

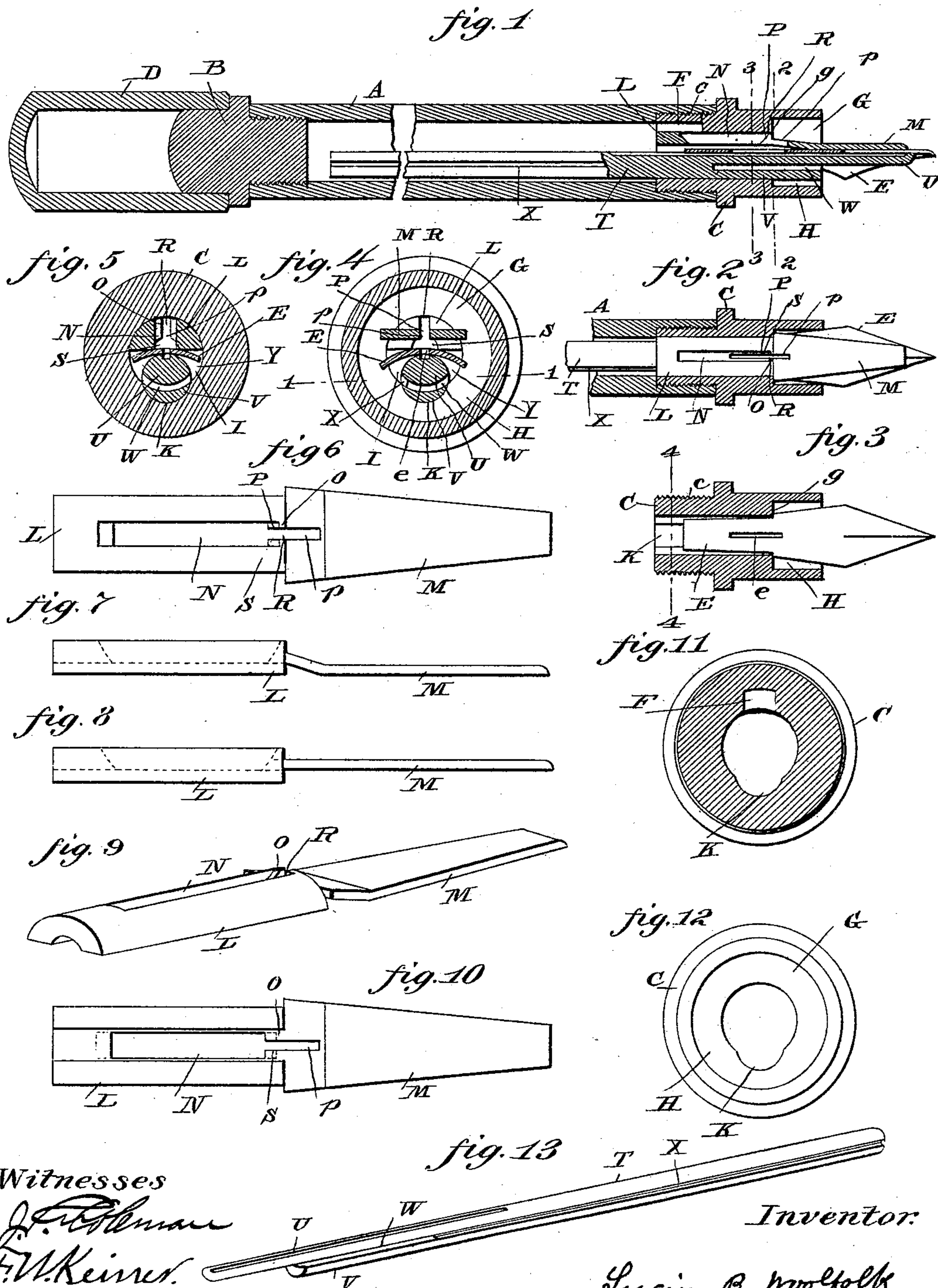
(No Model.)

2 Sheets—Sheet 1.

L. B. WOOLFOLK.
FOUNTAIN PEN.

No. 495,238.

Patented Apr. 11, 1893.



Witnesses

J. P. Keiser
F. V. Keiser

Inventor:

