

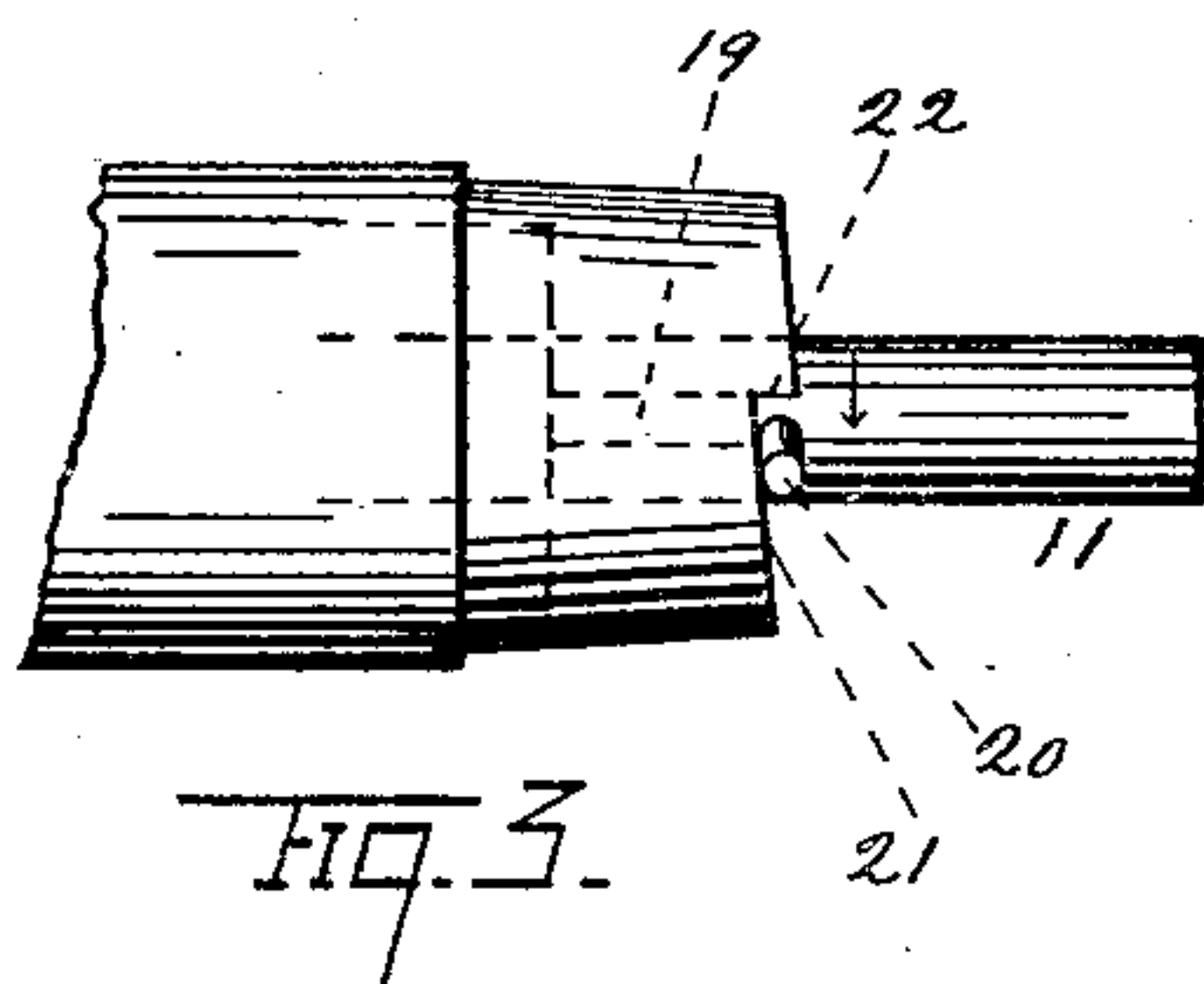
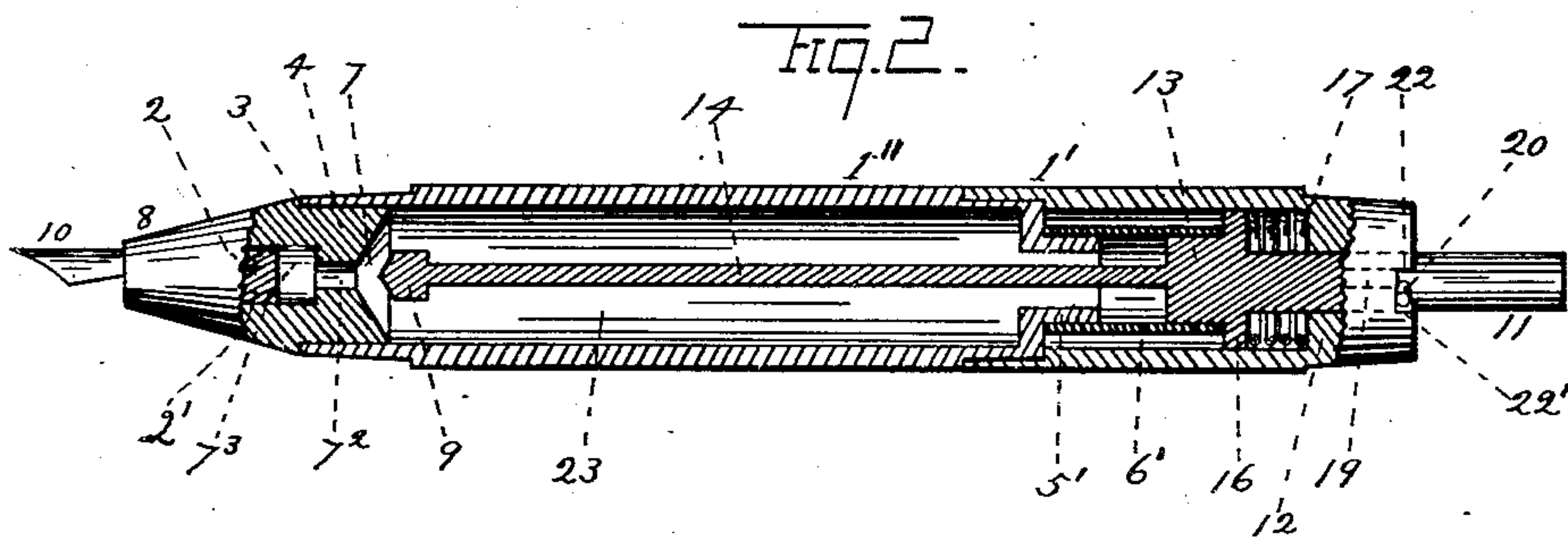
