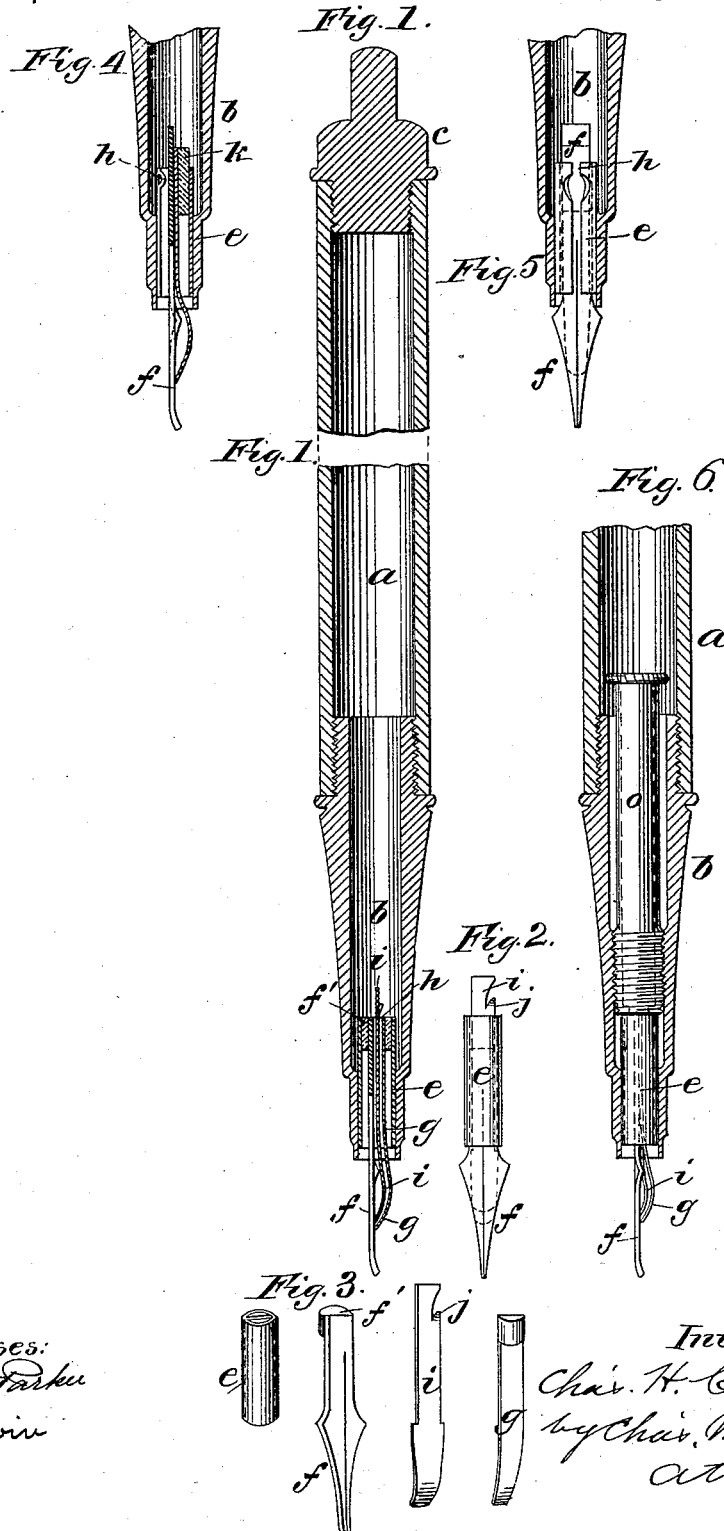


(No Model.)

C. H. COURT.
FOUNTAIN PEN.

No. 302,470.

Patented July 22, 1884.



Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES H. COURT, OF JERSEY CITY, NEW JERSEY, ASSIGNOR OF ONE-HALF TO WALTER WINTHROP WINTON, OF NEW YORK, N. Y.

FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 302,470, dated July 22, 1884.

