

No. 607,399.

Patented July 12, 1898.

L. E. WATERMAN.
FOUNTAIN PEN.

(Application filed Aug. 24, 1897.)

(No Model.)

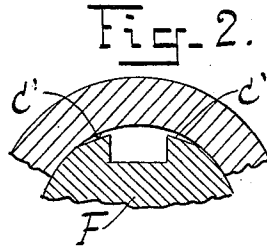
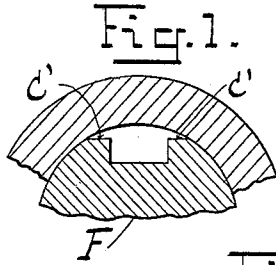


Fig. 3.

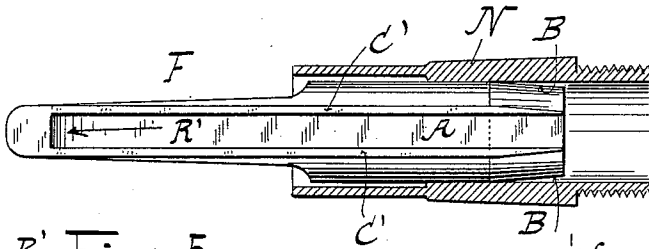
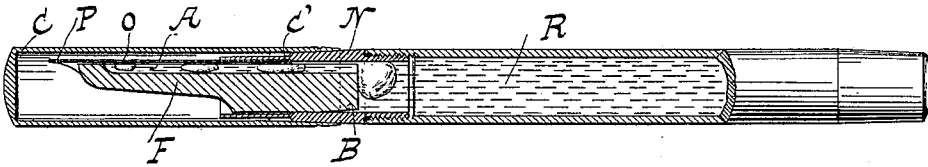


Fig. 4.

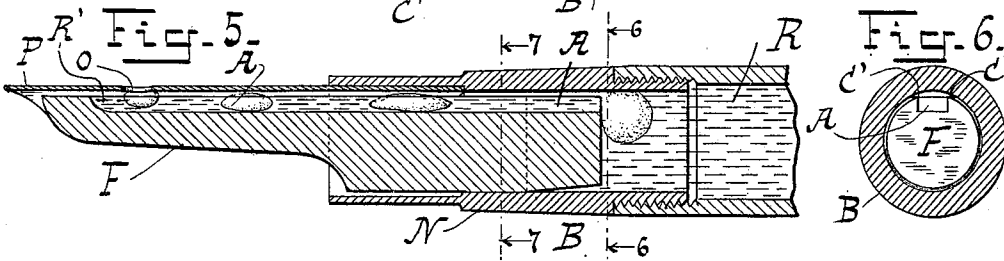


Fig. 5.

Fig. 6.

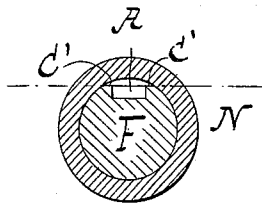


Fig. 7.

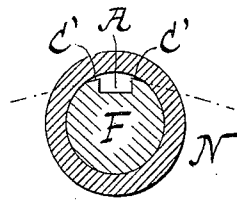


Fig. 8.

Witnesses

Charles Hanemann.
Edward S. Berrall.

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UNITED STATES PATENT OFFICE.

LEWIS E. WATERMAN, OF NEW YORK, N. Y.

FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 607,399, dated July 12, 1898.

Application filed August 24, 1897. Serial No. 649,363. (No model.)

To all whom it may concern:

Be it known that I, LEWIS E. WATERMAN, a citizen of the United States, residing in the city of New York, (Brooklyn,) county of Kings, and State of New York, have made a new and useful invention in Fountain-Pens, of which the following is a specification.

