

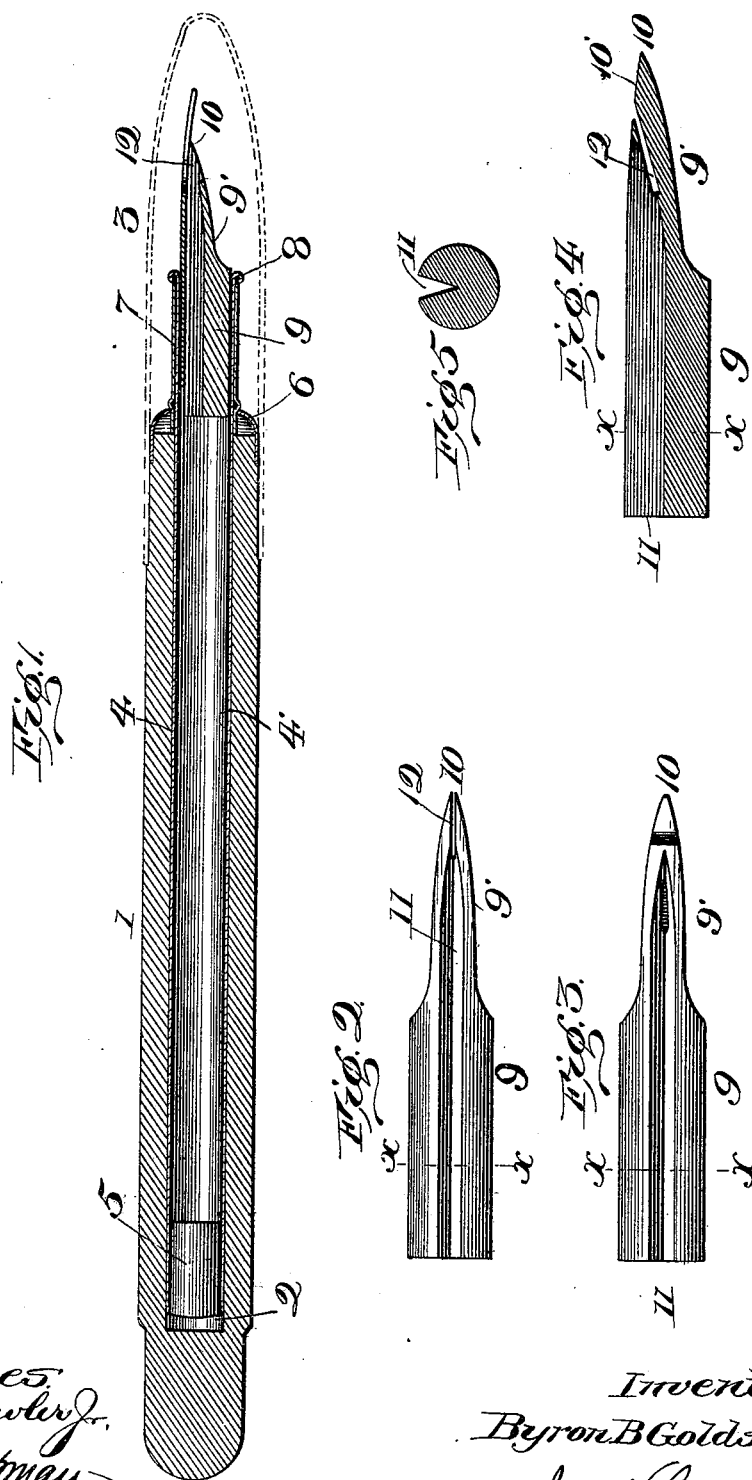
No. 646,070.

Patented Mar. 27, 1900.

B. B. GOLDSMITH.
FOUNTAIN PEN.

(Application filed Jan. 21, 1898.)

(No Model.)



witnesses
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UNITED STATES PATENT OFFICE.

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

FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 646,070, dated March 27, 1900.

Application filed January 21, 1898. Serial No. 687,432. (No model.)

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 State of New York, have
5 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, the object being to
10 overcome the imperfections of pens of this general class and at the same time cheapen their production without sacrificing any of the meritorious features inherent in high-priced pens of this character.

15 The feed-plug, which constitutes the most essential and unavoidable element of fountain-pens, is, in accordance with my invention, so constructed that it constitutes a subsidiary ink-reservoir, bringing and holding a
20 comparatively-considerable quantity of ink to within a very short distance from the pen and feeding the ink to the latter by an open slot as distinguished from a groove or channel. The advantage secured by this construction is that the ink-feed is never obstructed
25 and is never too free, as is often the case with the constructions heretofore employed.

