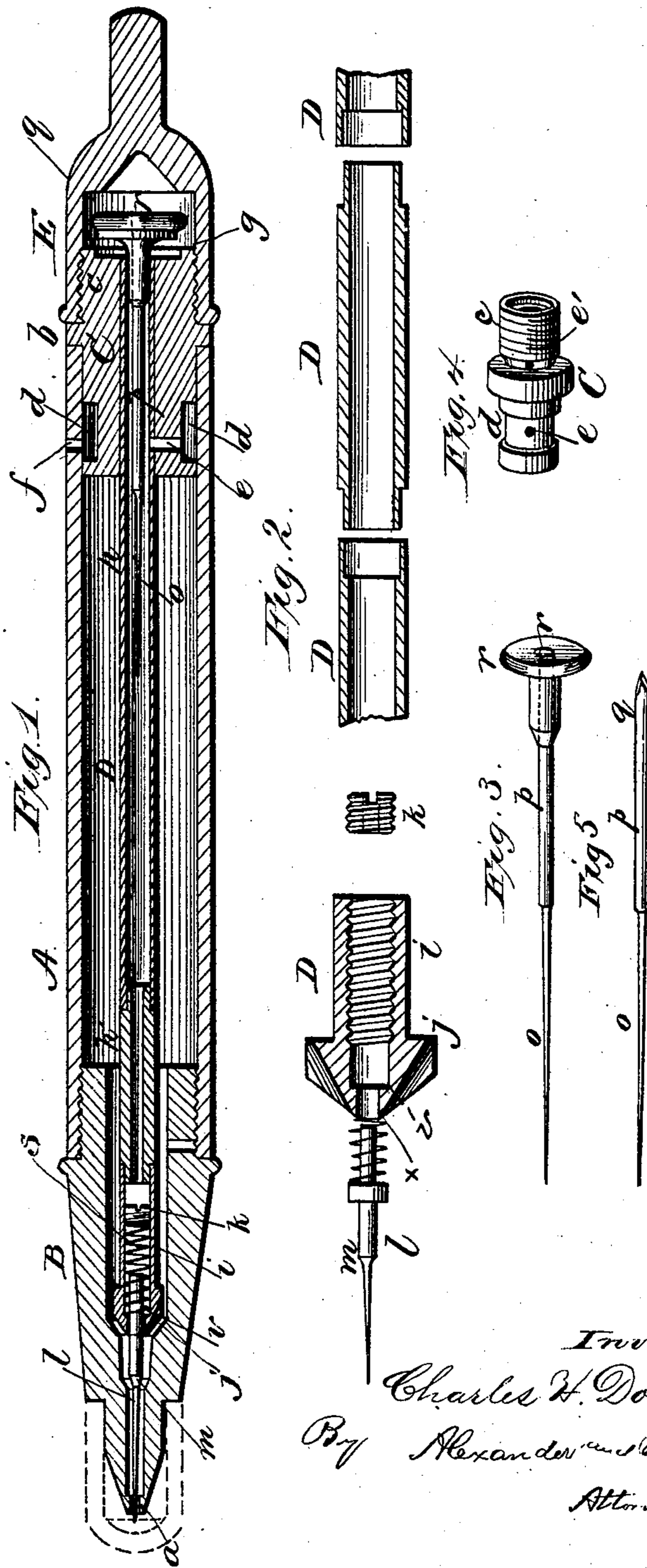


(No Model.)

C. H. DOWNES.
Stylographic Fountain Pen.

No. 243,364.

Patented June 28, 1881.



Witnesses.
Frank L. Curand
J. J. McCarthy.

Inventor
Charles H. Downes
By Alexander & Mason,
Attorneys.

UNITED STATES PATENT OFFICE.

CHARLES H. DOWNES, OF JERSEY CITY, NEW JERSEY.

STYLOGRAPHIC FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 243,364, dated June 28, 1881.

Application filed April 4, 1881. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. DOWNES, of Jersey City, in the county of Hudson, and in the State of New Jersey, have invented certain new and useful Improvements in Stylographic Fountain-Pens; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

This invention relates to certain improvements in that class of writing-instruments known as "stylographic fountain-pens," wherein an air-inlet tube is arranged inside of the ink-reservoir; and the objects of my improvement are, first, to arrange the point of exit for the air from the air-tube at the lowest extremity of the ink-reservoir, for the purpose of obtaining a positively uniform flow of ink from the writing-point; second, to employ, in continuation with an air-tube which extends entirely through the upper end of the reservoir-handle, a broach or clearer for the point-section, which broach is provided with a screw-turner and a removable flanged sheath or head; and, third, to combine a broach, a screw-turner, and a flanged sheath or head for the same, in such manner that the instrument is adapted to be received in the upper end of the air-tube of a fountain-pen; fourth, in an improved device for admitting the air to the upper end of the air-tube.

