

A. EBERSTEIN.
FOUNTAIN PEN.

APPLICATION FILED APR. 14, 1904.

2 SHEETS—SHEET 1.

Fig. 1

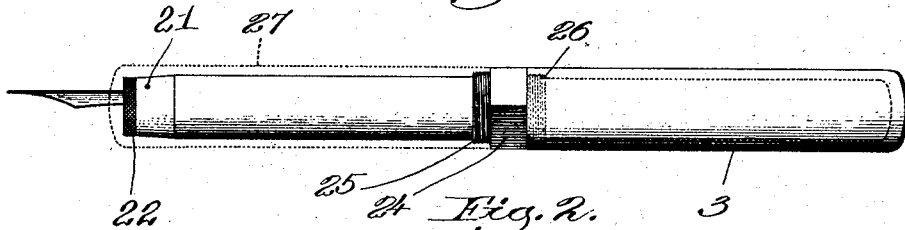


Fig. 2.

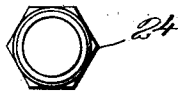


Fig. 3.

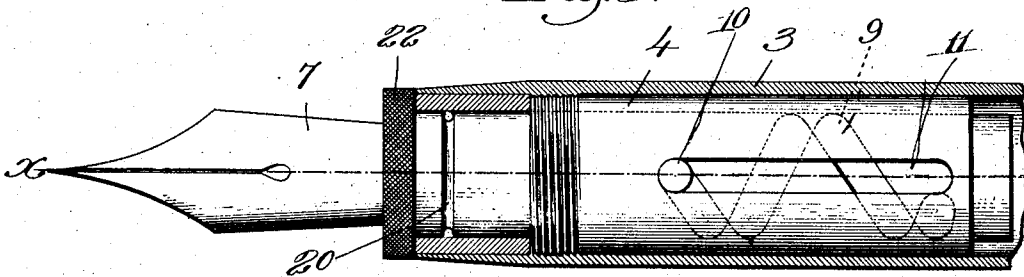


Fig. 4.

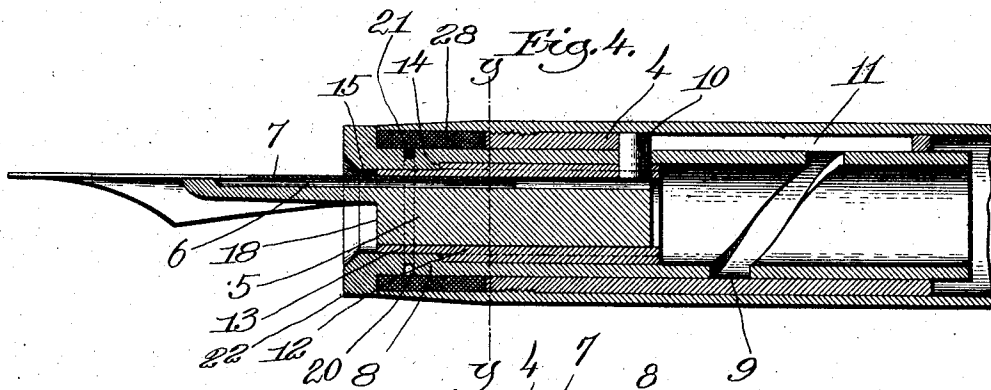
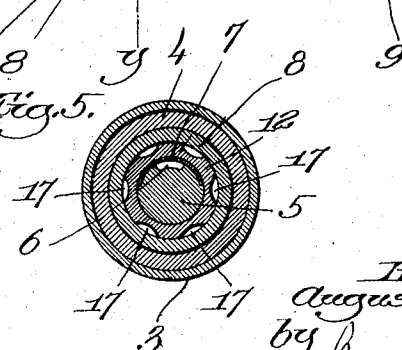


Fig. 5.



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2 SHEETS—SHEET 2.

Fig. 6.

