H. STEIN.

FOUNTAIN PEN.

APPLICATION FILED NOV. 13, 1913.

1,166,863.

Patented Jan. 4, 1916.

Fig. 1.

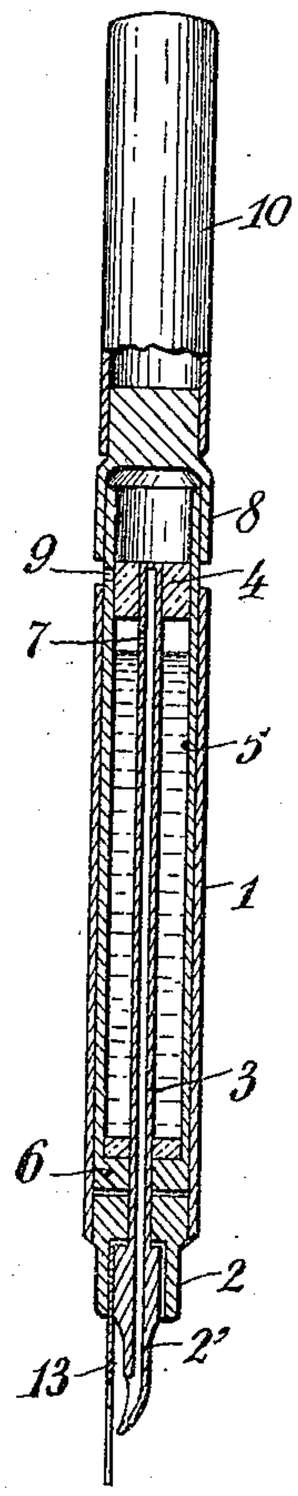


Fig. 2.

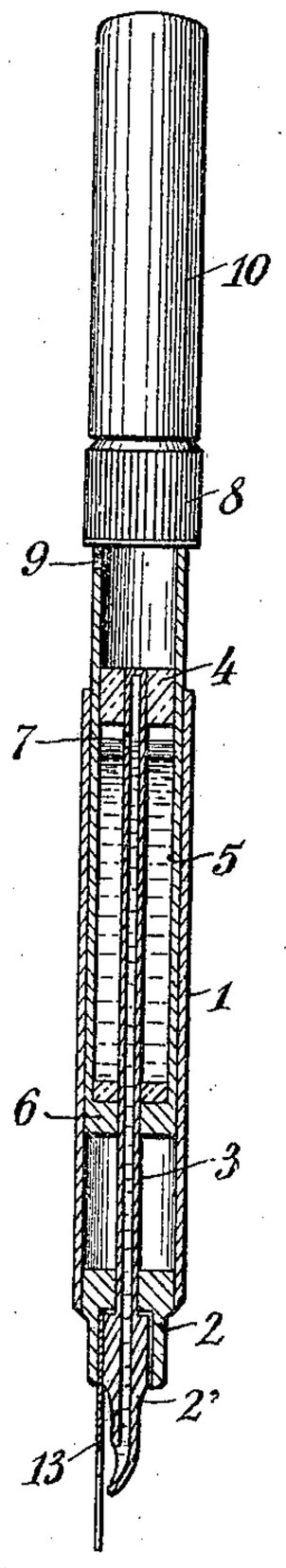
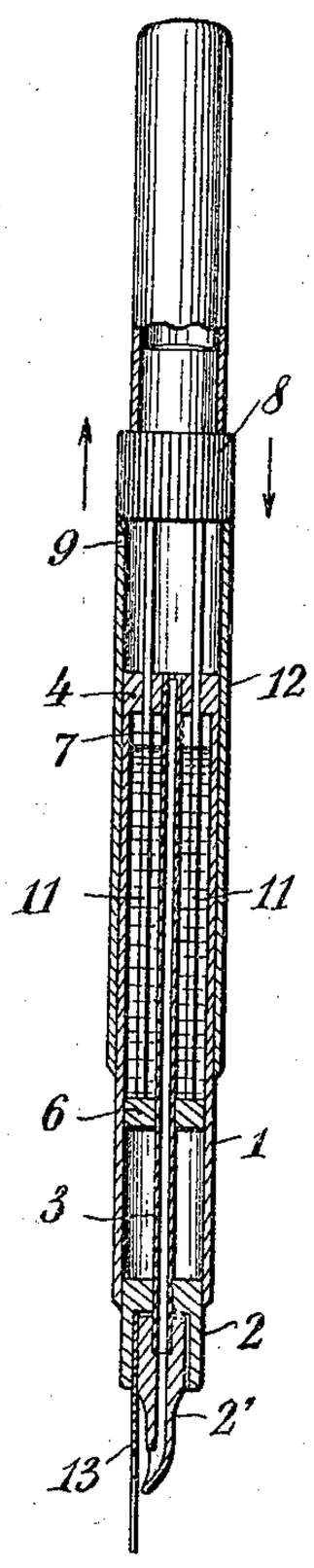


Fig. 3.



