No. 668,150. Patented Feb. 19, 1901.

H. H. BALLARD.

MEANS FOR FILLING AND CLEANING FOUNTAIN PENS.

(Application filed Oct. 27, 1900.)

(No Model.)

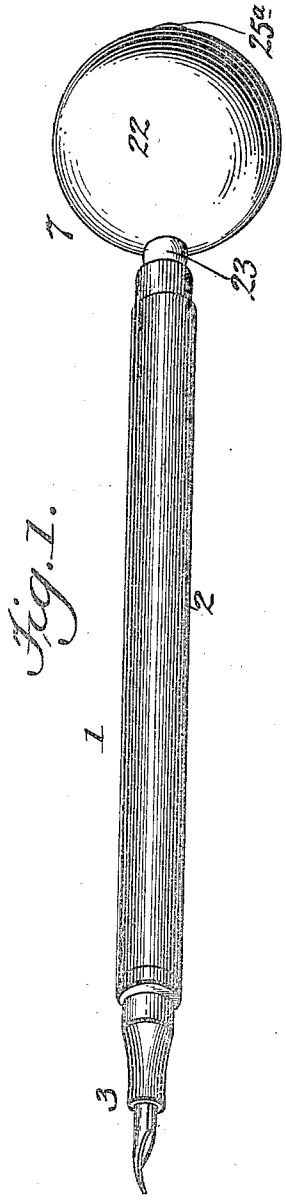


Fig. 1.

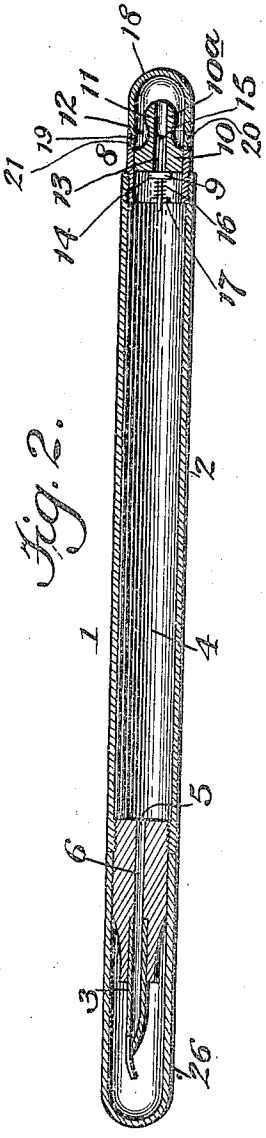


Fig. 2.

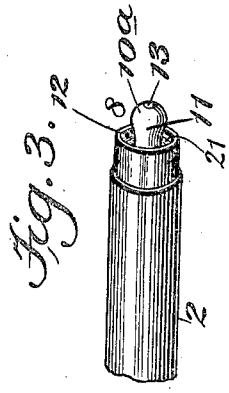


Fig. 3.

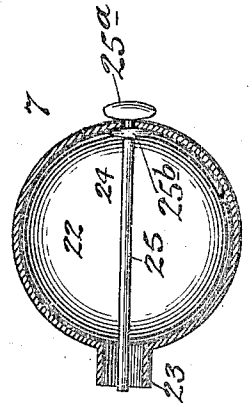


Fig. 5.

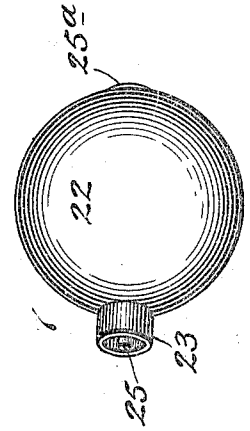


Fig. 4.

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UNITED STATES PATENT OFFICE.

HARLAN HOGE BALLARD, OF PITTSFIELD, MASSACHUSETTS.

MEANS FOR FILLING AND CLEANING FOUNTAIN-PENS.

SPECIFICATION forming part of Letters Patent No. 668,150, dated February 19, 1901.

Application filed October 27, 1900. Serial No. 34,552. (No model.)

To all whom it may concern:

Be it known that I, HARLAN HOGE BALLARD, a citizen of the United States, residing at Pittsfield, in the county of Berkshire and State of Massachusetts, have invented certain new and useful Improvements in Means for Filling and Cleaning Fountain-Pens, of which the following is a specification.

This invention relates to means for filling and cleaning fountain-pens; and it has for its object to provide improved means of this class adapted for use in connection with fountain-pens of any ordinary type which will be superior in point of ease and convenience in the performance of the filling and cleaning operations and positiveness of action of the closure means of the fountain-chamber.

