said sack is compressed to force the air out preparatory to filling the same by means of a presser

bar 35, the lower end of which is slidably mounted upon a pin 36 extending transversely of the casing 10 and fast thereto, said pin being surrounded by a spiral spring 37 one end of which bears against the presser bar 35 and the other against the inside of the casing 10.

A lever 38 is pivoted at 39 within a slot 40 which extends through the wall of the casing, and said lever has an arm 41 by which it is manipulated and another arm 42 which extends downwardly from the pivot 39 and bears against the presser bar 35 between the pivot 39 and the pin 36, so that when the lever 41 is tipped upon its pivot 39 from the position shown in full lines, Fig. 1, to that shown in dotted lines therein, the arm 42 presses the lower end of the presser bar 35 inwardly at first to the position shown in dotted lines and to a much greater extent than the upper end of said presser bar and thus forces the air out from the lower end of the sack 28 first, thus making sure of there being no air bubbles left in the lower end of the sack 28 to interfere with the complete filling of said sack by the ink when the lever is moved back to release the pressure of the bar 35 upon said sack.

The general operation of the device hereinbefore specifically described is as follows: To fill the sack the cap 11 is removed from the casing 10 by unscrewing the same and the spring 34 then causes the sliding member 15 to be moved outwardly, thus moving the valve seat 18 away from the conical end of the plunger valve 19. The air is now forced out of the sack 28 by moving the arm 41 of the lever 38 outwardly, thus causing the arm 42 of said lever to move the presser bar 35 along the pivotal pin 36 at the lower end of said presser bar and thus compressing the spring 37 and the sack 28 from the lower end thereof toward the upper end, the pen 33 and a portion of the feed section 14 are thrust into the ink, and upon releasing the lever 38 the same will be operated by the spring 37 to bring it to the position illustrated in Fig. 1 and the ink will be drawn upwardly through the pockets 24, through the grooves 23 and the passages 22 and 21 into the rubber sack. The pen is now in readiness for use and after using, the valve seat 18 is brought into engagement with the end 20 of the plunger valve 19 by screwing the cap 11 onto the casing 10 and bringing the shoulder 12 against the upper end of the pen section 13, thus forcing the pen section downwardly into the casing until the valve seat 18 is brought into contact with the plunger valve 19.

It will be seen that when the pen is thus closed the sleeve 32 forms a tight joint between the pen section and the casing, so that no ink can pass outwardly into the casing

and into the cap. When the cap is removed, the pen section and the feed section will be moved outwardly by the spring 34 until the bottom of the slot 17 engages the pin 16 which forms a stop pin to prevent the pen section and the feed section from moving outwardly beyond the proper distance in the casing 10.

In Figs. 8 and 9 a modified form of our invention is illustrated in which the valve seat is arranged within the casing and is stationary, while the valve plunger and its conical shaped end are attached to and move with the pen section, in this case the valve being connected to and forming, in effect, a single piece with the feed section.

Referring to said Figs. 8 and 9, 10 is the casing, 11 the cap, 12 the annular shoulder on the cap as in Figs. 1 to 6 inclusive. 44 is a slidable member consisting of a pen section 45 and a feed section 46. The lower end of the feed section terminates in a projection 47, constituting a plunger valve, which terminates in a conical end 48 adapted to engage a valve seat 49 which is provided with an annular shoulder 50 resting upon a shoulder 51 in the casing 10.

A rubber sleeve 52 is fastened at its lower end to the valve seat 49 and at its upper end to the pen section 45. A passage 53 for the ink extends through the valve seat 49 and the feed section 46 is provided with grooves 54 which lead from the valve seat 49 to a pair of independent pockets 55 and 56 in the upper end of the feed section 46, said pockets being similar in form and function to the pockets shown in that form of our invention illustrated in Figs. 1 to 7 inclusive. The pen section 45 is prevented from rotating by a cross-pin 57 fast to the casing 10.

The operation of the device is substantially the same as that form of our invention illustrated in Figs. 1 to 7 inclusive. The cap 11 being screwed onto the casing will cause the shoulder 12 to engage the pen section 45 and force the same downwardly to bring the valve 47 into contact with the valve seat 49 and cause the flow of ink through the passage 53 along the grooves 54 and into the pockets 55 and 56 to be shut off.

The advantages secured in both forms of our invention are substantially the same. In the form illustrated in Figs. 1 to 7 inclusive, however, the seat of the valve being located so near the pen there is less liability of any ink remaining in the feed section when the valve is closed.

It will be seen that the rubber sleeve 32 in the form of our invention illustrated in Fig. 1 and 52 in the form of our invention illustrated in Fig. 8 perform the same function, that is, they prevent the ink from flowing into the casing and thence into the cap,

although in the first case the lower end of the rubber sleeve is attached to the valve plunger and in the second case the lower end of the rubber sleeve is attached to the valve seat. In the form illustrated in Fig. 1 the valve plunger is stationary with relation to the casing; in the form illustrated in Fig. 8 the valve seat is stationary with relation to the casing and, therefore, in each of these cases the rubber sleeve referred to is connected at its lower end indirectly to the casing and our invention contemplates any construction in which a rubber sleeve is fastened at its upper end to the pen section and at its lower end to the inside of the casing, whereby ink is prevented from flowing into the casing and thus causing a leak through the space between the movable pen section and the valve or valve seat, as the case may be.

