No. 692,049. Patented Jan. 28, 1902.

L. M. BRYAN.

FOUNTAIN PEN.

(Application filed Mar. 26, 1901.)

(No Model.)

Fig. 1.

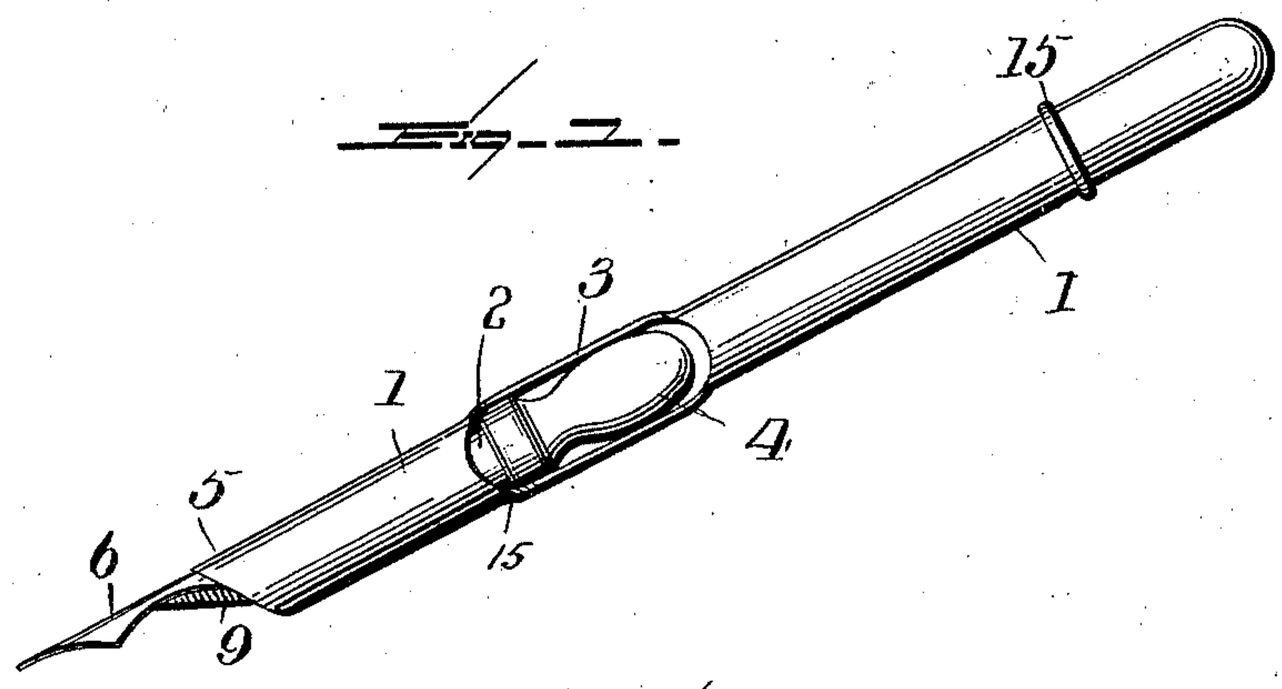


Fig. 2.