Lucian B. Woolfolk

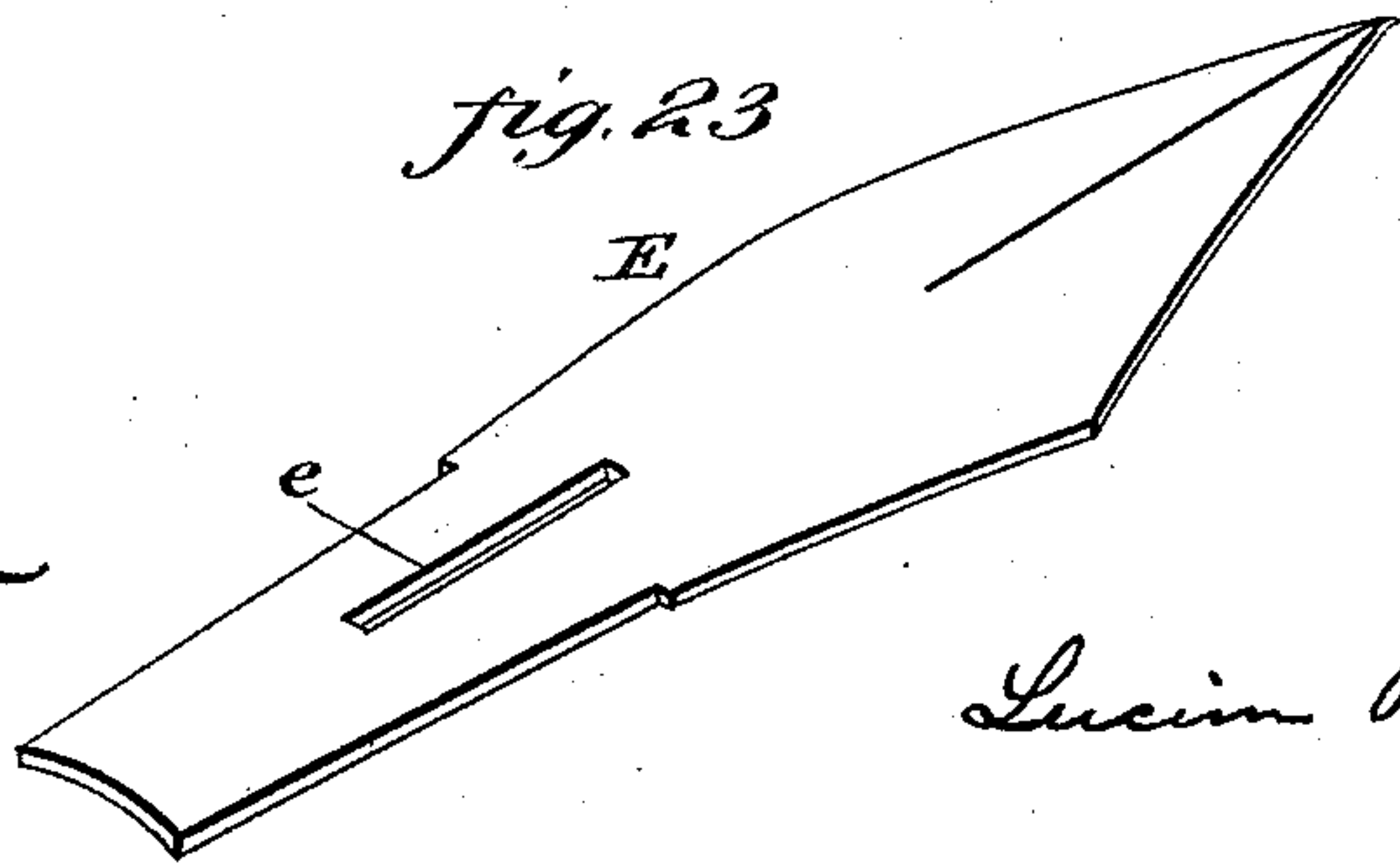
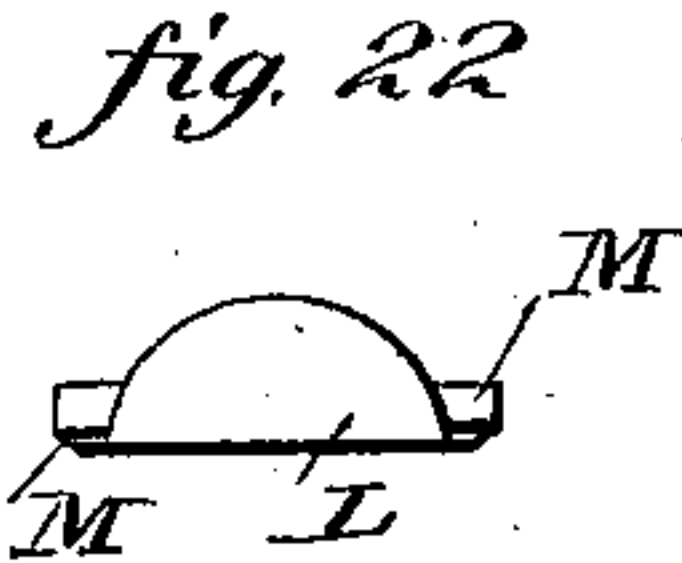
