June 30, 1931. E. C. BERRY 1,811,874

FOUNTAIN PEN

Filed Jan. 30, 1929

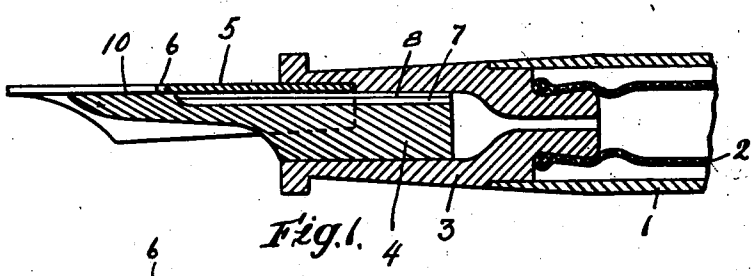

Fig. 1.

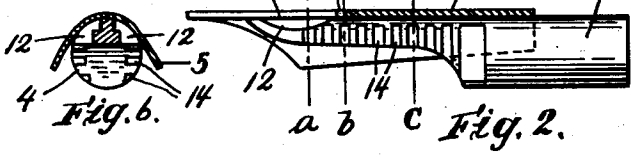

Fig. 6. Fig. 2.

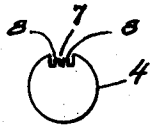

Fig. 5.

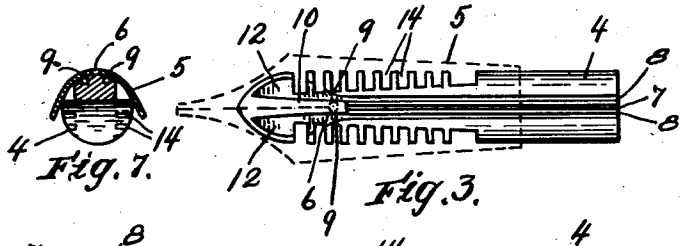

Fig. 7. Fig. 3.

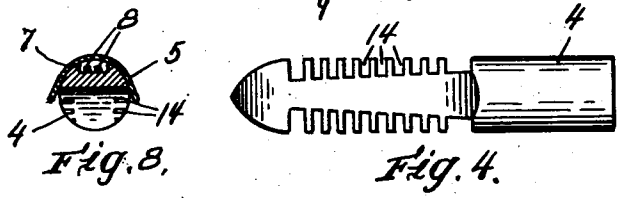

Fig. 8. Fig. 4.

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UNITED STATES PATENT OFFICE

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FOUNTAIN PEN

Application filed January 30, 1929. Serial No. 336,171.

This invention relates to improvements in the means for feeding the ink to the nibs of a fountain pen and has special reference to the part thereof known as the feed, or feed plug, and which, in practically all fountain pens on the market, consists of a device, usually of hard rubber, which is fitted against the under side of the metal pen, and, with it, is fitted into the end of the pen holder, to close the same and provide a gradual supply of ink to the pen points from the holder, or ink sack therein.

A primary difficulty in practically all fountain pens has been to gage properly the feeding capacity of the feed plug to the particular pen in connection with which it is used, so that the ink supply to the pen will be sufficient, but not so great as to cause blotting. Another difficulty, which has been encountered, more particularly with fountain pens of large size, having relatively great ink capacity and which are filled by the suction action of a rubber ink sack in the holder, has been to provide a construction which will fill within a reasonable time, say within 10 or 15 seconds, and will not, at the same time, have a tendency to blot, the danger of which, in most constructions, is greatest when the sack is nearly empty.

In forms of feeds most generally employed, one or more feed grooves are usually provided which extend beneath the nibs nearly to the tip of the feed. With these constructions, practically all the ink, which is drawn into the sack when filling, passes thru the aperture in the pen, to which the slit between the nibs extends, into the feed grooves, and, as this aperture is small, in filling an ink sack of large size the time required is objectionably long. In consequence the average user removes the pen from the ink before the sack is completely filled, so that the benefit of the large ink capacity is not secured.

The objects of my invention are to provide an improved form of feed, with which a sufficient supply of ink to the pen points will be provided and at the same time blotting and flooding at any time, and particularly when the ink sack is nearly empty, will be avoided, and with which the sack may be rapidly filled, so that the full benefit of a large ink sack may be secured without the attendant disadvantages above referred to.

I accomplish these objects by providing the feed with an elongated face which closely engages the middle portion of the under side of the pen from points adjacent the ends of the nibs to points beyond the pen aperture at both sides thereof, so that all the ink is fed to the nibs over said face, and by providing ink feeding grooves and recesses which extend to the inner end of, and at each side of said face, and which open to the under side of the feed adjacent its tip and permit free inflow of ink when filling.

