

W. A. WELTY.
FOUNTAIN PEN FEED.
APPLICATION FILED DEC. 6, 1904.

Fig. 1.

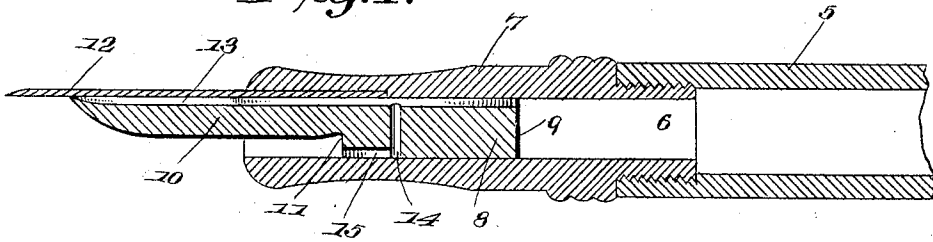


Fig. 2.

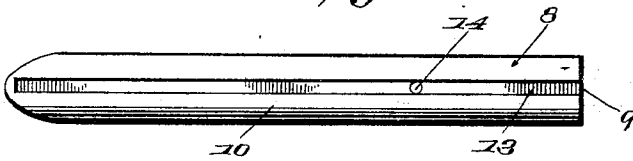


Fig. 4.

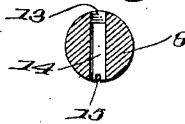
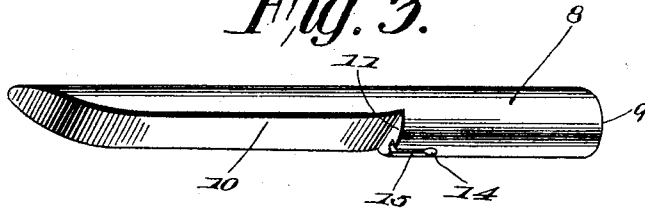


Fig. 3.



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UNITED STATES PATENT OFFICE.

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FOUNTAIN-PEN FEED.

No. 803,866.

Specification of Letters Patent.

Patented Nov. 7, 1905.

Application filed December 6, 1904. Serial No. 235,693.

To all whom it may concern:

Be it known that I, WILLIAM A. WELTY, a citizen of the United States, residing at Waterloo, in the county of Blackhawk and State of Iowa, have invented a new and useful Fountain-Pen Feed, of which the following is a specification.

This invention relates to certain improvements in pens, and more particularly to a novel form of ink-feeding device especially designed for use in connection with single-feed fountain-pens. In the majority of fountain-pens of this type now in use the flow of ink to the pen-point is intermittent and irregular, while the feed-plugs of double-feed pens have usually been provided with a terminal cavity or orifice to promote circulation of the fluid, the latter construction permitting the ink to flow from the reservoir to the pen-point in excessive quantities, thereby causing the ink to flood or blot when writing.

The object of the present invention is to obviate the objections referred to and to provide a simple and inexpensive single-feed pen in which the feed-plug is solid and provided with a transverse air-vent which communicates with the ink-delivery channel at a point adjacent the rear end of said plug, whereby the ink is more evenly and uniformly fed or delivered to the pen-point.

A further object of the invention is to provide the plug with a longitudinal extension the side walls of which are curved and of a width equal to the width of the rear end of the plug, thereby forming a substantial rest or support for the pen-point and preventing any tendency of the latter to wobble or become accidentally displaced.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in form, proportion, and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

In the accompanying drawings, forming a part of this specification, Figure 1 is a longitudinal sectional view of a portion of a fountain-pen provided with a feed-plug constructed in accordance with my invention. Fig. 2 is a top plan view of the plug detached. Fig. 3 is a perspective view of the same, and Fig. 4 is a transverse sectional view.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The barrel 5 of the pen, the ink reservoir or chamber 6, and the pen-holding collar or sleeve 7 may be of the usual or any approved construction, said elements being simply shown by way of illustration and form no part of the present invention.

