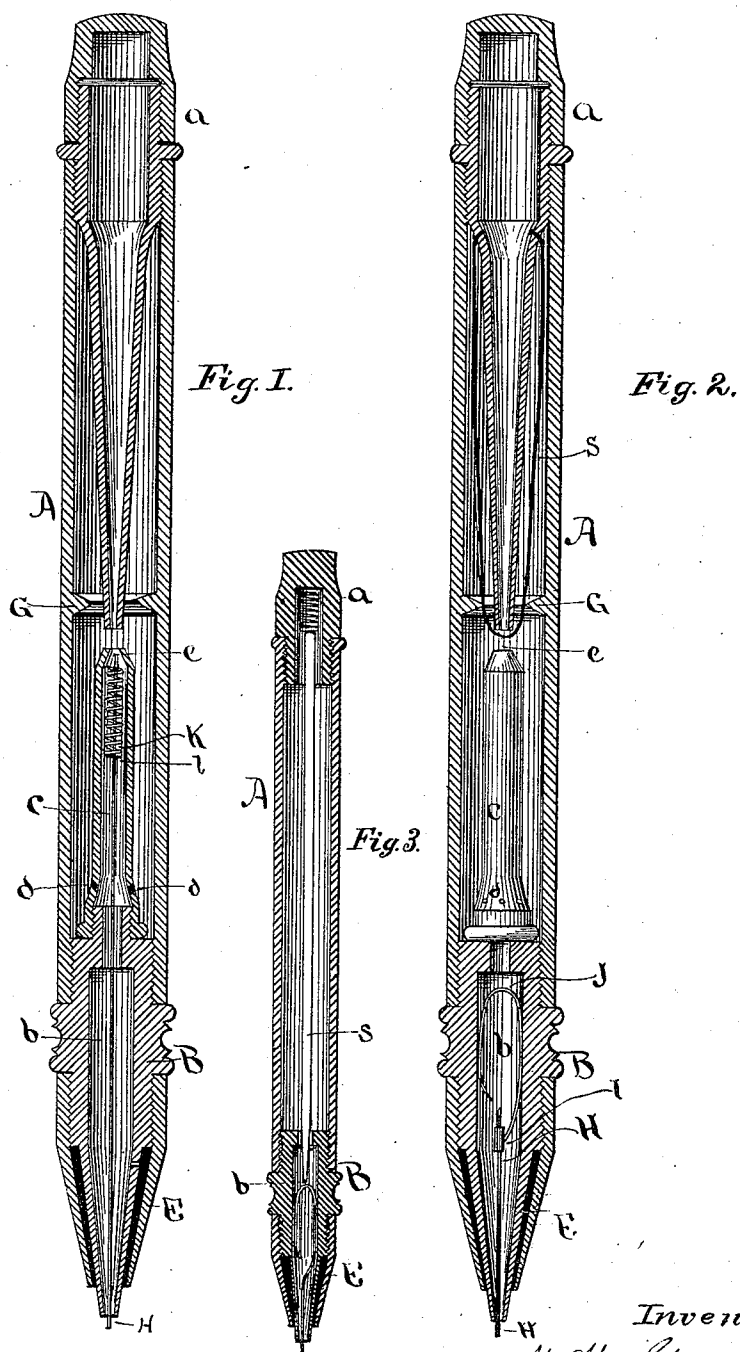


(No Model.)

W. W. STEWART.
FOUNTAIN STYLUS PEN.

No. 291,800.

Patented Jan. 8, 1884.



Attest:
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UNITED STATES PATENT OFFICE.

WILLIAM W. STEWART, OF BROOKLYN, NEW YORK.

FOUNTAIN STYLUS-PEN.

SPECIFICATION forming part of Letters Patent No. 291,800, dated January 8, 1884.

Application filed February 27, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. STEWART, of Brooklyn, Kings county, in the State of New York, have invented new and useful Improvements in Fountain Stylus-Pens; and I do hereby declare that the following is a full and accurate description of the same.