In the drawings, Figure 1 is a perspective view of a fountain-pen constructed according to my invention and illustrating the filling means in operative connection with the same. Fig. 2 is a central longitudinal sectional view of the construction shown in Fig. 1. Fig. 3 is a perspective view of the rear end of the handle portion of the improved pen. Fig. 4 is a perspective view of the filling means in detached position. Fig. 5 is a central longitudinal sectional view of the filling means.

Corresponding parts in all the figures are denoted by the same reference characters.

Referring to the drawings, 1 designates a fountain-pen, which is in the main of the ordinary type, comprising a body or handle portion 2 and the pen proper, 3. The handle portion is provided with the usual longitudinal reservoir or fountain-chamber 4, which is open at one end, as at 5, with respect to the pen proper, 3, and the feed-chamber 6, which guides the ink to the pen proper.

7 designates the detachable member of my improved filling and cleaning means, which is adapted for connection with the handle portion 2 at the rear end thereof and in operative relation to a connection device 8. The connection device 8 preferably constitutes a closure for the rear end of the fountain-chamber and embodies a valve 9, which may be unseated to establish communication between the fountain-chamber 4 and the filling device 7.

The connection device or closure 8 preferably consists of a plug 10, which is secured in the rear end of the handle portion 2 and closes the same, and a nipple 11, which projects rearwardly from the plug and preferably extends slightly beyond the rear end of the handle portion. The nipple 11 is preferably provided with an enlarged head 10^a, which facilitates a tight connection of the same with the filling device 7, as hereinafter described. The nipple is also preferably surrounded by an annular space, as at 12.

The plug 10 is bored centrally, as at 13, to form an extension of the bore of the nipple 11. The valve 9 preferably consists of a disk 14, which operates with respect to the inner face of the plug 10, normally closing the bore 13 of the same, and said disk is provided with a valve-stem 15, which operates in the bore 13. The valve-disk 14 is maintained normally in seated position upon the plug 10 by means of a spring 16, which is preferably interposed between the valve-disk and a cross-brace 17, secured to the inner walls of the reservoir 4.

The valve-disk 14 is readily unseated by passing a projection of suitable form into the nipple 11 and moving the valve-disk inwardly against the tension of the spring 16. When the valve is in seated position, it effectually closes the chamber 4 at its rear end and positively retains the ink or other contents of the pen-reservoir within the same.

18 designates a protective cap, which is preferably employed as a supplemental closure for the rear end of the chamber 4. The cap 18 is preferably formed at its open end with a reduced portion 19, which is threaded upon its outer surface portion, as at 20, and fits within the annular space 12 between the nipple 11 and the end of the handle portion, which latter is interiorly threaded, as at 21, for engagement with the threads 20 to connect the cap 18 with the handle portion and cover the nipple 11. The cap 18 precludes the entrance of dust and other foreign substances into the nipple 11 and also prevents inadvertent actuation of the valve to unseat the valve-disk.

The filling and cleaning device 7 preferably consists of a flexible elastic bulb 22, provided at its front end with a projecting mouthpiece or nozzle portion 23, adapted for connection with the nipple 11. The filling device 7 also embodies a valve-operating device 24, which

preferably consists of a valve-pin 25, which is passed longitudinally through the bulb 22 and projects through the nozzle portion 23. The valve-pin 25 is preferably provided at its rear end with a finger-piece 25^a and with a lug or enlargement 25^b, spaced slightly from the same. When the valve-pin is in operative position, the finger-piece 25^a is arranged exteriorly of the bulb and the lug 25^b is arranged within the latter, and the valve-pin is thus prevented from displacement.

When the nozzle portion 23 of the bulb 22 is passed over the nipple, with which it obtains a tight connection because of its elasticity and the bulbous or enlarged form of the head 12 of the nipple, the valve-pin 25 may be reciprocated through the nozzle portion of the bulb and through the nipple and may be engaged with the valve-stem 15 to unseat the valve and establish communication between the ink-reservoir 4 and the bulb 22.

26 designates the usual cap, which is adapted to be fitted over the pen proper and the adjacent portion of the pen-body 2 for the purpose of protecting the pen during non-use of the same. This cap when detached is conveniently fitted over the cap 18 and rear end of the pen-body 2, which are formed of proper diameter to receive the same.

The operation and advantages of my invention will be readily understood.