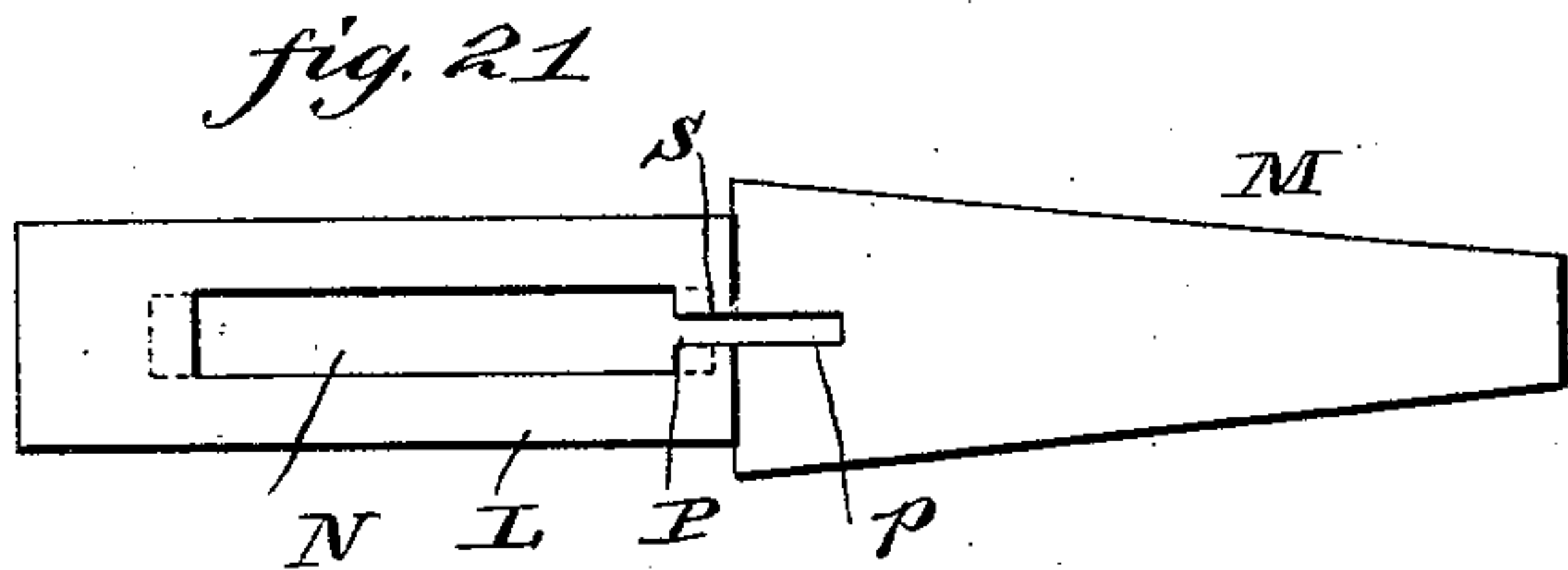
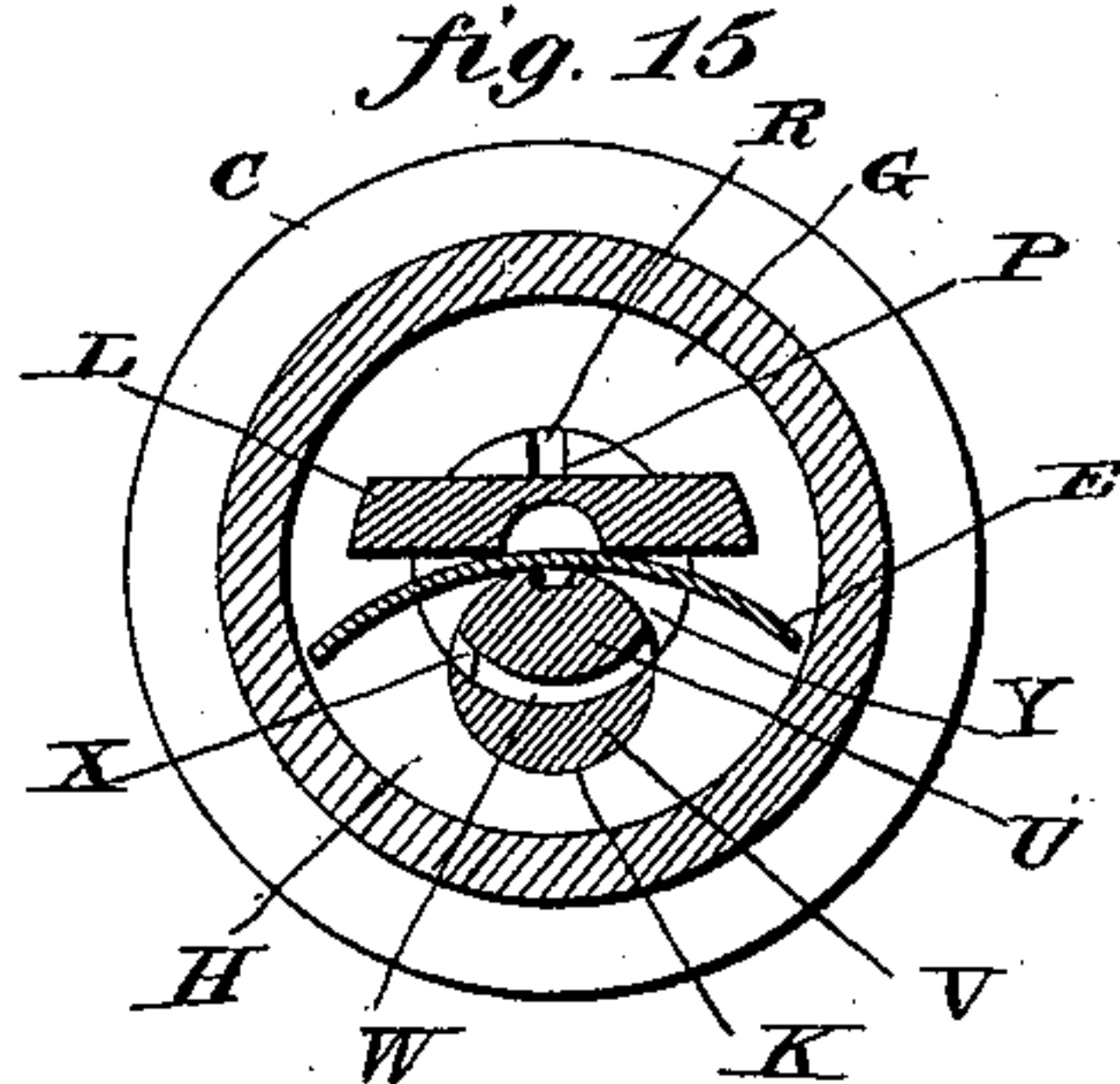
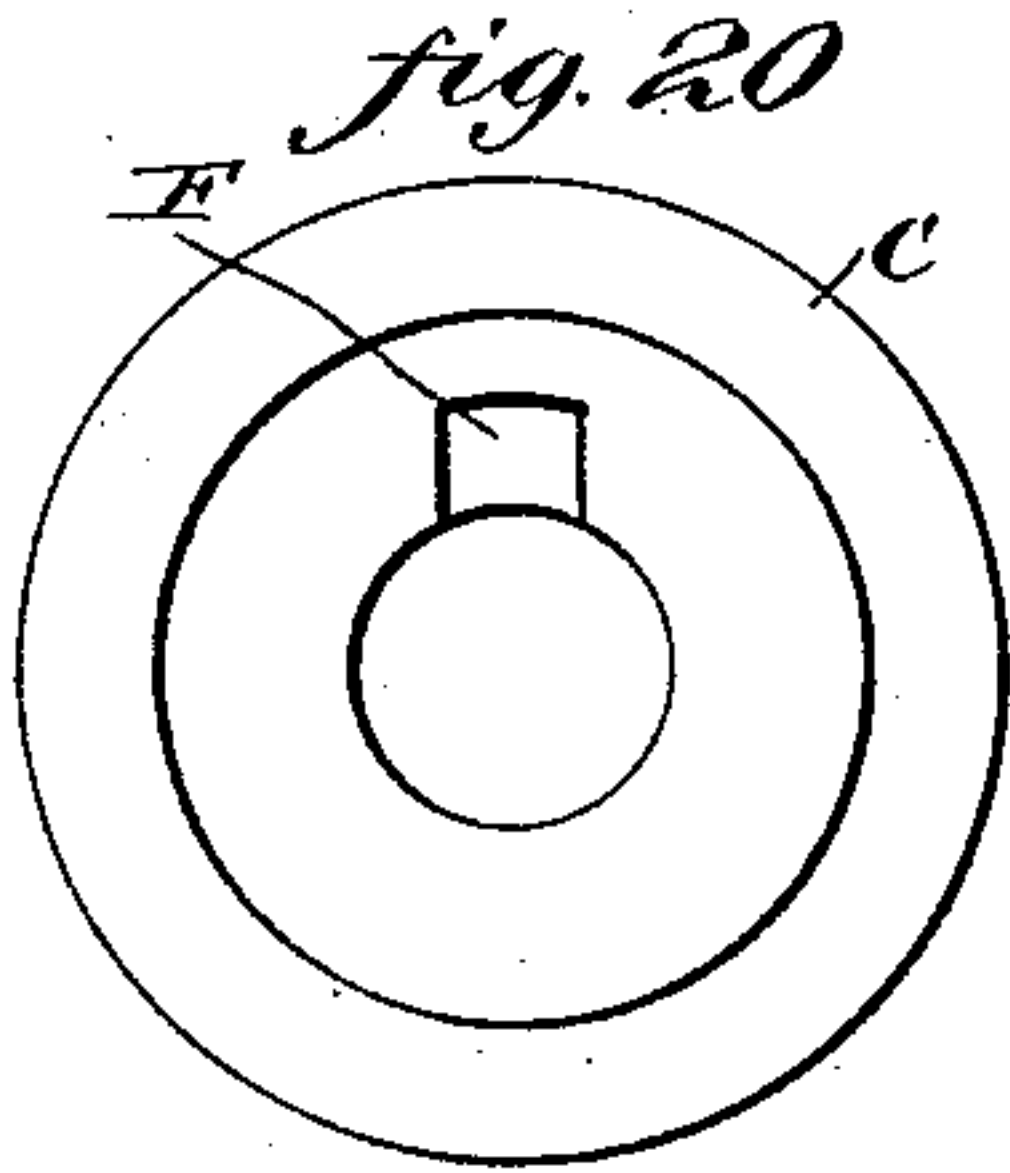