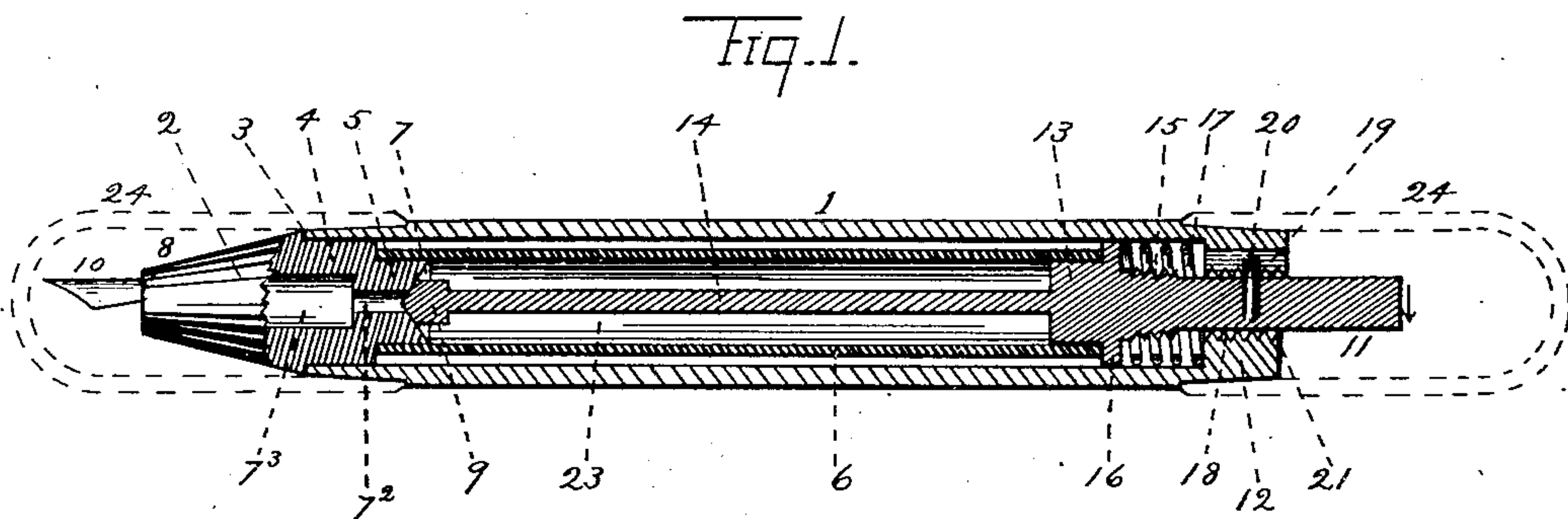
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PATENTED JAN. 10, 1905.