Application filed July 20, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. COURT, of Jersey City, Hudson county, New Jersey, have invented certain new and useful Improvements in Fountain-Pens, of which the following is a specification.

My invention relates to that class of fountain-pens which are provided with slit nibs, like ordinary pens, and which thus produce writing of the ordinary shaded character, as distinguished from the stylographic pens, which write with a capillary tube and a fine style or needle. Heretofore, however, nibbed fountain-pens have been generally of a complicated and expensive construction, several agitating and valvular devices having been employed, in connection with the nib, in the writing end of the ink-tube to insure the outfeed of ink and the infeed of air. In my invention, however, I provide a pen of this character having a very simple and effective construction, and I dispense with most of the contrivances heretofore thought necessary for successful action, and cause the outfeed of the ink and the infeed of the air at the writing end of the pen, chiefly through the flexions of the nib itself. In my pen the writing and ink-feeding devices, consisting of the flexible nib and its adjuncts, are affixed in a little sleeve or tube which is frictionally socketed in the tip of the tubular holder or ink-reservoir, and may be inserted or removed as required, and this sleeve forms the ink duct or orifice from the reservoir to the nib. The nib is provided with an elongated slit which extends up into the ink-orifice and forms a most effective and simple device for insuring the feed of ink to the point of the nib. In connection with the flexible nib, I employ a reciprocating tongue which rests against the nib and projects up through the ink-duct, whereby the lateral flexions of the pen in writing cause the tongue to vibrate longitudinally in the ink-duct, insuring the outfeed of ink from the reservoir and the infeed of air thereto through the same orifice.

My invention therefore consists, chiefly, in the leading features above outlined, and also in certain means for adjusting the nib in the holder, and in several other details, as hereinafter fully set forth.

In the drawings annexed, Figure 1 represents a longitudinal section of a fountain-pen constructed according to my invention. Fig. 2 shows the writing and feeding portions of the pen—viz., the sleeve with its nib—&c., removed from the tip of the tubular holder. Fig. 3 represents said removed part dissected into its elements. Fig. 4 is a longitudinal fragmentary section through the point-section of the pen, looking edgewise of the nib, illustrating a modification; and Fig. 5 is a similar view, looking flatwise of the nib. Fig. 6 illustrates the means for adjusting the projection of the nib and sleeve from the holder.

Referring to Fig. 1, *a* indicates the tubular handle of the pen, which, as usual in this class of pens, forms the reservoir for the ink, and is preferably made of a tube of hard rubber. The upper end of this tube is closed by a solid tight-fitting screw-plug, *c*, without vents or perforations, as no air is admitted at this end of the holder, and the construction is thus simplified.

b indicates what is termed the "point-section" of the holder, being the tapering tip portion or writing end of the holder, containing the nib, &c., which section screws into the end of the tube *a*, as usual, and is unscrewed therefrom when required to fill the reservoir with ink, in the usual way. The tip of the point-section *b* receives the usual tight-fitting cap, (not shown,) which covers and protects the protruding nib or writing-point when the pen is placed in the pocket, as will be understood. Now, in the bore of the point-section *b*, at the tip thereof, is inserted a little sleeve or tube, *e*, which is a snug frictional fit for said bore, and in this sleeve is fixed a slit pen-nib, *f*, which extends longitudinally within the sleeve, in a nearly diametrical or central position therein, as seen in Fig. 1. The upper or root end of the nib is fixed to a little semicircular block, *f'*, (see Fig. 3,) which is soldered in the top of the sleeve, as seen in Fig. 1, thus fixing the upper extremity of the nib to the sleeve, while the entire remaining length of the nib is free to vibrate or flex laterally from the said fixed end to the writing-point of the nib. The upper part of the nib is thus inclosed in the sleeve and nearly fills the same crosswise, but is a free fit therein and free to

vibrate laterally, as before described. The lower half of the nib, or nib proper, protrudes from the sleeve and terminates with the usual pointed shape of a pen-nib, and this protruding portion is widened into the shape of a spear-head or diamond form below the edge of the sleeve, so that the inclines of the spear-head will abut against the tip of the point-section when the sleeve is inserted in the bore thereof, as shown in Fig. 5, and thus form a stop to limit the insertion of the sleeve and determine the proper projection of the nib from the tip of the holder, as well as to serve another purpose, hereinafter described.