The improved ink-feeding device consists of a substantially cylindrical body portion or plug 8, formed of gutta-percha, wood, or other suitable material, said plug being adapted to be inserted in the collar or sleeve 7 with its solid rear end 9 disposed within and forming a partial closure for the ink reservoir or chamber 6, as shown. The plug 8 is provided with a longitudinal extension 10, defining a transversely-disposed shoulder 11, said extension being preferably of the same width as the plug and having its side walls curved or rounded to conform to the concave surface of the pen 12, so as to form a substantial rest or support for the latter, and thereby prevent any tendency of the same to wobble or become accidentally displaced when writing. The plug 8 and its extension are provided with a longitudinally-disposed ink-delivery groove or channel-13 of uniform width and depth, which extends from a point adjacent the end of said extension to the rear end of the plug and forms a source of communication between the reservoir 6 and the point or nibs of the pen 12. As a means for supplying air to the ink-reservoir I provide the plug with a transversely-disposed opening 14, which communicates with the groove or channel 13 at a point adjacent the solid end portion 9, the air being admitted to said opening and thence to the reservoir through a longitudinal vent or passage 15, extending from the opening 14 to the transverse shoulder 11, as best shown in Figs. 1 and 2 of the drawings. The longitudinal vent 15 intersects the transverse opening 14 at the bottom of the plug and is of less width than said opening, as clearly shown in Fig. 4, so as to form a constricted air-passage and prevent the entrance of dust, dirt, and other foreign matter to the ink-delivery channel, while at the same time permitting the ingress of sufficient air to produce the desired feed. Attention is here called to the fact that the solid end of the plug forms an abutment and entirely closes the end of the ink-reservoir with the exception of the channel 13, so that when air is admitted to said reservoir the ink

is compelled to pass through this comparatively-restricted passage, thereby insuring an even and uniform flow of ink to the pen-point and effectually preventing bleeding or blotting when writing. It will thus be seen that the opening 14 and feed-channel 13 act as a valve to automatically regulate the flow of ink to the pen-point, this being due to the fact that the partial vacuum in the reservoir caused by the initial discharge of the ink will permit the air to pass through the opening 14 to said reservoir without affecting the column of ink in the delivery-channel between said opening and the end of the extension, so that when the ink in said delivery-channel is discharged to the pen-point or nibs in the act of writing the fluid will flow by gravity, past the opening 14, and automatically replace the discharged ink in the forward portion of said delivery-channel. It will also be noted that by having the opening 14 communicate with the rear end of the vent-passage 15 and intersecting the delivery-channel at a point adjacent the solid end of the plug a more extensive and uniform feed is obtained, while said delivery-channel being of the same width and depth throughout its length bleeding or blotting is effectually prevented.

In operation when the pen is pressed upon the paper or other material capillary attraction and gravity draw the ink from the reservoir or chamber in proportion to the opening of the nibs of the pen. Air then enters the reservoir through the vent-passage, transverse opening 14, and channel 13 in sufficient quantities to always insure a steady and uniform flow of ink to the pen-point as long as the pen is held in the upright position and slight or heavy pressure is applied to the pen, as in the act of writing. It will thus be seen that by taking air through opening 14 and channel 13 to reservoir and compelling the

ink to pass through the same channel the flow of ink from said opening to the pen-point is automatically regulated, while the air passing from opening 14 through channel 13 to the reservoir prevents the excessive flow of ink to said pen-point, as it tends to check the flow and arrests gravity to a limited extent.

Having thus described the invention, what is claimed is—

1. A feeding device for fountain-pens comprising a solid elongated plug or body portion provided with an integral longitudinal extension defining a transverse shoulder at the bottom of the plug, said plug and extension being provided with a longitudinal ink-delivery channel having a transverse opening communicating therewith at a point adjacent one end of the plug, there being a constricted longitudinal air-vent extending from the transverse shoulder and communicating with said opening at the bottom of the plug.

2. A feeding device for fountain-pens comprising a solid elongated plug or body portion provided with an integral extension of the same width as the body portion and defining a transverse shoulder at the bottom of the plug, said plug and extension being provided with a longitudinal ink-delivery channel of uniform width and depth and having a single transverse opening communicating therewith at a point adjacent one end of the plug, there being a constricted longitudinal air-vent extending from the transverse shoulder and communicating with said opening at the bottom of the plug.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM A. WELTY.

Witnesses:

S. B. GRISSE,
B. F. MILLER.