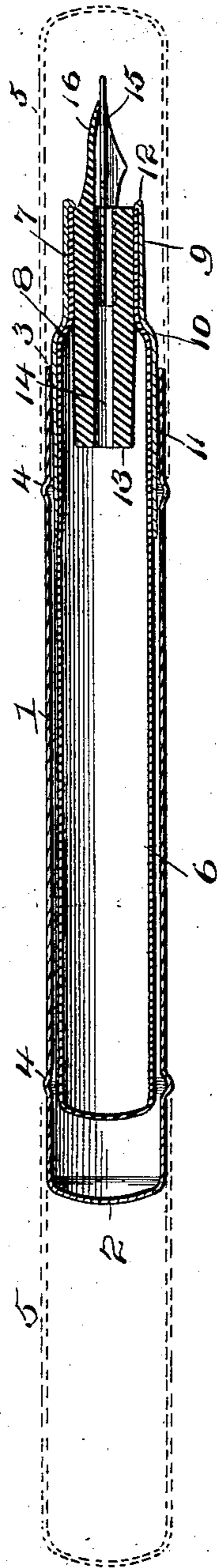


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PATENTED JAN. 1, 1907.

B. B. GOLDSMITH.
FOUNTAIN PEN.

APPLICATION FILED NOV. 20, 1903.



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BYRON B. GOLDSMITH, OF NEW YORK, N. Y.

FOUNTAIN-PEN.

No. 840,456.

Specification of Letters Patent.

Patented Jan. 1, 1907.

Application filed November 20, 1903. Serial No. 181,988.

To all whom it may concern:

Be it known that I, BYRON B. GOLDSMITH, a citizen of the United States, and a resident of New York, in the county and State of New York, have invented certain new and useful Improvements in Fountain-Pens, of which the following is a specification.

This invention has reference to improvements in fountain-pens; and its object is to produce a simple and cheap but effective device for the purpose.

In order to make the device so that it may be sold at a low price, it is necessary to use cheap and easily-worked materials, such as metal, for all parts except those in direct contact with the ink. Metal is quickly corroded by ordinary writing-ink and is not only destroyed thereby, but also contaminates the ink. Consequently it cannot be used for the parts containing the ink or those parts that convey the ink to the writing-pen. Even when a protecting coating or varnish or the like is used upon the metal, such coating cannot be depended on, since it often becomes scratched or knocked or peeled off in spots, and the exposed metal is attacked by the ink. For this reason I make the ink-reservoir and the device for feeding the ink to the pen-point of rubber, because of its non-corrosive qualities.

The ink-reservoir I make of soft rubber and house it in a metal mantle, constituting the handle of the fountain-pen. The soft-rubber reservoir may be so manipulated as to operate as a filler. It is non-corrosive and does not injure the ink, and it may be readily and cheaply molded into shape. The cost of such a reservoir is low enough to enable me to use it in my fountain-pen.

The feeding device I employ is that known as a "feed-plug" and has the characteristics of the feed-plugs used in fountain-pens of the highest grade, thus making the fountain-pen constructed in accordance with this invention equally efficient in operation with the high-grade fountain-pens.

The feed-plug I make of hard rubber, and it is constructed to receive and support the writing-pen, to feed the ink to the pen-nibs, and to permit air to reach the interior of the reservoir as the ink flows out in the act of writing. Now hard rubber is expensive, both

because of the cost of the material and because of the difficulty of manufacturing it into the shape desired. Therefore, in order to utilize it in the manufacture of fountain-pens of low price I have by my invention reduced the amount used to a minimum. The hard-rubber feed-plug I use is made only large enough to enter the front end of the soft-rubber ink-reservoir and act as a stopper or plug for the same, and at the same time it is utilized to carry the writing-pen.

In order to insure an ink-tight joint between the ink-reservoir and feed-plug inserted therein and for other purposes, I apply a rigid, preferably metal, reinforcement to the exterior of the ink-reservoir around the end of the latter containing the feed-plug. The parts are so proportioned that the introduction of the feed-plug will cause the walls of the corresponding part of the ink-reservoir to be clamped tightly between the said feed-plug and reinforcement. I also simplify the construction of my fountain-pen by employing friction-joints where usually screw-joints are used.

The improved fountain-pen is illustrated in the accompanying drawing, which shows a longitudinal section thereof.

The mantle 1 is a simple metallic tube of even caliber throughout, closed at one end 2 and open at the other end 3. Near each end of the tubular mantle there is formed an annular exterior bead 4, constituting a stop for the usual cap 5, (indicated in dotted lines,) used to protect the pen-point when the latter is not in use and to lengthen the mantle for convenient handling when the pen-point is being used. Within the mantle 1 there is housed a soft-rubber ink-reservoir 6, tubular in shape, to conform to the interior of the mantle, which it may substantially fill. This reservoir 6 has the end contained in the mantle permanently closed, while the other end projects beyond the open end 3 of the mantle, where it is reduced in diameter, forming a neck 7, which is joined to the body of the reservoir by a shoulder 8 and is open at the outer end. Surrounding and fitting the exterior of the neck 7 there is a metal sleeve 9, expanding at the shoulder 8 to form a corresponding shoulder 10 and continuing for a short distance along the outside of the body of the ink-reservoir, as shown at 11.

