

(No Model.)

L. B. WOOLFOLK.
FOUNTAIN PEN.

No. 494,770.

Patented Apr. 4, 1893.

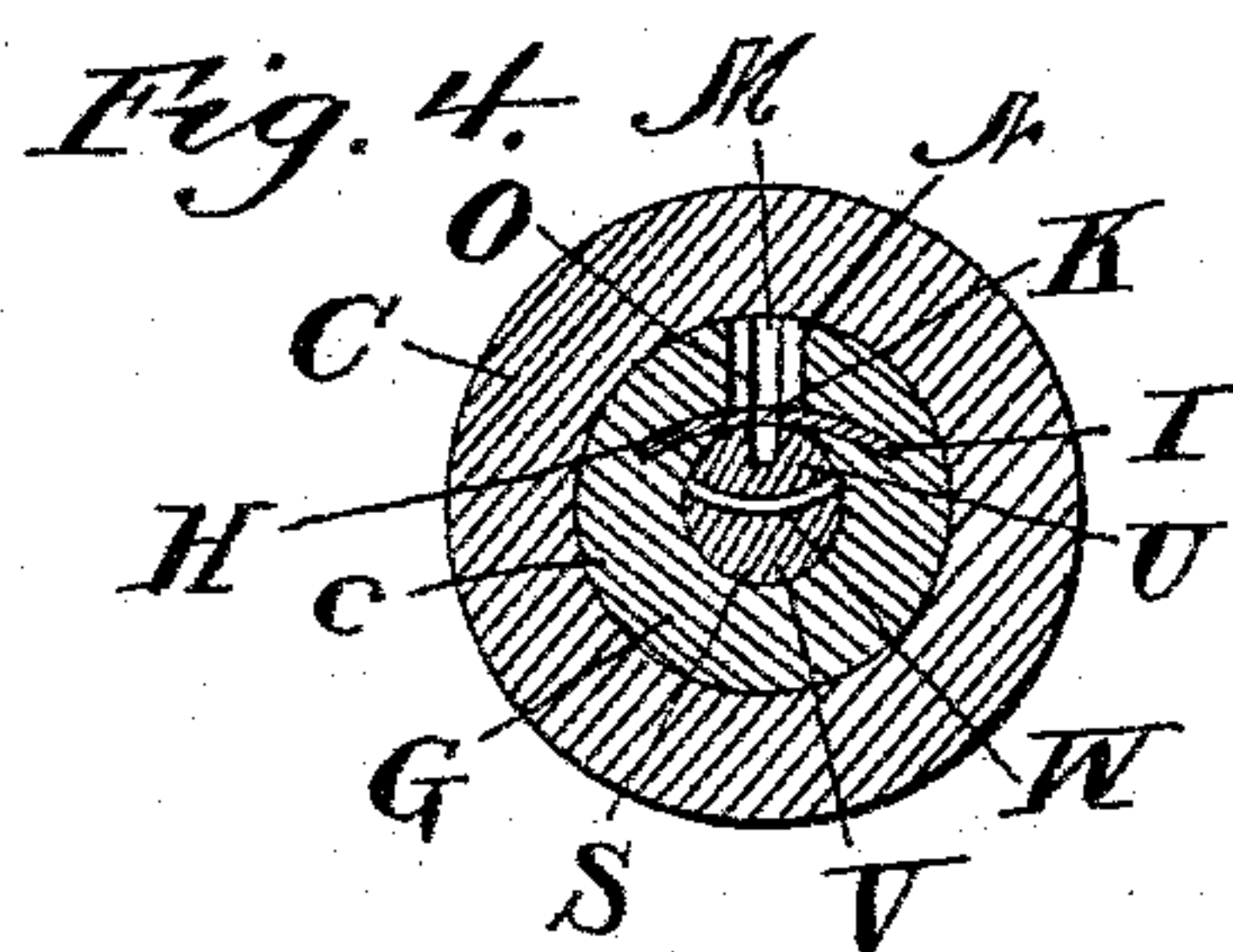