In the drawings, Figure 1 is a diametrical section through the improved pen. Fig. 2 represents, in detail, detached parts of the air-tube and its appurtenances, enlarged. Figs. 3 and 5 represent the combined broach and screw-turner, and Fig. 4 a view of the perforated air-tube plug.

The letter A indicates the hollow handle or barrel of the pen, and B the point-section, which is provided with a writing-point, *a*, as shown in Fig. 1. The upper end of the barrel A has a plug, C, fitted tightly into it, through which the air-tube D passes centrally, and to which this tube is suitably secured. That portion of the plug C which extends beyond the barrel A has an annular shoulder, *b*, formed on it, and also a screw-threaded portion, *c*, which latter receives the cap E. That portion

of the plug C which is within the barrel A has an annular groove, *d*, on its periphery, and also a perforation, *e*, the latter communicating with the air-tube D. A perforation, *f*, through the barrel A admits air to the groove *d*, which air finds its way into the air-tube through the perforations *e*. If desirable, air may be admitted into the tube D through a perforation, *e'*, made through the screw portion *c* of plug C, as shown in Fig. 4. This would necessitate the partial uncovering of the cap E. The upper end of the air-tube D terminates in an annular depression formed in the plug C; but this depression may be omitted.

The air-tube D is made of three sections, *h*, *h'*, and *i*. The intermediate section, *h'*, has a smaller bore than either one of the sections, in order to create a certain amount of resistance in the lower section and prevent the ink from being forced back into the air-tube to any great extent. The lowest section, *i*, has a grooved beveled head, *j*, on its lower end, which centers the lower end of the air-tube D in the point-section B, and by reason of its grooves allows the ink to pass this head and escape from the writing-point *a*. Inside of this air-tube section *i* (which is adjustable endwise on section *h'*) is a helical spring, *s*, a tension-screw, *k*, and the shouldered stem of a needle, *l*. The screw *k* is perforated or notched through its threads, to allow air to pass by it while being used for adjusting the tension of the spring *s* on the needle *l*. The shoulder on the needle-stem is designed to rest on a seat, *v*, (formed by a contraction of the bore of the section *i*,) when the needle is down.

At *m*, I show a valve on the needle-stem and a seat for this valve. This will prevent ink from escaping at the point *a* when the instrument is not in use. Other means may be adopted for this purpose.

I utilize the upper part of the bore of the air-tube D as a receptacle for an instrument which I denominate a "combined broach and screw-turner." This instrument consists of a needle, *o*, fixed to a rod, *p*, of larger diameter, which rod has one end beveled to form a screw-turner, *q*. The neck of the head *r* forms a sheath to receive the beveled end of the rod *p*, as shown in Fig. 3. In Fig. 1, I show the instrument applied in the pen.

The needle or broach *o* is used for clearing the smallest bore of the point-section B should it at any time become clogged with ink sediment, and the screw-turner *q* is used (when head *r* is detached) for turning the screw *k* when it is desired to adjust the tension of the springs.

It will be seen by reference to Fig. 1 that the grooved and beveled head *j* at the lower end of the air-tube D is brought down upon the beveled shoulder *v*, so that a seat is there formed. This brings the point of exit *x* for the air from the tube D in the closest possible relation to the point *a*.

By this invention the inflowing air not only serves to maintain equilibrium in the ink-reservoir during the act of writing, but it also serves to buoy up the column of ink, and thus regulate its flow to the point *a*, producing an even and uniform flow of ink while writing.

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

1. The air-tube D, terminating in a grooved head, *j*, and extended to the lowest point of the ink-reservoir, in combination with a stylographic writing-point loosely fitting in said

head, so as to admit air to the ink-reservoir at the lowest point thereof, substantially as and for the purpose specified.

2. In combination with the outer case and the air-tube, the plug C, having an annular groove communicating with the air-tube by a suitable passage, the outer casing being provided with a passage, *f*, leading to said groove, as and for the purpose specified.

3. In combination with the lower section of the air-tube and the stylographic pen-point, the screw-plug *k*, adapted to fit within said section and to bear against the regulating-spring of such point, substantially as and for the purposes specified.

4. For a stylographic fountain-pen constructed with an air-tube extending to its upper end, the needle or broach *o*, having a beveled end, *q*, and a head, *r*, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 12th day of March, 1881.

CHARLES H. DOWNES. [L. S.]

Witnesses:

L. E. G. RADDE,
FRANK REMPE.