For a more detailed description of the invention, reference is made to the accompanying drawings, in connection with the following specifications.

In the drawings:

Fig. 1 is a longitudinal central sectional view of the pen section end portion of a fountain pen embodying my invention, the same being shown on an enlarged scale.

Fig. 2 is a similar view, in which the feed is shown in elevation.

Fig. 3 is a plan view of the feed, showing the position of the pen thereon in dotted outline.

Fig. 4 is a detail view of the bottom side of the feed.

Fig. 5 is a view of the inner end thereof.

Figs. 6, 7 and 8 are cross sectional views at lines *a*—*a*, *b*—*b*, and *c*—*c*, respectively, of Fig. 2.

In connection with the specific form of feed hereinafter described, and illustrated in the drawings, a well-known type of fountain pen is illustrated, which comprises the barrel 1, within which the usual rubber ink sack 2 is contained, and the pen section 3 having a bore extending from end to end thereof, the mouth of the sack being connected to the inner end of said section. A feed 4, having its inner end portion formed cylindrically, is tightly fitted in the bore of the section 3, the outer end of the bore being sufficiently enlarged to permit the pen 5 to be set tightly therein on the upper side of the feed. The pen is of the usual type, having the usual

slit between the nibs which terminate in an aperture 6, which is generally known as the "heart" of the pen.

The feed in general shape and outline, is similar to those ordinarily employed, but differs therefrom in certain particulars now to be described.

A feed groove 7 is provided in the middle of the top side of the feed, in the bottom of which two parallel ribs 8, are preferably formed, to provide additional capillary feeding surface. The feed groove 7 extends from the inner end of the feed to the inner end of an elongated unrecessed face 10, which is formed on the middle portion of the top side of the feed and extends from its outer end, or tip, to a point at a short distance beyond the pen aperture 6 and is of substantially greater width than the width of said aperture, said face being closely fitted against the corresponding portion of the under side of the pen, so that it completely closes the pen aperture and engages the pen at each side of the slit between the nibs.

Pockets 12 are formed in the feed at each side of said face 10, and extend from points at a short distance from the tip of the feed for the greater portion of the length of the face 10, the inner sides of said pockets being parallel to, and equidistant from the middle longitudinal line of said face and being approximately perpendicular to said face, and the bottoms of said pockets being concave and perpendicular to its inner sides. A feed groove extension 9 is formed in the feed at each side of face 10, said extensions, opening at their outer ends, to the inner ends of pockets 12, respectively, and at their inner ends to the groove 7, which terminates at the inner end of face 10, said pockets 12 and feed groove extensions thus forming the side margins of face 10. A series of transverse notches 14 are formed in each side of the feed, in a manner commonly employed, the two notches at each side nearest the tip end opening to pockets 12 and the others being separate from the groove 7 by a surface portion of the feed which bears against the under side of the pen.

With the above described construction, when the pen is in use, ink is supplied to the points of the nibs by capillary attraction over the face 10, which may be termed a feeding face, ink being supplied to the inner end thereof by the groove 7, and to the sides thereof by the groove extension 9 and the pockets 12, all of which become filled with ink, and in which the ink is retained by capillary attraction. With this construction, therefore, none of the ink feeding passages, or ink retaining pockets, open directly to the pen-aperture 6, or to the slit between its nibs, but they supply the ink to both the side and the inner end edges of the face 10, so that an ample ink supply is provided to said face when the pen is used. As all the ink which is supplied to the nibs must be fed over the face 10, the supply of an excessive amount of ink to the tips of the nibs is prevented, and the danger of flooding is avoided.

The pockets 12 virtually form enlarged outer end portions of the feed groove extensions 9 and act as small reservoirs, by providing an ample supply of ink adjacent the writing point, so that ink will be supplied to the points over the face 10 immediately on their being brought into contact with the paper and a uniform flow of ink, thereto will be assured. The construction of the pockets 12 is, however, such that the ink which is fed thereto will not escape to the under side of the feed, but will ordinarily be retained therein by capillary attraction.

In filling the ink sack by suction in the usual manner, no ink will pass thru the pen aperture into the feed groove 7, but, as this groove is directly connected, through the groove extensions 9, with the pockets 12, to which the outermost side notches 14 open directly, the ink will be free to flow from the well in which the pen is immersed, through the outer notches 14 and pockets 12, thru the extensions 9 and groove 7 into the ink sack, so that the sack will be quickly filled.