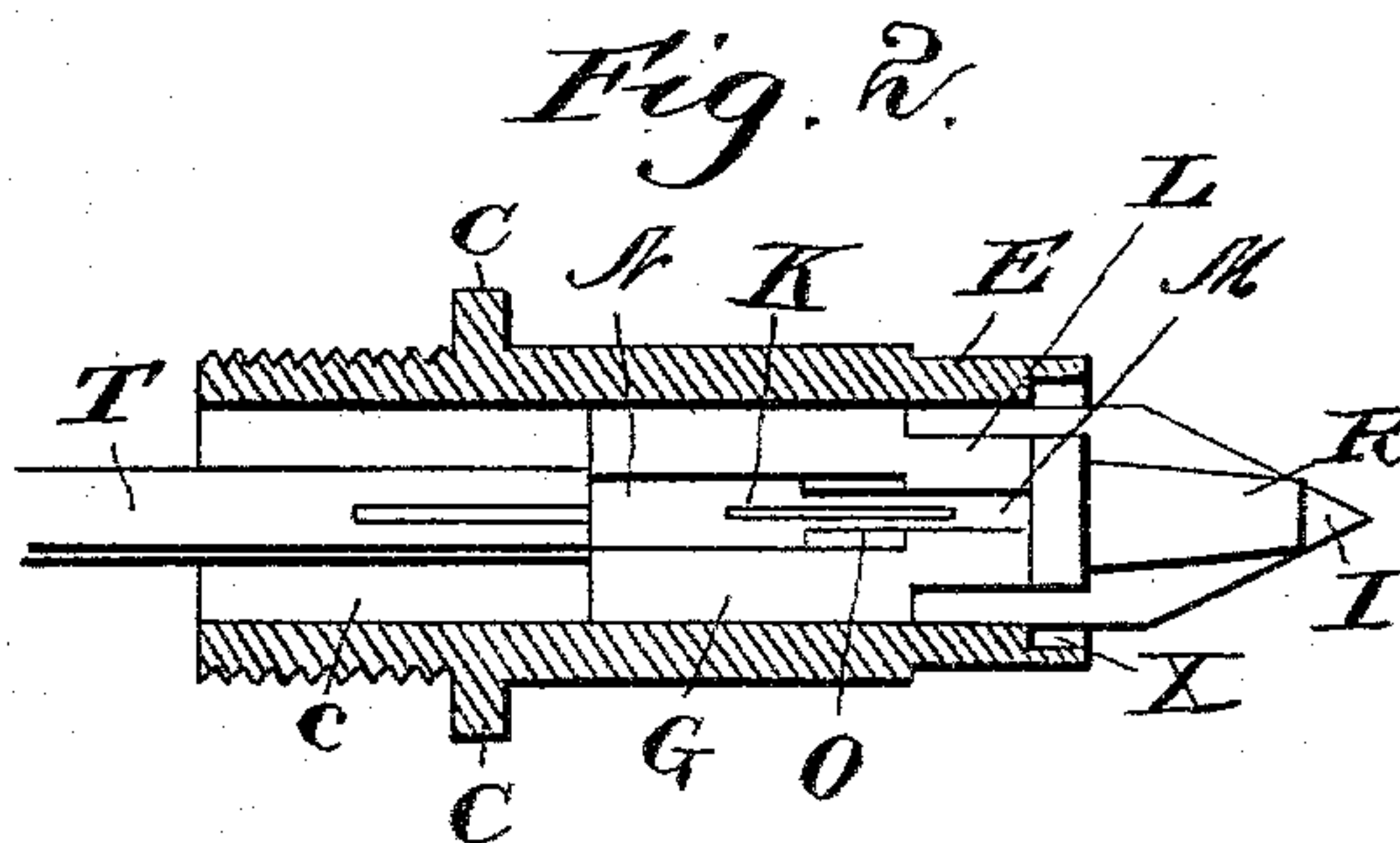
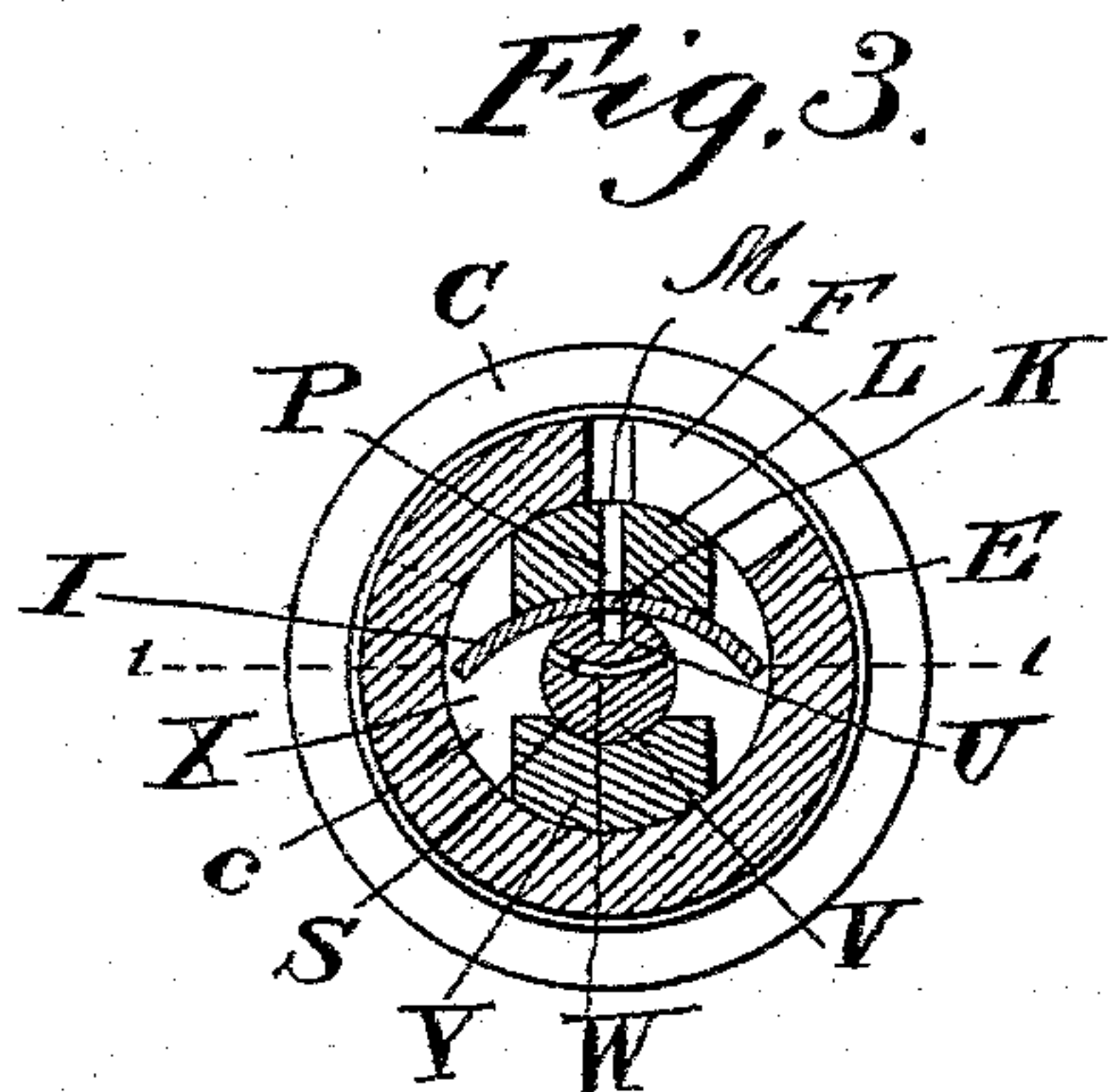