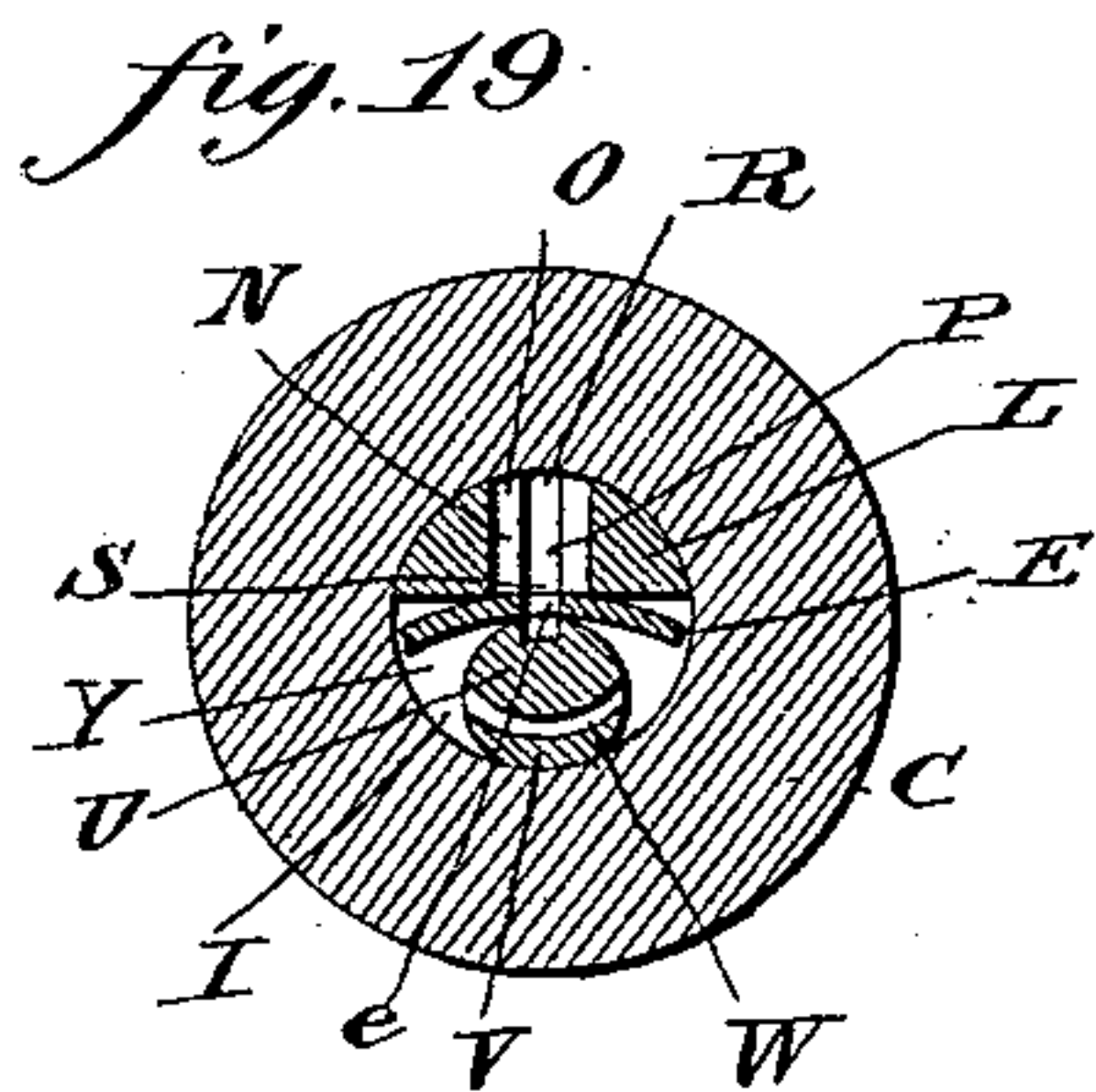
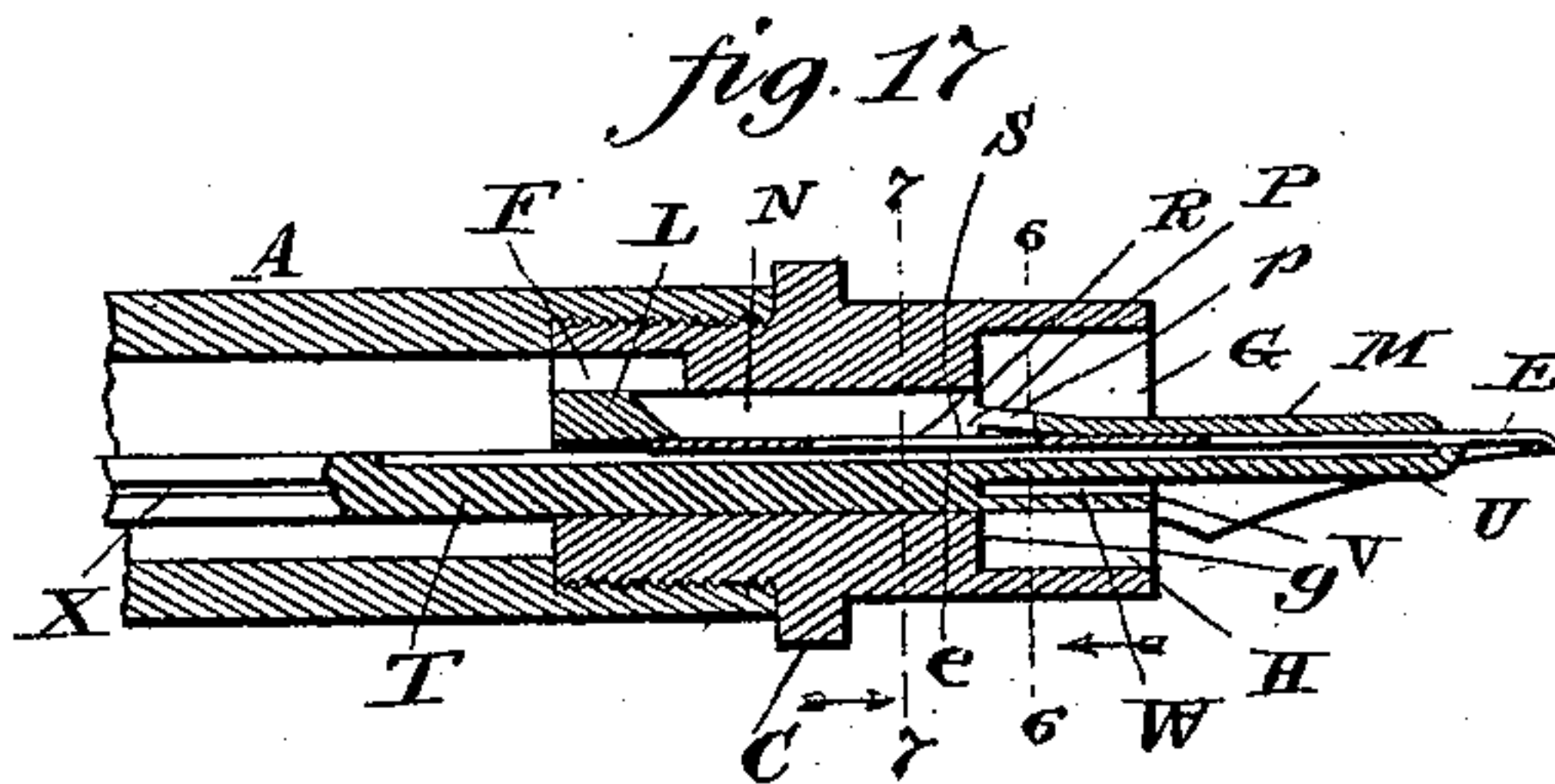
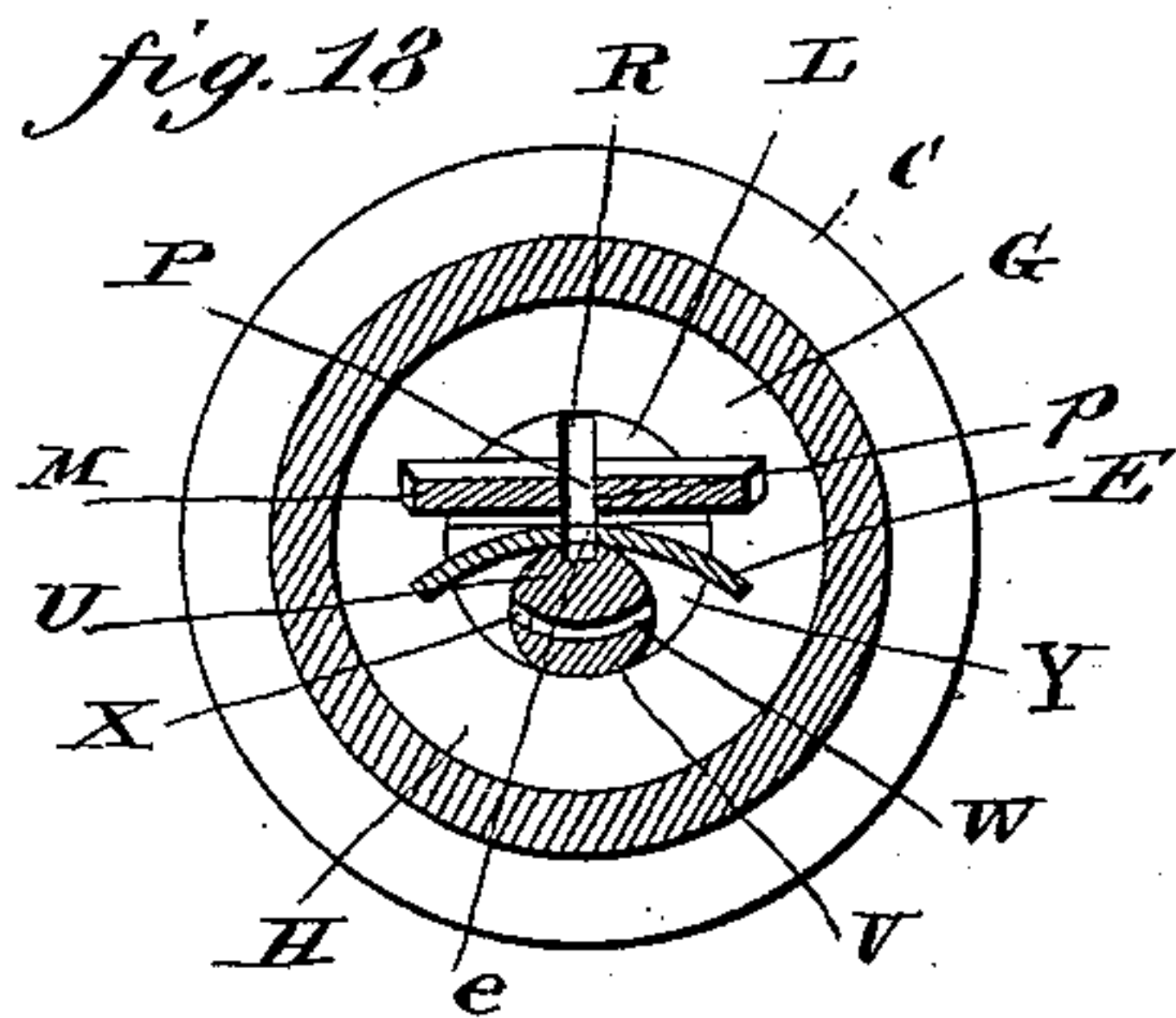