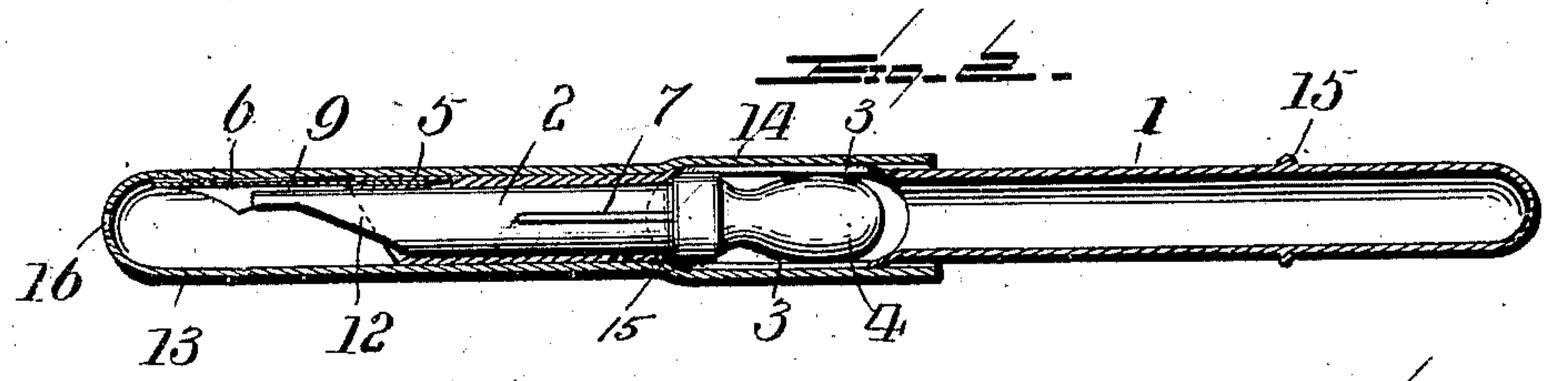


Fig. 3.

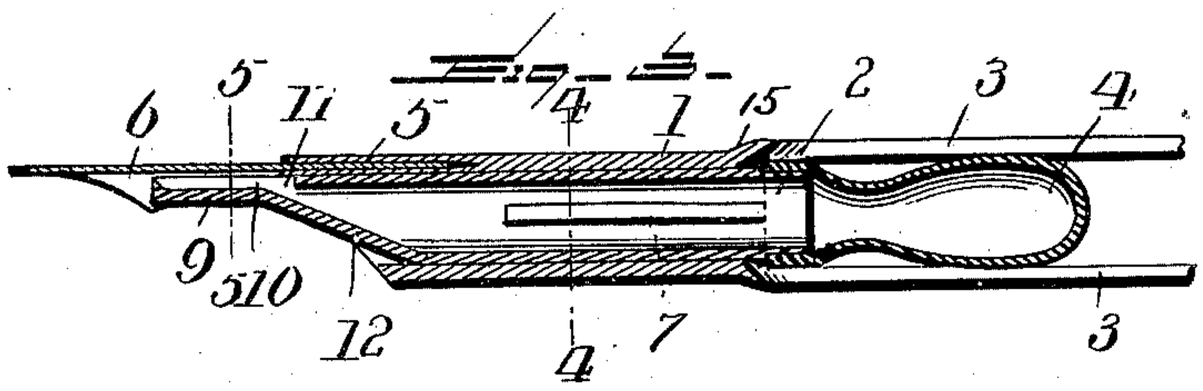


Fig. 4.

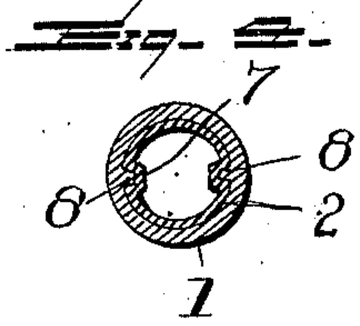


Fig. 5.

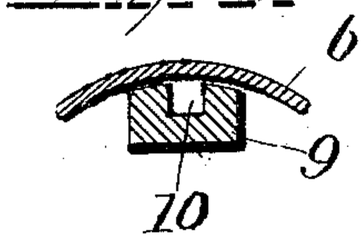


Fig. 6.