J. H. CROWELL.

FOUNTAIN PEN.

APPLICATION FILED APR. 2, 1904.



WITNESSES:

At Prior
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INVENTOR:

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UNITED STATES PATENT OFFICE.

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FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 779,692, dated January 10, 1905.

Application filed April 2, 1904. Serial No. 201,286.

To all whom it may concern:

Be it known that I, JOHN H. CROWELL, a citizen of the United States, residing at Vineyard Haven, in the county of Dukes and State of Massachusetts, have invented a new and useful Improvement in Fountain-Pens, of which the following is a specification.

My invention relates especially to that class of pens provided with a fountain or reservoir for supplying the ink to the pen.

The object of the invention is to insure a better control of the ink-supply and to prevent leakage of the ink from the reservoir.

To this end the invention consists in the novel construction of the reservoir and the operating devices for the same whereby the supply of the ink to and from the reservoir may be more reliably controlled and the leakage of the ink prevented, as will be more fully set forth hereinafter.

Figure 1 is a longitudinal sectional view of a self-filling fountain-pen embodying my invention and shows the pen in its normal condition. Fig. 2 is a longitudinal section of a fountain-pen, though not self-filling, yet is equally within the scope of my invention, as hereinafter shown. Fig. 3 is a detail view of the upper end of the fountain-pen, showing the operating-post and its locking device on an enlarged scale.

Similar numerals refer to similar parts throughout the several views.

In the drawings, 1 indicates an open-ended cylindrical sleeve, and 2 the pen-holder, which serves as a plug by which one end of the sleeve 1 is closed. It has the shoulder 3 bearing on the end of the sleeve 1, the cylindrical plug 4 closely fitting in the sleeve 1, and the sleeve 5, on which one end of the elastic tube 6 is hermetically secured on one end and the tapering pen-support 8 on the other end, said sleeve 5 being beveled on its inner end 7 to serve as a valve-seat for the valve 9. The pen-holder 2 is perforated longitudinally at 7². Into the outer end of said perforation 7³ any of the well-known forms of ink-feeding tubes or ducts, as 2', can be inserted that will convey the ink from the reservoir 23 to the pen 10, held by the support 8. Within

the other end of the sleeve 1, which for a short distance from said end longitudinally has its wall at 12 thickened and screw-threaded on the inside, is inserted part of the operating-post 11. The inserted plain-surfaced portion of the post 11, excepting stud 13, fits sleeve 1 with a sliding fit. That portion of the post 11 extending beyond the sleeve 1 serves to turn the post and may be formed into a head. The cylindrical stud 13 on the inner end of the post 11 forms the support for and is hermetically secured to the corresponding end of the elastic tube 6.