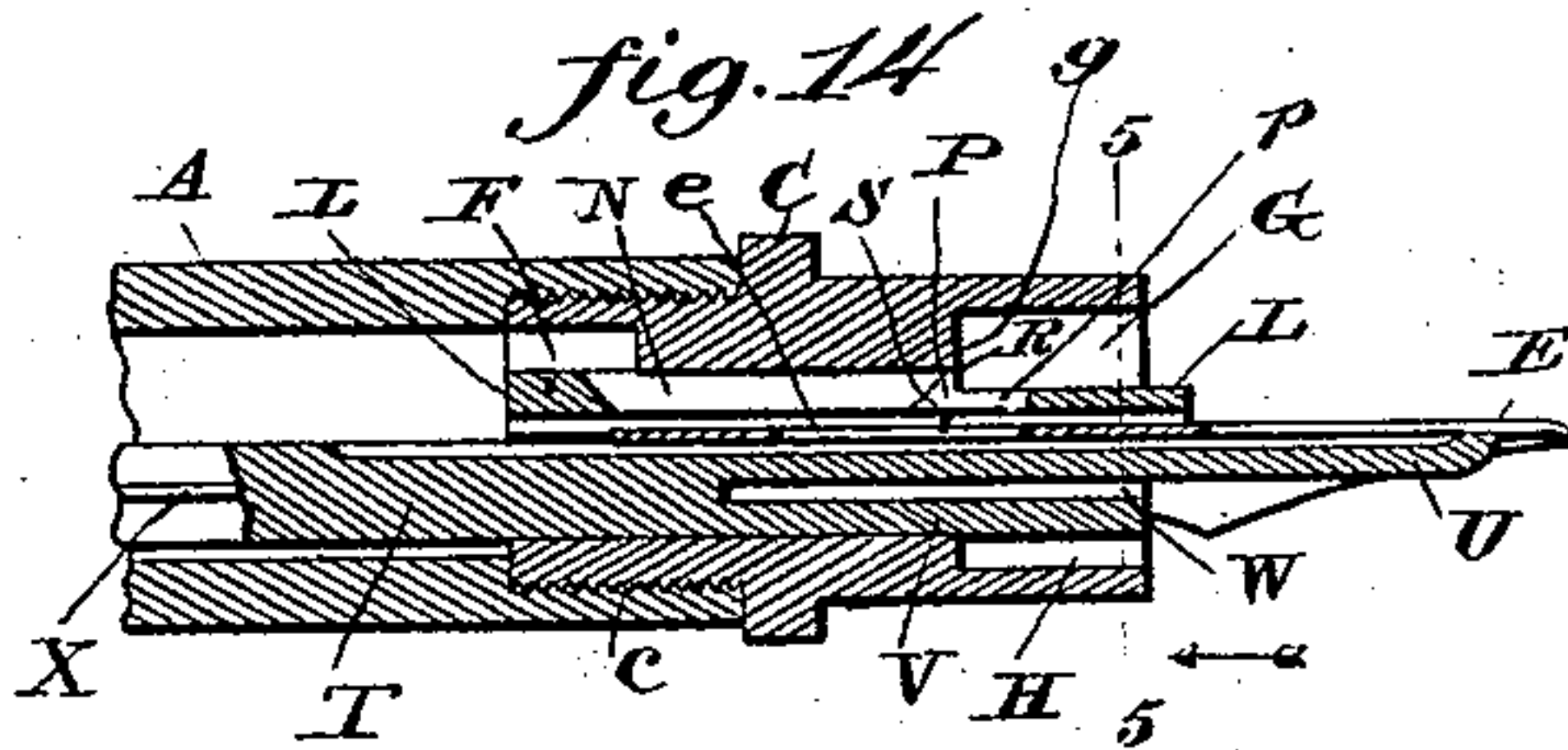
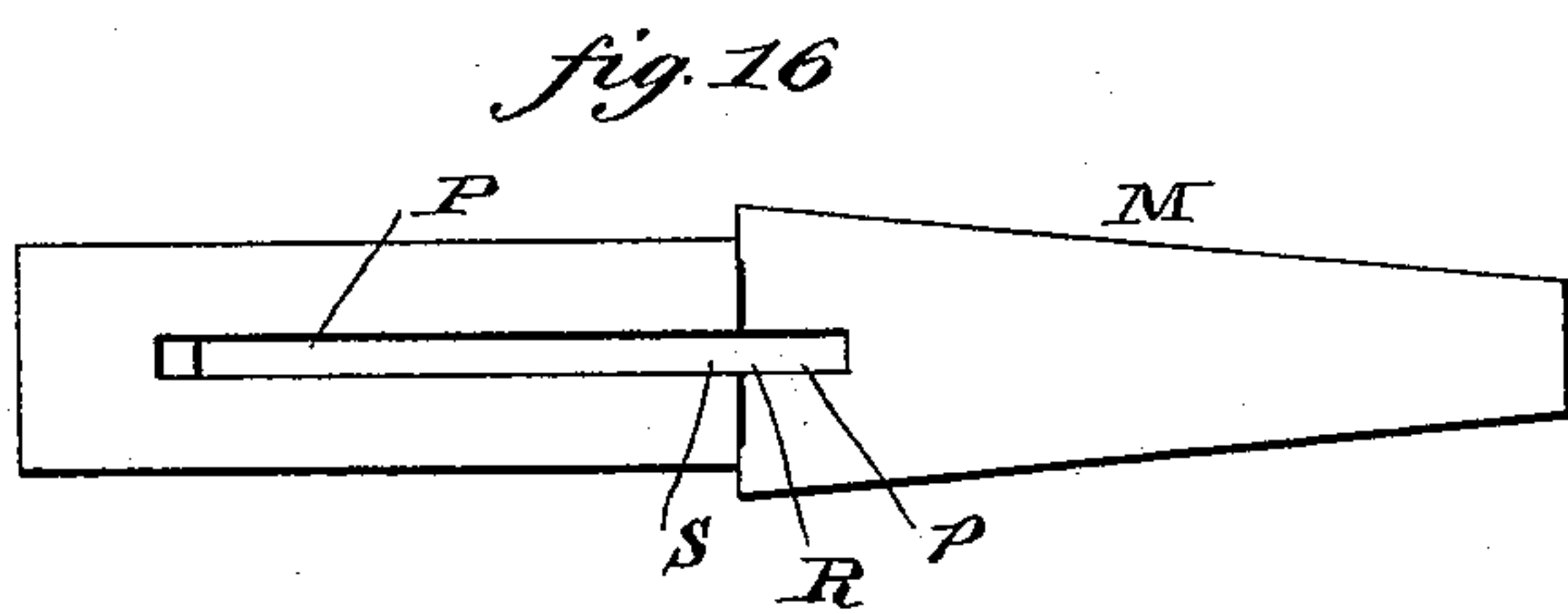
(No Model.)

