

(No Model.)

A. K. CROSS.
FOUNTAIN PEN.

No. 348,661.

Patented Sept. 7, 1886.

Fig. 3

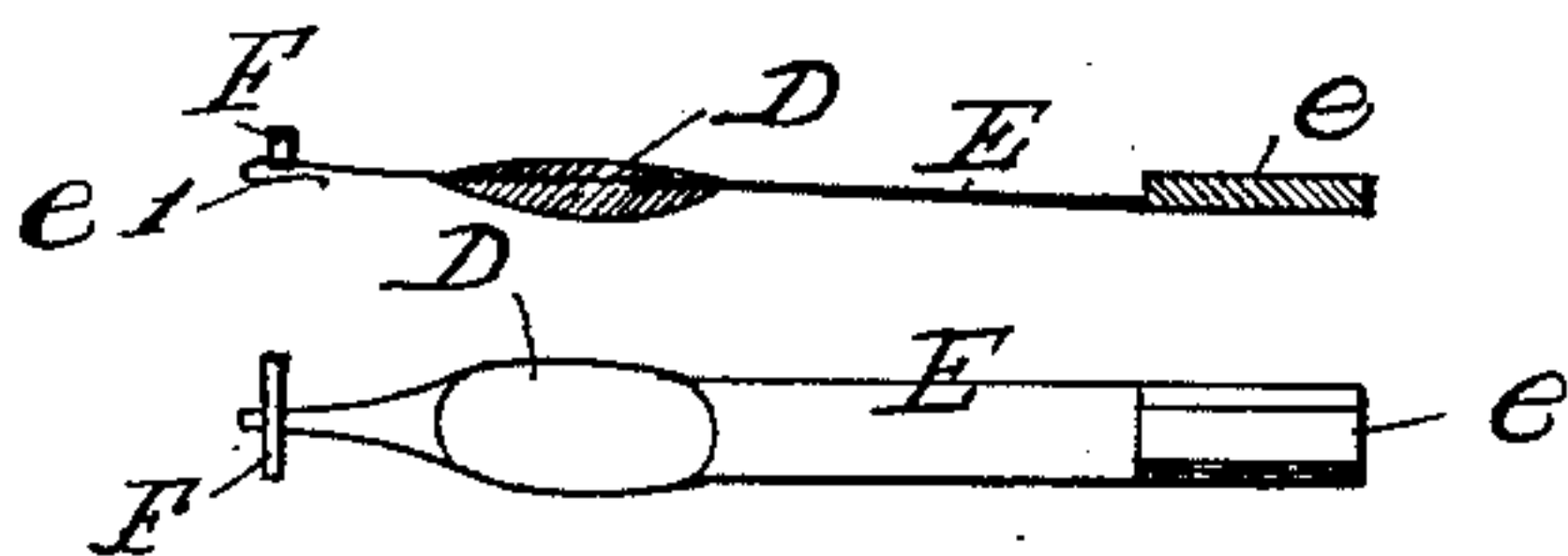


Fig. 1

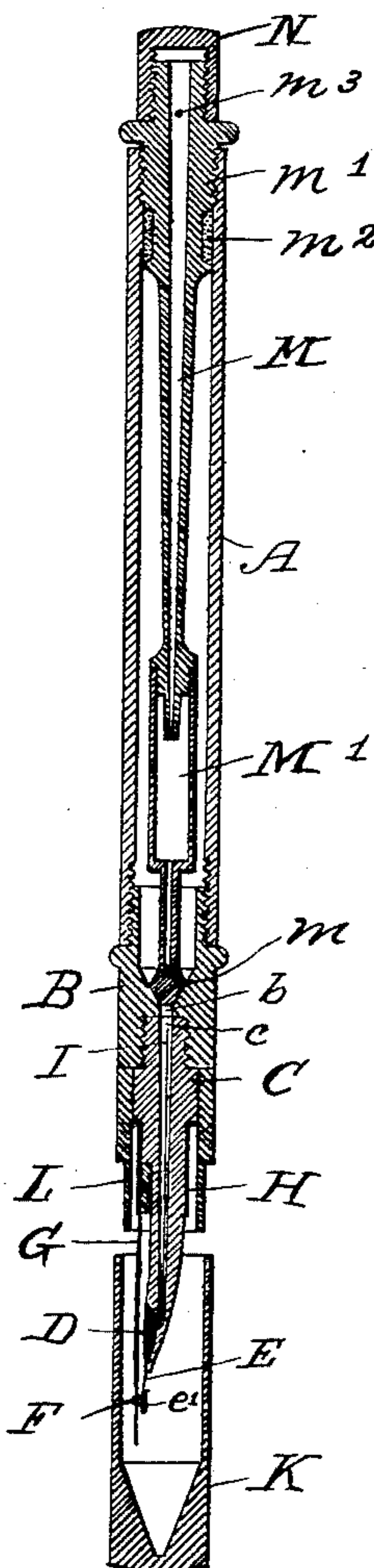


Fig. 2

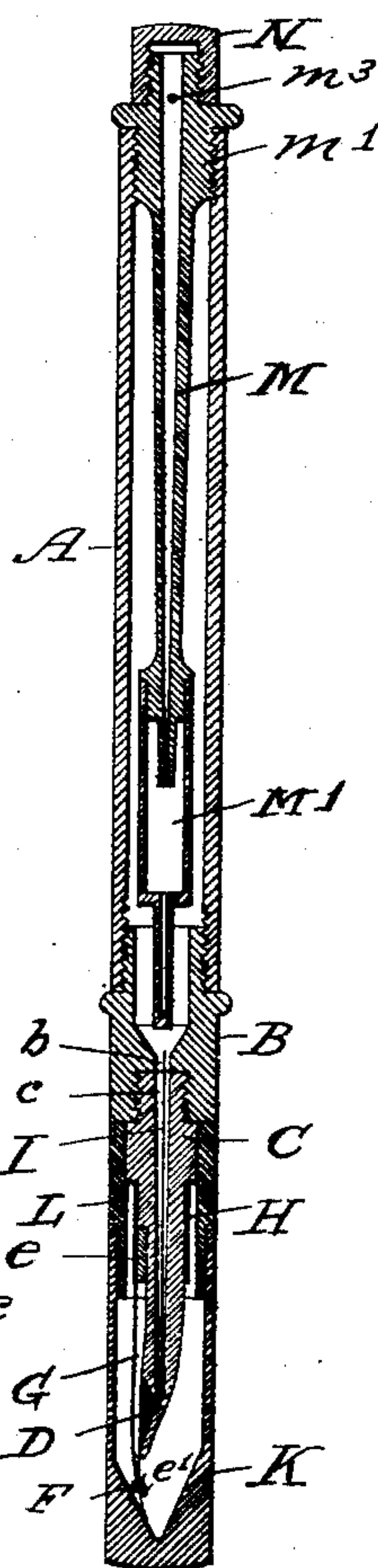


Fig. 4

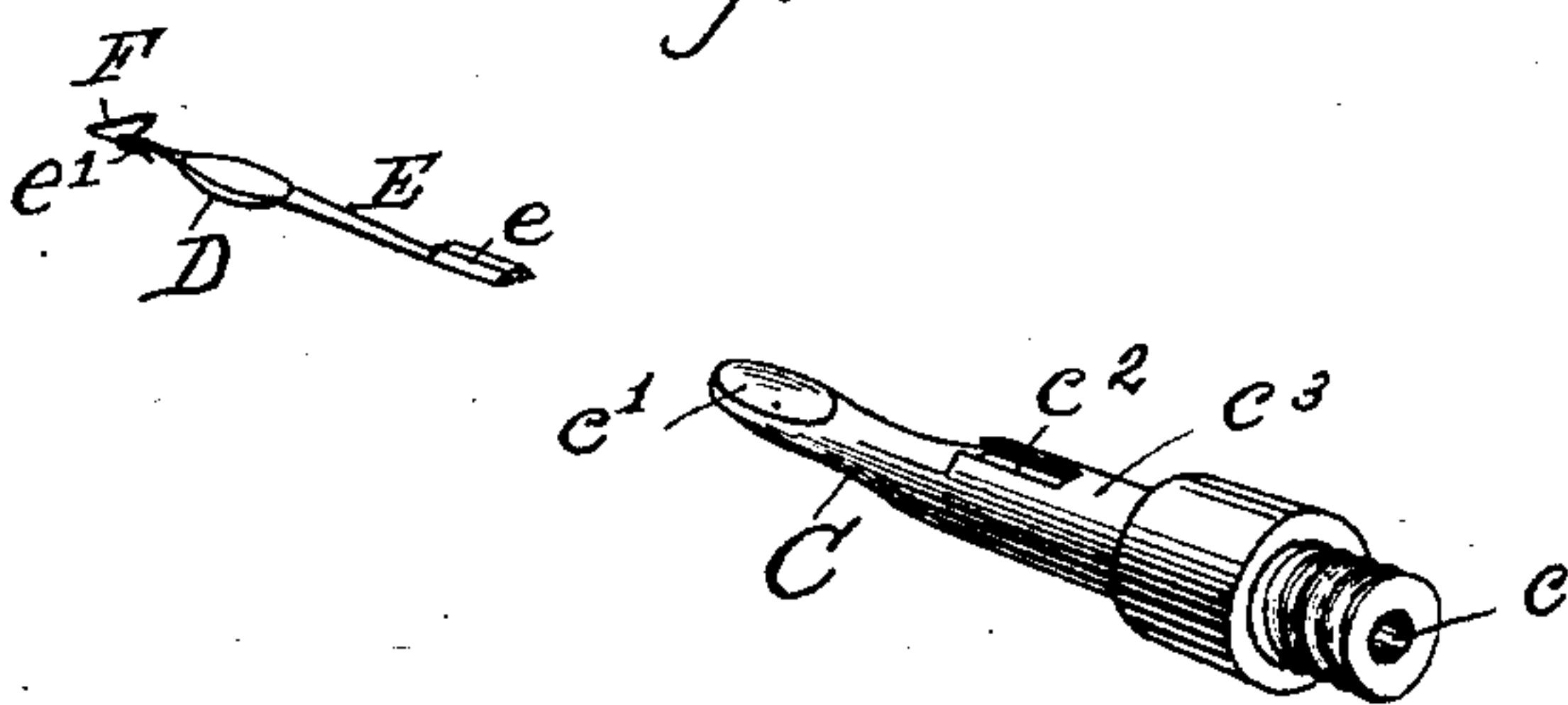


Fig. 5

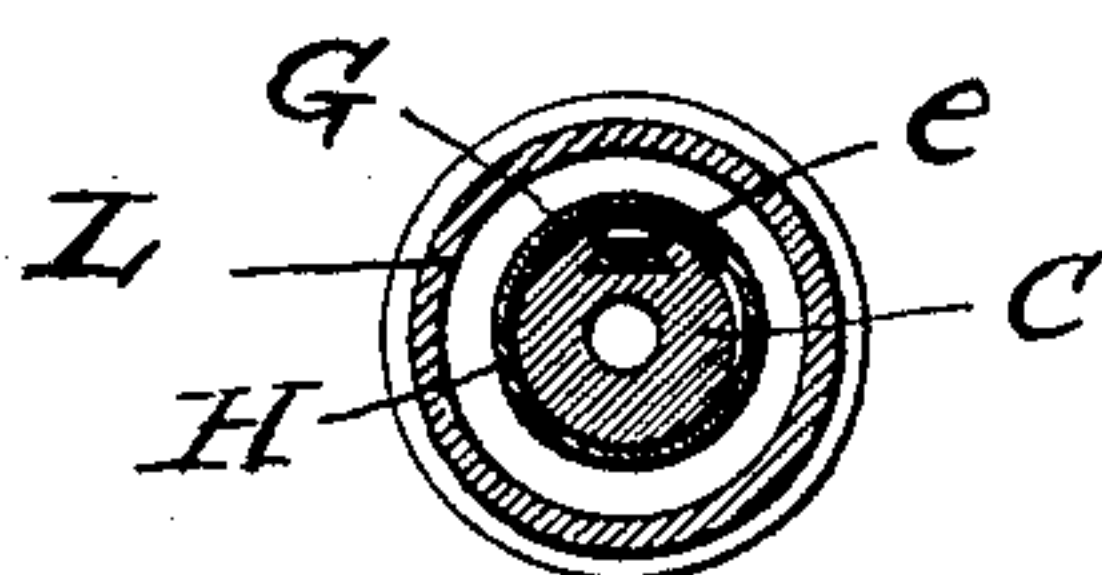
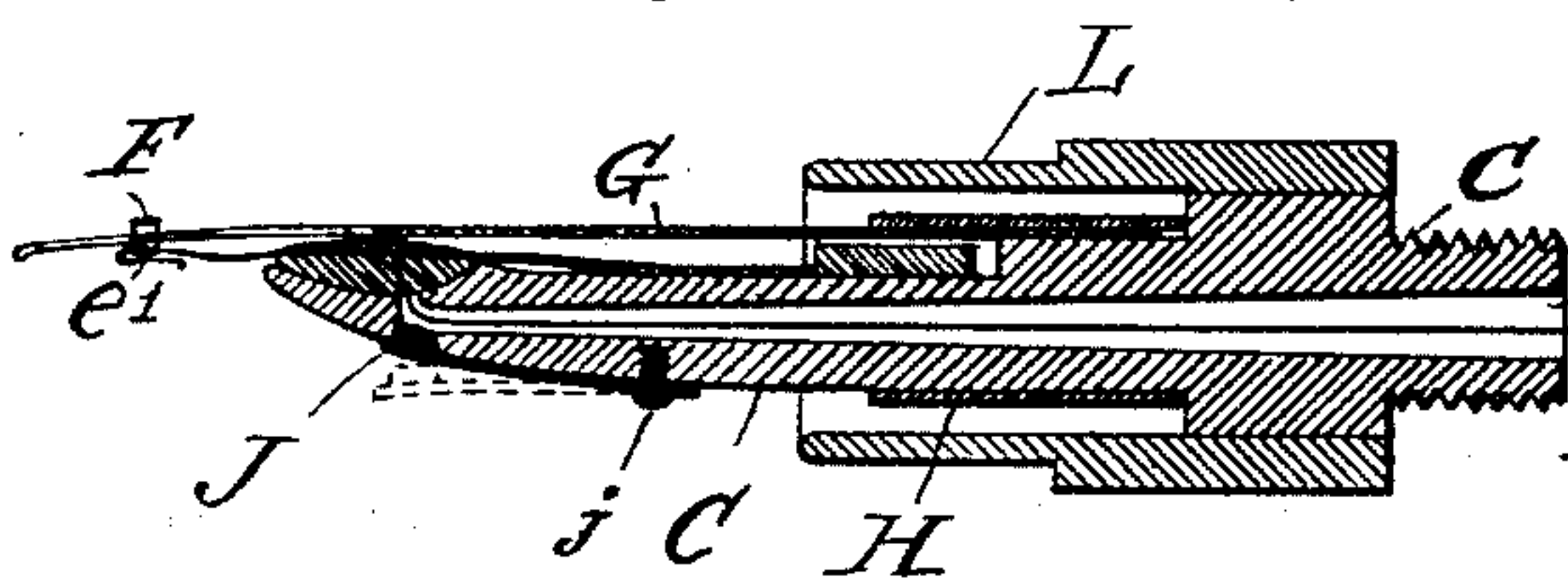


Fig. 6



Witnesses:
J. M. Colby,
A. A. Merriam

Inventor:
A. K. Cross
By J. B. Thurston
Attorney

UNITED STATES PATENT OFFICE.

ANSON K. CROSS, OF BOSTON, MASSACHUSETTS.

FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 348,661, dated September 7, 1886.

Application filed March 27, 1886. Serial No. 196,748. (No model.)

To all whom it may concern:

Be it known that I, ANSON K. CROSS, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Fountain-Pens, of which the following is a specification.

The object of this invention is to render a fountain-pen capable of adjustment so as to produce either a fine or coarse line, and to provide said pen with simple and effective means for preventing leakage when not in use. These, with other improvements, will be fully described in the following specification and claims, and illustrated in the accompanying drawings, forming part hereof.

Figure 1 is a longitudinal section of my improved pen, showing two valves. Fig. 2 is a like view showing but one valve. Fig. 3 illustrates the spring-valve enlarged and in two views—viz., a longitudinal section and a plan. Fig. 4 represents the spring-valve and the pen-section enlarged, the one in position to be connected to the other. Fig. 5 is an enlarged cross-section taken through the pen-section, the spring-valve, the pen, the pen-ferrule, and the sleeve, to which a pen cap or protector is fitted. Fig. 6 is an enlarged longitudinal section of the pen-section complete, as when detached from the pen-holder or reservoir.