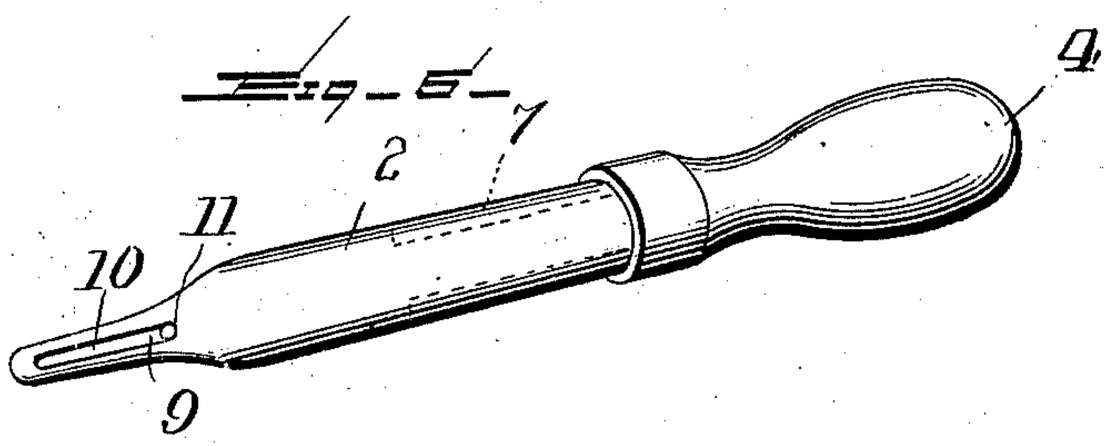
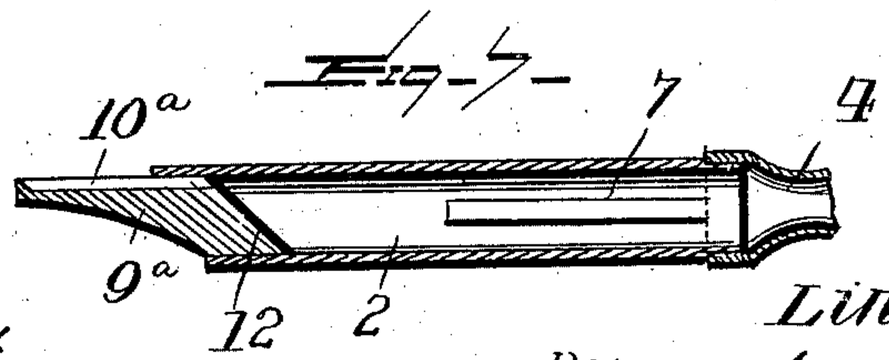


Fig. 7.



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UNITED STATES PATENT OFFICE.

LINDSAY M. BRYAN, OF CINCINNATI, OHIO.

FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 692,049, dated January 28, 1902.

Application filed March 26, 1901. Serial No. 52,939. (No model.)

To all whom it may concern:

Be it known that I, LINDSAY M. BRYAN, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Fountain-Pens; and I 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.

This invention relates to fountain-pens, and has special reference to that type of pens sometimes termed "fountain pneumatic pens" and equipped with means for charging the same with a supply of ink and providing for the retention of the latter by atmospheric pressure.

To this end the present invention contemplates a simple and practical construction of fountain-pen comprising means constituting a permanent part of the pen for readily charging or filling the ink-reservoir, for cleansing the latter, and also for starting or accelerating the flow of ink, should this become necessary.

A further object of the invention is to equip the pen with a simple form of compression device so arranged with reference to the other parts of the pen as to be disposed in position for lying between the index-finger and thumb of the writer's hand, whereby it may be conveniently manipulated, even during the operation of the pen. In this connection the invention also comprehends a novel mounting of the ink-reservoir and the ink-feeder, whereby a relative adjustment thereof with reference to the lower end of the holder may be quickly and easily obtained to provide for adapting the reservoir and feeder to different lengths of pen-points.

Another object is to associate with the pen an improved form of cap, so constructed as to not only house the pen-point, but also the compression device coöperating with the ink reservoir and feeder.

With these and many other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

The essential features of the invention, as indicated in the objects specified, are necessarily susceptible of modification without departing from the spirit or scope thereof; but a preferred embodiment of the improvements is shown in the accompanying drawings, in which—

Figure 1 is a perspective view of a fountain-pen constructed in accordance with the present invention. Fig. 2 is a longitudinal sectional view thereof with the cap in position over the pen-point and the compression device. Fig. 3 is an enlarged sectional view of the pen-bearing section of the holder and the adjacent parts. Fig. 4 is a cross-sectional view on the line 4 4 of Fig. 3. Fig. 5 is a similar view on the line 5 5 of Fig. 3. Fig. 6 is a detail in perspective of the adjustable ink reservoir and feeder removed from the holder. Fig. 7 is a detail sectional view showing a modification of the ink reservoir and feeder in which the feeder may be of the form of a separate part or plug fitted to and carried by the movable or adjustable reservoir.