Having thus described our invention, what we claim and desire by Letters Patent to secure is:

1. A fountain pen having, in combination, a casing, a member slidable within one end of said casing and embodying a pen section and a feed section, and a valve and valve seat, one of said last-named parts being movable with said member toward and away from the other of said parts, there being a passage for liquid leading from said casing to said feed section adapted to be opened and closed by said valve, a flexible sleeve located within said casing, one end of said sleeve connected to said valve or valve seat, the other end of said sleeve connected to the lower end of said pen section, whereby a space between the lower end of said pen section and said casing is at all times closed, and a spring arranged outside of said flexible sleeve, adapted to normally separate said pen section and said valve or valve seat.

2. A fountain pen having, in combination, a casing, a member slidable within one end of said casing and embodying a pen section and a feed section, a valve and valve seat, one of said last-named parts being movable with said member toward and away from the other of said parts, there being a passage for liquid leading from said casing to said feed section, and a spring interposed between said pen section and said valve or valve seat, whereby said passage is normally kept open for the passage of liquid there-through.

3. A fountain pen having, in combination, a casing, a member slidable within one end of said casing and embodying a pen section and a feed section, a valve and valve seat, one of said last-named parts being movable with said member toward and away from the other of said parts, there being a passage for liquid leading from said casing to said feed section, a spring inter-

posed between said pen section and said valve or valve seat, whereby said passage is normally kept open for the passage of liquid therethrough, and a cap having screw-threaded engagement with said casing and being adapted to engage said pen section, whereby said passage may be closed by said valve.

4. A fountain pen having, in combination, a casing, a member slidable within one end of said casing and embodying a pen section and a feed section, a valve seat located within said pen section and a valve fast to said casing and projecting within said pen section and terminating at its upper end adjacent to said seat, there being a passage leading from said casing through said valve to said feed section adapted to be opened and closed by said valve.

5. A fountain pen having, in combination, a casing, a member slidable within one end of said casing and embodying a pen section and a feed section, a valve seat located within said pen section and a valve fast to said casing and projecting within said pen section and terminating at its upper end adjacent to said seat, there being a passage leading from said casing to said feed section adapted to be opened and closed by said valve, and means to move said member longitudinally of said casing, whereby said valve seat may be moved into and out of contact with said valve to close and open, respectively, said passage.

6. A fountain pen having, in combination, a casing, a member slidable within one end of said casing and embodying a pen section and a feed section, a valve seat located within said pen section and a valve fast to said casing and projecting within said pen section and terminating at its upper end adjacent to said seat, there being a passage leading from said casing to said feed section adapted to be opened and closed by said valve, means to move said member longitudinally of said casing, whereby said valve seat may be moved into and out of contact with said valve to close and open, respectively, said passage, and a flexible sleeve, one end secured to said valve, the other end secured to said pen section, whereby an opening between the lower end of said pen section and said casing is at all times closed.

7. A fountain pen having, in combination, a casing, a member slidable within one end of said casing and embodying a pen section and a feed section, a valve seat located within said pen section, a valve fast to said casing projecting into said pen section and terminating at its upper end adjacent to said valve seat, there being a passage leading from said casing to said feed section, and a cap having screw-threaded engagement with said casing and adapted to engage said pen section, whereby said pen section may be

moved longitudinally within said casing and said valve seat brought into contact with said valve to close said passage.

8. A fountain pen having, in combination, a casing, a member slidable within one end of said casing, and embodying a pen section and a feed section, a valve seat located within said pen section, a valve fast to said casing projecting into said pen section and terminating at its upper end adjacent to said valve seat, there being a passage leading from said casing to said feed section, a cap having screw-threaded engagement with said casing and adapted to engage said pen section, whereby said pen section may be moved longitudinally within said casing and said valve seat brought into contact with said valve to close said passage and a spring interposed between said pen section and said valve adapted to move said pen section outwardly from said casing and said valve seat away from said valve.

9. A fountain pen having, in combination, a casing, a member slidable within one end of said casing and embodying a pen section and a feed section, a valve plunger having slidable engagement with said slidable member and a flexible sleeve connecting the lower end of said slidable member with said valve plunger.

10. A fountain pen having, in combination, a casing, a valve plunger stationary in said casing, a pen section slidable in said casing and a flexible member connecting the lower end of said pen section to said valve plunger.

11. A fountain pen having, in combination, a casing, a member slidable within one end of said casing and embodying a pen section and a feed section, and a valve and valve seat, one of said last-named parts being movable with said member toward and away from the other of said parts, there being a passage for liquid leading from said casing to said feed section adapted to be opened and closed by said valve, and a flexible sleeve open at its opposite ends and located within said casing, one end of said sleeve being fastened to said valve or valve seat, the other end of said sleeve being fastened to the lower end of said pen section, whereby a space between the lower end of said pen section and said casing is at all times closed.

12. A fountain pen having, in combination, a casing, a member slidable within one end of said casing, and embodying a pen section and a feed section, and a valve and valve seat, one of said last-named parts being movable with said member toward and away from the other of said parts, there being a passage for liquid leading from said casing to said feed section adapted to be opened and closed by said valve, and a flexible sleeve open at its opposite ends and located within said casing, one end

of said sleeve being fastened to said valve  
or valve seat and forming a liquid-tight  
joint therewith, the other end of said sleeve  
being fastened to the lower end of said  
5 pen section and forming a liquid tight  
joint therewith, whereby a space between the  
lower end of said pen section and said casing  
is at all times closed.

In testimony whereof we have hereunto set  
our hands in presence of two subscribing 10  
witnesses.

DAVID J. LA FRANCE.  
WILLIAM P. DE WITT.

Witnesses:

CHARLES S. GOODING,  
SYDNEY E. TAFT.