2 Sheets—Sheet 2.

L. B. WOOLFOLK.
FOUNTAIN PEN.

No. 495,238.

Patented Apr. 11, 1893.



Witnesses

J. F. Coleman
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UNITED STATES PATENT OFFICE.

LUCIEN B. WOOLFOLK, OF NEWARK, NEW JERSEY.

FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 495,238, dated April 11, 1893.

Application filed February 25, 1893. Serial No. 463,718. (No model.)

To all whom it may concern:

Be it known that I, LUCIEN B. WOOLFOLK, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Fountain-Pens; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to

which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention belongs to that class of fountain pens in which the heel of the pen is held in a tubular point section joined to the barrel by a screw joint, the barrel and the point section constituting the ink-holder. It is my aim to make a fountain pen simple in construction and cheaply made, which will not "leak" or "skip," may be easily cleaned, and not liable to get out of order. This is accomplished by the construction 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 13 inclusive represent the preferred form of my invention. Fig. 1 is a longitudinal section of a fountain pen representing my invention. Fig. 2 is a sectional plan of the same, being a horizontal section of the lower end of the ink-holder through the line 1, 1, of Fig. 4, and a plan of the pen and feed apparatus. Fig. 3 is a horizontal section of the point section, and a plan of the pen. Fig. 4 is a cross section of the same taken through the line 2, 2, of Fig. 1, looking from the point of the pen. Fig. 5 is a cross section of the same through the line 3, 3, of Fig. 1, looking toward the point of the pen. Fig. 6 is a plan of the back-stay and feed-tongue. Fig. 7 is a side elevation of the back-stay and feed-tongue showing the feed-tongue bent down to fit upon the back of pen. Fig. 8 is a side elevation of the back-stay and the feed-tongue, showing the feed-tongue in its first form before it is bent down to fit on the back

of the pen. Fig. 9 is a perspective view of the back-stay and feed-tongue. Fig. 10 is a plan of the back-stay and feed-tongue seen from beneath. Fig. 11 is a cross section of the point section through the line 4, 4, of Fig. 3, looking toward the lower end thereof. Fig. 12 is a front end view of the point section. Fig. 13 is a perspective view of the feed-rod, feed-tongue and finger. Figs. 14 and 15 represent a modification of my invention. Fig. 14 is a longitudinal section of the lower part of a fountain pen. Fig. 15 is a cross section of the same through the line 5, 5, of Fig. 14, looking from the point of the pen. Fig. 16 represents a modification of the back-stay and feed-tongue. It is a plan of the same. Figs. 17 to 22 inclusive represent another modification of my invention. Fig. 17 is a longitudinal section of the lower part of a fountain pen. Fig. 18 is a cross section of the same through the line 6, 6, of Fig. 17, looking from the point of the pen. Fig. 19 is a cross section of the same through the line 7, 7, of Fig. 17, looking toward the point of the pen. Fig. 20 is a rear elevation of the point section. Fig. 21 is a plan of the back-stay and feed-tongue seen from beneath. Fig. 22 is a rear elevation of the back-stay and feed-tongue. Fig. 23 is a perspective view of the pen.

Referring to Figs. 1 to 13 inclusive, I will describe the preferred form of my invention. In this construction the barrel A is closed at the upper end by the plug B, and it has the lower end thereof countersunk. The tubular point section C is provided with an enlarged screw on the upper end thereof which fits into the countersunk portion of the barrel A, forming the screw joint c. The screw of the point-section is enlarged to allow the longitudinal groove hereinafter mentioned, cut in the bore of the point section, to be cut deeper into the wall of the bore thereof. The point section is provided with a cap-flange, on which fits the ordinary protecting cap D, which also fits upon the upper end of the barrel. The cap-flange is enlarged, for purposes hereinafter set forth, to such an extent that the protecting cap which fits on it has a greater peripheral diameter than the barrel A. The point section carries the pen E, which will be

hereinafter more particularly described. In the upper end of the point section, back of the pen, is cut the air passage F, extending from the upper end of the point section downward within the screw joint *c*. The lower end of the point section is reamed out within the cap-flange to provide an antechamber G back of the pen, and an enlarged ink cup H below the pen. The upper end of the reaming is designated the reamed shoulder *g*. The space in the bore of the point section below the pen is designated the sub-chamber I. In the bottom side of the sub-chamber I is a sub-groove K cut in the wall of the bore of the point section. The sub-groove K may be rounded, or square, or of other suitable form.

The pen E is provided with an ink aperture *e* in the heel thereof. The pen is preferably provided with a shank in the heel thereof and shoulders below the shank; though it may be made of any usual form. These shoulders of the pen abut against the reamed shoulder *g* at the upper end of the reaming, and limit the entrance of the pen into the point section. The sides of the pen shank rest against the bore of the point section at the lower end of the bore, but gradually recede from the bore toward the upper end of the shank. The sides of the shank rest against the bore below the center of the bore, and hence the pen may be held firmly in position by pressure upon the back thereof. The back-stay L holds the pen firmly in position by pressing firmly upon the back thereof. The wings of the pen preferably touch the reamed out portion of the point section at the lower end thereof.

The back-stay L is preferably formed of the half of a tube, in which the tubular cavity forms a longitudinal groove in the bottom side thereof back of the pen; though it may be formed of a solid piece if preferred, and the groove may be cut therein in any suitable manner. The back-stay preferably extends from the upper end of the point section down to the reamed shoulder *g* at the upper end of the reaming in the lower end of the point section; though it may extend above the upper end of the point section into the barrel, if preferred. At the reamed shoulder *g* the feed-tongue M is joined integrally with the back-stay, said feed-tongue being formed by cutting away the lower end of the back-stay. The feed-tongue, as originally formed, joins the back-stay back of the longitudinal groove in the bottom side thereof, as represented in Fig. 8; but it is bent down so as to fit upon the back of the pen, as is represented in Figs. 1 and 7, and extends adjacent thereto for the purpose of conveying ink for writing. The feed-tongue has upon its upper end projecting shoulders, which abut against the reamed shoulder *g*, and thus limit the entrance of the back-stay into the bore of the point section. The back-stay is preferably provided with a broad slot N therein, extending from near the upper end thereof down to near the point

of junction with the feed-tongue; thus leaving the upper end of the back-stay solid, and providing at the lower end of the back-stay a diaphragm O which is not cut through by the broad slot N. A narrow slot P cuts through the diaphragm O, and extends down into the feed-tongue M. The top part of the narrow slot P is designated the air inlet R. The bottom of the narrow slot P together with the longitudinal groove in the bottom side of the back-stay forms the ink duct S. The portion of the narrow slot extending into the feed-tongue is designated the slot *p*.

The feed-rod T is held in the sub-chamber I, the bottom side thereof fitting in the sub-groove K which is provided specially for the purpose of receiving the feed-rod. The feed-rod T is provided with a bottom feed-tongue U, integral with the top side of the lower end thereof, extending beneath the pen adjacent thereto for carrying ink for writing; and it is also provided with a finger V integral with the bottom side of the lower end thereof. The finger V is separated from the feed-tongue U by the separating slot W. The finger V extends down into the enlarged ink cup H, and, together with the bottom feed-tongue U, partially fills it up, causing it to hold ink by capillary attraction. The separating slot W extends up into the sub-chamber beneath the shank of the pen, thereby lengthening the bottom feed-tongue and greatly increasing its efficiency.

In the feed-rod is the groove X constituting an ink passage communicating between the ink-holder and the separating slot W. On each side of the feed-rod T in the sub-chamber I are the ink ways Y, Y, through which ink flows to supply the feed-tongue U, and out gushes flow to the ink cup H. In this construction ink passes to the pen through two lines of flow:—(first) back of the pen, through the broad slot N, the ink duct S, and on between the feed-tongue M and the pen, and (second) ink also passes to the pen between the bottom feed-tongue U and the pen. Ink passes to the bottom feed-tongue (*a*) from back of the pen, through the ink aperture *e* in the pen; (*b*) through the ink ways Y, Y; and (*c*) through the ink passage X to the separating slot W, whence it feeds around the bottom feed-tongue and passes to the point of the pen. Ink feeds to the enlarged ink cup H:—(first) through the ink ways Y, Y; (second) through the ink passage X and the separating slot W; (third) overflows of ink pass into the antechamber back of the pen, and from thence feed around the pen by capillary attraction and gravity into the ink cup H. Ink is fed from the ink cup H to the point of the pen by the bottom feed-tongue U. Air passes through the antechamber G to the air inlet R, and from thence through the broad slot N up to the air passage F grooved in the top side of the bore of the point section at the upper end thereof, and through the air passage F into the ink-holder.

My invention is believed to present a number of important advantages:—

One important feature of my construction is making the upper end of the back-stay solid, by not extending the slot N to the upper end thereof. I found that when the slot in the back-stay cut through it at the upper end, the upper ends of the back-stay crowded together, thereby partially closing the slot and checking the passage of ink and air, and also preventing the back-stay from fitting firmly all along the back side of the heel of the pen, thus preventing the pen from being held firmly by the back-stay. Both these defects are remedied by leaving the upper end of the back-stay solid. The back-stay fits firmly along on the back of the heel of the pen and holds it solid in the point section; and the slot is always open for the passage of ink and air.

