(No Model.)

J. D. BRAY.

FOUNTAIN PEN.

No. 405,458. Patented June 18, 1889.

Fig. 1.

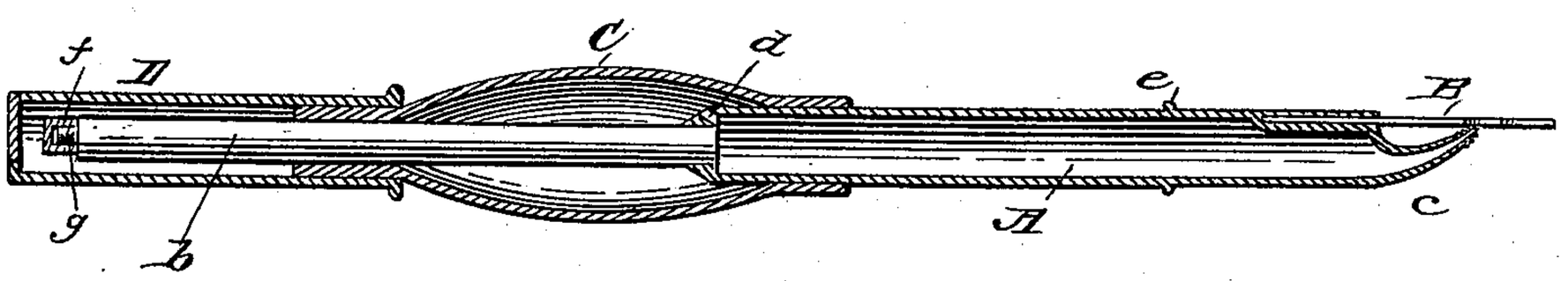


Fig. 2.

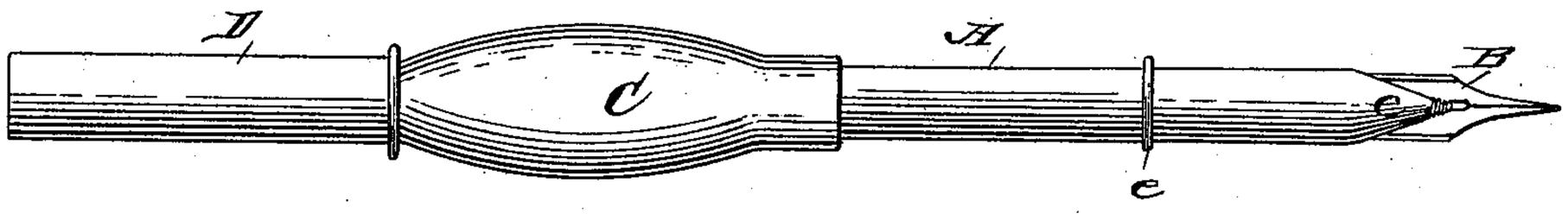


Fig. 3.

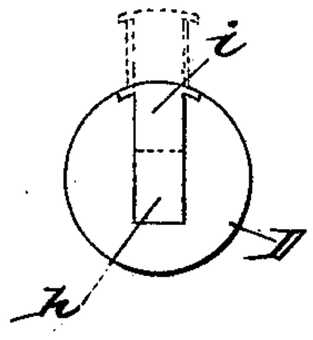
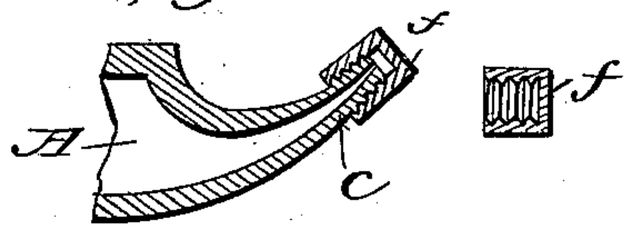


Fig. 4.



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FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 405,458, dated June 18, 1889.

Application filed April 14, 1888. Serial No. 270,615. (No model.)

To all whom it may concern:

Be it known that I, JOHN D. BRAY, of Montreal, in the Province of Quebec, Dominion of Canada, have invented a new and useful Improvement in Fountain-Pens, of which the following is a full, clear, and exact description.

This invention consists in a fountain pneumatic pen, or, as it may be termed, "auto-pneumatic" pen, inasmuch as it is self-charging and retains its charge by atmospheric pressure, substantially as hereinafter described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both figures.

Figure 1 represents a longitudinal section of a fountain-pen—that is, fountain-pen holder with attached pen—embodying my invention. Fig. 2 is an exterior longitudinal view of the same, looking from beneath. Fig. 3 is an end view of the large cap, and Fig. 4 is a detail sectional view of the end of the feeder and the small cap.