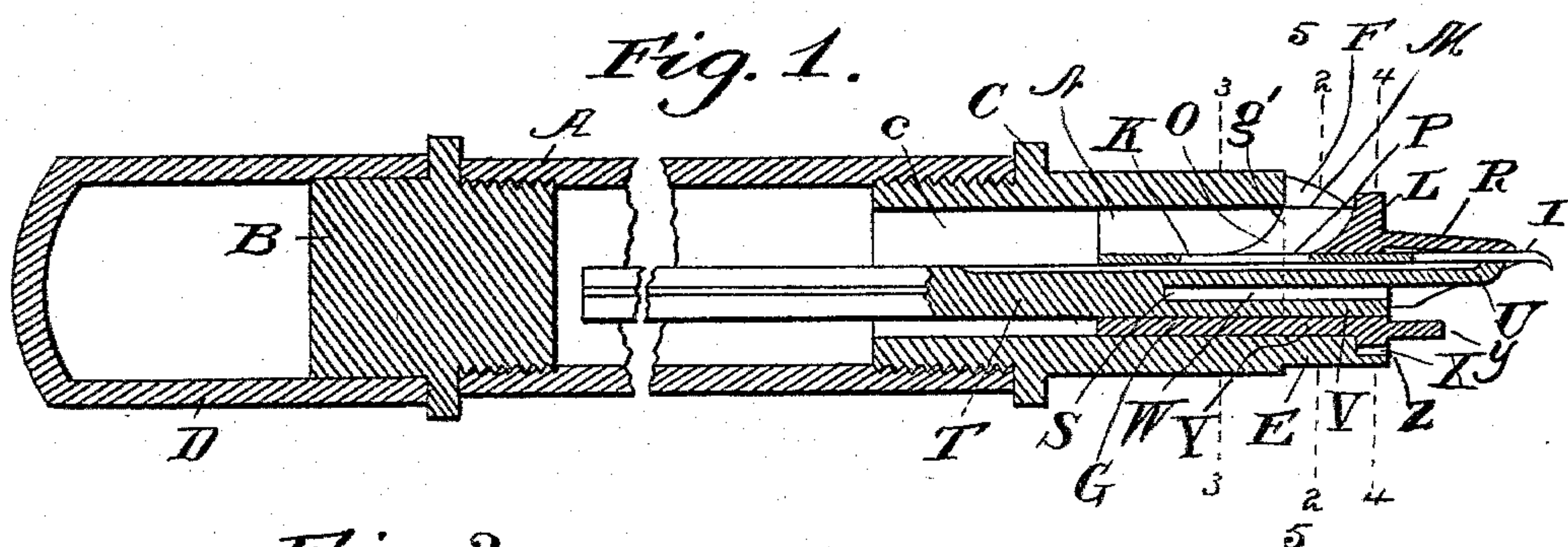
