

(No Model.)

J. D. BRAY.
FOUNTAIN PEN.

No. 418,394.

Patented Dec. 31, 1889.

Fig 1

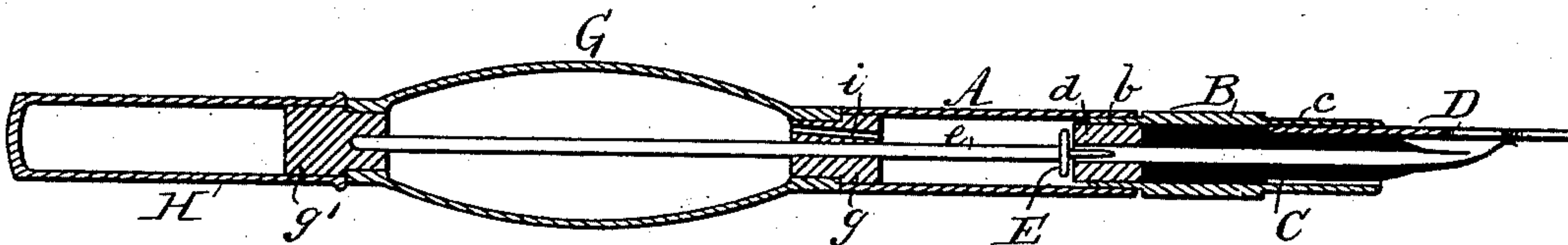


Fig 2

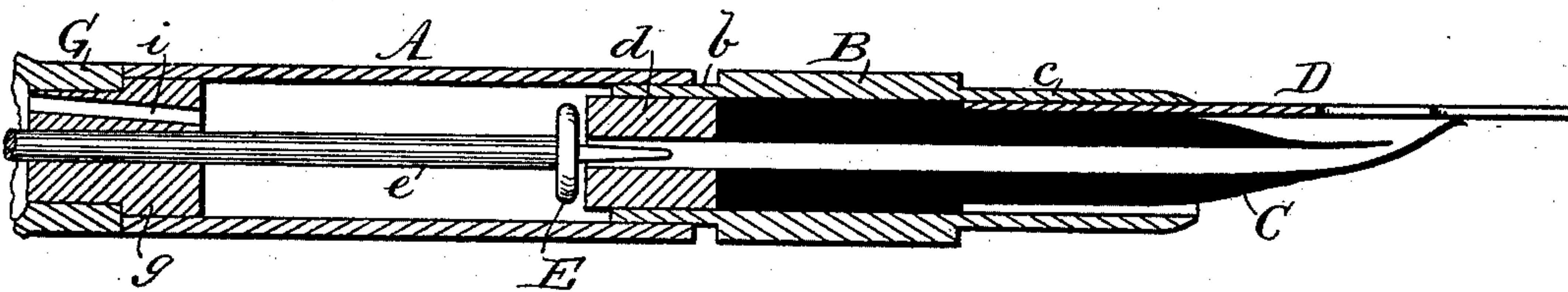
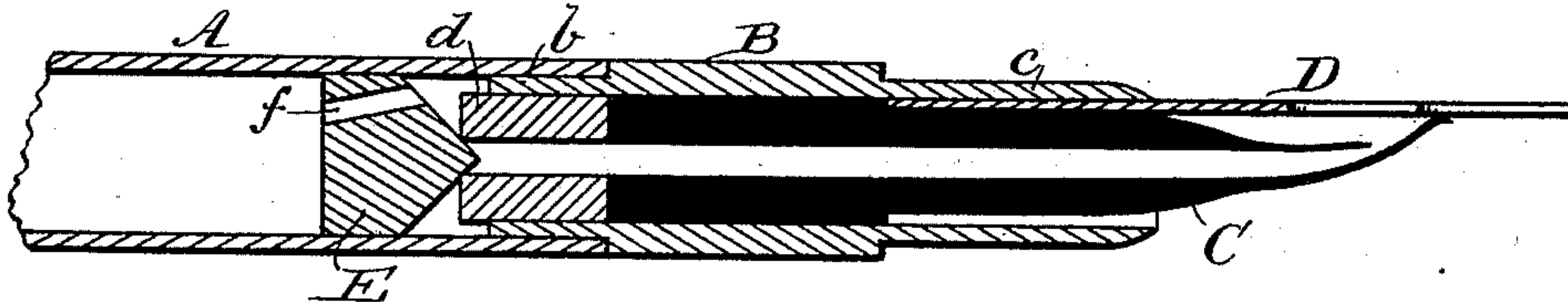


Fig 3



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FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 418,394, dated December 31, 1889.

Application filed August 20, 1889. Serial No. 321,352. (No model.)

To all whom it may concern:

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

This invention relates to that description of fountain pneumatic pens in which the pen-staff is provided with a compressible air-bulb for controlling the supply and flow of the ink; and the invention consists in a fountain-pen of this description of novel construction, 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 all the 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 a similar section of the forward portion of the same upon a larger scale; and Fig. 3 is a like view to Fig. 2, showing a slightly-modified construction of one of the details of the instrument.

The pen staff or holder, which is tubular, may be made of different materials and sizes, and is constructed substantially as follows:

A indicates the tubular ink-reservoir portion of the staff, and B its tubular pen-holding section, which is of reduced exterior diameter at its opposite ends *b c* and of the same exterior diameter at its intermediate body portion as the ink-reservoir A. The rear end part *b* of said tube B is fitted to slide in a close manner within the forward end portion of the ink-reservoir A, for a purpose that will be hereinafter explained. This tube B has entered within it from its rear end a short tube *d*, of soft rubber or other suitable elastic material, arranged to slightly project beyond the back edge of the tube B, which latter is also fitted in a tight manner with a suction and feeding tube C, preferably of hard rubber, arranged to project out through and beyond the forward end of the tube B, and constructed to terminate in front in a curved nose-piece having a contracted opening and upper cut-away portion in its outer end for the purpose of supplying the pen with ink.

