

G. R. HUGHES.
RESERVOIR PENHOLDER.
APPLICATION FILED MAR. 11, 1911.

994,000.

Patented May 30, 1911.

Fig. 1.

Fig. 2.

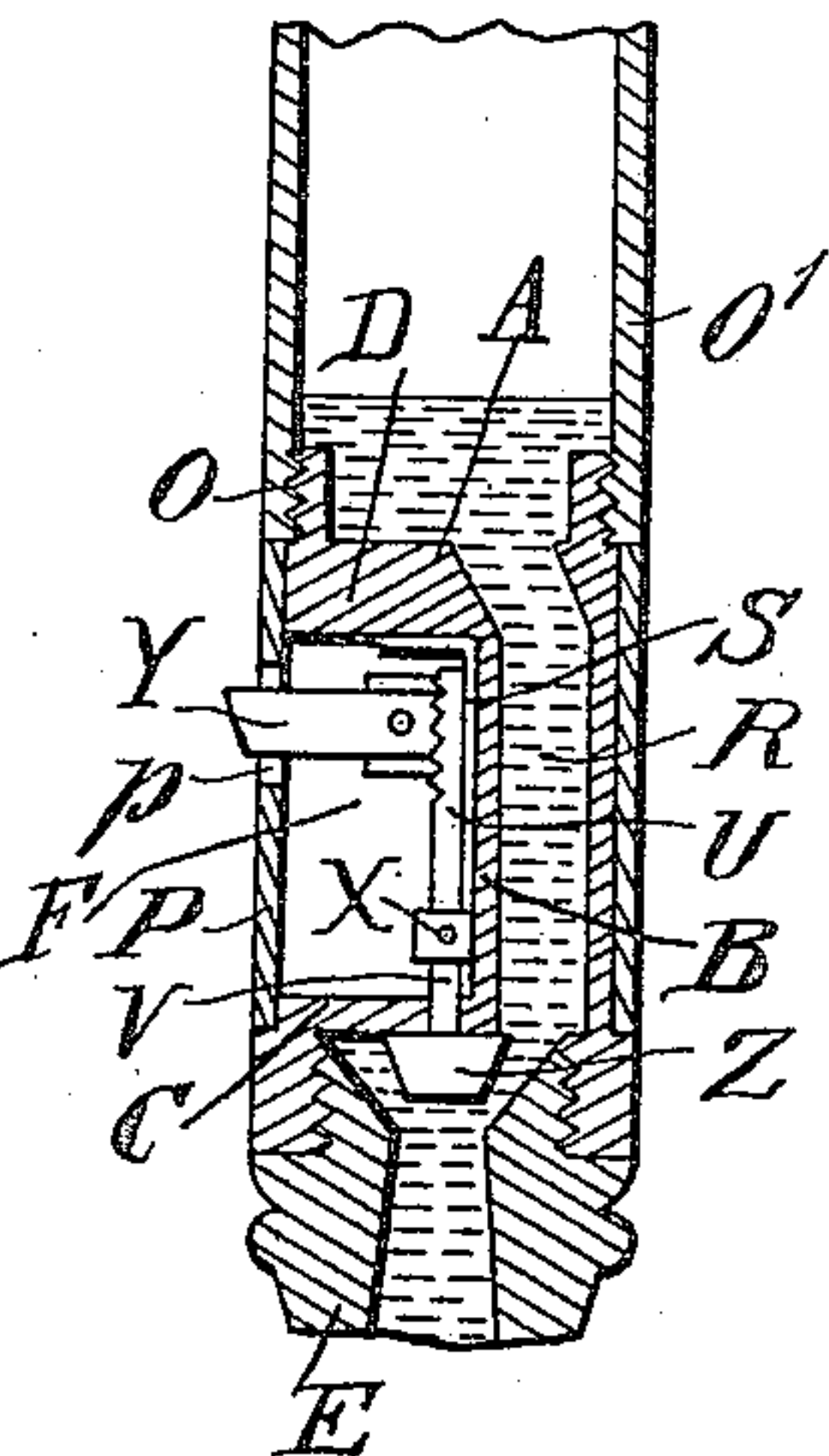
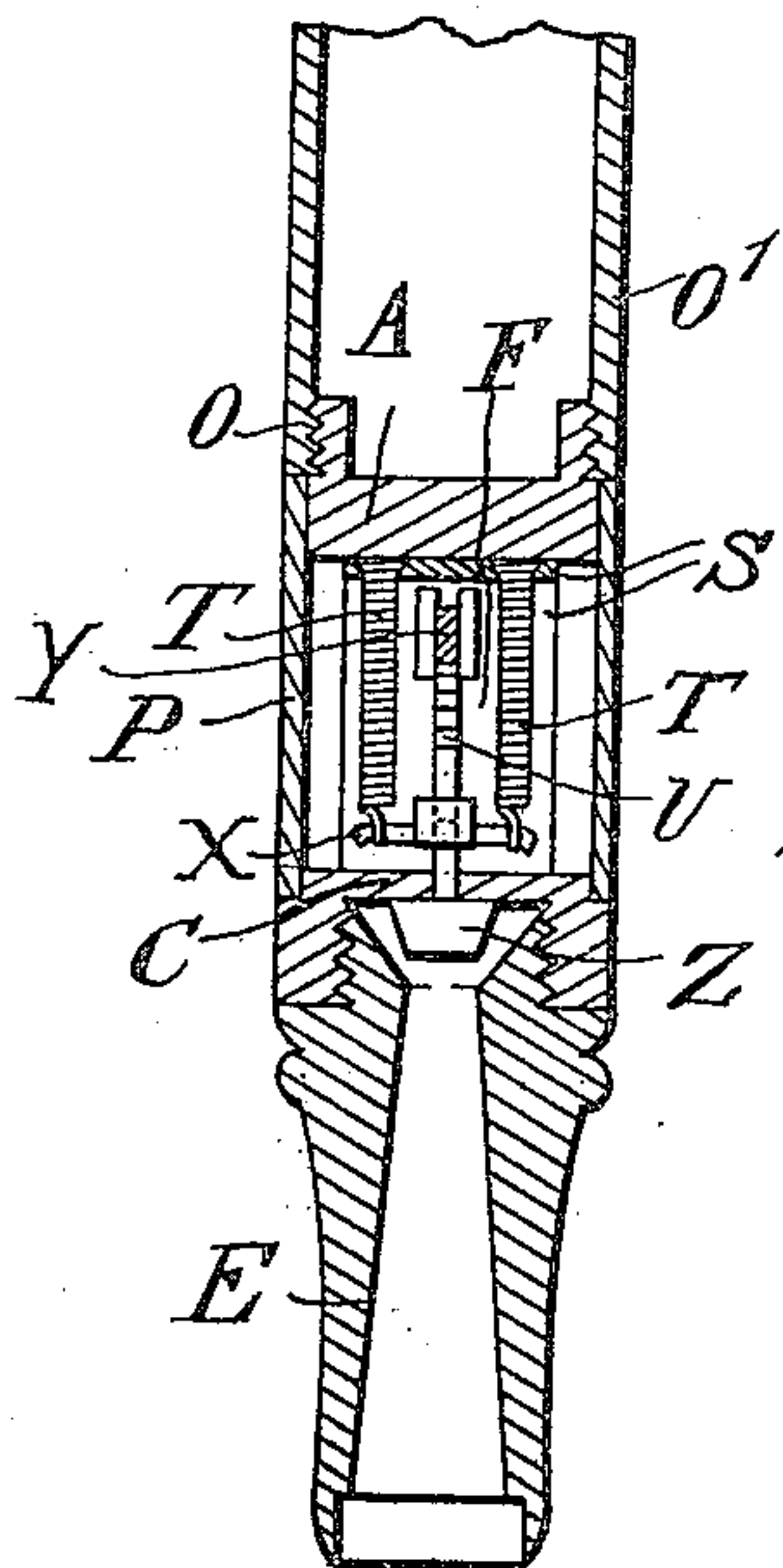


