

(No Model.)

S. W. HIGGINS.

FOUNTAIN PEN.

No. 266,475.

Patented Oct. 24, 1882.

Fig. 2.

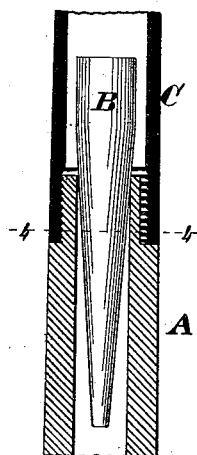


Fig. 1.

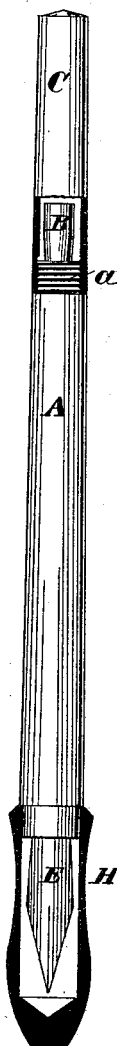


Fig. 3.

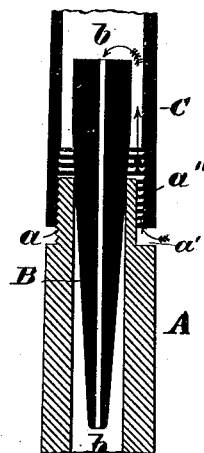


Fig. 4.



Fig. 5.

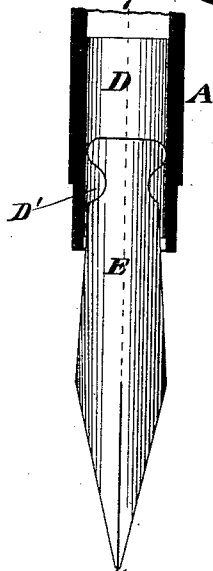


Fig. 6.

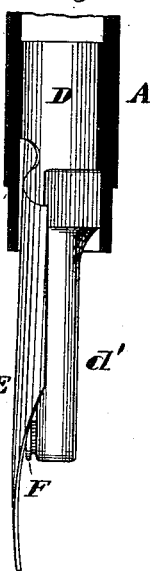


Fig. 7.

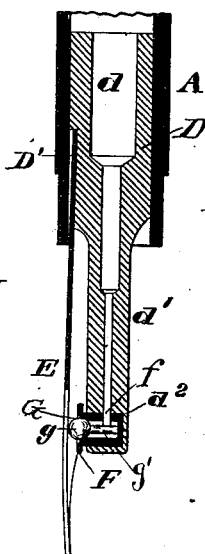


Fig. 8.

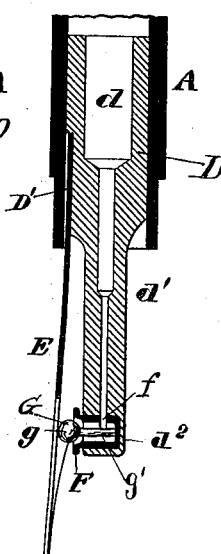


Fig. 9.

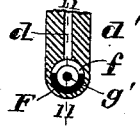


Fig. 10.

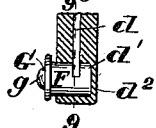


Fig. 11.

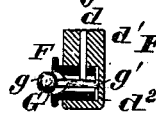


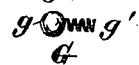
Fig. 12.



Fig. 13.



Fig. 14.



Attest:
Charles Pickles
Geo. H. Knight.

Inventor:
Sylvester W. Higgins
By Knight Bros.
Atty.

UNITED STATES PATENT OFFICE.

SYLVESTER W. HIGGINS, OF ST. LOUIS, MISSOURI.

FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 266,475, dated October 24, 1882.

Application filed January 4, 1882. (No model.)

To all whom it may concern:

Be it known that I, SYLVESTER W. HIGGINS, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Fountain-Pens, of which the following is a specification, reference being had to the accompanying drawings, forming part of the same.

My improvement consists of a fountain-pen in which an ordinary gold nib may be used, and which acts to close the ink-discharge valve when the pen is not in use, and to regulate the discharge as required.

