(No Model.)

P. B. SMITH.

FOUNTAIN PEN.

No. 442,644. Patented Dec. 16, 1890.

Fig. 1.

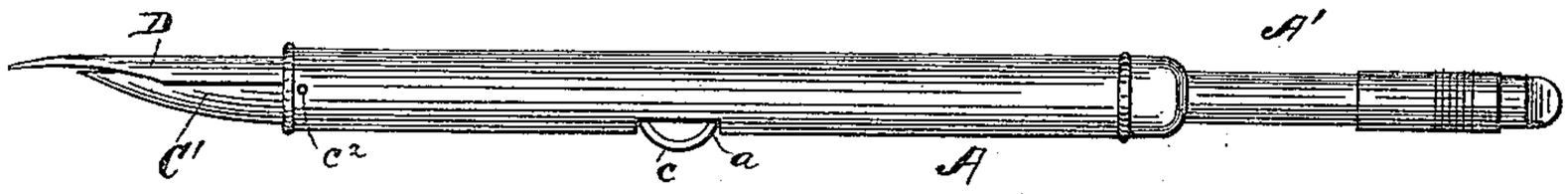


Fig. 2.

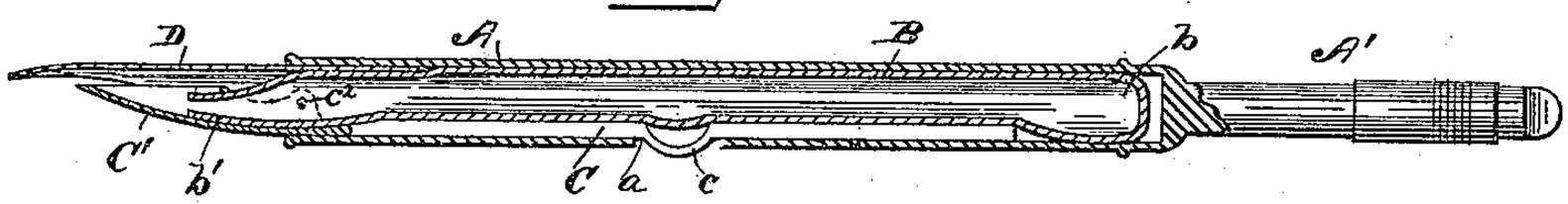


Fig. 3.

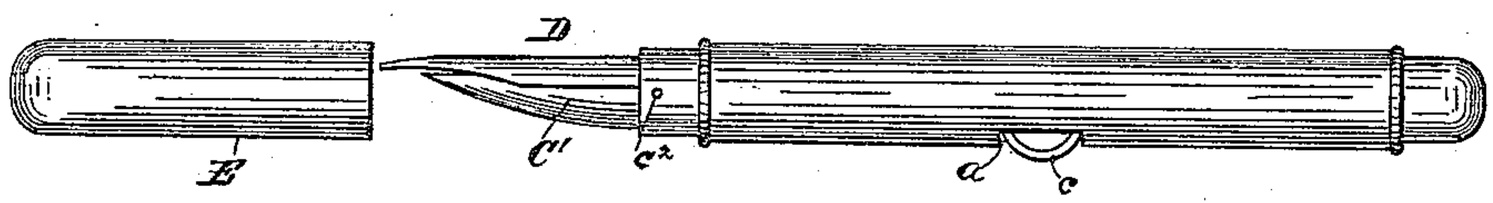


Fig. 4.

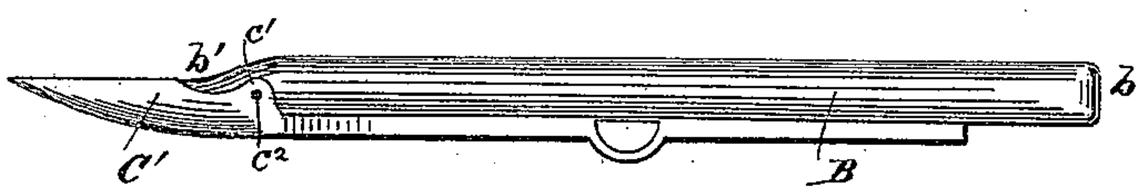


Fig. 5.