Fig. 3.

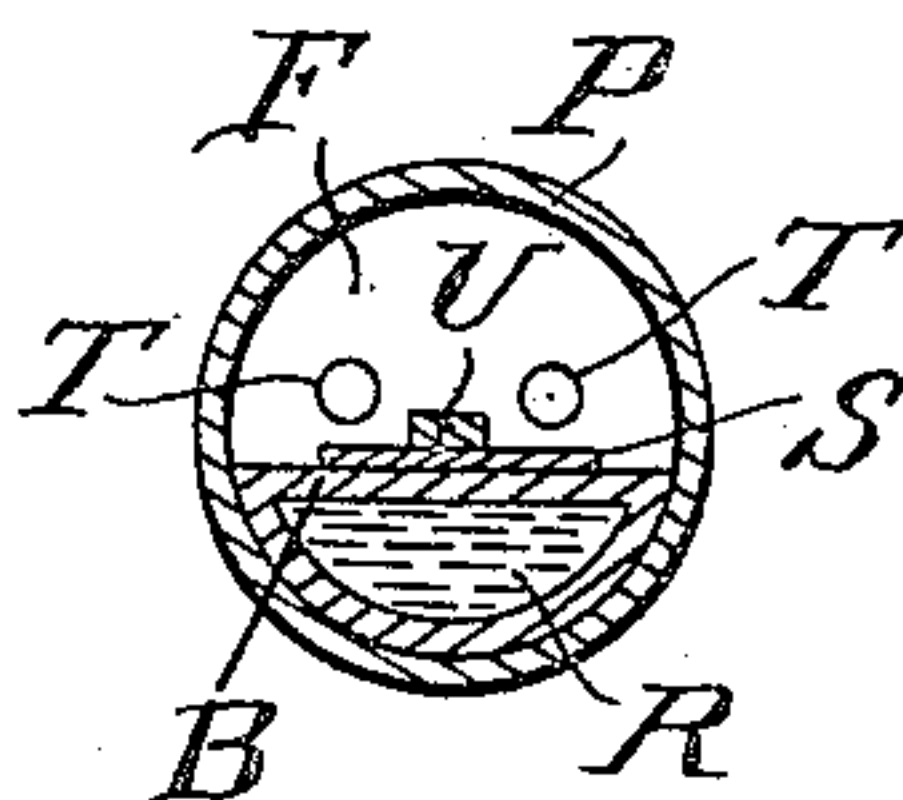
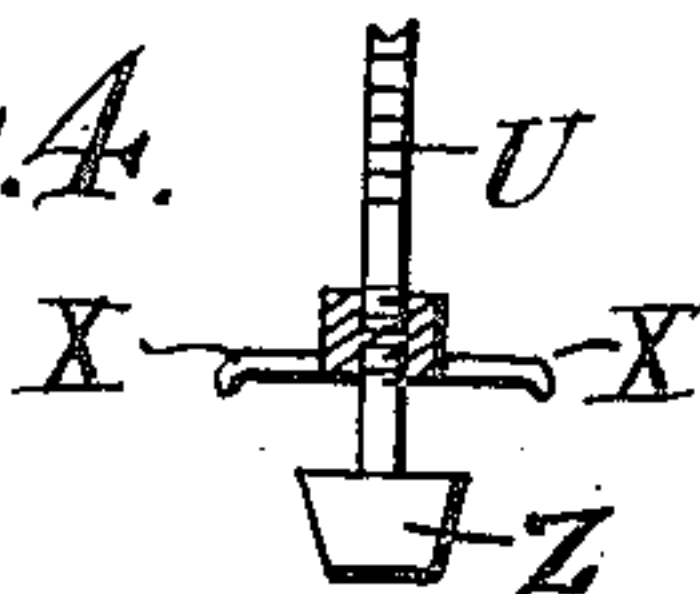


Fig. 4.



Witnesses
Jas. E. McLaughlin
J. H. Liggers

Gibbard R. Hughes, Inventor

By *E. G. Liggers*
Atty

UNITED STATES PATENT OFFICE.

GIBBARD RICHARD HUGHES, OF STOCKPORT, ENGLAND.

RESERVOIR-PENHOLDER.

994,000.

Specification of Letters Patent. Patented May 30, 1911.

Application filed March 11, 1911. Serial No. 614,157.

To all whom it may concern:

Be it known that I, GIBBARD RICHARD HUGHES, a subject of His Majesty the King of England, residing at "Holly Bank," Buxton Road, Stockport, in the county of Chester, Kingdom of England, have invented certain new and useful Improvements in Reservoir-Penholders, of which the following is a specification.

This invention relates to fountain pens of that class in which the simple act of inserting the cap on the pen, automatically stops the flow of ink to the pen, while the removal of the cap from the pen permits the flow of ink to be resumed. This result is usually achieved by means of a valve arranged in the conduit leading from the reservoir to the pen.