Another important feature of my construction is providing the air passage F. By making the upper end of the back-stay solid the passage of air is interrupted at the upper end of the slot N. I found in practice that the air would not readily descend to pass beneath the end of the back stay, but would form a large bubble at the upper end of the slot N that would stop the passage of both air and ink. To remedy this, I provide the air passage F in the top wall of the bore of the point section, extending from the upper end of the point section far enough down to communicate with the slot N and to allow the air to pass freely.

Another feature of my construction is providing the sub-groove K in the bottom side of the sub-chamber I. The sub-groove K serves two important purposes:—(first) when the feed-rod T is held in the sub-chamber I between the bottom side of the pen and the bottom wall of the sub-chamber, it is not held fixedly therein, but the feed-tongue U is suffered to move from side to side upon the pen. The sub-groove K holds the feed-rod firmly in a straight position, so that the feed-tongue is held fixedly beneath the center of the pen. This is a very important advantage; but the second is even more so, which is this—(second) when the round feed-rod T is held in the sub-chamber between the bottom side of the pen and bottom wall of the sub-chamber, it is necessarily so small that it leaves the ink ways Y, Y, on each side of it so large as to cause the pen to "leak," for the sub-chamber I is much narrower from the top to the bottom side thereof than from side to side. By providing the sub-groove K, the feed-rod fitting therein may be made so much larger as to make the ink ways Y, Y, small enough to prevent "leaking." By regulating the depth of the sub-groove, the size of the feed-rod may be so adjusted as to make the ink ways Y, Y, just so large as to pass ink freely without passing it so freely as to cause the pen to "leak."

Another feature of my construction is coun-

tersinking the lower end of the barrel A, so as to enlarge the screw of the point section fitting therein, and thus allow the air passage F and the sub-groove K to be cut deep enough in the walls of the bore of the point section to perform their functions properly. Those grooves must not be deep enough to cut the screw joints c; and if the screw were not enlarged by countersinking the lower end of the barrel for its reception, the air passage F would be too shallow to allow the free passage of air; and the sub-groove K would be too shallow to hold the feed-rod firmly and straight, and to allow the feed-rod to be made large enough to close up the ink ways Y, Y, sufficiently to prevent the fountain pen from "leaking." Countersinking the lower end of the barrel allows both those grooves to be made deep enough to perform their functions sufficiently.

Another feature of my construction is holding the pen in position by the pressure of the back-stay L, the shank of the pen bearing upon the bore of the point section below the center of the bore, and the shank touching the bore only at the lower part of the shank, and the lower end of the bore. I find it is exceedingly difficult to have the shank touch the bore of the point section along the whole length of the shank. It is much more easily adjusted and the back-stay holds the pen quite as firmly when the shank bears upon the bore only at the lower part of the shank, and the lower end of the bore.

Another feature of my construction is providing in the back-stay the broad slot N, the diaphragm O, and the narrow slot P containing the air inlet R and the ink duct S. The broad slot N gives a full flow of ink down to the lower end thereof. The diaphragm O prevents the ink from running out in a stream at the lower end of the back-stay, as it would do if the broad slot N cut through the lower end of the same; and the narrow slot P through the diaphragm regulates the outflow of ink through the ink duct S and the inflow of air through the air inlet R. The broad slot N secures a free flow of ink and air. The short narrow slot P secures a regular and regulated flow. Without the broad slot N the flow of ink and air would be meager, irregular and liable to interruption; while the narrow slot P is necessary to prevent "leaking," and to regulate the flow.

Another feature of my construction is forming the back-stay L of part of a tube, so as to form the longitudinal groove in the under side thereof. This is especially important in connection with the broad slot N. Where there is no groove in the under side of the back-stay, the back-stay rests upon the center of the pen only, and the broad slot N cuts away the bearing of the back-stay upon the pen every where except at the lower end thereof. But the broad slot N does not extend out to the sides of the groove in the under side of the back-stay, and these sides of the groove bear

evenly upon the back of the pen along the whole length of the heel of the pen, holding it evenly and firmly.

Another feature of my construction is providing the feed-tongue M integral with the back-stay L. The feed-tongue M and the bottom feed-tongue U below the pen mutually aid each other in securing an even constant flow of ink to the point of the pen; for each leads ink to the point of the pen, and each gathers upon its own side of the pen the ink brought by the feed-tongue on the opposite side thereof. Thus both sides of the pen are constantly laved in ink, securing an even flow and preventing all "skipping."

Another feature of my construction is enlarging the ink cup by reaming out the lower end of the point section within the cap-flange. I first extended the lower end of the point section below the cap-flange, and reamed out the end thereof to form an ink cup. But the ink cup was too small to prevent "leaking." I found that "leaking" could be prevented only by shortening the point section so as to ream out the ink cup within the cap-flange, and enlarging the cap-flange.

Another exceedingly important feature of my construction is forming the antechamber entire, by reaming out the lower end of the point section. If there were no reaming the shoulders of the pen would abut against the lower end of the point section. As it is, the shoulders of the pen abut against the reamed shoulder *g* at the upper end of the reaming. If the reaming only slightly enlarged the diameter of the bore of the point section, ink would stand between the feed-tongue M and the wall of the point section, held by capillary attraction, and would wholly interrupt the entrance of air through the ante-chamber G. In order to the successful working of my fountain pen, the antechamber G must be large enough not to hold ink firmly by capillary attraction; and it can be made of an adequate size only by reaming it out within the cap-flange.

A most important feature of my construction is enlarging the cap-flange, making it so large in diameter that the protecting cap fitting thereon has a greater peripheral diameter than the barrel A. This enlargement gives room within the cap-flange for reaming out the ink cup and the antechamber large enough for the adequate performance of their functions.

Another feature of my construction is having the wings of the pen touch the reamed out portion of the point section, thereby strengthening the bearing of the pen in the point section.

Modifications may be made in point of structural detail without departing from the general principle of my invention.

The modification represented in Figs. 14 and 15 only differs from the preferred form in one particular:—There is no feed-tongue M back of the pen integral with the back-stay

L; but the back-stay L extends down almost to the slit in the pen, and is cut away on the top side thereof below the reamed shoulder *g*, to allow air to pass through the antechamber G to the air inlet R. The slot *p* is cut into the back-stay below the reamed shoulder *g*. In all other respects this modification is similar to the preferred form. This modification will work very well, though not so well as the preferred form. Ink is carried to the pen by the bottom feed-tongue U; air enters the barrel as in the preferred form; and overflows of ink pass to the ink cup H as in the preferred form.

In Fig. 16 a modification of the back-stay L and feed-tongue M is represented, which differs in one particular from the preferred form:—The modification has no broad slot N; but the narrow slot P containing the air inlet R, the ink duct S and the slot *p* in the feed-tongue M, is continued almost to the upper end of the back-stay, where it communicates with the air passage F. In all other particulars this modification is the same as the preferred form. This modification of the back-stay is more readily made than the preferred form thereof, but it will not work quite so well; since ink and air will not pass through the narrow slot P so freely and readily and regularly as through the broad slot N. It will however make a very good fountain pen.

The modification represented in Figs. 17 to 22 inclusive differs in three particulars from the preferred form:—(First.) The back-stay L is not formed of part of a tube as in the preferred form; and it has no longitudinal groove in the under side thereof, but the under side is flat. (Second.) There is no sub-groove K; but the bottom side of the feed-rod and finger is cut away to fit the round of the bore of the point section. This construction of the feed-rod makes it broader laterally than from the top to the bottom side thereof; and, though not so good as the preferred form, it is better than to have a round feed-rod held in the sub-chamber. It is held more steadily, so that the feed-tongue does not move sidewise from the center of the pen to so great an extent; and the greater dimension of the feed-rod laterally closes up the ink ways Y, Y, enough to prevent "leaking." (Third.) The separating slot W only extends up to the bore of the point section, thereby leaving the feed-tongue short. In other respects this modification is substantially similar to the preferred form. This modification is not so good as the preferred form, though it has the advantage of being somewhat more cheaply made. (First.) The back-stay does not bear so evenly upon the back of the pen. (Second.) The sub-groove K in the preferred form allows the feed-rod to be larger, and holds it more firmly. Both the bottom feed-tongue U and the finger V are larger and stronger in the preferred form, and perform their respective functions better. (Third.) The bottom

feed-tongue is more elastic and works much better in the preferred form, from its being lengthened by the separating slot W being sawed higher up. Still, this modification, though inferior to the preferred form, will work very well.