With the above described construction, as all the ink is supplied to the writing point of the pen over a capillary feeding surface, which bears against the under side of the pen beneath the pen aperture and slit, excessive feeding or flooding is prevented, while, at the same time, an ample supply of ink is provided to said surface by supplying ink thereto at its inner end and at both side edges, and this is accomplished not only without reducing the rapidity with which the sack will draw up the ink and become filled, but a construction is provided which will permit the sack to become filled more rapidly than would be the case if the feed grooves opened directly to the pen aperture, as with constructions ordinarily employed.

I claim:

1. A fountain pen feed adapted for use in connection with a pen having an aperture and a slit extending therefrom to its writing point, said feed having an elongated unrecessed face arranged to extend from points adjacent the pen point to points beyond the pen aperture and to fit against its middle portion about its aperture and at each side of its slit, to provide a capillary feeding face thereto, and having a passage therein arranged to feed the ink to the inner end and side edges of said face.

2. A fountain pen feed adapted for used in connection with a pen having an aperture and a slit extending therefrom to its writing point, said feed having an elongated unrecessed face arranged to extend from its tip

to points beyond the pen aperture and to closely engage its middle portion about its aperture and at each side of its slit, to provide a capillary feeding face thereto, and having an ink feeding groove therein extending from its inner end to the inner end of, and at each side of said face.

3. A fountain pen feed adapted for use in connection with a pen having an aperture and a slit extending therefrom to its writing point, said feed having an elongated unrecessed face arranged to extend from its tip to points beyond the pen aperture and to closely engage its middle portion about its aperture and at each side of its slit, to provide a capillary feeding face thereto, and having an ink pocket at each side of said face and a feed groove extending to the inner end of said face, and to the inner end of each of said pockets at each side of said face.

4. A fountain pen feed adapted for use in connection with a pen having an aperture and a slit extending therefrom to its writing point, said feed having an elongated unrecessed face arranged to extend from its tips to points beyond the pen aperture and to engage its middle portion about its aperture and at each side of its slit, to provide a capillary feeding face thereto, and having an elongated ink pocket at each side of said face and an ink feeding groove extending from its inner end to the inner end of said face and branching therefrom and extending at each side of said face to the inner ends of said pockets.

5. A fountain pen feed adapted for use in connection with a pen having an aperture and a slit extending therefrom to its writing point, said feed having an elongated unrecessed face arranged to extend from its tip to points beyond the pen aperture and to engage its middle portion about its aperture, and at each side of its slit, to provide a capillary feeding face thereto, and having an elongated ink pocket at each side of said face, the inner side of said pockets forming the side margins of said face and the bottoms of said pockets being concave and tapering in depth to each end, and an ink feeding groove leading from its inner end, and extending at each side of said face to the inner end of each pocket.

6. A fountain pen feed adapted for use in connection with a pen having an aperture and a slit extending therefrom to its writing point, said feed having an elongated unrecessed face arranged to extend from its tip to points beyond the pen aperture and to closely engage its middle portion about its aperture and at each side of its slit, to provide a capillary feeding face thereto, and having an ink feeding passage extending from its inner end, and forming the side margins of said face from the inner end of the face to points adjacent the tip, said passage being open to the under side of the feed adjacent the outer end thereof.

7. A fountain pen feed adapted for use in connection with a pen having an aperture and a slit extending therefrom to its writing point, said feed having an elongated unrecessed face arranged to extend from its tip to points beyond the pen aperture and to closely engage its middle portion about its aperture, and at each side of its slit to provide a capillary feeding face thereto, and having an elongated ink pocket at each side of said face and an ink feeding groove extending from its inner end to the inner ends of said pockets at each side of said face, and side slots extending from said pockets and to the underside of the feed.

8. A fountain pen comprising a holder having a pen and a feed fitted therein, said pen having an aperture and a slit leading therefrom to its outer end and said feed having an elongated unrecessed face on the middle portion of its top side engaged with the middle portion of the underside of the pen at each side of its slit and aperture and from points adjacent its outer end to points beyond said aperture, to provide a capillary feeding thereto, said feed having an ink-feeding groove therein extending from its inner end to the inner end of, and at each side of said face.

9. A fountain pen comprising a holder having a pen and a feed fitted therein, said pen having an aperture and a slit leading therefrom to its outer end and said feed having an elongated unrecessed face on the middle portion of its top side engaged with the middle portion of the outer side of the pen at each side of its slit and aperture and from points adjacent its outer end to points beyond said aperture, to provide a capillary feeding thereto, said feed having an ink-feeding groove therein extending from its inner end to the inner end of, and at each side of said face, the groove portions at each side of said face opening to the under side of the feed, thereby permitting the inflow of ink for filling.

In testimony whereof, I have signed my name to this specification.

EDWARD C. BERRY.