

(No Model.)

O. E. WEIDLICH.
FOUNTAIN PEN.

No. 556,522.

Patented Mar. 17, 1896.

Fig. 1.

Fig. 2. Fig. 3.

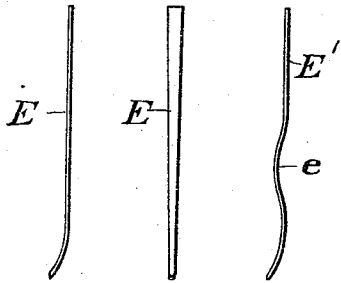


Fig. 4.

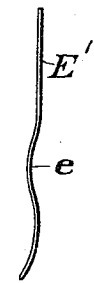


Fig. 5. Fig. 6.

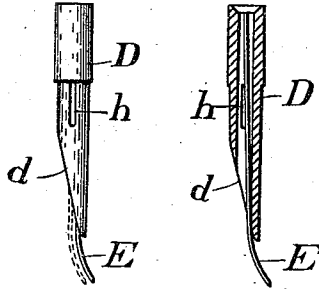


Fig. 7.

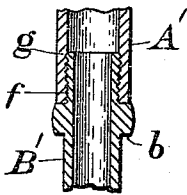


Fig. 8.

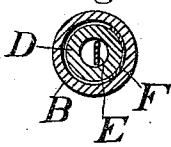


Fig. 9.

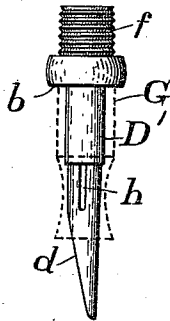


Fig. 10.

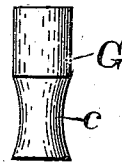


Fig. 11.

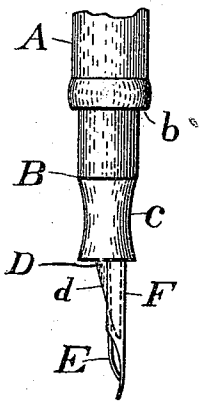


Fig. 12.

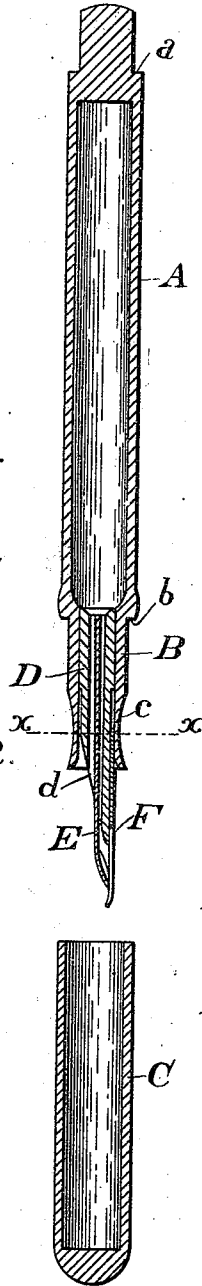
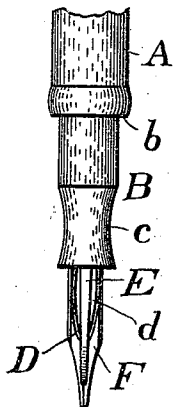


Fig. 13.

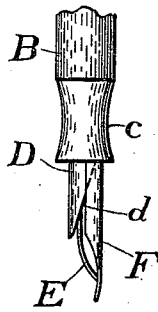
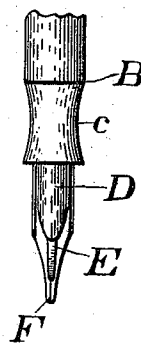


Fig. 14.



Witnesses
James & Smith,
Frank B. Marlow,

Inventor:
Otto E. Weidlich,
By Chas. F. Benjamin,
Attorney.

UNITED STATES PATENT OFFICE.

OTTO E. WEIDLICH, OF CINCINNATI, OHIO.

FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 556,522, dated March 17, 1896.

Application filed October 14, 1895. Serial No. 565,586. (No model.)

To all whom it may concern:

Be it known that I, OTTO E. WEIDLICH, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Fountain-Pens; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of fountain-pens wherein an ordinary writing-pen is used and in which the holder, being rigid and hollow and open only at the bottom, serves as a reservoir for the ink-supply, which is sustained therein by the atmospheric pressure, aided by such capillary attraction as resides in the column of ink and the wall of the reservoir.