Rod 14 in the reservoir 23 at one end is secured to or, as in the present instance, for illustration, made integral with stud 13. The other end of said rod 14 is provided with or has constructed on it the valve 9, preferably of rubber, which is held firmly on its seat 7 by the expansion of the spiral spring 17 against the inner shoulder of the thickened wall 12 and the flange 16 on the operating-post 11, which carries with it the said valve. The ends of the spring 17, bearing against the flange 16 and the shoulder 12, exerts sufficient resistance to the turning of the operating-post 11 within the sleeve 1 to prevent accidental disturbance of the adjustment of said post. On a portion of the operating-post 11 inside of sleeve 1 is formed the male screw-thread 15, which fits and when required is screwed into the female screw 18. Through the wall 12, at the end of sleeve 1, is formed the longitudinal groove or slot 19, out of and into which slides the pin or key 20 by means of the longitudinal movement of the operating-post 11, to which said pin is attached. On the end of sleeve 1 is formed the spiral cam 21, having the same pitch as the male and female screws 15 and 18, with its spiral face beginning at one side of the groove 19 and ending at the shoulder 22 on the other side of said groove. The ink-reservoir 23 of the pen consists of portions of stud 13 and sleeve 5 and a section of the elastic tube 6, supported by the operating-post 11 and pen-holder 2 and held in place by the sleeve 1. Cap 24 (shown by broken lines in Fig. 1) is common to fountain-pens and is constructed to fit onto either end of the sleeve 1.

To enable others skilled in the art to use my improved fountain-pen, I will describe the operation of the same more fully.

When the reservoir 23 of the pen is to be filled with ink, the operating-post 11 is drawn out of the sleeve 1 until it is stopped by the end of the male screw-thread 15 coming in contact with the inner end of the female screw-thread 18. In the meantime the pin 20 by the same movement of the post 11 has been drawn out of and free from that side of the groove 19 opposite the shoulder 22, the spiral spring 17 has been compressed, the elastic portion of the wall of the ink-reservoir 23 elongated, and the valve 9 moved off from its seat 7. The operating-post 11 is now in a position to be turned forward in the sleeve 1 and can only be turned forward in the direction of the arrow shown in Fig. 3, as the shoulder 22 prevents its being turned in the opposite direction. The turning of post 11 brings the pin 20 in sliding contact with the spiral face of the cam 21, which imparts to said post 11 a longitudinal movement which, combined with the turning movement of said post, causes the male screw-thread 15 to catch into and follow the thread of the female screw 18, thereby assisting to hold the valve 9, connected to said post, away from its seat 7 while being turned one turn and wholly holding said post and valve when being turned more than one turn. This turning movement of the operating-post 11 acts on the end of the elastic tube 6, secured to the post, and twists the elastic tube, thereby contracting it. Now when the pen and its feeding or supply tube are immersed into ink and the operating-post 11 is turned in the reverse direction the elastic tube will untwist and expand, drawing the ink into the reservoir 23. The turning of the operating-post 11 in the reverse direction is arrested by the pin 20 coming in contact with the shoulder 22 and in front of the open end of groove 19, which position allows the post 11 to be forced back into the sleeve 1 by the spring 17, thereby seating the valve 9 and hermetically closing the reservoir of ink.

The supplying of ink to the pen 10 by moving the valve 9 off its seat 7 is accomplished and regulated by drawing the operating-post 11, to which said valve is attached, out of the sleeve 1 until the pin 20 can be turned forward away from the groove 19 and onto the face of the cam 21 the required distance, as illustrated in Fig. 3, where with the aid of the friction produced by the spring 17 it locks and holds the post when released and where it remains during the time of using the pen, after which use said post 11 is reversed or turned backward to the position where it can be forced back into the sleeve 1, as hereinbefore described. It will thus be seen that my improved construction is a constant insurance against the leakage of ink from the reservoir, a feature very desirable in fountain-

pens. Pin 20, moving on the face of the spiral cam 21, as shown in Fig. 3, not only insures the entering of the male screw-thread into the female screw, but also serves, in connection with the shoulder 22, as an index to indicate to the eye the exact condition of the concealed elastic tube and enables the user to accurately adjust the delivery of the ink to the pen.

In the construction shown in Fig. 2 the cylindrical sleeve is in two sections 1' 1'', and the ink-reservoir consists of similar parts of the pen, as shown in Fig. 1, with the addition of section 1''. The end of the shortened elastic tube 6' is hermetically secured to the end 5' of the section 1' instead of the end or sleeve 5 of the pen-holder 2. The outer end of the section 1' is provided with two shoulders 22 22', which serve to limit the turning of the operating-post 11.