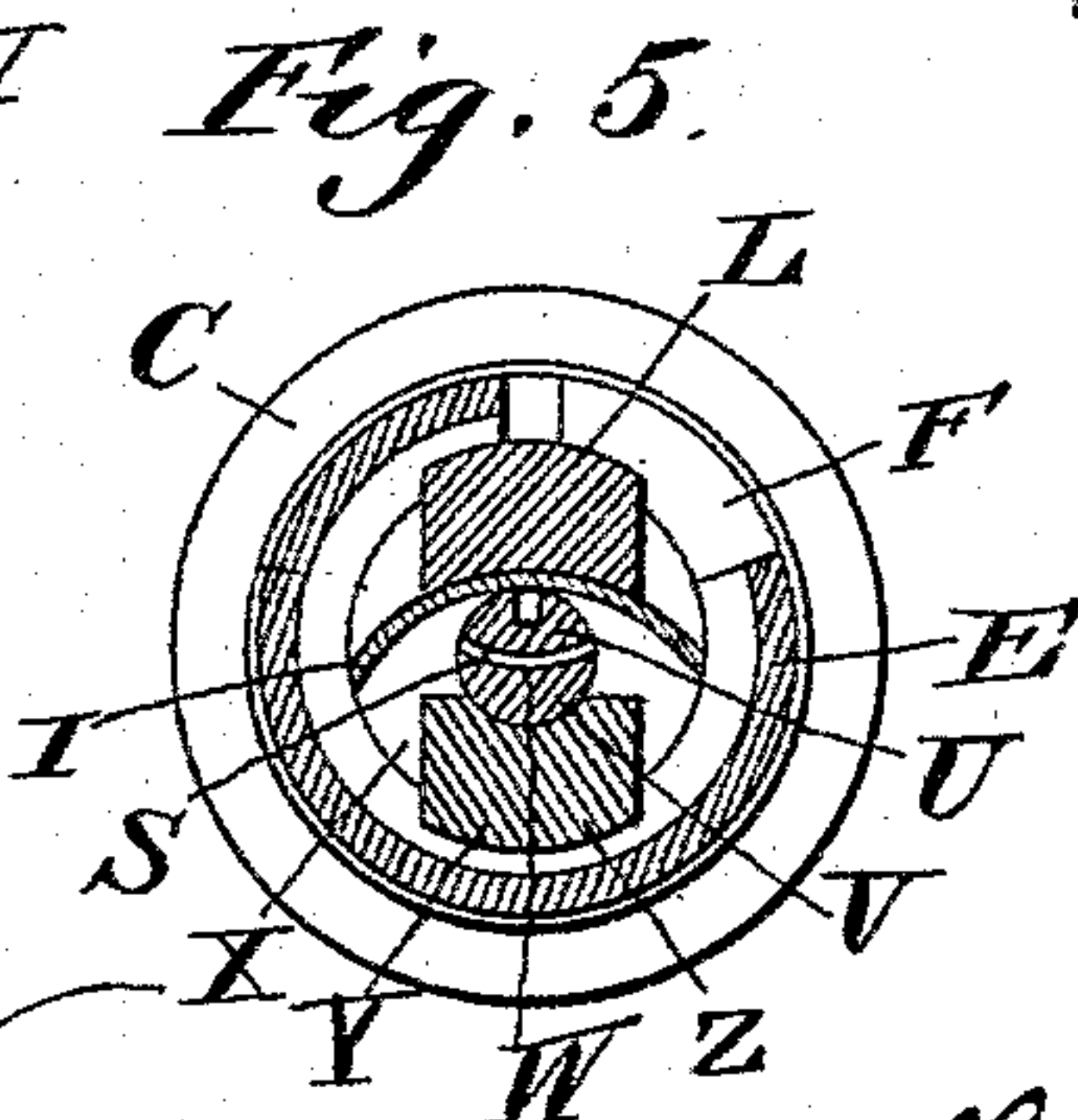
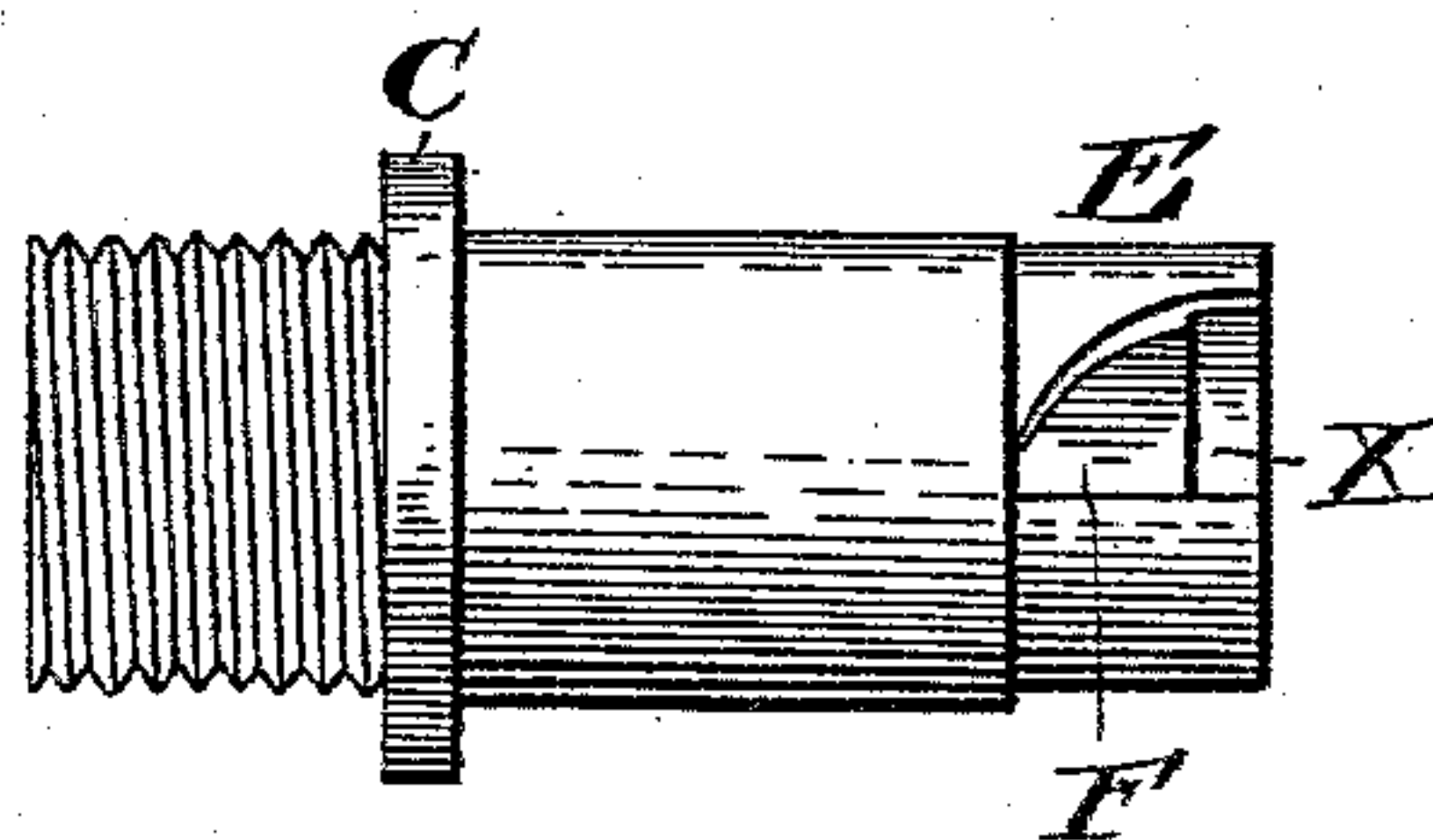