The object of this invention is to arrange the valve so as to work longitudinally and axially of the pen, and to so arrange the mechanism for working the valve that it will be contained within a chamber, into which ink from the reservoir is not allowed to enter.

The invention consists in the construction and novel combination of parts, hereinafter fully set forth, and pointed out in the claims, it being understood that changes in the form, proportion, and minor details of construction may be made without departing from the spirit or scope of the invention.

In the drawings:—Figure 1 is a longitudinal section of the lower end of my improved fountain pen, the parts being in position ready for use, the pen or nib, as well as the cap or cover, being omitted. Fig. 2 is a similar sectional view, taken at an angle of ninety degrees from the section of the same parts illustrated in Fig. 1, and showing clearly the arrangement of the chamber in which the mechanism for operating the valve is contained, and Fig. 3 is a transverse section across the center of the chamber, and showing also the location of the passage for the ink leading to the nozzle. Fig. 4 is a detail view showing the connection between the stem of the valve and the rack or slide.

In the drawings, I have not shown a complete fountain pen, but only what might be termed a reservoir penholder, consisting of a portion of the reservoir, the nozzle, and the parts that constitute my invention.

Referring to the drawings, O' represents the lower or outer pen-end of the hollow

reservoir or barrel of the fountain pen. At its extremity the reservoir is formed with interior threads O, which are engaged by corresponding threads formed on a threaded extension or collar of the body A, which carries the valve and its operating mechanism. This body is formed with a longitudinal partition B, and at its opposite ends with transverse partitions C and D. The longitudinal partition B is arranged slightly to one side of the longitudinal center of the body, while the transverse partitions C and D extend from the opposite ends of the partition B, a little over half way across the body. As a result, the longitudinal partition B, and the end or transverse partitions C and D, define three sides of a closed chamber F, for a purpose hereinafter stated. Along one side of the partition B, a channel or passage R is formed in the body, which channel or passage, as will be seen on reference to Fig. 3 of the drawings, is nearly semi-circular in cross section. This passage communicates, at its inner end, with the interior of the reservoir, and at its outer end with the conduit which leads to the pen-point, said passage being, therefore, open throughout its length, and being located at one side of the longitudinal center of the pen.

The external diameter of the body is slightly less than the external diameter of the reservoir, so as to receive a tube or sheath P, which bears at its inner end against the outer end of the reservoir O', and at its outer end against a shoulder formed near the outer end of the body. When the sheath is applied around the body, it fits flush within the space formed by the reduced diameter of the body. This sheath is for the purpose of inclosing the outer side of the chamber F, which, as previously stated, is formed partially by the partitions B, C and D.

A back plate S is secured against the partition B within the chamber F, and has its inner end turned outwardly transversely of the pen, as shown in Fig. 2. To the outwardly turned end of the bracket are fastened the inner ends of coiled springs T, the outer ends of which are connected to the two arms of a cross head X, which cross head serves to connect the meeting ends of the notched slide or rack U and the valve stem V. See Fig. 4. The valve stem works through an opening in the partition C, and

has at its outer end, outside the partition, a conical valve Z. The notched slide or rack U is provided with a series of teeth, which are engaged by teeth on the lever Y, which is pivoted in lugs extending from the back plate S slightly in advance of the outwardly turned end of said back plate. The lever Y extends outwardly transversely of the pen, and is of a length sufficient to pass through a slot provided in the sheath or tube P.

E is the nozzle of the pen in which the pen-point or nib is mounted. It is screw-threaded at its inner end to connect with threads provided on the recessed outer end of the body A. The nozzle is also formed at its inner end with a conical seat, which is adapted to be closed by the valve Z.

One of the principal features of my invention resides in the construction of the chamber F, which is formed by the body A and the tube or sheath P. It will be noted that the only opening leading toward the pen that is provided in this chamber, is the opening through which the valve stem works, but this valve stem is intended to fit the opening so closely that there is no possibility of ink entering the chamber. In this way the chamber is kept free from ink, which would tend to corrode the mechanism for actuating the valve, and soon render it unfit for use.