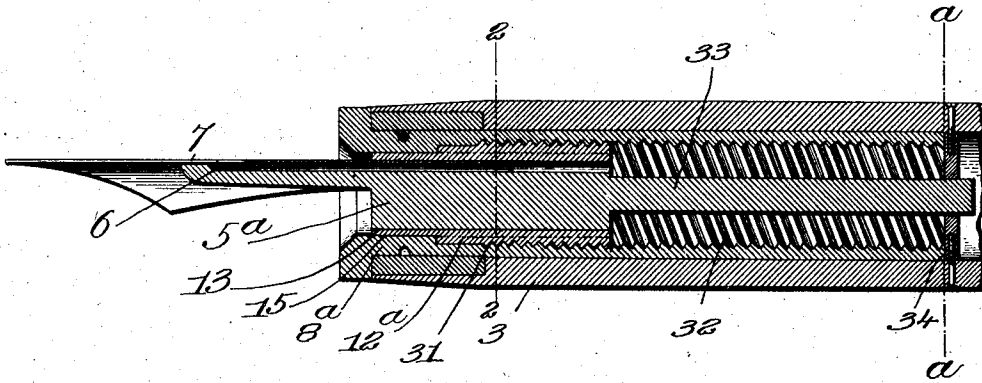


Fig. 7.

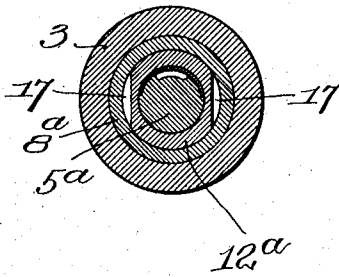
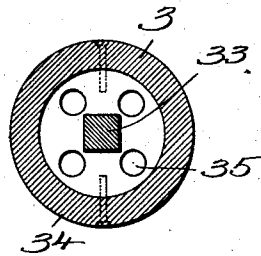


Fig. 8.



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UNITED STATES PATENT OFFICE.

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FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 780,416, dated January 17, 1905.

Application filed April 14, 1904. Serial No. 203,068.

To all whom it may concern:

Be it known that I, AUGUST EBERSTEIN, a citizen of the United States, residing at Winthrop, county of Suffolk, and State of Massachusetts, have invented an Improvement in Fountain-Pens, of which the following description, in connection with the accompanying drawings, is a specification, like figures on the drawings representing like parts.

This invention relates to that class of fountain-pens in which the pen-point is slidably mounted in one end of the barrel and means are provided for retracting or withdrawing said point within the barrel when the pen is not in use and for projecting said pen beyond the barrel when the pen is to be used, and has for its object to provide a pen of this type in which the operating means for giving the pen-point its longitudinal movement are located at the pen end of the barrel. All the devices of pens of this class of which I am at present familiar have the operating means located at the opposite end of the holder from the pen.

The particular features wherein my invention resides will be more fully hereinafter described and then pointed out in the claims.

In the drawings, Figure 1 is a side view of my improved pen, the two positions of the cap being shown in dotted lines. Fig. 2 is an end view of the pen. Fig. 3 is an enlarged longitudinal section of the pen. Fig. 4 is a section on the line *xx*, Fig. 3. Fig. 5 is a section on the line *yy*, Fig. 4. Fig. 6 is a longitudinal section showing a slightly-modified form of my invention. Fig. 7 is a section on the line 2 2, Fig. 6; and Fig. 8 is a section on the line *aa*, Fig. 6.

3 designates the barrel of the pen, which contains the usual ink-reservoir, and 5 designates the feed-bar having the usual feed-groove 6 therein, which communicates at one end with said reservoir and through which the ink is conducted to the tip of the pen-point 7. The feed-bar 5 is constructed to slide back and forth in the barrel, so as to project the pen beyond the barrel and into the position for writing or to withdraw the pen into the barrel. In my present invention this longitudi-

nal movement of the feed-bar and pen is accomplished by means of a rotatable pen-actuating member located at the pen end of the barrel and adapted by its rotation relative to the barrel to give the required longitudinal movement to the pen to withdraw it into the barrel or project it beyond the same. In the preferred form of my invention this pen-actuating member is in the form of a sleeve which is received in the pen end of the barrel and is held from longitudinal movement and within which the feed-bar and pen is situated, the connection between said rotatable sleeve and feed-bar being such that the rotation of the sleeve gives to the pen its longitudinal movement.