Fig. 6.



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UNITED STATES PATENT OFFICE.

LUCIEN B. WOOLFOLK, OF ORANGE, NEW JERSEY.

FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 494,770, dated April 4, 1893.

Application filed October 18, 1892. Serial No. 449,197. (No model.)

To all whom it may concern:

Be it known that I, LUCIEN B. WOOLFOLK, a citizen of the United States, and a resident of Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Fountain-Pens, of which the following is a specification.

This invention relates especially to fountain pens having a feed-tongue below the pen; and it is my aim to make a fountain pen that will not "leak"—in which the flow of ink out of the ink-holder to the point of the pen may be regulated by regulating at will the inflow of air into the ink-holder—which may be readily cleaned—and which is easily kept in order. The construction by which these objects are attained is hereinafter set forth in this specification, and represented in the accompanying drawings.

The drawings are on an enlarged scale, the better to represent my invention.

Similar parts are designated by similar letters.

Figures 1 to 6 inclusive represent my invention. Fig. 1 is a longitudinal section of a fountain pen representing my invention. Fig. 2 is a sectional plan of the same, representing a horizontal section of the point section through the line 1, 1, of Fig. 3, and a plan of the feed apparatus. Fig. 3 is a cross section of the same through the line 2, 2, of Fig. 1, looking from the point of the pen. Fig. 4 is a cross section of the same through the line 3, 3, of Fig. 1, looking toward the point of the pen. Fig. 5 is a cross section of the same through the line 4, 4, of Fig. 1, looking from the point of the pen. Fig. 6 is a plan of the point section, showing the air aperture therein and the lower end thereof reamed out.

Referring to the drawings, I will now describe my invention. Several of the parts are similar to those described in my patent No. 481,090, issued August 16, 1892, and do not need special description here.

A designates the barrel of the ink-holder which is closed at the upper end by a plug B.

C designates the point section, which is here represented as joined to the barrel A by a screw joint. Here the barrel A and the point section C constitute the ink-holder; though the ink-holder may consist of a barrel

only closed at the upper end, and having a stopper carrying a pen fitting in the lower end thereof.

c designates the bore of the lower part of the ink-holder.

D designates the ordinary protecting cap fitting on the lower end of the ink-holder and also on the upper end thereof.

F designates the air aperture cut in the top side of the lower end of the ink-holder.

G designates a stopper fitting movably in the lower end of the ink-holder so as to turn readily therein; and it is provided with a transverse slot H constructed entirely within the circumference thereof, for holding the pen. The pen I is held in the transverse slot H, and is provided with the ink aperture K in the heel thereof. The stopper G is provided with the lip L fitting close upon the back of the pen, so as to prevent the passage of ink and air between them.

g' designates a dotted line marking the lower end of the stopper G, and the point where the lip L begins. The top side of the lip is turned to fit the adjacent bore of the point section. This is essential for the proper working of my invention. If the bore of the point section should be reamed out up to the lower end of the stopper G, the lip should be turned to fit that enlarged diameter adjacent to it.