Another feature of my invention is that I make the holder or mantle of a comparatively-
30 considerable thickness of wood or other poor conductor of heat, by reason of which I may make the separate ink-reservoir proper of thin but strong material, and even of metal, without danger of unduly heating the reservoir by conduction from the hand of the user,
35 and thereby cause an excessive flow of ink.

These and other characteristics of my improved fountain-pen will more fully appear from the following detail description, with reference to the accompanying drawings, in which—

Figure 1 is a longitudinal section of the complete fountain-pen. Fig. 2 is a plan view of one form of feed-plug. Fig. 3 is a plan
45 view of a modified form of feed-plug. Fig. 4 is a longitudinal section of the modified form of feed-plug, and Fig. 5 shows a section on lines *x x* of Figs. 2, 3, and 4.

Like numerals of reference indicate like
50 parts.

The cylindrical mantle 1 is formed with a

central bore 2, open at the front end and extending to near the other end of the mantle. Each end of the mantle is reduced in diameter, as usual, to receive the cap 3, (shown in
55 dotted lines,) and the exterior of the mantle may be furnished in any desired ornamental manner—say in imitation of hard rubber.

I make the mantle of a material that is a poor conductor of heat, and by preference of
60 wood, which is not only a very poor conductor of heat, but is also light, cheap, and easily worked and ornamented in imitation of more costly materials. The walls of the mantle are made comparatively thick, and this necessitates that the diameter of the axial bore 2 be
65 comparatively small and that consequently the ink-reservoir be made of rather thin material, so that it may still afford sufficient storage room for the ink. This ink-reservoir 4 consists
70 of a tube of thin metal, stiff paper, celluloid, or other like material suitable for the formation of tubes which have the requisite stiffness and toughness. The reservoir-tube fits snugly within and is glued or cemented or otherwise
75 securely held within the mantle. It projects beyond the front end of the mantle for the reception of the feed-plug and writing-point or pen proper, while the rear end of the reservoir is closed by a plug 5, of cork or rubber.
80 Since the projecting portion of the ink-reservoir must receive the feed-plug and the pen, must hold them by friction, and must withstand the pressure exerted upon it in the act of writing, the material of which it is made
85 should be stiff and tough. I have found that with a thick wooden mantle which prevents the conduction of heat from the hand to the reservoir the latter may be made of quite thin material, such as stiff paper or celluloid,
90 but preferably of metal. The high conductivity for heat possessed by metal is no detriment when a thick-walled wooden mantle is used.

When the ink-reservoir is made of paper, 95 it must be impregnated, lined, or coated with a substance that renders it waterproof and also proof against weak acids and such other ingredients that are used in the manufacture of writing-inks. The impregnation or coating
100 of the paper tube with shellac or other suitable varnish accomplishes this purpose.

When, however, the ink-reservoir is made of metal, which is the preferred construction, its interior must be lined or coated with a substance that is not attacked by ink, both for the protection of the reservoir and for the protection of the ink, but particularly for the latter purpose—that is to say, for the prevention of decomposition of the ink by the corrosion of the metal. This may be accomplished by lining the interior of the ink-reservoir with varnished paper or by coating or lining it with japan, and such construction is indicated in Fig. 1 at 4' by a heavy black line. In order to apply such lining or coating of japan to the interior of the reservoir-tube, the latter is primarily made with both ends open, is then dipped into japan, and after the latter has been baked the rear end of the reservoir is closed by the cork or rubber plug, as shown.

To the front end of the mantle is fitted a cap-shaped ferrule 6, and a sleeve 7, fitted over the projecting portion of the reservoir-tube, fits into the outer opening of the ferrule and abuts against the end of the mantle and is held in place by having the outer edge of the reservoir-tube spun over to form a bead, as indicated at 8. The ferrule and sleeve may be gold or silver plated or finished in imitation thereof and are primarily designed for ornamentation.