The invention consists in the interposition of a long, thin, elastic tongue between the ink-column and the writing-pen, in connection with a feeding-tube having a mouth of the peculiar construction hereinafter described, through and beyond which the tongue extends to the pen, so that by the operation of said tongue, in connection with said mouth, a constant and proportioned supply of ink is delivered upon the nibs of the pen, the motion of which, in the act of writing, controls the action of the tongue, and thus automatically fixes and insures the quantity of ink to be brought down to the pen, whether the pen be driven rapidly or slowly and with heavy or light pressure.

In applying the invention I vary the details of construction in particulars not amounting to a departure from the invention, nor going beyond ordinary skill, judgment, and taste in the fabrication of articles of this class, but a fountain-pen embodying my improvement will always exhibit the following essentials: first, a holder, hollow, rigid, air-tight except at the bottom, reduced in inside dimension at or near the lower end, and bell-mouthed at the open end; secondly, an unclosed tube fitting into the open end of the holder and beveled away at its projecting end into a long,

narrow, sloping, elliptical mouth; thirdly, a long, narrow, thin, curved, elastic tongue projecting from the just-mentioned tube-mouth and with free vertical play therein, but held firmly by its side edges near its base in the body and circumference of the tube, and, fourthly, an ordinary writing-pen fixed in the bell-mouth of the holder above the tube and tongue aforesaid, and with its nibs in contact with and bearing down upon the upcurved tip of the tongue, so that when the nibs are spread and straightened by the pressure of writing the tongue still bears upward against them and is depressed by them when the pressure is removed.

In the accompanying drawings, wherein like letters represent like parts, Figure 1 is a central longitudinal section through an entire pen; Fig. 2, a side view of the spring-tongue; Fig. 3, a plan view thereof; Fig. 4, a side view thereof with a convexity therein; Fig. 5, a side view of feed-tube and tongue; Fig. 6, a central longitudinal section thereof; Fig. 7, a like view of the holder arranged into detachable sections; Fig. 8, a cross-section on line *xx* of Fig. 1, showing the bases of writing-pen and tongue; Fig. 9, a side view showing the feed-tube integral with the holder and provided with a detachable sleeve to hold the pen; Fig. 10, a separate view of said sleeve; Fig. 11, a side view showing the mouth of the feed-tube above the tongue; Fig. 12, a bottom view of the same; Fig. 13, a side view showing the mouth of the feed-tube beneath the tongue, and Fig. 14, a bottom view of the same.

A and B represent, respectively, the upper and lower sections that together constitute the holder of the pen. This holder is rigid, tubular, and closed everywhere except at the bottom. It may have the usual seat *a* at the top for the cap of the point-section when the pen is in use, and it has a shoulder *b* at the junction of the two sections to serve as a stop for the cap when the latter is in place and the pen out of use.

The front part of the lower section, B, is formed into a concavity *c*, thus making the mouth of the section bell-shaped. The bore of this lower section is materially smaller than that of the upper section, A, so that when the ink descends, by force of gravity, from the

upper into the lower section the volume of the flow is much diminished.

C is the cap that fits upon and over the lower section of the holder to prevent evaporation and leakage when the pen is at rest. When not normally in place it can go upon the top of the holder and usefully lengthen it.

D is a tube that passes through the bell-mouth of the holder and fits tightly in the bore just behind the bell-mouth. Its front end is cut away at a bevel to form a mouth *d*, which is long, sloping, elliptical, and pointed.

E is a thin narrow tongue, seated centrally along the bore of the tube D, so as to leave air and ink space above and below the tongue, and this tongue projects through and beyond the mouth *d* and curves upwardly at the tip.

Whether the tongue shall be so seated in the mouth as to carry this upward curve past the lip of the mouth or away from the lip is a matter of pleasure, for whether the mouth is above the tongue or the tongue above the mouth when the whole pen is assembled and in operation makes no material difference in results.

I may choose to form a convexity *e* about midway of the length of the tongue, as shown in the modified tongue E' of Fig. 4, as a restriction upon too rapid a flow of ink; but if the interior dimensions of the upper and lower sections of the holder and of the inserted tube are suitably proportioned to each other and to the writing-pen this convexing of the tongue will rarely, if ever, be needed.

F is a common writing-pen inserted and held in the bell-mouth of the holder and with the under faces of its nibs, near their points, bearing down upon and depressing the tongue at its tip.

It will be noticed that the pointed end or lip of the mouth of the feed-tube and the end of the spring-tongue proceeding from the mouth are in a line with and in close proximity to the nibs of the pen. Thus the ink is made to flow as directly and unrestrictedly and as naturally to the point of the pen as if the pen were dipped into ink in the usual way with mere dipping-pens.