WITNESSES

Charles D. Crompton

Fred G. Pohl

H. Stein.

INVENTOR

BY Edwyn Brooks

ATTORNEY

UNITED STATES PATENT OFFICE.

HUGO STEIN, OF VIENNA, AUSTRIA-HUNGARY.

FOUNTAIN-PEN.

1,166,863. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed November 13, 1913. Serial No. 800,832.

To all whom it may concern:

Be it known that I, HUGO STEIN, a subject of the Emperor of Austria-Hungary, and residing at No. 31 Neubaugasse, in Vienna, VII, Austria-Hungary, have invented certain new and useful Improvements in Fountain-Pens, of which the following is a specification.

This invention relates to self-filling fountain pens and particularly to pens of the type in which the ink is forced from the ink chamber by gradually moving outwardly, or away from the pen point, a sleeve or tubular member, and in which the ink is drawn into said chamber by pushing said sleeve inwardly, or toward the pen point. In pens of this type as previously proposed, the sleeve was moved relatively to an ink tube of considerably less diameter, and in all except the extreme inner position of the sleeve, corresponding to the entirely filled condition of the pen, the user thereof had to hold the pen by means of the thin ink tube, which rendered the handling of the pen very difficult and inconvenient.

The object of the present invention is to provide an improved pen of this type, in which the pen at the point at which it is held is of about the usual thickness and is always of the same thickness, whether the sleeve or tubular member is in its inner or withdrawn positions, whereby the pen can be handled with ease and convenience.

With this object in view, the invention consists in the combination and arrangement of parts hereinafter more fully described and clearly pointed out in the appended claims.

The accompanying drawings illustrate two forms of construction according to the invention, shown in longitudinal section.

Figure 1 is one form of construction in the pushed in position. Fig. 2 shows the same form of construction in a partially pulled out position. Fig. 3 illustrates the second form of construction.

In Figs. 1 and 2, the piece 2 situated in the hollow holder 1 extends inwardly to support the ink tube 3, to which latter is connected a tubular part 2′ which is itself situated loosely in the piece 2. The tube part 2′ is open toward the ink tube 3 and also toward the nib 13. The ink tube 3 carries a closing member 4 at its upper closed end, which member fits tightly within a sleeve 5 adapted to be pushed into and withdrawn from the hollow casing 1. The lower end of the sleeve 5 is closed by a preferably integral member 6 adapted to be moved relatively to the tube 3, so that between the members 4 and 6 a free space forming an ink chamber is provided, which is in communication with the interior of the tube 3 by means of the small opening 7. In order to facilitate the manipulation of that end of the sleeve 5 which projects outward beyond the casing 1, it is provided with a knob 8 and also with an air-hole 9. The members 4 and 6 may also be arranged farther from the end of the sleeve 5 or the tube 3.

The operation of the fountain pen holder is as follows: Assuming that the sleeve 5 is in the position illustrated in Fig. 2, that is in a partially or entirely drawn out position, if the sleeve 5 is pushed into the casing 1 (Fig. 1) after the nib has been dipped into the ink, then a vacuum will be created in the sleeve 5 between the members 4 and 6, and also within the tube 3 by means of the communicating opening 7, whereby the ink will be drawn in. The ink is allowed to flow to the nib by slightly pulling the sleeve 5 out of the casing 1, whereby the space between the members 4 and 6 is reduced in size and the ink is forced out. It will obviously be of advantage to make the tube 3 comparatively thin, in order to make the annular space between said tube and the sleeve 5, as large as possible.

The cap 10 serves as usual for protecting the nib, when the fountain pen is out of use and, as shown in Figs. 1 and 2 wher the fountain pen is being used, it serves to lengthen it.

When the above described fountain pen is quite full, its length is shortest, although the sleeve is movable with the object of feeding the nib with ink, and it is therefore very easily put away in the pocket, without the danger of the ink unintentionally flowing out. Also when the pen holder is of increased length owing to the ink having been wholly or partly used, a leakage of the ink, when carrying the pen holder in the pocket, is not possible, because the unintentional pushing together of the parts, which is possible when the pen holder lies in the pocket, can only cause the ink to be drawn in. It would therefore be advisable, if the sleeve is in any drawn out position, to push same quite in, in every case before putting the pen holder away. It is then only necessary,

when making the pen holder ready for use, to force the air out to thereby permit the flow of ink.