My invention relates to improvements in fountain-pens or pens in which the ink is carried in a reservoir and fed to the writing-pen automatically by its own use; and the objects of my improvements are, first, to provide an annular or approximately annular capillary channel or passage-way into which the ink first passes from the reservoir on the way to the writing-pen; second, to connect this capillary channel or passage-way with the air-duct and with longitudinal capillary channels or passage-ways in the top of the feed-bar at each side of the air-duct, and, third, to combine these capillary channels or passage-ways with the reservoir and subreservoir located under the writing-pen and provided with an air valve or inlet. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a part sectional view of the nozzle and top part of the feed-bar. Fig. 2 is a similar view with a slight modification of detail. Fig. 3 is a part sectional view of the entire fountain-pen. Fig. 4 is a horizontal sectional view of the nozzle and includes a top view of the feed-bar. Fig. 5 is a vertical sectional view of the same parts associated with the lower end of the reservoir. Fig. 6 is an end view of the feed-bar and a sectional view of the nozzle cut on the line 6 6, Fig. 5. Fig. 7 is a sectional view cut on the line 7 7, Fig. 5; and Fig. 8 is a similar view with a slight difference in detail.

Similar letters relate to similar parts throughout the several views.

The reservoir R is provided with a nozzle N, and the nozzle N with the feed-bar F, having the secondary reservoir R', a writing-pen P with an air-inlet O, and is beveled at, near, and around its rear end. The feed-bar is also provided with the air duct or channel A, which is an extension of the secondary reservoir R', and allows the air to pass into the reservoir at the top of the feed-bar when the

inlet O is not closed by ink and the air-duct itself is open throughout or free from ink. At the side of the air duct or channel A the feed-bar may be cut away flat across with surfaces on each side at right angles with the sides of the air-duct and parallel with the bottom of the air-duct or at an acute angle with the sides of the air-duct, as shown in Figs. 2 and 8; only the feed-bar should be so cut away in those parts as to furnish, by the relations of the nozzle thereto, capillary channels or passage-ways, preferably at both sides of the air-duct.

At the end of the feed-bar an approximately annular capillary channel or passage-way B is formed by tapering the inner end of the feed-bar, as shown, and the function of this part of the device is to receive and transfer the ink by capillarity from the reservoir down to the last drop contained therein to the capillary surfaces, channels, or passage-ways C' C' on the way to the pen and to assist these capillary passage-ways and cooperating with the air-duct to admit air and to emit ink in exchange, through the action of the pen and the air inlet or valve O, as the latter inlet is automatically filled with ink or opened so as to admit air.

Instead of beveling the inner end of the feed-bar the inner surface of the nozzle may be beveled at and opposite the same point, so as to form a similar channel for similar purposes.

When and where it becomes desirable to increase the flow of ink to the writing-pen, the capillary capacity of the capillary channels at the side of the air-duct may be increased by beveling them laterally, as shown in Figs. 2 and 8.

I claim as my invention—

1. A feed-bar of a fountain-pen beveled externally at and in front of the inner end so as to form a capillary channel or passage-way for ink from the reservoir, substantially in the manner and for the purpose set forth, in combination with capillary channels or passage-ways, one or more, on the upper and outer side of the feed-bar for conducting the ink from the reservoir to the pen.

2. A feed-bar of a fountain-pen beveled externally at and in front of the inner end so as

to form a capillary channel or passage-way for ink from the reservoir, substantially in the manner and for the purpose set forth, in combination with an air-duct channel consisting of a groove formed in the top of the plug portion of the feed-bar and with capillary channels or passage-ways on one or both sides of the air-duct formed between the plug and the nozzle and extending and conducting ink to the pen.

3. A feed-bar of a fountain-pen beveled externally at and in front of the inner end so as to form a capillary channel or passage-way for ink from the reservoir, substantially in the manner and for the purpose set forth, in combination with an air-duct channel consisting of a groove formed in the top of the plug portion of the feed-bar, with capillary channels or passage-ways on one or both sides of the air-duct formed between the plug and the nozzle and extending and conducting ink to

the pen, and a secondary reservoir located under the pen.

4. A feed-bar of a fountain-pen beveled externally at and in front of the inner end so as to form a capillary channel or passage-way for ink from the reservoir, substantially in the manner and for the purpose set forth, in combination with an air-duct channel consisting of a groove formed in the top of the plug portion of the feed-bar, with capillary channels or passage-ways on one or both sides of the air-duct formed between the plug and the nozzle and extending and conducting ink to the pen, and a secondary reservoir located under the pen provided with an air-inlet located in or under the pen.

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Witnesses:

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JAMES A. SKILTON.