A is the main body, which is hollow and of cylindrical or other suitable shape in transverse section, the same forming the reservoir for the ink. Said body terminates in its rear in a solid rod-like extension *b*, which provides for the proper holding and manipulating of the instrument when in use. The forward end of said reservoir is constructed to carry the pen proper B, and is further constructed or provided with a conical feeder *c*, having a fine orifice in its outer end, which end or point, that may be made of platinum or iridium, is bent upward so as to nearly come in contact with the pen B. I have found from practice that about one-sixty-fourth of an inch in diameter is a good size for the orifice in the point of the feeder, and that a good working distance for the point of the feeder from the pen proper is about one-twentieth of an inch; but of course these sizes and proportions may be varied.

In the rear end of the hollow body or reservoir—which latter may be three and a half inches long and three-eighths of an inch in diameter, more or less—is a small aperture *d*, the size of which may be one-sixteenth of an inch, or thereabout, and inclosing this apertured portion of the instrument is a flexible hollow bulb C, that, for convenience sake, I make about one and five-eighths of an inch in length and about five-eighths of an inch in its greatest diameter; but these proportions, too, may be changed. This flexible bulb may be made of soft rubber or other suitable material, and is preferably of prolate-spheroidal form with its ends closely cemented or otherwise secured upon the body A and its rear extension *b*. The body A and other integral parts may be made of hard rubber or other suitable material.

The flexible hollow bulb C should be at such a distance on the instrument in direction of the length of the latter that the same will fall upon the index-finger of the writer's hand, whereby the writer is enabled with the utmost ease to impart the necessary pressure upon the bulb with his thumb and finger as he writes.

Upon pressing on the bulb C near the center of its length so as to expel the air contained in it, and at the same time dipping the point of the feeder *c* into the ink in an ink bottle or stand and afterward releasing pressure from the bulb, the reservoir A will be charged with ink and will be retained there until expelled by another force, thus leaving it under the complete control of the writer. This other force will be the compression of the bulb, which the writer can manipulate while writing, to supply the pen with ink as required, and by suitably compressing the bulb and afterward relieving pressure therefrom the reservoir can instantly be charged and be quickly discharged of its contents, and be cleaned in like manner.

The capacity of the reservoir A will be such as to provide for continuous writing for a considerable length of time, and the instrument can be safely carried in the pocket by slipping a suitable cap D (here shown as temporarily fitted on the rear end of the instrument) over its point end, a collar *e* on the reservoir acting as a stop for the same.

The end of the conical feeder *c* is provided with a screw-thread for the reception of a small internally-threaded cap *f*, which when in place will prevent all leakage of ink from the feeder. This cap when not in use can be placed on a threaded nipple *g* on the end of the rod-like extension *b*. When it is desirable

to apply the cap *f*, the pen can be placed in the cap D and will rest between the rod D and the cap.

In order to prevent any action of compressed air when applying the large cap D over the pen and feeder when the small cap *f* is not in use, the closed end of the cap D is provided with a hole *h*, which is closed by a slide *i*, fitted in the end of the cap.

Such a pen or writing-instrument will be both durable and serviceable, and is not liable to get out of order. When the bulb is worn out, it can readily be replaced by another.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a tubular pen-staff having a feeder at its forward extremity, an opening or aperture in rear of the finger-grasping portion, and a pen-holder to receive the pen to be fed by the feeder, of a compressible bulb communicating with the interior of the staff through said rear opening and resting when the pen is in use against the forefinger in rear of its outer joint, substantially as set forth.

2. The combination, with the reservoir-tube A, having a rear aperture *d*, a point *c*, apertured at its extremity only, and an extension *b*, of the bulb C, mounted on the tube and its extension over the aperture *d*, substantially as set forth.

3. The combination, with the reservoir-tube having a point apertured at its extremity only, an extension at the rear end of the tube, and an air-inlet through the rear end of the tube, of the air-bulb upon the tube and its extension and communicating with the interior of the tube through said air-inlet, and the cap D, having a valved end opening, substantially as set forth.

4. In a reservoir-pen, the reservoir-tube having the upwardly-curved point apertured at its extremity, and the longitudinally-extending pen-receiving slot from which the pen extends across the said apertured extremity, substantially as set forth.

5. As an improved article of manufacture, a fountain-pen comprising the reservoir-tube A, having the curved point *c*, threaded and apertured at its extremity only, the solid rearwardly-extending shank *b*, threaded at its rear end, the air-bulb C, secured on the rear end of said tube and on the shank and communicating, as at *d*, with the interior of said reservoir-tube, the cap *f*, and the larger cap D, having an aperture in its closed end provided with a closure, substantially as set forth.

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