Various ways of connecting the rotatable sleeve and the feed so that the rotation of the former gives the latter its longitudinal movement may be adopted without departing from my invention, and in the drawings I have illustrated two different ways in which this object may be accomplished.

I will first describe the form of my invention shown in Figs. 3, 4, and 5. The rotatable sleeve or pen-actuating member is designated by 8, and it is provided with a spiral cam-slot 9, through which a pin 10, carried by a feed-bar, projects, said pin also preferably projecting into a longitudinal guiding-groove 11, which may either be formed in the barrel 3 or in a separate sleeve 4 within said barrel and rigid therewith for the purpose of preventing said feed-bar from turning when the sleeve is rotated. The sleeve 8 is held from longitudinal movement in any suitable way, preferably by forming a groove 20 therein in which rests a locking-pin 21, extending through the barrel transversely thereof. The sleeve 8 is provided with the head 22, which projects beyond the end of the barrel 3 and in position to be grasped by the fingers, thus affording a means for readily turning the sleeve. With this construction it will be seen that the turning of the sleeve causes the feed-bar to move longitudinally, and the length of the cam-slot 9 and guiding-slot 11 are such that said feed-bar and pen can be withdrawn entirely into the barrel. In the form of the

invention shown in Figs. 3, 4, and 5 the feed-bar 5 is encircled by and has rigid therewith a sleeve 12, which has the cylindrical neck portion 13 at its end which forms, with the main body of the sleeve, the annular shoulder 14. The interior diameter of the outer end 15 of the sleeve 8 is such as to nicely fit the neck portion 13 of the feed-bar sleeve 12, and the diameter of said rotatable sleeve at its inner end is of a size to fit the main body portion of said sleeve 12, said rotatable sleeve 8 being formed with a shoulder which coöperates with the shoulder 14, as seen in Fig. 4, to make a tight joint. The main body of the sleeve 12 is cut away to form one or more longitudinal grooves 17, which extend from the shoulder 14 to the inner end of the feed-bar. The length of the slot 9 is such with relation to the length of the neck portion 15 of the feed-bar sleeve that when the feed-bar and pen has been retracted to its full extent the neck portion 13 of said feed-bar is withdrawn entirely from the bore 15 of the rotatable sleeve and the end 18 of the feed-bar is within and beyond the shoulder in said rotatable sleeve. When the parts are in this position, the bore 15 of the sleeve 8 is in direct communication with the ink-reservoir through the longitudinal slots 17 and the pen can be filled by simply injecting ink in the sleeve 8 and allowing the ink to flow through the channels 17 into the ink-reservoir. As soon as the sleeve is turned to project the pen forwardly and into operative position, as shown in Figs. 3 and 4, the neck portion 13 fills the bore 15 of the rotatable sleeve and the shoulder 14 forms with its coöperating shoulder a perfectly-tight joint to prevent the ink leaking between the sleeve 8 and the feed-bar. The groove 11 may either be formed in the barrel itself or in a separate sleeve. I prefer, however, to make it in the separate sleeve 4, which will be fixedly secured in the end of the barrel either by screw-threading it therein or constructing it with a sufficiently-tight fit so that it will retain its position by friction. To prevent the ink leaking around the rotatable sleeve 8, I prefer to employ a packing-sleeve 28, of cork or similar material, which in this form of my invention is located between the end of the sleeve 4 and the head 22 of the sleeve 8.