The object of this invention is, first, to provide the stylus-pen with a capacity to equalize the flow of ink under all circumstances by providing for the expansion and contraction of the fluid ink in the holder without permitting an undue flow or an absence of discharge at the stylus; second, to provide a stylus of some suitable animal substance which will not become permeated—such as horse-hair, quill, &c.—which are softer to the touch, yield more delicately, and deliver the ink in a finer mark.

That others may fully understand my improvement, I will particularly describe it, having reference to the accompanying drawings, wherein—

Figure 1 is a longitudinal section of my pen with the parts in place. Figs. 2 and 3 are sections showing modifications.

A is the reservoir, terminating at one end with a hollow head, *a*, and at the other with a pen or stylus point section, B. Within this last there is a condensing-chamber, *b*, connecting at its lower end with the tube whereby ink is delivered to the pen or stylus, and at its upper end with a froth or film tube, *c*, which projects up into the ink-space of the reservoir and is in communication with the same by means of holes *d* near its junction with the condensing-chamber and a hole, *e*, at its extremity. The extremity of the point-section is inclosed within a jacket, E, having a little space within it around the point-section, but not touching the point-section at its extremity. The effect of this arrangement is to permit expansion and contraction of the ink at the discharge without danger of overflow, because capillary attraction will cause the ink to flow up into the space within the jacket instead of detaching and falling upon the paper.

I find it advantageous to employ what I call "irritants" within the reservoir, to facilitate the formation of froth or film in the upper part of the reservoir, and thereby free the ink from

the particles of air which it would otherwise absorb from the little bubbles of entering air. These irritants consist of strands S, of some non-absorbent substance—such as horse-hair, glass, polished gold, platina, &c. These strands, one or more in each pen, are attached by securing the two ends to the wall of the reservoir in some suitable way, leaving the central part loose, compelling the film to form a line along the irritants.

I also find it advantageous to place within the reservoir one or more diaphragms or divisions, G, which, while they do not separate the reservoir into distinct sections, still practically confine the ink and prevent its ready flow from one part of the reservoir to another when the same is only partly filled, and thereby confine the ink at the lower end in the vicinity of the ink-chamber *b*.

I have also discovered that for stylus-pens a stylus-point made of horse-hair or some similar non-absorbent substance has advantages over the rigid iridium-tipped stylus-points heretofore made. It is softer and pleasanter to the touch. It is capable of delivering the ink in a finer stream, and thereby producing a finer mark upon paper, and it is much cheaper.

In the drawings, H represents the horse-hair stylus, fixed in a cylinder, I, of metal, which may be constructed so as to act as a valve when the pen is out of action. J is a fine gold wire, which extends upward from weight I through the film-chamber, bearing against the walls of said chamber with sufficient force to maintain the weight in position. If desired, however, the weight I may be omitted, and a delicate spiral spring, K, on the wire J or stylus may be substituted. A small collar, L, is placed on said wire, and the spring K is confined between said collar and the end of the film-tube, so that its tendency is always to project the stylus from the point, yet to let it yield and recede when pressure is applied while writing.

Having now described my improvement, what I claim as new is—

1. The pen-point section B of a stylus-pen, combined with the inclosing-jacket E, to provide a capillary space between, substantially as set forth.

2. In a reservoir-pen holder, an ink space

or reservoir, combined with an agitator, S, of non-absorbent material and polished surface, inserted in said reservoir, and called by me an "irritant," for the purpose of preventing the
5 accumulation of fluid in the center of the holder and the consequent division of the column of ink.

3. In a reservoir-pen, an ink space or reservoir, combined with an irritant composed of
10 horse-hair, gold, or other non-absorbent material, the ends whereof are fixed, substantially as and for the purpose set forth.

4. In a reservoir-pen, the reservoir or ink-space provided with one or more diaphragms or partitions, G, partly separating said ink- 15 space into separated chambers, as and for the purpose set forth.

5. In a stylus fountain-pen, a stylus-point of horse-hair or other non-absorbent substance, substantially as set forth.

WILLIAM W. STEWART.

Witnesses:

D. A. SAYRE,
G. W. TRACY.