To the lower end of the ink-reservoir A is threaded a section, B, in the lower end of which is threaded the pen-section C, having an ink-passage, *c*, connecting, by means of the passage *b* in the section B, with the ink-reservoir A. An adjustable spring-valve, D, of the form shown in the drawings, is made to fit the cavity *c'*, which connects with ink-passage *c* in the pen-section C. This valve is preferably made of hard rubber, and attached in some convenient manner to the spring E, one end of which is secured to a tongue-piece, *e*, which is made to fit groove *c''* in the pen-section, in which it is capable of longitudinal adjustment. The other end of the said spring E projects beyond the rubber valve D, and is formed into a hook, *e'*, which retains the loop F in its proper position upon the point of the pen G, as shown in the drawings. The pen G is slipped between the ferrule H and the cylindrical portion *c''* of the pen-section C, wherein it may be moved longitudinally for controlling the flow

of ink—i. e., when the pen is pushed as far as possible onto the pen-section, the location of the wire loop F is such relative to the pen-points as to permit of their spreading wide apart, thus making a coarse line; but when the said pen is not pushed so far onto said pen-section the location of the loop is such as to limit the spreading of said pen-points. Thus a fine line is necessarily produced. Fig. 6 illustrates a pen as adjusted for a fine line. A feed-wire, I, may be attached to the valve D, if desired, and pass into the ink-passage C, for insuring a good flow of ink. For the purpose of convenience in cleaning, this ink-passage may have two outlet-orifices, that opposite to the valve D being closed by aid of a spring-plug, J, which, as shown in Fig. 6, is swiveled at *j* to the pen-section, and when in the position shown by dotted lines in the same view may be turned to either side. The pen cap or protector K is bored tapering at its bottom, so that when it is placed in position upon the sleeve L it shall bend the pen inward, and with it the hook *e'* of the spring E, and thus produce additional pressure upon the valve D.

Air is admitted to the ink-reservoir by means of the air-tube M, which, for the purpose of affording an enlargement or expansion-chamber, M', is formed in two parts, as seen in Figs. 1 and 2. This may be provided at the bottom with a soft-rubber or other valve, *m*, fitting closely the section B, as in Fig. 1, and closing the ink-passage. The upper part of the air-tube M is fitted within the enlarged chamber M', and extends part way through the same, so that any ink which might accidentally enter said chamber when the pen is not in use may not escape into the upper part of the said air-tube. The top of the air-tube M is provided with a threaded enlargement, *m'*, which fits the upper end of the ink-reservoir, and in case valve *m* is used this part *m'* must be provided with a packing-ring, *m''*, so as to prevent leakage of ink, said valve *m* being operated by rotating the said air-tube within the ink-reservoir. An outer cap-piece, N, is provided, which is threaded to the top end of air-tube M, and by rotating this the air-valve *m* may be covered or uncovered, as desired.

Having described my improvements, what

I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, with the pen-section and the ink-passage, of an adjustable spring-valve and a wire loop attached thereto for connecting a pen with said valve, substantially in the manner and for the purpose set forth.

2. The combination, with the pen-section, the ink-passage, and a feed-wire inserted therein, of an adjustable spring-valve connecting with the said feed-wire and a wire loop attached thereto for connecting a pen with said valve, substantially in the manner and for the purpose set forth.

3. In a fountain-pen, the combination of a pen-section having a central ink-passage and connecting-orifices on opposite sides thereof, an adjustable spring-valve provided with a wire loop for connecting with a pen, and a suitable plug adapted to close the orifice opposite to said spring-valve, all arranged and operating substantially as and for the purpose specified.

4. The combination, with the pen-section, of an adjustable spring-valve provided with a wire loop for connecting with a pen, a removable sleeve closely fitted to said pen-section,

and a pen-point protector fitting upon lower end of said sleeve and bored tapering at or near its closed end, for the purpose of forcing a pen hard upon said spring-valve and more effectively sealing the ink-passage, as set forth.

5. The combination, with the ink-reservoir, of an air-tube enlarged at its upper end, and threaded to said reservoir, provided near said threaded portion with a packing-ring, and an enlarged air-chamber forming part of said air-tube, all constructed substantially as and for the purpose shown and described.

6. The combination, with the ink-reservoir, of an air-tube enlarged at its upper end and threaded to said ink-reservoir, provided near said thread with a suitable packing-ring, a conic valve at its lower end for closing the ink-passage, and an enlarged air-chamber forming part of said air-tube and located near said valve, as and for the purpose set forth.

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

ANSON K. CROSS.

Witnesses:

J. B. THURSTON,

NATHANIEL E. MARTIN.