Like numerals of reference designate corresponding parts in the several views of the drawings.

In carrying out the invention the pen as an entirety may necessarily be made of different sizes and of any suitable material, and also the operative elements thereof may be changed to suit any particular requirements so long as the essential features of the invention are preserved; but inasmuch as these essential features are exemplified by the construction shown in the drawings a specific reference thereto will be made in explanation of the subject-matter sought to be claimed.

Referring particularly to the drawings, the numeral 1 designates the holder of the pen, sometimes termed the "handle," and which in the present invention is preferably of a tubular formation, particularly within the lower or pen-bearing part thereof, for the accommodation of the movable or adjustable ink-reservoir 2, which will be presently more fully referred to. In the form of the invention shown in the drawings, where the ink-reservoir 2 is of less extent than the holder or handle 1, it is of course only necessary that the holder be of tubular formation within the lower portion specified, and the said holder is also preferably provided at an intermediate

point between the ends thereof with cut-away side portions, forming the side openings 3 to expose to the fingers of the writer the compression device 4, which is associated with the ink-reservoir 2, to provide positive and reliable means for charging and filling the reservoir, for cleansing the latter, and also for starting or accelerating the flow of ink in the use of the pen. In addition to the parts referred to the holder 1 is further provided at the lower or pen-bearing end thereof with pen-retaining means 5, which is shown as consisting of a spring socket or retainer constituting a fixed or permanent part of the holder and adapted to frictionally and detachably receive the shank or heel end of the pen-point 6. Any equivalent pen-holding or pen-retaining device other than the spring-socket 5 may be provided at the lower end of the holder 1, it only being necessary that the pen holding or retaining device is so constructed as to receive and hold any of the ordinary types or sizes of pen-points and to hold the pen-point in fixed relation to the ink-reservoir 2, which is movable or adjustable with relation to the said point for the purpose of adapting the reservoir and the feeder carried thereby to any size of pen-point which may be fitted to the holder.

In a broad sense the ink-reservoir 2 is movably and adjustably supported by the holder 1, so as to be capable of shifting the position of the ink-feeding duct or fissure with reference to the fixed pen-point, and while different expedients may be resorted to for the adjustable mounting of the ink-reservoir a simple and practical construction is shown in the drawings, and consists in constructing the reservoir 2 in the form of a tube and slidably mounting this tube within the lower tubular portion of the holder 1. The reservoir 2 may necessarily be of any suitable size according to the desired quantity of ink to be carried thereby, and to permit of the longitudinal adjustment of the reservoir while at the same time preventing axial movement or turning thereof the same preferably has an interlocking connection with the holder within which it is arranged. Various forms of slidable interlocking connection may be provided, one of which is shown in the drawings and consists in providing the reservoir 2 in the opposite sides thereof with the slide-grooves 7 receiving the inwardly-projecting keys or ribs 8 at the inner sides of the holder 1. There is a sufficiently firm frictional engagement between the keys or ribs 8 and the ink-reservoir or between the latter and the inner side of the holder itself to provide for holding the reservoir stationary when once adjusted with reference to the pen-point 6, or other equivalent means may be resorted to for accomplishing the same result.

To provide for the delivery of the ink from the interior of the reservoir 2 to the head of the pen-point, the reservoir is provided at the lower end thereof with a feeder or feeding-finger 9, having in the outer face thereof a duct or channel 10 in communication with a feed-port 11, piercing the reservoir to establish a line of communication between the same and the said duct or channel 10. To facilitate the flowing of the ink through the port 11 and the duct or channel 10, the reservoir-tube 2 is preferably formed with a conical or tapering lower end portion 12, the apex of which is disposed directly at the inner end of the duct or channel 10. The feeder or feeding-finger 9 may constitute an integral part of the reservoir, as shown in some figures of the drawings, although if found desirable the same may consist of a separate plug 9^a inserted in the lower end of the reservoir and provided with an ink-flowing duct or channel 10^a in communication with the interior of the reservoir. Other modifications may be resorted to to provide for equipping the reservoir with an ink-feeder carried thereby, so as to be adjustable with reference to the fixed pen-point 6.