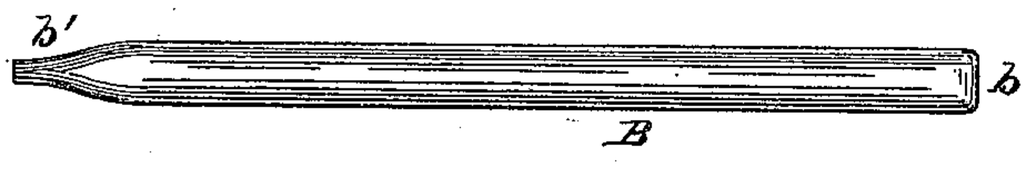
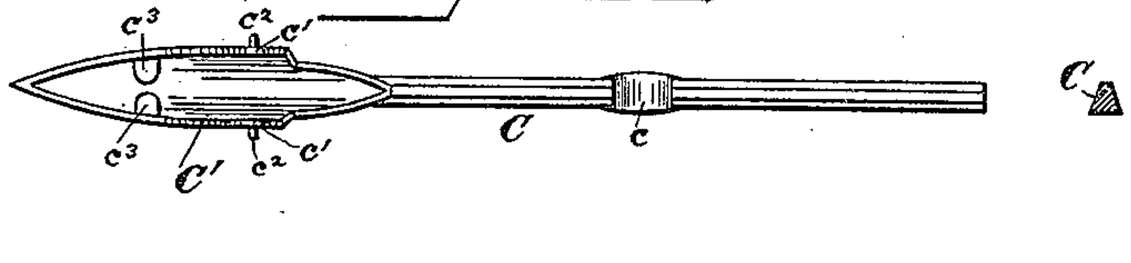


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

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FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 442,644, dated December 16, 1890.

Application filed August 5, 1890. Serial No. 361,054. (No model.)

To all whom it may concern:

Be it known that I, PRESLEY B. SMITH, a citizen of the United States, and a resident of Alameda, county of Alameda, and State of California, have invented a new and useful Improvement in Fountain-Pens, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to that class of fountain-pens having within the hollow holder a reservoir, from which the pen draws its supply when in use; and it consists in the combination, with a hollow cylindrical case or holder, of a tube of soft rubber or other pliable and compressible material and a pivoted compressor shield or lever having a thumb-piece projecting or accessible through the case or holder for operating the pivoted shield or lever and through it the flexible tube for expelling ink or air therefrom and for renewing the ink-supply therein; in the manner of cushioning the pen on the flexible inner tube, whereby it is made to promote the flow of the ink to the pen when in use, and in certain details of construction of parts, all as hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a fountain-pen with my improvements applied, showing a form of holder suitable for the desk or counting-house. Fig. 2 represents the same in side elevation. Fig. 3 shows in side elevation a form of holder suitable for the pocket. Fig. 4 is a side elevation of the flexible tube and compressor shield or lever removed from the holder. Fig. 5 is a side view of the flexible tube detached; and Fig. 6, an inner face view of the compressor shield or lever detached, showing, also, a section through the compressor end of said lever.

A indicates the holder, which is made of hard rubber, metal, or other suitable material, in the form of a hollow cylinder, of any diameter required to suit the user, open at one end and preferably closed at the other, as indicated; but it may be left open at said end, also, if desired, for the insertion of an extension-piece, such as is indicated at A′.

B indicates a tube of soft rubber or other flexible and elastic material, of an external diameter near about equal to the internal diameter of the case or holder and of a length also conforming to the length of bore of the case, closed at its inner end *b*, and with its outer end *b′* made tapering to form a nozzle with a small vent, said nozzle projecting from the open end of the case or holder, as shown.

C indicates the compressor shield or lever, the shank or lever portion of which extends within the case at the lower side thereof between it and the tube B, as shown in Fig. 2, and is made, preferably, in V shape, inverted, as shown in section, Fig. 6, to adapt it to fold or compress the tube into itself for expelling ink or air therefrom. This lever portion is provided at or near the center of its length with a pendent spur or loop *c*, forming a thumb-piece, which projects through a slit or opening at *a* in the case A, for enabling the operator by pressing upon it to compress the tube and so expel the ink or air contained therein, after which, by inserting the nozzle in the ink-supply store and removing the pressure on the thumb-piece, the tube will expand and draw in the necessary new supply of ink.