The feed-plug 9 is constructed as follows: The main body of the plug is cylindrical, with its forward portion 9' reduced and shaped as indicated and turned practically to a point 10. A rectilinear V-shaped groove 11, acting as a combined air-and-ink duct, is formed in the body of the feed-plug, and this groove extends throughout the greater portion of the length of the plug, but terminates within a short distance from the point 10. This groove 11 is made, as far as practicable, of even depth and width, but by reason of the fact that it is ordinarily made by a rotary V-shaped cutter it becomes shallower and narrower toward the point where it terminates. All this is sufficiently well illustrated in the drawings. From this groove extends a slot 12, opening forwardly near or at the pointed end of the plug. This slot 12 extends backward into the deep and wide portion of the groove 11, so that the ink coming from the reservoir flows through the portion of the groove that is practically of even depth and width and then through the slot 12 to the inner face of the pen. The slot 12 may be a rectilinear extension of the groove 11, as shown in Figs. 1 and 2, or it may be at an angle to the line of that groove, as shown in Figs. 3 and 4. In the first case the slot opens exactly at the foremost point 10 of the plug, and in the second case it opens a short distance behind that point. The slot 12 is considerably narrower than the groove 11, so that the former accumulates a considerable body of ink in immediate communication with the latter, and thus serves as a subsidiary reservoir for the slot and the pen very close to the

latter. This insures a free flow of ink to the pen at all times and at the same time prevents an excessive flow of ink.

While I have shown in the drawings only a single slot 12, extending from or near the foremost point of the feed-plug into the groove 11, which constitutes the channel through which the ink flows from the reservoir and which at the same time constitutes a subsidiary reservoir, it is understood that two or more such slots would be the equivalent of a single slot.

Having fully described the invention, what I claim, and desire to secure by Letters Patent, is—

1. A fountain-pen provided with an ink-reservoir of thin rigid material, and a socket-mantle surrounding the same composed of a material and made of such thickness as to sustain and protect the reservoir and to shield it from the effects of the heat of the hand of the user, the reservoir fitting snugly within the bore of the mantle, projecting beyond the same to receive the pen and feed-plug and supported by the material thereof, substantially as described.

2. A fountain-pen provided with an ink-reservoir and a non-heat-conducting mantle having a bore part way through its length and snugly embracing the ink-reservoir, the latter projecting beyond the former to receive the pen and feed-plug, substantially as described.

3. A fountain-pen comprising an ink-reservoir consisting of a japanned tube closed by a plug at the inner end and at the outer end receiving and removably holding the pen and feed-plug, substantially as described.

4. A fountain-pen provided with a wooden mantle having a central bore extending through the greater part of its length but not entirely therethrough so as to leave a closed end, a tubular metal ink-reservoir seated in the mantle, and closely embraced thereby and a pen and feed-plug carried by the front end of the ink-reservoir, substantially as described.

5. A feed-plug for fountain-pens, consisting of a block provided with a combined air-and-ink duct extending longitudinally on one side of the block from its rear end to near the front end, and a separate narrow slot at the front end of the block, for conveying the ink from the ink-duct to the pen-nibs, extending rearwardly and opening into the ink-duct, substantially as described.

6. A feed-plug for fountain-pens, consisting of a block with a combined air-and-ink groove of such size as to constitute a subsidiary ink-reservoir and communicating directly with the main ink-reservoir, and a separate narrow slot in the front of the block, opening into the ink-groove, and arranged for conveying ink therefrom to the pen-nibs, substantially as described.

7. A feed-plug for fountain-pens, consisting of a block provided with a V-shaped air-and-ink duct and extending longitudinally on

one side of the block from its rear end to near the front end and a separate narrow slot at the front end of the block, for conveying ink from the ink-duct to the pen-nibs, extending rearwardly and opening into the ink-duct, substantially as described.

8. A feed-plug for fountain-pens, consisting of a block with a longitudinal air-and-ink duct extending longitudinally on one side of the block from its rear end to near the front end, and a narrow slot for conveying ink from the duct to the pen-nibs, extending rearwardly at an angle to the ink-duct and opening into the latter, substantially as described.

9. A fountain-pen comprising a non-heat-conducting bored mantle, having a ferrule at its end, a tubular ink-reservoir fitting within the mantle and having a bead at its end and an ornamental sleeve surrounding a portion of the reservoir and held between the ferrule and bead, substantially as described.

10. The combination of a pen and feed-plug

consisting of a block provided with a V-shaped ink-duct extending longitudinally on the top of the block and below the pen, from its rear end to near the front end and a separate narrow slot at the front end of the block for conveying ink from the ink-duct to the pen-nibs, substantially as described.

11. A fountain-pen consisting of a combination of a non-heat-conducting mantle having a bore part way through its length and an ink-reservoir consisting of a japanned tube closed by a plug at the inner end and at the outer end receiving and removably holding the pen and feed-plug.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

BYRON B. GOLDSMITH.

Witnesses:

WILLIAM S. STUHR,

BARBARA C. DINGWALL.