To use the pen, remove the writing-piece, tongue, and tube from the mouth of the holder and nearly fill the latter with ink. Then replace the parts removed and put the implement in position. The ink will flow by force of gravity and in a thin column into the tube D, and so along the tongue E and its up-turned tip to the nibs of the pen. The latter will work up and down in the operation of writing and will actuate the free part of the tongue in the same manner, and this action of the tongue will pump the ink from the feeding-tube upon the points of the pen at a speed and in a quantity correspondent to the vigor of the pen action.

If the mouth of the tube should be over the tongue the ink in what would then be the roof of the mouth would descend upon the upper surface of the tongue, and if the mouth

should be under the tongue the latter would lap ink from what would then be the bottom of the mouth. This mechanical activity of the tongue, produced by and in proportion to the ordinary movement of the nibs, together with the delivery of the ink at, and only at, the close proximity of the writing-points quite does away with that liability to scarcity or flooding in the supply of ink which is so serious an objection to fountain-pens having inert conductors dependent upon gravity and capillary action for flowing the ink to the pen-points.

Whatever capillary action is exerted in, by, or upon the flow of ink in the use of my invention is only that which is found displayed in the use of pens of all descriptions, and that by which the ink is held to a curved feeding-surface and guided to the nibs of the pen against the direct action of gravitation.

It is the object of my invention to aid and sustain the natural flow of the ink and not to create an artificial flow, but in the carrying out of the invention I have not been unmindful of that class of fountain-pens wherein the pen is fed by the combined action of gravitation and capillary attraction, as in the Letters Patent of the United States numbered 260,134 and 311,554, and hence I claim nothing that is not newly devised by myself.

In Fig. 7 I have shown a modified holder-section B' separated from the also modified upper section, A', and made tightly connectible therewith by a screw-thread *f*, working into a corresponding thread *g*, formed inside and at the bottom of the upper section. This is a convenient variation for filling and cleaning the pen.

In Fig. 9 I show a modified tube D' integral with the lower section and a separate sleeve G fitting over the section, which is now flat, the concavity *c* being produced in the sleeve and so forming the bell-mouth for the reception of the writing-pen. This variation is expensive, but in a high-class pen may be desirable as promising an easier adjustment of writing-pen and tongue.

To aid the return flow of ink to the reservoir when a writing operation is ended and the position of the pen reversed I may form side slots *h* in the tube D, but I have found in practice that there is no difficulty in withdrawing the unused ink from the pen-points and adjacent parts through the channel of supply, and therefore I do not expect to make use of these reflow-slots.

I am aware that feed-tubes and spring-tongues are known features in the construction of fountain-pens, as respectively shown in one or another of the United States Patents numbered 302,560, 353,053, 441,111, 469,499 and 538,481, but I am not aware of any construction, arrangement and combination of them substantially like my own invention.

I claim as follows:

1. The combination, in a fountain-pen, of

the holder, hollow, rigid, and open only at bottom; the feed-tube, fitted within said holder, open throughout its length, with inside diameter smaller than the inside diameter of the holder, and with its front end, projecting from the holder, cut away to form a long, sloping, elliptical mouth; the elastic tongue, long, thin, fixed by the rear part of its side edges centrally in the bore of the aforesaid tube and issuing from the mouth thereof, with an upcurving tip; and an ordinary, flexible, nibbed pen, inserted in the open bottom of the aforesaid holder, over the aforesaid tongue and tube-mouth, and with the under side of its nibs bearing upon the tip of the tongue; the whole constructed and arranged as described and shown, for the purpose of feeding ink from the holder to the pen-nibs.

2. The combination, in a fountain-pen, of a holder, hollow, rigid, open only at bottom, of restricted internal diameter in its lower

part, and with said lower part cut away longitudinally to form a long, sloping, elliptical mouth; a springy tongue, long, thin, fixed by the rear part of its side edges centrally in the restricted bore of the aforesaid holder and issuing from the elliptical mouth thereof with an upcurving tip; a bell-mouthed sleeve, fitting over and upon the lower part of the aforesaid holder, and an ordinary, flexible, nibbed pen, seated and held between said sleeve and holder, with the under side of its nibs bearing upon the upcurved tip of the said tongue; the whole substantially as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

OTTO E. WEIDLICH.

Witnesses:

LAWRENCE J. FARRELL,
GEO. P. HERRING.