A. M. SUTHERLAND & F. C. BROWN.

Stylographic Fountain Pen.

No. 239,119. Patented March 22, 1881.

Fig. 1.

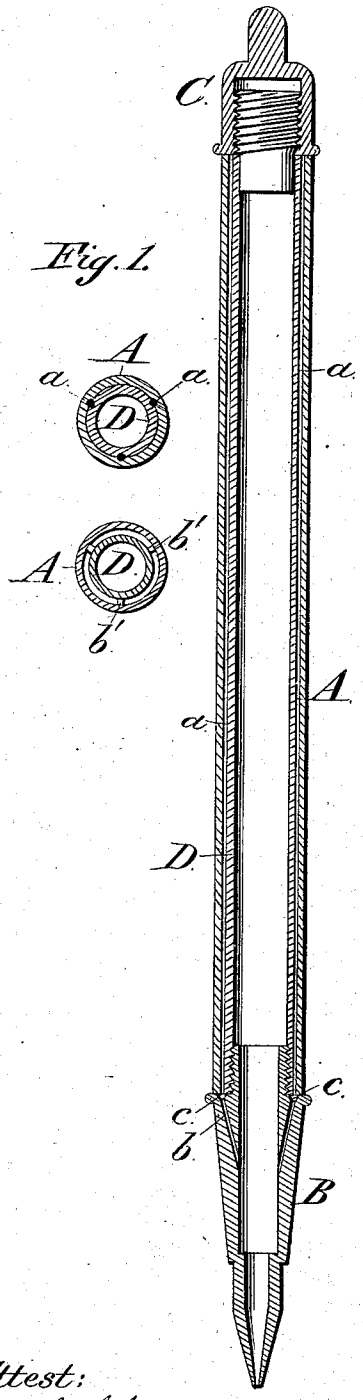
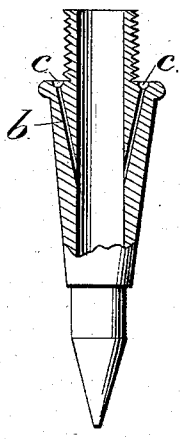



Fig. 2.



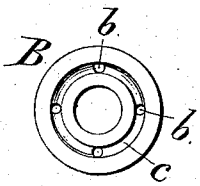
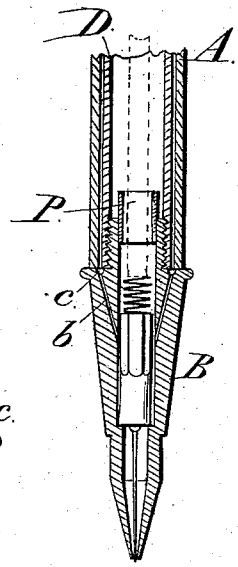




Fig. 3.



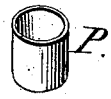




Fig. 4.

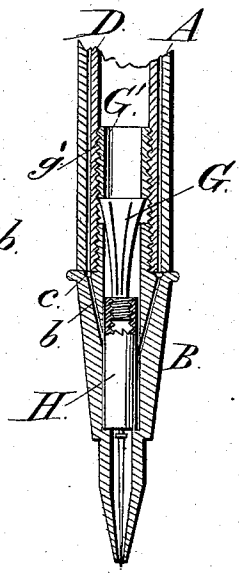
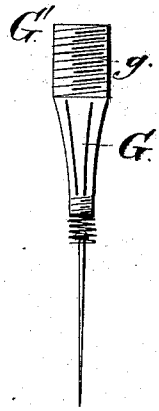



Fig. 5.

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# UNITED STATES PATENT OFFICE.

ALEXANDER M. SUTHERLAND, OF BROOKLYN, AND FRANCIS C. BROWN, OF NEW YORK, N. Y.

## STYLOGRAPHIC FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 239,119, dated March 22, 1881.

Application filed January 24, 1880.

*To all whom it may concern:*

Be it known that we, ALEXANDER M. SUTHERLAND and FRANCIS C. BROWN, both citizens of the Dominion of Canada, but now residing, respectively, at Brooklyn, in the county of Kings, and New York city, county of New York and State of New York, have invented certain new and useful Improvements in Stylographic Fountain-Pens; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Our invention has relation to stylographic fountain-pens; and the said invention consists, first, in a novel construction and arrangement of the air-supplying tube, and, second, in a novel construction and arrangement of valve mechanism.

In the drawings, Figure 1 represents longitudinal, sectional, and plan views of a pen-case constructed as we propose to arrange it. Fig. 2 is a detached enlarged plan and sectional view of the point-section, showing the position of the air-tube and channel therein. Figs. 3, 4, and 5 represent modifications in the valve mechanism, with their stops as arranged when the air-tube is formed through the case, as herein described.

This invention is an improvement on the construction and arrangement of air-tube and valve mechanism shown in the patents granted to Mr. Duncan Mackinnon, July 15 and 29, 1879.

