A. T. CROSS.

FOUNTAIN-PEN.

No. 191,798. Patented June 12, 1877.

Fig. 1.

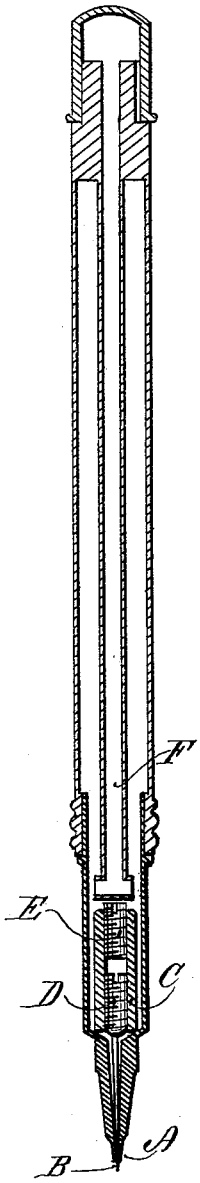
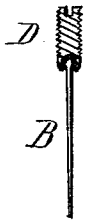


Fig. 2.

Fig 3

Fig. 4.



Witnesses.

Socrates Scholfield

Benjamin Cross.

Inventor

Alonzo T. Cross.

UNITED STATES PATENT OFFICE.

ALONZO T. CROSS, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN FOUNTAIN-PENS.

Specification forming part of Letters Patent No. **191,798**, dated June 12, 1877; application filed August 3, 1876.

To all whom it may concern:

Be it known that I, ALONZO T. CROSS, of Providence, in the State of Rhode Island, have invented an Improvement in Fountain-Pens, of which the following is a specification:

My invention relates more particularly to that kind of fountain-pen where a tubular writing-point and needle is used in lieu of the ordinary writing-pen; and it consists in the employment of an adjustable pivoted or swivel needle, and in the combination of the gravitating-valve with an adjusting-screw, whereby the movement of the valve from its seat may be properly regulated.

Figure 1 is a sectional view of a fountain-pen furnished with my improvement, in which—

A is the tapering writing-point; B, the needle, and C the valve; D, the screw for regulating the length of the needle, and E the screw for regulating the upward movement of the valve.

In constructing my improvement I first make a head, *b*, upon the needle, as shown in Fig. 2, and then drill out and taper the screw D, as shown in Fig. 3. I then insert the headed end of the needle into the hole drilled in the screw, and mill the tapering end of the screw down around the head of the needle, so as to form a swivel-joint, as shown in Fig. 4.

The adjusting-screw E in the upper end of the valve C, by striking against the lower end of the air-tube F, serves to limit the valve C in its upward movement from its seat, and the amount of this movement is regulated and controlled by the relative position of the screw and valve.

The object of the above-described improvement is, first, to make the needle B adjustable, so that it may in all cases be made to protrude from the orifice in the tapering writing-point A to the exact extent desired, thus rendering it practicable to compensate exactly for the inevitable wear of the point of the needle; second, to make the needle free to rise and fall in the orifice of the writing-point without binding or cramping or affecting the proper seating of the valve in case the needle gets bent, as it would be sure to do if it was rigidly connected to the valve, as heretofore; third, to regulate the rise of the valve from its seat, so that but a given quantity of ink can pass under it to the writing-point.

I make no claim whatever to the combination of an air-tube having a horizontal lower branch tube with the valve C, as shown in the drawing; but

I claim as my invention—

1. The combination of the gravitating-valve C, the swivel-needle B, and writing-point A, substantially as described.

2. The combination of the gravitating-valve C, adjusting-screw D, swivel-needle B, and writing-point A, substantially as described.

3. The combination of the gravitating-valve C, needle B, and valve-adjusting screw E, substantially as described.

ALONZO T. CROSS.

Witnesses:

SOCRATES SCHOFIELD,

BENJAMIN CROSS.