When the pen is not required for writing the placing of the cap or cover upon the pen actuates the beveled outer end of the lever Y, which projects slightly from the sheath or tube, causing the teeth on the inner end of the lever to mesh with the teeth on the slide or rack, moving the latter outwardly and forcing the valve stem through the opening in the partition C, carrying the valve Z down upon its seat, thereby closing the conduit which supplies the pen-point with ink. When the cap is withdrawn, the lever is released, and the springs T draw the slide, and with it the valve attached thereto, back to their former positions, thus opening the ink conduit for writing purposes.

It will be noted that in my invention the movement of the lever need not be more than ten or twenty degrees, and that by employing two spiral springs I am enabled to obtain a steadier and more reliable action of the movable parts.

As the partition is arranged at one side of the center of the body, and the valve stem V, with its connected slide U, is located against the back of the partition, it follows that the valve Z occupies a central and longitudinal position within the body instead of transversely thereto, as in other constructions with which I am familiar.

The springs T are connected to the cross head X by making one or more turns in the outer ends of the springs, so as to form a

ring or rings. These are attached to the arms or hooks forming a part of the cross head. At their upper or inner ends, the springs are formed with a cone-shaped enlargement similar in form to the head of a screw, so as to be received within correspondingly shaped openings provided in the outwardly turned inner end of the back plate S. This cone-shaped enlargement is formed by gradually increasing the diameter of the spirals, and the purpose thereof is to hold the spring securely in place. This construction is fully shown in Fig. 1 of the drawing.

Having thus described my invention, I claim:—

1. In a fountain pen, the combination with the reservoir, a hollow body connected thereto at the outer end, and formed at one side with a chamber, and at the opposite side provided with an open-ended passage for the ink, which passage communicates at its inner end with the reservoir, a nozzle connected with the body and communicating at its inner end with the other end of the ink passage, a valve for closing communication between the nozzle and the said ink passage, said valve being arranged on the outside of the chamber, a longitudinally disposed valve stem leading from the valve, and entering one wall of the said chamber, a lever arranged transversely within the said chamber and having its outer end beveled and adapted to be actuated by the insertion of the cap or cover on the pen, and means connecting the said lever with the valve stem so as to communicate motion of the lever thereto.

2. In a fountain pen, the combination with the reservoir, a hollow body mounted on the outer end thereof, and having a chamber provided at one side of the body, an open-ended passage for ink at one side of the chamber, the inner end of said passage communicating with the reservoir, a nozzle connected to the body and having its ink conduit communicating with the other end of the ink passage of the body, a centrally arranged valve on the outside of the chamber adapted to close communication between the ink conduit of the nozzle and the ink passage of the body, said body being of less external diameter than the reservoir, a tube encircling the body, and mechanism contained within the said chamber for moving the valve longitudinally, said mechanism including a lever having its outer end projecting through a hole of the said tube so as to be actuated by the insertion of the pen cap or cover.

3. In a fountain pen, the combination with the reservoir, a body connected therewith and formed with a chamber, and an open-ended passage for the ink at one side of the chamber, a nozzle connected to the outer end of the body and communicating with the outer end of said passage, a valve

for closing communication between the said passage and the said nozzle, a stem leading from the valve into the chamber, a rack connected with the valve stem and arranged within said chamber, and a lever having its inner end toothed and engaging the rack, and its outer end projecting through a hole in the body, so as to be operated by the cap or cover of the pen.

10 4. The combination with the reservoir, a hollow body fitted to the outer end thereof, and having a chamber therein formed of a longitudinal partition and two transverse partitions at the ends of the longitudinal
15 partition, the outer side of the chamber being open, said longitudinal partition being spaced from the adjacent wall of the body so as to form a longitudinal ink passage open at both ends, one end of the ink passage communicating with the reservoir, a nozzle connected with the outer end of the body and having its ink conduit communicating with the other end of the ink passage, a centrally
20 arranged valve on the outside of the cham-

ber and adapted to close communication between the ink conduit of the nozzle and the ink passage of the body, a longitudinally disposed valve stem leading from the valve and passing through an opening in one wall of the chamber and entering the latter, a tube encircling the body and having an opening at one side, a lever with a beveled outer end which lever passes through said opening and is arranged within the chamber, a pair of springs located at opposite sides of the valve stem and connected thereto so as to normally maintain the valve open, and connections between the lever and the valve stem so as to transmit the motion of the lever to the latter.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses this 1st day of March 1911.

GIBBARD RICHARD HUGHES.

Witnesses:

FRANK BLAKEY,
R. WESTACOTT.