M designates the air inlet, which is provided entirely in the lip L, and its mouth is on the top side thereof. Hence air would be excluded from the air inlet were it not admitted thereto by cutting away the air aperture F in the top side of the lower end of the ink-holder. The stopper G may be turned in the ink-holder so as to bring the air inlet beneath the inner wall of the ink-holder; when the air inlet will be entirely closed. And, as the air aperture F in the ink-holder has a sloping edge, the stopper may be turned in the ink-holder so as to enlarge or diminish the size of the opening of the air inlet, or to close it entirely, as already mentioned.

The stopper G is provided with a broad longitudinal groove N in the top side thereof, back of the pen, longer in the top side thereof than the bottom side thereof, and extending on the top side from the upper to the

lower end of the stopper. Hence, the air inlet M, which is provided in the top side of the narrow slot that extends downward from the longitudinal groove N, is entirely within the lip L. The ink duct O is that part of the narrow slot which is next the pen and within the stopper G. The portion of the narrow slot next the pen and within the lip L is designated the ink way P.

R designates an ink gatherer integral with the lip L, and extending down adjacent to the back of the pen. It is not designed to conduct ink to the point of the pen, since the lip L fits close upon the back of the pen so as to arrest the flow of ink and air between them; but it is designed to gather upon the back of the pen ink brought by the feed-tongue U below the pen, and thus secure freedom from "skipping."

The ink gatherer R may be dispensed with, when so preferred, without materially impairing the operation of my invention.

The stopper G is provided with a longitudinal hole S therein below the pen; in which fits the feed rod T, provided with a feed-tongue U integral with the top side of the lower end thereof, and the finger V integral with the bottom side of the lower end thereof, and separated from the feed-tongue by the separating slot W. This feed rod T, with the feed-tongue U, the finger V, and the separating slot W, have been described and claimed by me in my patent No. 481,090, of August 16, 1892.

Below the pen is the ink cup X, which is enlarged by the lower end of the point section being reamed out to a larger diameter. The projection Y is integral with the bottom side of the stopper G, and extends down into the ink cup X, causing it to hold ink more perfectly by capillary attraction. The stop check Z is provided as an enlargement upon the projection Y, and also a similar check is placed upon the lip L. It abuts against the shoulder of the reamed portion of the point section, and thereby limits the entrance of the stopper G into the bore c of the point section. But, if preferred, the lower end of the point section need not be reamed out, and the stop check may abut against the lower end of the point section. There is an extension y integral with the projection Y, for the purpose of forming a finger hold to aid in turning the stopper around in the ink-holder.

In operation according to this construction, when the fountain pen is in use, the stopper is placed in the bore c, so that the mouth of the air inlet is in alignment with the air aperture F, as is represented in the drawings. This allows air to pass through the air aperture F to the air inlet M, whence it flows through the longitudinal groove N, into the ink-holder; and ink flows out of the ink-holder through the longitudinal groove N, the ink duct O, and the ink way P, to the ink aperture K, and thence is carried by the feed-tongue to the point of the pen. And ink also

flows out of the ink-holder to the feed-tongue through the two grooves t, and t', provided in the feed rod T, seen in the drawings. Overflows of ink are caught in the ink cup X, and are fed thence to the pen by the feed-tongue U.

One great advantage of my present invention is the construction of the ink-holder, provided with the air aperture F therein. By means of this construction the air inlet may be entirely opened for the reception of air, when a full flow of ink will pass to the pen; or, by turning the stopper in the bore c, the mouth of the air inlet may be closed to any extent desired. The flow of ink to the pen may thus be perfectly regulated by regulating the inflow of air into the ink-holder, and "leaking" will be prevented. And when the pen is out of use, the stopper may be so turned in the bore of the ink holder so as to close the air inlet entirely when no ink will pass out of the ink-holder, and the pen may be placed in any position in the pocket or on the desk without any "leaking."