The filling and cleaning device is employed to fill the chamber 4 or to empty or clean the same. When the bulb 22 has been connected with the handle portion by means of the nozzle portion 23 and the nipple 11, the valve is unseated by pressing upon the head 25^a of the valve-pin 25, which operation forces the valve-pin through the nozzle portion 23 into engagement with the valve-stem, thus unseating the valve-disk against the tension of the spring 13. If it is desired to fill the reservoir 4, the bulb 22 is compressed at the sides and the air is forced from the same and from the chamber 4. The pen-proper end of the pen is then dipped into ink and the pressure removed from the bulb, which latter then expands and draws the ink by suction into the chamber 4 at the pen-end portion 5 of the same. The bulb is now detached from the nipple 11, and as soon as the valve-pin 24 leaves the valve-stem the valve seats upon the plug 10 and positively closes the rear end of the chamber 4. It will be noted that the operation of unseating the valve is produced by vertical pressure upon the bulb and that the operation of forcing the air out of the chamber 4 in the pen-handle is produced by lateral pressure upon the bulb. To discharge the contents of the chamber 4, the operation is reversed. After the valve has been unseated by the valve-pin 24 the bulb is compressed, and the air expelled from the same forces the ink out of the chamber 4 at the end portion 5 thereof.

The pen may be effectually cleaned by dipping the pen-proper end into alcohol, water, or other suitable fluid and subjecting the bulb in operative position to contractions or compressions and expansions after the valve-pin has been operated to unseat the valve. This operation subjects the pen proper and reservoir to a cleansing flow which thoroughly cleans the same.

The valve 9 furnishes an effectual closure for the reservoir 5 and admits of ready communication between the filling and cleaning device and the pen-reservoir. It will be noted that the valve-disk is not unseated until the bulb or filling device has been tightly connected with the handle portion, preventing spilling of the liquid contents of the reservoir, which often results in filling fountain-pens in the ordinary manner.

The employment of my improved filling and cleaning means for fountain-pens obviates all pouring of the ink or other contents with the attendant danger of spilling the same, and the liquid contents may be drawn in the manner above described from any ordinary ink-well or other receptacle.

I do not desire to be understood as restricting myself to the exact details of construction and arrangement, as herein shown and described, as manifest variation and modification may be resorted to without departing from the spirit and scope of my invention and improvements. I therefore reserve the right to all such variation and modification as properly falls within the scope of my invention and the terms of the following claims.

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

1. A fountain-pen provided in the body or handle portion with a valved opening communicating with the reservoir of the pen, and a filling or emptying device consisting of a compressible elastic bulb provided with a projecting nozzle portion adapted for connection with the handle portion of the pen in communication with said opening, and valve-operating means extending entirely through said bulb and projecting through said nozzle portion at one end and exteriorly of said bulb at the other end whereby the closed or open condition of said valved opening may be positively regulated at all phases of the filling or emptying operation.

2. As an improvement in fountain-pens, a filling or cleaning device for the pen-reservoir, comprising a flexible or elastic bulb provided with a projecting nozzle portion adapted for connection with the handle portion of the pen, and a continuous valve-operating device projecting through said nozzle portion at one end and terminating at the other end exterior of said bulb in a head or finger piece.

3. As an improvement in fountain-pens, a filling or cleaning device for the pen-reservoir, comprising a flexible or elastic bulb provided with a mouth portion adapted for connection with the handle portion of the pen, and a valve-operating device consisting of a pin projecting through said mouth portion at one

end and terminating at the other end exterior of said bulb in a head or finger piece.

4. As an improvement in fountain-pens, a filling or cleaning device for the pen-reservoir, comprising a flexible elastic bulb provided with a mouth portion adapted for connection with the handle portion of the pen, and a continuous valve-operating device projecting through said mouth portion at one end and terminating at the other end in connection with said bulb.

5. A fountain-pen provided in the body or handle portion with a valved opening communicating with the reservoir of the pen; and a filling or emptying device consisting of a compressible elastic bulb provided with a projecting mouth portion adapted for connection with the handle portion of the pen in communication with said opening, and valve-operating means extending entirely through said bulb and projecting through said mouth portion at one end and extending into connection with said bulb at the other end whereby the closed or open condition of said valved opening may be positively regulated at all phases of the filling or emptying operation.

In testimony whereof I have signed my name in the presence of the subscribing witnesses.

HARLAN HOGE BALLARD.

Witnesses:
R. B. BARDWELL,
WM. H. PERKINS.