The section 11 of the sleeve 9 is slightly tapering from the shoulder 10 backward and is of such size that, while it may be freely inserted into the open end 3 of the mantle, it will ultimately bind therein before it has been inserted quite to the depth of the shoulder 10. The front end of the sleeve 9 is upset, as shown at 12, to form an inwardly-projecting annular collar, the purpose of which will hereinafter appear.

The feed-plug 13 may be cylindrical or slightly frusto-conical on its exterior and has a central bore 14, which latter is divided longitudinally into two ducts by the pen-point 15, inserted in a suitably-shaped slot formed in the feed-plug and appropriately located relative to said central bore. The feed-plug is also formed with a tongue 16, extending beyond the body of the plug and overlying the pen-nibs. The duct formed in the upper part of the feed-plug 14 serves to convey the ink from the reservoir to the pen-nibs by way of the tongue 16, while the duct formed below the pen-point serves to permit the ingress of air to the reservoir to take the place of the ink flowing to the pen-nibs.

I do not wish to limit myself to the use of a feed-plug of the construction just described, since other forms—such, for instance, as the under-feed type of feed-plug—may be used.

The feed-plug is inserted into the neck 7 of the reservoir after the said neck has been inserted into the sleeve 9, and it is of such size that when introduced into the neck 7 it will force the latter tightly against the inner walls of the surrounding rigid reinforcing-sleeve 9. This will clamp the parts together and at the same time form an ink-tight joint between the neck 7 and feed-plug 13 throughout the whole length of the neck. Even when clamped sufficiently to form an ink-tight joint, the soft-rubber neck 7 will allow the feed-plug and pen carried thereby to yield slightly during the act of writing, thus giving a wabby touch to the pen-point. To prevent this, I have provided the before-mentioned collar 12, which fits snugly around the forward end of the feed-plug and holds it firmly against lateral displacement.

The feed-plug is made of hard rubber, because hard rubber is a rigid material and resists the corrosive action of and does not harm the ink. Although hard rubber is an expensive material, both as to its initial cost and because of the difficulty of working the same, it will be seen that the use of hard rubber for the feed-plug, which is of small size and readily manufactured and is the only hard rubber used in the construction of the fountain-pen, does not add enough to the cost of manufacture to render its use prohibitive in the fountain-pen constructed in accord-

ance with my invention and which is designed to sell at a low price. All the other parts that make up the improved fountain-pen are readily molded, stamped, drawn, or spun out of suitable material and may be very cheaply manufactured.

When the soft-rubber ink-reservoir together with the reinforcing-sleeve and feed-plug have been removed from the mantle, the reservoir may be utilized as a filler by twisting it to expel the air, dipping the front end of the feed-plug in ink, and then allowing the ink-reservoir to untwist by its own resiliency, thus drawing the ink into the reservoir, as will be readily understood.

Having described my invention, what I claim is—

1. In a fountain-pen, a removable ink-reservoir having a cylindrical tubular neck and a separately-removable pen-carrying feed-plug fitting into the whole length of the neck and constituting a stopper or closure for the feeding end of said reservoir, substantially as described.

2. In a fountain-pen, a flexible ink-reservoir having an exterior, rigid reinforcement at one end, and a pen-carrying feed-plug inserted in said reinforced end of the ink-reservoir and clamping the said end against the reinforcement, substantially as described.

3. In a fountain-pen, a flexible ink-reservoir having an open end of less diameter than the body of the reservoir, an exterior, rigid reinforcement at the reduced end of the reservoir, and a feed-plug inserted in said reduced end and clamping the same against the reinforcement, substantially as described.

4. A fountain-pen comprising a flexible, tubular ink-reservoir having one end open, a rigid reinforcement applied to the said reservoir at the open end, a pen-carrying feed-plug closing the open end of the ink-reservoir and clamping the walls of the same against said reinforcement; and a mantle receiving the reservoir and one end of the reinforcement, substantially as described.

5. In a fountain-pen, a removable soft-rubber ink-reservoir having a cylindrical tubular neck and a separately-removable pen-carrying feed-plug fitting into the whole length of the neck and constituting a stopper or closure for the feeding end of said reservoir, substantially as described.

6. A fountain-pen comprising a flexible, tubular ink-reservoir having one end open, a rigid reinforcement applied to the said reservoir at the open end, a pen-carrying feed-plug closing the open end of the ink-reservoir and a mantle receiving the reservoir and one end of the reinforcement, substantially as described.

7. In a fountain-pen, a flexible ink-reser-

voir having an exterior rigid reinforcement at
its open end, said reinforcement being pro-
vided with an inwardly-projecting annular
collar, and a pen-carrying feed-plug inserted
5 through said collar into said reinforced end of
the ink-reservoir, substantially as described.

In testimony whereof I have signed my

name to this specification in the presence of
two subscribing witnesses.

BYRON B. GOLDSMITH.

Witnesses:

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F. T. CHAPMAN.