The end of the shield or lever C adjacent to the open end of the holder is expanded in width and made concave on its inner face partly surrounding the tube B, and has lugs or ears *c′* on its sides provided with outwardly-projecting pivot-pins c^2, which enter perforations in the case A in close proximity with and on opposite sides of the open end thereof. By this arrangement the lever when operated upon through its thumb-piece has the greatest depression given to it at its inner end, causing the ink or air to be expelled from the tube from said end outward and leaving free vent to the ink or air at all points of compression. The tube is also made to act as a spring on the lever C, for retracting it when pressure is removed from the thumb-piece.

Outside of the pivot-pins c^2 the end of the shield or lever C is made concave on its inner face, gradually tapering at C′ to a point overlying and projecting beyond the nozzle *b′*, so as to rest within the pen, as shown in Figs. 1, 2, and 3, for feeding or conveying the ink from the nozzle thereto. The concave portion C′ is provided on its sides with lugs or

ears c^3 c^3, which overlie the nozzle b' near its end and prevent its displacement relative to the feeder-point. These lugs may be made light and flexible, so that they can be bent down to engage the nozzle for holding it in place or outward for releasing the tube when desired.

The pen (indicated at D) may be of any usual or preferred form and material and is inserted with its concave side facing the concave side of the feeder-point and opposite thereto between the tube B and holder A in the open end of the latter, as shown in Fig. 2. By this arrangement the pen is held in place by the pressure of the tube upon it. The end of the holder forms a fulcrum on which the pen can vibrate, and the tube inside said end forms an elastic cushion, permitting slight vibration of the pen in use, under the varying pressure thereon the vibration of the inner shank end of the pen acting in turn on the rubber tube to compress it more or less, and so to cause the ink to flow out of the tube to the pen, as required.

E indicates a cap, to be applied in the ordinary manner, for protecting the pen when not in use, and adapted also to be applied as an extension of the holder when in use.

The advantages resulting from the construction described will be readily apparent. The necessity for a separate filler-tube is obviated. The ink tube or reservoir can be readily washed out by simply inserting the nozzle of the flexible tube in water and operating the thumb-piece. One kind of ink can be readily expelled from the holder and another substituted therefor, and the arrangement of the pen relative to the holder and tube is such as to always compel a free flow of ink to the pen when in use under the action of the pen on the flexible ink-tube, as explained.

Having now described my invention, I claim as new—

1. The combination, in a fountain-pen, of the outer cylindrical case or holder, the flexible ink-tube inclosed in said holder, and having its inner end closed, and a shield or compressor-lever interposed between the flexible tube and holder and pivoted to the latter, substantially as described.

2. The combination, in a fountain-pen, of the slotted cylindrical case or holder, the flexible ink-tube having its inner end closed and inclosed in said holder, and the compressor shield or lever pivoted to said holder and provided with a thumb-piece for operating it, substantially as described.

3. The combination, with the case or holder, of the flexible ink-tube inclosed therein and the interposed compressor shield or lever pivoted to said case and carrying the feeder-point conducting the ink from the ink-tube to the pen, substantially as described.

4. The combination of the cylindrical holder, the inclosed flexible ink-tube having a closed inner end, the interposed compressor shield or lever pivoted to said holder, and the pen, also interposed between the holder and tube, the latter acting as a cushion to the pen and as a spring for retracting the compressor-shield, substantially as described.

5. In a fountain-pen, the combination of the slotted cylindrical holder A, the inclosed flexible ink-tube B, and the interposed pivoted compressor-shield C, provided with the thumb-piece *c*, and the projecting feeder-point C′, all substantially as described.

In testimony whereof I have hereunto set my hand this 30th day of July, A. D. 1890.

PRESLEY B. SMITH.

Witnesses:
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E. MINOR SMITH.