Within the sleeve, parallel with the nib and under the same, is arranged a flexible tongue, *g*, whose upper end is fixed to the upper end of the sleeve, similar to the nib *f*, leaving a narrow slit, *h*, between the nib and tongue, which forms the ink-duct from the reservoir into the bore of the sleeve between the nib *f* and tongue *g*. The tongue *g* is free to vibrate laterally within the sleeve, in the same manner as the nib, and is about the same width as the nib, as shown, and its lower portion, which protrudes from the sleeve, is bowed outward, with its tip curved toward and resting on the nib, just above the writing-point thereof, thus forming a pocket for ink between the nib and the bow of the tongue, which will keep the nib better supplied and retain any surplus that might otherwise trickle off, and at the same time making contact between the nib and tongue, so that when the tongue is flexed to and fro in the action of writing similar movements in an opposite direction are imparted to the tongue. The nib *f* and tongue *g* thus form laterally-vibrating agitators within the sleeve *e* in the action of writing, and in extending up within the sleeve, (which forms the ink-orifice of the reservoir,) and on either side of the outlet-duct *h*, they act to produce a gentle and positive outfeed of the ink to the nib and an infeed of air-bubbles to the reservoir through one and the same duct, *h*, thus producing a most simple and efficient form of feed or "capillator" for fountain-pens. It may now be noted, however, that not only is the flexible nib *f* in this pen inclosed freely in the ink-orifice of the reservoir—viz., the sleeve *e*—and there immersed in the ink, but the slit of the nib is greatly prolonged and extends up into this ink-orifice, which is found to be a most important feature of my improvement, as the top of this slit receives the ink at once by capillary attraction as soon as it enters the sleeve from the ink duct or slot *h*, and the alternate opening and closing action of the slit in writing insures a perfect downfeed of the ink in the slit to the point of the nib, which renders the feed peculiarly clean, reliable, and simple. This feature is so simple and efficient that it will cause the ink to feed properly to the point of the nib without the use of the tongue *g* or any other device, it being sufficient that a proper ink duct or vent opens into the sleeve from the reservoir in proximity to

the prolonged slit in the nib. I however prefer to use the tongue *g*, as shown and described, and also prefer to employ a reciprocating tongue or agitator, *i*, between the nib and the flexible tongue *g*, with its upper end extending up into and through the ink-duct *h*, while its lower end is curved toward and rests upon the nib *f*, just above the point of the flexible tongue *g*, so that when the nib and flexible tongue are flexed to and fro in writing the agitator *i* is also flexed to and fro, and at the same time caused to slightly vibrate longitudinally up and down between nib and tongue and through the ink-duct *h*, which produces a very effective agitation in the ink-channels and prevents the same from becoming clogged, and this feature I find to be very efficient in insuring a perfect ink-feed, and it forms a characteristic point of my invention, in addition to the leading one, before mentioned.

The sleeve *e* is preferably made of silver, the nib *f* of gold, and the tongues *i* *g* of strips of sheet-silver, the nib *f* and tongue *g* being silver-soldered to the top of the sleeve, as before described, while the agitating-tongue *i* is of course free to vibrate longitudinally and laterally in the ink-slit *h* between the two, and in order to prevent this agitator from falling out of its place a cut is made in its upper end, forming a stop-claw, *j*, which is bent over the top of the sleeve, and thus prevents the agitator from falling out of its place, as will be understood.