Said tube C and nozzle may either be made separate or in a single piece, and the forward body portion of such tube is constructed of a reduced diameter externally to receive the pen D between it and the forward end portion *c* of the pen-holding tube B.

The soft-rubber tube *d* forms a valve-seat for a stationary valve E, attached to a rod *e*, which extends centrally backward. This valve may either be in the form of a button of lesser diameter than the interior of the ink-reservoir A, within which it is arranged, as shown in Figs. 1 and 2 of the drawings, to admit of the ink passing said valve when the latter is open, in which case the duct through the tube *d* will serve as a guide to the button or forward shank thereof, which forms a front extension of the rod *e*; or said valve E may be a conical one, of the same diameter as the interior of the ink-reservoir A, with an ink-duct *f* through it. In either case said valve will hermetically close the passage to and through the feed-tube C, when the rear portion *b* of the pen-holding section B is slid fully back within the ink-reservoir A. The tubular valve-seat *d* has, in all adjustments of the tube B, the aperture through it in constant communication with the duct of the feeder or feeding-tube C.

G is the flexible or compressible air-bulb arranged in rear of the ink-reservoir A and connected at its forward end therewith, as by a shouldered filling-piece *g*, and at its rear end with a shouldered cylindrical plug or closing-piece *g'*, which latter is constructed to receive over it a removable elongated cap H, that, when it is desired to carry the whole instrument in the pocket, may be taken off of the plug *g'* and be slipped over the pen and the reduced forward end portion *c* of the tube B. The filling-piece *g* has an air-duct *i* through it, connecting the interior of the bulb G with the interior of the ink-reservoir A. Said filling or closing piece *g* and the closing piece or plug *g'* are connected by the backward extension of the valve-rod *e*, which may be of one piece with said filling-pieces, and also integral with the tube B, if desired; or the said parts may be constructed of separate pieces made to form a rigid or united whole. When the stationary cone-valve is used—

such as shown in Fig. 3—then the rod *e* is omitted, so far as its extension to the valve is concerned. The flexible bulb *G* is of prolate spheroidal form, with necks at its opposite ends, which form a slip-joint with the filling-pieces *g g'*, and in the whole construction of the instrument, including its valve and adjustable pen-holding section, I dispense with screw-threaded connections and flexible washers, which are apt to clog, leak, or otherwise foul. By the extension of the rod *e* through the filling-piece *g*, through—that is, within—the bulb *G*, and its connection with the rear closing-piece *g'*, the bulb *G* is kept from sagging and the whole pen-staff held in line.

A fountain-pen thus constructed will give the writer full control at all times over the ink in it, and it may be readily charged or cleaned without separating it. Thus when writing with the instrument the flow of ink from the reservoir to the pen proper is established and adjusted, first, by drawing slightly outward the pen-holding section *B* from the ink-reservoir *A*, so as to open the valve *E* or break the closing connection of the tubular valve-seat *d* with said valve, and, secondly, by the writer exerting a more or less slight pressure with his thumb and index-finger upon the flexible bulb *G*, to expel, by compression of the air, ink in the reservoir *A* to and through the feeding-tube *C*. After finishing writing the pen-holding section *B* is slid backward again within the reservoir *A* to bring the soft-rubber tube or valve-seat *d* up against the valve *E*, which will completely stop the outflow of ink, and after which the cap *H*, that served to prolong the staff, may be slipped over the reduced portion *c* of the tube *B* and pen carried by the holder, when the whole instrument can be carried with perfect safety in any position whatever in the pocket.

The instrument may be used with almost any kind of pen, which may be changed for another when desired, and as it is the double manipulation of the bulb and pen-holding section relatively to the valve which serves to give the writer control over the ink when

writing, with provision for shutting off the flow when desired, so, to charge the instrument with ink or to wash it out with water when required, all that is necessary is to draw the tube *B* more or less outward from the reservoir *A* to open the valve *E*, and, after inserting the outer end of the feeder *C* in ink or water, as required, to manipulate the bulb *G* as a flexible-bulb syringe is worked.

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

1. The combination, with a tubular pen-staff composed in part of a tubular ink-reservoir and a compressible bulb in communication by an air-duct with said reservoir, of a longitudinally-adjustable pen-holding tubular section in socketed connection by a slip-joint with the ink-reservoir, and provided with a feeding-tube having a feeding-nozzle at its forward end and a tubular valve-seat in its rear in constant communication with the duct of the feeding-tube, and a longitudinally-stationary valve carried by the pen-staff and controlling flow through the feeding-tube, substantially as specified.

2. The combination of the ink-reservoir tube *A*, the pen-holding tube *B*, fitted to slide at its rear end within the forward end of said tubular ink-reservoir, the feeding-tube *C*, reduced in front and having a fixed position within the tube *B*, the elastic tubular valve-seat *d*, in constant communication with the duct of the feeding-tube, the filling-piece *g* at the rear end of the ink-reservoir, provided with an air-duct through it, the compressible bulb *G*, the rear filling or closing piece *g'*, and the longitudinally-stationary valve *E*, with its attached rod *e*, arranged to pass through the bulb, and operating to control flow through the feeding-tube and connected with the closing rear end piece *g'* of the staff, essentially as herein described.

JOHN D. BRAY.

Witnesses:

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HENRY S. SHAW.