In the drawings, Figure 1 is a back view of the pen with parts in section. Fig. 2 is an enlarged detail axial section, showing the plug at the upper end of the reservoir in side view; and Fig. 3 is a similar view, except that the plug is also in section and the cap is turned back to open the air-inlet. Fig. 4 is a transverse section at 4 4, Fig. 2. Fig. 5 is a back view of the nib and plug or valve-piece, with the lower part of the reservoir in section. Fig. 6 is a side view of the nib and plug, with the lower part of the reservoir in section. Fig. 7 is a section at 7 7, Fig. 5. Fig. 8 is a similar view with the nib sprung up and the valve raised as in the act of writing. Fig. 9 is a section at 9 9, Fig. 10. Fig. 10 is a side view of the valve-seat piece or plug, with the surrounding part in section at 11 11, Fig. 9. Fig. 11 is a section at 11 11, Fig. 9. Figs. 12, 13, and 14 show modifications of the valve proper. (Figs. 2 to 14 are upon a larger scale than Fig. 1.)

A is the reservoir or case forming the handle or holder. It consists of a tube open at both ends, formed of rubber or any suitable substance. The upper end of the reservoir is almost closed by an axially-perforated or tubular tapering plug, B. The smaller end of the plug B extends a distance into the reservoir. Its purpose is to prevent the escape of ink into the cap C. The upper end, *a*, of the reservoir is made of smaller diameter, and is screw-threaded for the engagement of the close-topped cap C, which may be screwed down to hermetically close the top of the reservoir. When the pen is in use the cap is unscrewed a small distance, as illustrated in Fig. 3, to admit the entrance of air between the edge *c* of the cap and shoulder *a'*. The entering air passes up into the cap through a passage, *a''*,

formed by flattening the side of the reduced part *a*, and finds its way into the reservoir through the axial passage *b* of the plug B.

D is the valve-piece or lower plug, made to fit and close the lower end of the reservoir. The plug D is shown as slipping into the lower end of the reservoir, (as a stopper into a bottle;) but it may be made to screw fast into or onto the reservoir. The piece or plug D is shown with a recess or depression at *D'* to receive the inner end of the pen E, which is held between the piece D and the case A; but the pen may be held in a curved slot made in the piece D. The piece or plug D has an axial bore, *d*, extending from the inner end to a transverse cylindrical cavity, *d'*, made in one side of the extension *d'*, at the end of the same. Into the cavity *d'* is fitted a small cylindrical piece, F, forming the seat of the valve. The valve-seat F may be made with its inner end closed, except for a side slot or other orifice, *f*, as shown in Figs. 7, 8, 9, and 10, or it may be made open at the bottom, as shown in Fig. 11. In either case the slot or other orifice communicates with the bore *d*, so as to allow the ink to enter the valve-chamber beneath the valve.

G is the valve, made with a head, *g*, to fit the seat upon its under side and to bear against the nib or pen E at its upper side. The head may be round, as seen in Figs. 7, 8, 11, and 14, flat-topped, as shown in Fig. 12, or flange-topped, as shown in Fig. 13. In the latter case the under side of the flange may fit the flat top of the valve-seat F. The stem *g'* of the valve is made elastic, and its end rests against the bottom of the valve-seat piece F or the inner end of the cavity *d'*, as the case may be. (See respectively Figs. 8 and 11.) The purpose of the elastic stem is to raise the valve from its seat when the pen E is sprung upward in the act of writing, (see Fig. 8,) thus allowing the ink to flow. On the other hand, when the pen is not in use it presses the valve down upon its seat and stops the flow of ink. (See Fig. 7.) The quantity of ink passing through the valve-port accords with the demand, because the lifting of the valve is proportionate to the pressure upon the pen. In Figs. 11, 12, and 13 the elastic stem of the valve is shown as consisting of soft rubber, while in Fig. 14 it consists of a spiral spring. The mean amount of ink-supply may be regulated by the adjust-

ment of the valve-seat F in the socket *d*². Thus if the flow of ink is too great the valve-seat is drawn outward in the socket a small distance, decreasing the size of the valve-port when the pen is sprung upward, as the valve would not be raised from its seat to the same extent. The flow of ink may also be modified by changing the position of the cap C to admit more or less air.

10 H is a cap to protect the pen (or nib) when not in use.

I prefer to make the head *g* of the valve of soft rubber or other elastic material, but do not confine myself to such material.

15 In filling the reservoir A with ink, the cap C and plug B are removed and the ink filled into the upper end by a syringe or otherwise, the valve G preventing the escape of ink.

I claim—

1. The combination, with the nib E, of the 20 valve G, consisting of a head, *g*, and an elastic axial stem, *g'*, for raising the head from its seat, substantially as described.

2. The combination, with the nib E, of the valve G, constructed with a head, *g*, and axial 25 stem *g'*, in one piece of soft rubber, substantially as and for the purposes set forth.

3. The combination of nib E, valve G, and adjustable valve-seat F, constructed to operate substantially as set forth.

SYLVESTER W. HIGGINS.

In presence of—

THEODORE PAPIN,
SAML. KNIGHT.