A is the handle or barrel, B the point-section, and C the air-cap, of the usual or any appropriate form and construction. Within the point-section is a valve arrangement for controlling the flow of ink from the pen, as is usual, which may be such as shown in Fig. 3, being the same as that shown and claimed by us in an application filed October 10, 1879; or it may be such as shown in Fig. 4, being the same as that shown in an application filed September 3, 1879, by A. M. Sutherland, one of the parties hereto,

The object of this invention is, as is the case with the Mackinnon patents, to deliver the air at the extreme lower or writing end of the pen. At the same time that this is accomplished by this invention the large amount of space now occupied by the centrally-placed air-tube in the Mackinnon patents is utilized for ink, and breakage of the air-tube is avoided.

In carrying out the line of our invention we proceed about as follows:

Within the handle or barrel A is secured, by means of lugs or projections *b'* at top and bottom, a tube or cylinder, D, of a slightly less external diameter than the internal diameter of the barrel A, so as to have a slight space between the two cylinders. The inner tube may extend a slight distance above the outer tube, and the projecting portion be screw-threaded for the reception of the air-cap C; or, as shown in Fig. 4 of the drawings, a plug with screw-threaded head may be fitted into the upper end of tube D. The lower ends of these tubes are flush with each other.

Instead of having two independent tubes, arranged one within the other, as here described and shown, an air-passage may be formed through the walls of the barrel, as follows: Through one of the sides of the walls of the barrel A is a small channel, *a*, which extends through the entire length of the barrel, from end to end. Only one of these passages may be formed in the barrel; or there may be two or more, if desired or found necessary. These passages may be formed by drilling or otherwise, the thickness of the barrel at this point being slightly increased to accommodate this operation; or a very small tube may be formed and secured along the inside of the barrel in the process of forming the same. The exact manner of forming this air-tube in the wall of, or as an integral part of, the barrel, however, forms no part of our invention, as there are numerous ways of accomplishing this. The top end of the channel or hole *a* and opening around the cylinders A D is closed by the flange of the air-cap C, which, when down in place, comes flush over the same, and the lower end of the hole or opening comes over the flange on the point-section. Extending from this flange on the point-section, in an inwardly inclined or slanting direction, is formed or drilled one or more small holes or

passages, *b*, which pass through the wall of the point-section and terminate at a point within the same about or just below its middle portion. Thus the continuation of the air-tube from the barrel into the lower end of the point is provided for. Around the face of the shoulder on the point-section, close to the threads on the joint portion and intersecting the holes *b*, is formed a groove or channel, *c*.

When the barrel and point-section are screwed together the lower end of the space or tube formed in the barrel comes directly over and communicates with this channel. Thus, air entering at the top of the pen passes down through the walls of the barrel, enters the channel in the top edge of the point-section, passes around this channel, and, entering the hole down through the point-section, is delivered at the lower interior end of the pen, where desired.

When constructed of two independent tubes or cylinders, as shown in Fig. 1, the interior space is occupied by ink, which may be introduced from the top end or from the lower portion, as in the Mackinnon patents.

Within the top portion of the point-section is placed a slightly-tapering hollow plug, P, made of hard rubber or other material, which projects downward within the point-section, thus forming a stop to prevent the valve dropping out when the parts of the pen are separated.

An arrangement of stop and support for the valve mechanism, when the air-tube is constructed through the walls of the point-section and barrel, is shown in Figs. 4 and 5, which consists of a short piece, G, constructed with an enlarged end formed by splitting or dividing a portion of the end of this piece G, and securing them in place by a screw-threaded band, *g*, as shown in the enlarged detached view. When in place the portion G′ engages in the screw-threads *g′* within the barrel D, as shown; or this piece G may be prolonged and attached to the top portion of the barrel or pen-case. To the end of this piece G is secured the valve arrangement H, being the same arrangement as that shown in the application of said Sutherland, before referred to; or a simple needle-valve may be secured directly to the end of this piece G, as shown in Fig. 5. The object of splitting this piece G, or forming the opening therein, is to allow the free passage of ink past the same.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a fountain-pen, the combination of the cap, the stock having the longitudinally-central ink-reservoir and the side air-duct, and the separable point-carrier, having prolongation of chamber and of side duct, all substantially as described.

2. The combination of the screw-cap, the stock having chamber, an air-duct, the point-carrier having the air-duct prolongation, and the annular groove, all substantially as described, and for the purposes set forth.

3. The combination of the stock, the point-carrier, the needle-carrier supported on the stock, and the needle hung elastically and with longitudinal play upon the needle-carrier, all substantially as described.

4. In combination, the screw-cap, the stock provided with chamber and duct, the point-carrier provided with prolongation of the chamber and the air-duct, the needle, and the needle-carrier, with its perforated head, all substantially as described.

5. In combination with a fountain-pen barrel formed of two tubes arranged one within the other, with a slight space between them to form an air-passage, a point-section having a downward inwardly-inclined channel or passage forming a continuation of the air-passage, substantially as described.

6. The point-section of a fountain-pen having an annular groove at its top portion and a downward inwardly-inclined channel or passage, substantially as and for the purposes described.

7. In a fountain-pen, the needle or valve-mechanism carrier, constructed with hollow screw-head G′ and tapering, slotted, or open portion G, substantially as and for the purposes described.

In testimony that we claim the foregoing as our invention, we hereby affix our signatures in presence of two witnesses.

ALEXANDER M. SUTHERLAND.
FRANCIS C. BROWN.

Witnesses:
B. S. CLARK,
THEO. G. HOSTER.