A patent granted me No. 480,800, issued August 16, 1892, presents some points of similarity to my present invention; but that patent has not the important features of my present invention,—the enlarged ink cup H—the reamed out antechamber G—the feed-tongue M back of the pen integral with the back-stay—the shoulders of the feed tongue abutting against the reamed shoulder *g*—the back-stay L solid at the upper end thereof—the heel of the pen bearing firm upon the bore of the point section only at the lower end of the bore—the shoulders of the pen abutting against the reamed shoulder *g*—the wings of the pen touching the reamed out point section at the lower end thereof—the air passage F—the sub-groove K—the broad slot N—the diaphragm O—the narrow slot P through the diaphragm O containing the air inlet R and the ink duct S.

I have also made application for a patent, Serial No. 462,834, filed February 18, 1893, in which are some features similar to my present invention. But that application has not the important features of my present invention,—the pen held in the bore of the point section by the back-stay L—the back-stay L—the broad slot N in the back-stay—the diaphragm O in the back-stay—the short narrow slot P in the back-stay, containing the air inlet R and the ink duct S—the feed-tongue M integral with the back-stay L—the sub-chamber I—nor the sub-groove K. Indeed, my present invention is entirely a different style of fountain pen from that represented in said application of February 18, 1893. In that application, the pen was held in a stopper fitting in the point section: In my present invention the pen is held directly in the bore of the point section by the pressure of a back-stay upon the back thereof. In that application, the bore of the point section is almost one-fourth of an inch in diameter. In my present invention the bore of the point section is only a little over one-eighth of an inch in diameter. The two fountain pens belong to entirely different classes. I do not wish to claim anything set forth in that patent, or in that application, but only those features which are new and peculiar to this invention.

What I claim as new is—

1. In a fountain pen, a point section having a longitudinal bore, a sub-groove cut in the bottom wall of the bore, and a pen held in the bore above said sub-groove and having the sides of its heel in contact with the wall of said bore, substantially as described.

2. In a fountain pen, the combination of a barrel having the lower end thereof countersunk, with a tubular point section provided with an enlarged screw threaded end fitting

in the countersunk portion of the barrel, and having a bore therein, a sub-groove cut in the bottom wall of the bore thereof, an air passage cut in the top wall of the bore at its upper end, a pen, and means by which air may enter the barrel and ink may flow out of the barrel to the point of the pen.

3. In a fountain pen, the combination of a point section provided with a bore therein, and having its upper end screw threaded, and reamed out at its lower end to a larger diameter than the bore thereof, with a pen held in the point section, the sides of the heel thereof bearing against the bore, and the heel thereof extending up within the screw threaded portion of the point section, and suitable ducts and air passages, all substantially as described.

4. In a fountain pen, a point section, carrying a pen, and provided with a sub-groove therein below the pen, an air passage in the upper end thereof back of the pen, and an enlarged cap-flange on which the protecting cap fits, and having the lower end thereof reamed out within the cap-flange to form an enlarged ink cup below the pen, and an antechamber back of the pen, substantially as described.

5. In a fountain pen, a point section having a longitudinal passage or bore, a sub-groove cut in the bottom wall of said passage or bore, and an air passage cut in the wall of the bore at its upper end, and on the opposite side of the bore from the sub-groove, substantially as described.

6. In a fountain pen, a cylindrical point section having a tubular passage or bore, a screw thread cut on its outer periphery, at its upper end, and an elongated cut away portion in the top wall of the bore at the screw threaded end, all substantially as described.

7. A back stay for a fountain pen, having a longitudinal groove in its bottom side, a slot cut through from the top side into said groove, and an integral feed-tongue at its lower end, all substantially as described.

8. In a fountain pen, a back-stay having a feed-tongue at its lower end, integral therewith, a solid portion at its upper end and a slot therein extending nearly to the upper end thereof, substantially as described.

9. In a fountain pen, a separate back stay provided with a broad slot therein, extending down almost to the lower end of the back stay, a diaphragm at the lower end, having a narrow slot cut through it to provide an air inlet and an ink duct, substantially as described.

10. In a fountain pen, a separate back stay having a feed-tongue integral therewith, a broad slot, and a narrow slot extending from the broad slot down into the feed-tongue, substantially as described.

11. In a fountain pen, the combination of a barrel closed at the upper end, with a point section carrying a pen, and reamed out at the lower end thereof to provide an antechamber back of the pen, and an enlarged ink cup be-

low the pen, a back-stay back of the pen, having a feed-tongue integral therewith, a feed-rod below the pen provided with a feed-tongue integral with the top side of the lower end thereof, and a finger integral with the bottom side of the lower end thereof extending down into the ink cup, all substantially as described.

12. In a fountain pen, the combination with a barrel closed at the upper end, of a tubular point section joined to the lower end of the barrel, carrying a pen having the sides of the heel thereof in contact with the wall of the bore of the point section, and having the lower end thereof reamed out to provide an antechamber back of the pen, a back-stay back of the pen provided with an air inlet therein communicating with the antechamber, and ducts and passages whereby air may pass from the air inlet into the barrel, and ink may flow out of the barrel to the point of the pen.

13. In a fountain pen, the combination with a barrel, of a tubular point section joined to the lower end of the barrel, carrying a pen having the sides of the heel thereof in contact with the wall of the bore of the point section, and having the lower end thereof reamed out to provide an antechamber back of the pen, and an enlarged ink cup below the pen, a back-stay holding the pen in position by pressure upon the back thereof, said back-stay having the upper end thereof solid, and provided with an ink duct in the lower end thereof, and an air inlet in the lower end thereof communicating with the antechamber and with the ink duct, substantially as described.

14. In a fountain pen, a tubular point section provided with an enlarged cap-flange, and reamed out in the lower end thereof within the cap-flange, and carrying a pen having the sides of the heel thereof bearing upon the bore of the point section at the lower end of the bore, and having the wings thereof in contact with the reamed portion of the point section, substantially as described.

15. In a fountain pen, the combination with a point section reamed out in the lower end thereof to a larger diameter than the bore

thereof, with a pen having the sides of the heel thereof bearing upon the bore of the point section, and having shoulders thereon abutting against the reamed shoulder of the point section limiting the entrance of the pen into the point section, and a feed-tongue back of the pen having shoulders thereon abutting against the reamed shoulder of the point section, thereby limiting the entrance of the feed-tongue into the point section, substantially as described.

16. In a fountain pen, the combination with a barrel, of a point section joined to the lower end thereof, carrying a pen the sides of the heel whereof bear upon the bore of the point section, and having the lower end thereof reamed out to form an enlarged ink cup below the pen, a sub-chamber below the pen, a sub-groove in the bottom side of the sub-chamber cut in the wall of the bore of the point section, a feed-rod held in the sub-chamber and sub-groove, provided with a feed-tongue integral with the top side of the lower end thereof extending through the ink cup adjacent to the under side of the pen, and also provided with a finger integral with the bottom side of the lower end thereof extending down into the enlarged ink cup, substantially as described.

17. In a fountain pen, the combination with a barrel, of a point section joined to the lower end of the barrel, carrying a pen, and provided with a sub-chamber below the pen, a feed-rod held in the sub-chamber of larger diameter than the width of the sub-chamber from the under side of the pen to the bottom side of the bore of the point section, ink ways in the antechamber on each side of the feed-rod said ways being reduced in size by the enlargement of the feed-rod, substantially as described.

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

LUCIEN B. WOOLFOLK.

Witnesses:

J. A. ADAMS,

LAURA B. HOLDERLY.