The compression device 4 is preferably in the form of an elastic hollow bulb, preferably of a prolate spheroidal form, and adapted to be compressed between the fingers of the writer for the purpose of producing the necessary suction action when the reservoir is to be filled or cleansed or to produce a compression when it is desired to either start or accelerate the flow of ink. In filling or charging the reservoir the entire lower end of the pen, including the feeder carried by the reservoir, is immersed in the ink, and by first compressing the bulb and then releasing pressure therefrom a suction will be produced, thus drawing in a supply of ink within the reservoir. In the event of sediment or other obstructions clogging the parts a pressure from the bulb will usually correct this, and to provide for a thorough cleansing of the reservoir and the duct in communication therewith it is only necessary to draw in and expel water by manipulating the bulb, as will be readily understood.

There is preferably associated with the pen a cap 13 of tubular form, so as to snugly fit over the pen-point and the contiguous part of the holder to protect the point for carrying the pen in the pocket. The said cap in the present invention is provided at and contiguous to its end with an annular enlargement 14, which serves to extend over and house therein the compression device or bulb. This also serves to strengthen the handle or holder when the pen is carried about and not in use. When the pen is in use, the cap 13 is slipped over the upper end of the holder and the latter is preferably provided with suitable stops 15 thereon to arrest the cap when fitted over either end of the holder. The said cap is also preferably provided at its closed end thereof with a vent 16 for preventing pressure of air therein when applied to the holder.

From the foregoing description it will be

obvious that a fountain-pen constructed as set forth is of an exceedingly simple form, while involving all necessary qualifications of a fountain-pen designed to meet popular trade. The invention embodies a number of elements, some of which are known in the art, but which elements, however, are arranged in a very simple, practical, and cheap manner, whereby the pen may be made and sold at a popular price, while at the same time being capable of easy manipulation and ready adjustment to different-sized pen-points. Furthermore, the slidable non-rotative engagement of the reservoir-tube with the holder is an important and practical feature, inasmuch as it positively insures the maintenance of a proper alinement of the feeder with the nibs of the pen under any and all adjustments.

Various changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a fountain-pen, an elongated tubular holder constituting the handle and carrying at one end a fixed pen-point, said holder being provided at an intermediate point between the ends with cut-away side portions forming an open housing, a separate interior reservoir housed inside of the tubular holder, said interior reservoir being provided at one end with a feeder extension projecting out of the lower end of the holder and underlying the pen-point, means for causing a slidable and non-rotative engagement between the reservoir and the holder and a compression-bulb fitted to the opposite end of the interior reservoir and lying inside of said open housing and exposed therein at both sides of the holder.

2. In a fountain-pen, a tubular holder carrying the pen-point, a longitudinally-adjustable reservoir-tube arranged in the holder, said tube carrying a feeder at one end and a compression device at its other end, and means for causing a slidable and non-rotative engagement between the tube and the holder.

3. In a fountain-pen, a tubular holder constituting the handle, and carrying at one end a fixed pen-point, said holder being provided at or contiguous to the holding-point for the fingers with cut-away side portions forming an open housing, a separate interior reservoir-tube housed inside of the lower portion of the tubular holder, means for causing a slidable and non-rotative engagement between the reservoir-tube and the holder, said reservoir-tube being provided at one end with a feeder extension projecting out of the lower end of the holder and having a longitudinal duct underlying the pen-point and a compression-bulb fitted to the opposite end of the reservoir-tube and lying entirely inside of said open housing and exposed therein at both sides of the holder.

In testimony whereof I affix my signature in presence of two witnesses.

LINDSAY M. BRYAN.

Witnesses:
A. S. BRYAN,
E. L. MITCHELL.