Modifications may be made in the details of construction without departing from the principle of my invention. The longitudinal groove N may be made a little longer or shorter, as may be preferred. The reaming of the lower end of the ink-holder may be extended to any point desired, provided the lip L be turned to the proper size to fit the adjacent bore of the ink-holder, so as to close the air inlet when turned underneath the bore.

I have received patents for improvements in fountain pens, Nos. 457,470 and 481,090, issued respectively August 11, 1891, and August 16, 1892. And I have pending an application for a patent for improvements in fountain pens, filed January 13, 1893, Serial No. 458,203. But none of the foregoing have the special features of my present invention. None of them have an air aperture provided in the lower end of the ink-holder to allow air to enter the air inlet. Nor have any of them the lip L extending above the air aperture; nor have any of them the air inlet M constructed entirely in the lip L; nor the extension y to facilitate turning the stopper in the bore.

I do not wish to claim anything set forth in any of the foregoing, but only those features which are new and peculiar to my present invention.

What I claim is—

1. In a fountain pen, the combination with an ink-holder having an air aperture provided in the lower end thereof, of a stopper held in the lower end of the ink holder, adapted to turn therein, provided with an integral lip having an air inlet with its mouth on the top side thereof, and a pen held in the stopper under the lip, air being conveyed through the air aperture in the lower end of the ink-holder to the air inlet when the opening in the stopper is in alignment with the air aperture, and said air inlet adapted to be closed when the

stopper is turned so as to bring it beneath the bore of the ink-holder, all substantially as described.

2. In a fountain pen, the combination with
5 an ink-holder closed at the upper end and provided with an air aperture cut in the lower end thereof, of a stopper held in the lower end of the ink-holder adapted to turn therein, provided with an air inlet having its mouth
10 on the top side thereof, and receiving air through the air aperture in the ink-holder when in alignment therewith, and closed when the stopper is turned so as to bring the air inlet beneath the inner wall of the ink-holder,
15 a pen held in the stopper, and ducts and passages whereby air may enter the ink-holder, and ink may flow out of the ink-holder to the point of the pen.

3. In a fountain pen, the combination with
20 an ink-holder closed at the upper end, of a stopper provided with a transverse slot constructed entirely within the circumference thereof, a pen held in said transverse slot, said stopper having a lip integral therewith fitting
25 close upon the back of the pen, said lip provided with an air inlet whose mouth is on the top side and entirely within said lip, and ducts and passages whereby air may enter the ink-holder, and ink may flow out of the ink-
30 holder to the point of the pen.

4. In a fountain pen, the combination of an ink-holder closed at the upper end, and provided with an air aperture in the lower end thereof, with a stopper held in the lower end
35 of the ink-holder, provided with a transverse slot constructed entirely within the circumference thereof, a pen held in said transverse slot, said stopper having a lip integral there-

with, which fits upon the back of the pen, and is provided with an air inlet on the top side 40 thereof, said lip extending above the air aperture in the ink-holder when the air inlet is in alignment with the air aperture, and ducts and passages whereby air may enter the ink-holder, and ink may flow out of the ink-holder 45 to the point of the pen.

5. In a fountain pen, the combination with an ink-holder closed at the upper end, and provided with an air aperture in the lower end thereof, of a stopper held in the lower end of 50 the ink-holder adapted to turn therein, provided with an integral lip having an air inlet with its mouth on the top side thereof, said lip formed of such a size that its top surface fits in the adjacent bore of the ink-holder, a 55 pen held in the stopper under the lip, air being conveyed through the air aperture in the ink-holder to the air inlet when the opening in the stopper is in alignment with the air aperture in the ink-holder, and said air inlet 60 being closed when the stopper is turned so as to bring it beneath the inner wall of the ink-holder, and ducts and passages whereby air may enter the ink-holder, and ink may flow out of the ink-holder to the point of the pen. 65

6. In a fountain pen, an ink-holder reamed out at its lower end, and having an air passage cut through the lower end at the extremity thereof, substantially as described.

Signed at New York, in the county of New 70 York and State of New York, this 17th day of October, A. D. 1892.

LUCIEN B. WOOLFOLK.

Witnesses:

A. L. HALL,

M. S. POWERS.