The male and female screws 15 and 18 are dispensed with. The ink-reservoir is filled with ink by an ink-filler through the open end of section 1'', opened by the removal of the pen-holder 2. The supply of ink to the pen 10 is accomplished by the same means as that shown and described in Fig. 1. In Fig. 2 the valve is shown open.

Various other modifications will be apparent to any skilled mechanic, and therefore my invention is not confined to the exact details of construction set forth in the foregoing description and shown in the drawings.

Hereinafter for convenience of description the cylindrical sleeve 1 or 1' 1'' and pen-holder 2, which constitute the body of the pen, will be designated as the "body member."

Having now fully described my invention, I claim and desire to secure by Letters Patent—

1. In a fountain-pen, the combination with a body member, of an ink-reservoir contained within said body member and having side walls elastically extensible, an operating-post secured to one end of said walls and constituting one end of said reservoir, and arranged for both sliding and rotary movements in one end of said body member, and a valve seated within said ink-reservoir and operatively connected with said operating-post to thereby control the flow of ink from said reservoir, as described.

2. In a fountain-pen, the combination with a body member, of an ink-reservoir contained within said body member and having side walls elastically extensible, an operating-post secured to one end of said walls and constituting one end of said reservoir, and a valve seated within said reservoir and operatively connected with said operating-post to thereby control the flow of ink from said reservoir, as described.

3. In a fountain-pen, the combination with a body member provided at one end with a cam-shaped face, of an ink-reservoir contained within said body member and having walls

elastically extensible, of a valve seated within said ink-reservoir, and an operating-post arranged for both sliding and rotary movements in said body end, and operatively connected
5 with said valve, and provided with means adapted to engage with said cam-face to thereby control the opening and closing movements of said valve, as described.

4. In a fountain-pen, the combination of a
10 body member provided at one of its ends with an externally-located cam-face, an operating-post arranged in said end for both rotary and sliding movements, and provided with controlling means arranged for engagement with
15 said cam-face, an ink-reservoir contained within said body member and having elastically-extensible walls secured at one end to said operating-post, and a valve seated in the interior of said reservoir and operatively connected with said operating-post, as described.

5. In a fountain-pen, the combination of a body member, provided with an externally-located spiral cam-face, 21, and with a longitudinally-directed slot, 19, and a shoulder, 22,
25 with an operating-post, 11, arranged for both rotary and sliding movements in said body end, and provided with means, as the pin, 20, adapted to engage with the slot, 19, for locking purposes, and also to engage with the cam-face, 21, to thereby control the movement of the post, and a valve seated within said body member and operatively connected with said operating-post, as described.

6. In a fountain-pen, the combination of a
35 body member terminating at one end in a spiral cam-face, and provided at said end with a longitudinally-directed slot, 19, and with an internal thread, 18, an operating-post, 11, arranged for rotary and sliding movements in

said body and provided with a threaded portion, 15, adapted for engagement with the internal thread, 18, and also provided with a pin, 20, adapted both for sliding movement in the slot, 19, and for rotary movement against said spiral cam-face, a spring interposed between said operating-post and said body end and adapted to control the sliding movement of said post, an ink-reservoir contained within said body member and having elastically-extensible walls secured at one end to said
40 operating-post and adapted to be thereby extended longitudinally, and a valve seated in the interior of said reservoir and operatively connected with said operating-post, whereby the operation of said valve is controlled and
45 the flow of ink from said reservoir is regulated, as described.

7. In a fountain-pen, the combination with the body member, of an operating-post arranged for both rotary and sliding movements
60 in one end of said body member, a spring interposed between said post and the interior end of said body member, and adapted to control the sliding movement of said post, an ink-reservoir contained within said body member,
65 and provided with elastically-extensible walls secured at one end to said operating-post and a valve seated in the interior of said reservoir opposite to and operatively connected with said operating-post, as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN H. CROWELL.

Witnesses:

O. A. PRIOR,
S. F. CROWELL.