In the modification shown in Figs. 4 and 5 the sleeve *e* is not a continuous tube, but is slit or divided down one side, as shown, and the nib *f* and flexible tongue *g* are secured close to each other in the middle of the sleeve at the top, while a semicircular plug, *k*, soldered in the top of the sleeve under the tongue, closes one half of the sleeve, while the other half on the top side of the nib is left open, forming the ink-duct *h*. In this case, therefore, the ink passes down from the reservoir into the sleeve through the duct *h* on the top side of the nib, and passes through the slot of the nib into the ink-pocket under the same between the nib and tongue *g*. In this case, as before, the nib-slot is elongated and extended up into the sleeve, and both nib and tongue are free to flex laterally within the sleeve, being fixed only at the upper ends to the sleeve. The flexions of nib and tongue within the sleeve during the action of writing cause the ink to feed gradually down and the air to work up through the same duct, *h*, providing a steady and reliable feed to the pen.

It may now be readily appreciated that while the action of my improved pen is very efficient its construction is exceedingly simple and inexpensive, as all the writing and feeding mechanism of the pen is comprised in the little removable writing-section (the sleeve with its nib, &c.) in the tip of the point-section, leaving the entire reservoir free and unobstructed to contain the ink. This writing-section is

simply socketed frictionally in the point-section, and may be easily removed, when it is required to examine or wash the parts, by simply seizing the nib and pulling out the section, after which the section can be as easily replaced.

It may be further noted by referring first to Fig. 2 and then to Fig. 5, that when the writing-section is inserted in the point-section the upper inclines on the spear-shaped nib, in abutting against the tip of the point-section, form a stop to limit the insertion, and at the same time tend to wedge in or close together the slit sections of the pen; consequently the tighter the writing-section is forced inward the tighter the slit sections will be forced together, and hence the finer will the pen write, and vice versa, thus forming a means of regulating the writing of the pen and making it finer or coarser, according as the writing-section is adjusted higher or lower in the point-section. In order to thus better adjust the writing-section, I prefer to provide the point-section with an adjustable screw-tube, *o*, as shown in Fig. 6, its upper end having a milled rim, whereby it may be easily turned for the desired adjustment when the point-section is removed, while its lower end is threaded and screws into a thread in the lower portion of the point-section and abuts against the sleeve *e*, or against a projection extending therefrom, as will be readily understood, thereby enabling the desired adjustment to be made in a very simple and effective manner.

I do not of course confine myself to any particular materials of construction, nor to special proportions of parts, although the materials that I have mentioned and the proportions I have illustrated are considered best; neither do I confine myself to fixing the nib *f* in a removable sleeve, as any equivalent mounting which will serve the same purpose may be used, although the sleeve is thought best.

What I claim is—

1. A fountain-pen constructed with a flexible nib immersed in and projecting from the ink-orifice, and formed with a prolonged slit ex-

tending up into the ink-orifice, substantially as and for the purpose set forth.

2. In a fountain-pen, the combination, with a tubular reservoir-holder, of a sleeve or tube adapted to be inserted in the outlet tip or orifice of said holder, and provided with an ink-vent opening therein, with a flexible pen-nib affixed in said tube and free to vibrate or flex laterally therein, with the writing-point protruding from the sleeve, and with the slit of the nib prolonged and extending up into said sleeve, substantially as and for the purpose set forth.

3. In a fountain-pen, the combination, with a tubular reservoir-holder, of the slit nib *f* and flexible tongue *g*, inserted in the outlet-orifice thereof, adjacent to an ink-vent, *h*, in combination with the longitudinally-agitating tongue *i*, arranged between the two in said vent, substantially as and for the purpose set forth.

4. In a fountain-pen, the combination, with a sleeve, *e*, inserted in the ink-orifice of the holder and provided with an ink-vent, of a flexible nib, *f*, and a flexible tongue, *g*, resting against the nib, both affixed at the top in said sleeve and free to vibrate laterally therein, substantially as and for the purpose set forth.

5. The slit pen-nib *f*, having a wedging or spear-shaped head adjustable upward within its socket against an abutment, whereby the slit sections are pressed together with more or less force, and the writing of the nib thereby rendered finer or coarser, substantially as herein set forth.

6. In a fountain-pen, the combination, with the tubular holder and with a slit nib having a head of wedging form adjustable in the tip of said holder, of the adjustable screw-tube *o*, screwing into the holder to regulate the protruberance of the nib therefrom, substantially as herein shown and described.

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Witnesses:

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