In the form of construction illustrated in Fig. 3, the use of the sleeve 5 used in Figs. 1 and 2 is dispensed with, and the holder 1 is not only rigidly connected with the piece 2, but also with the member 4. Instead of the sleeve 5, two thin piston rods 11, which are tightly guided in the member 4 and are secured outside to a common head 8, are connected with the movable member 6, which forms a closure extending between the ink tube 3 and the holder 1. At the head 8, a sleeve 12 may be secured, which surrounds the holder 1 and in some cases, as illustrated, is guided thereon. The remaining details of construction are the same as that of the form of construction hereinbefore described, and the method of operation is also the same. If the member 6 is pushed in, in the direction of the arrow I, a vacuum is caused in the intermediate space between the holder 1 and the tube 3 between the members 4 and 6, and the interior of the tube 3 by means of the communicating opening 7 whereby the writing liquid is drawn in. The feeding of the writing liquid to the nib is performed by slightly pulling the head 8 out in the direction of the arrow II, whereby said space is reduced in size and therefore the liquid is driven through the tube 3 to the nib. The sleeve 12, the use of which may be dispensed with, serves for covering the outer projecting part of the piston rod 11, also for maintaining a uniform thickness of holder at all points and for protecting the piston rod from bending; the latter is the case especially when the sleeve 12 is guided on the holder 1.

It will be readily seen that in both forms illustrated the pen is of substantially the same diameter throughout its length, and also that the pen at the point at which it is held is always of the same thickness, no matter whether the member 6 is in its inner or outer positions. These are distinctly advantageous features which distinguish the present pen from those of the same type previously proposed.

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

1. A fountain pen, comprising in combination, a tubular member, a pen carried at one end thereof, an ink tube also carried by said member and forming therewith an annular chamber, a closure member at the outer end of said ink tube serving to close the outer end of said chamber, a second movable closure member closely fitting the exterior of said ink tube and the interior of said tubular member and serving to close the inner end of said chamber, said ink tube having an orifice communicating with said chamber and means for moving the second closure member relatively to the tubular member and ink tube, for the purpose described.

2. A fountain pen, comprising in combination, a pair of tubular members, one fitting within the other, a closure member carried by the inner tubular member, a second closure member arranged within the inner tubular member and connected with the outer tubular member, said closure members and the inner tubular member forming between them an ink chamber, a pen carried by one of said tubular members, and an ink tube also carried by said member, opening at one end adjacent said pen and communicating through an orifice with said chamber, said tubular members being relatively movable for the purpose described.

3. A fountain pen, comprising in combination, a pair of tubular members one fitting within the other, a closure member carried by the inner tubular member, a second closure member arranged within the inner tubular member, and connected with the outer tubular member, said closure members and the inner tubular member forming between them an ink chamber, a pen carried by one of said tubular members, and an ink tube also carried by said member, said tube opening at one end adjacent said pen and being closed at the other end, but having an aperture adjacent said end and communicating with said ink chamber, said tube passing through both of said closing members, said tubular members being relatively movable for the purpose described.

4. A fountain pen comprising in combination, a holder, a pen at one end thereof, a casing within the holder and projecting beyond one end thereof, a closing member integral with the casing, a closing member extending across and tightly fitting the casing, both members being normally spaced apart to form a closed ink chamber, a stationary ink tube within and in communication with the ink chamber by means of an orifice, the tube being secured to the closing member which fits within the casing and passing tightly through the integral closing member and having its end adjacent the pen in the holder, and a knob on the end of the casing which projects from the holder, whereby the integral closing member and sleeve are moved relatively to the ink tube and the other closing member to vary the capacity of the ink chamber for the purpose described.

5. A fountain pen comprising in combination, a casing, a pen at one end thereof, a closing member integral with the casing, a closing member extending across and tightly fitting the casing, both members being normally spaced apart to form a closed ink chamber, a stationary ink tube within

and in communication with the ink chamber by means of an orifice, the tube being secured to the integral closing member, and passing tightly through the closing member which fits within the casing and having its end adjacent the pen in the casing, a sleeve surrounding the casing, and means on the sleeve for moving it and the tightly fitting closing member relatively to the ink tube and the integral closing member, to vary the capacity of the ink chamber for the purpose described.

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

HUGO STEIN.

Witnesses:
KARL REHAK,
RICHARD BREWER.