In Figs. 6, 7, and 8 I obtain the requisite longitudinal movement of the feed-bar 5^a by providing the latter with exterior screw-threads which engage interior screw-threads in the sleeve or pen-actuating member 8^a. In this form of my invention the sleeve 8^a has at its outer end the bore 15 of reduced diameter, in which the neck portion 13 of the feed-bar sleeve 12^a fits, and the main body of the sleeve 12^a is provided with screw-threads 31, which engage interior screw-threads 32 in the sleeve 8^a. In this form of the invention the sleeve 4 is dispensed with and the rotata-

ble sleeve 8^a is mounted directly in the barrel 3. To hold the feed-bar 5^a from rotary movement, I have illustrated it as provided with the flat-sided stem 33, which passes through a correspondingly-shaped aperture in a partition or member 34, rigidly held in the barrel. This stem can slide through the aperture in the partition, as the pen-bar has its longitudinal movement; but it holds the pen-bar from turning when the sleeve 8^a is turned. Said partition will be of course provided with suitable apertures 35 to permit the ink to flow therethrough. As shown in the other form of the invention, the sleeve 12^a will be cut away to present longitudinal channels 17, through which the ink can flow into the reservoir when the pen is being filled.

Considered broadly, the pin-and-slot connection between the feed-bar and sleeve shown in Figs. 3 to 5 is one form of screw-thread, and the screw-thread connection in the sleeve 8^a in Figs. 6 to 7 is only one form of cam-groove in said sleeve which engages a projection on the feed-bar. When, therefore, I use the term "screw-thread connection," I intend it to cover both the forms of my invention herein illustrated, and similarly the term "cam-groove" in the rotatable sleeve is intended to cover both forms of the invention.

I will preferably make the barrel 3 midway between its end with the polygonal collar 24^a and with the screw-threaded portions 25 and 26, with either one of which the cap 27 (shown in dotted lines, Fig. 1) may be engaged. When the pen is in use, the cap will be applied to the right end of the holder, Fig. 1, and caused to engage the screw-threads 26, and when the pen is closed and not in use said cap will be applied to the left-hand end and caused to engage the screw-threads 25. The polygonal portion 24 prevents the pen from rolling when placed on a desk or other smooth surface.

While I have herein shown the preferred embodiments of my invention, yet I wish it understood that the shape, form, and arrangement of the various parts may be varied without in any way departing from my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a fountain-pen, a barrel having an open end, a feed-bar and pen movable longitudinally in said open end, and means coöperating with the barrel at the pen end thereof to give said feed-bar and pen a positive movement in both directions.

2. In a fountain-pen, a barrel having an open end, a rotatable sleeve within said open end, a feed-bar and pen within said sleeve, and means connecting said sleeve and feed-bar whereby the rotation of the sleeve gives the feed-bar a longitudinal movement.

3. In a fountain-pen, a barrel having an open end, a sleeve rotatably mounted in said

open end, means to hold the sleeve against longitudinal movement, a feed-bar and pen within the sleeve, means to hold said feed-bar from rotary movement, and means connecting said sleeve and feed-bar whereby the rotary movement of the sleeve gives a longitudinal movement to the feed-bar.

4. In a fountain-pen, a barrel having an open end, a sleeve having an interior shoulder and rotatably mounted within said open end of the barrel, means to hold said sleeve from longitudinal movement, the diameter of the sleeve being less at its outer end than at its inner end, a feed-bar within the sleeve, said feed-bar having a neck portion to fit the smaller diameter of the sleeve, and a shoulder to engage the interior shoulder in the sleeve, means to hold the feed-bar from rotary movement while permitting it to slide, and means connecting the sleeve and feed-bar whereby the rotary movement of the former gives the latter a longitudinal movement.

5. In a fountain-pen, a barrel having an open end, a pen mounted in said open end for longitudinal movement, a rotatable pen-actuating member located at the pen end of the

barrel, and means whereby the rotation of said pen-actuating member relative to the barrel gives to the pen its longitudinal movement in both directions.

6. In a fountain-pen, a barrel having an open end, a pen mounted in said open end for longitudinal movement, means to hold said pen from rotary movement relative to the barrel, a rotatable sleeve at the pen end of the barrel, and connections between the sleeve and pen whereby the rotary movement of the sleeve relative to the barrel gives the pen a longitudinal movement.

7. In a fountain-pen, a barrel having an open end, a pen movable longitudinally in said open end, and rotary means at the pen end of the barrel to give said pen a positive movement in both directions.

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

AUGUST EBERSTEIN.

Witnesses:

LOUIS C. SMITH,
MARGARET A. DUNN.