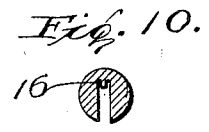
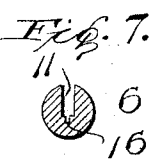
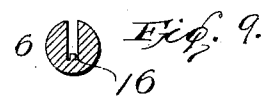
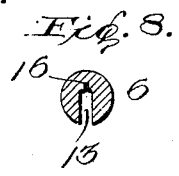
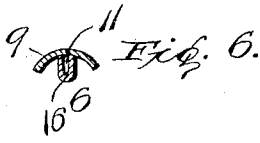
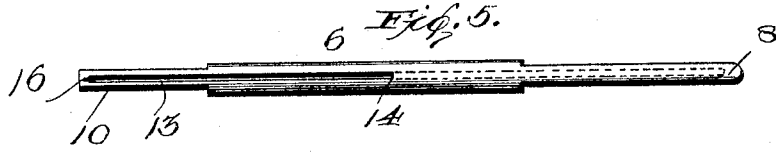
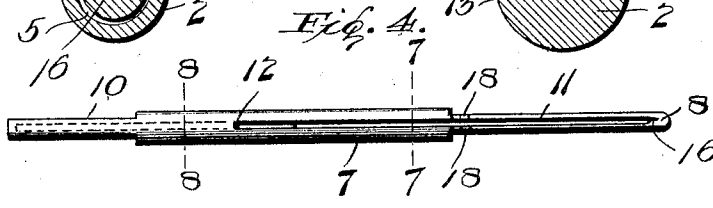
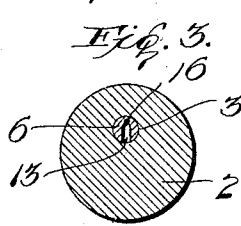
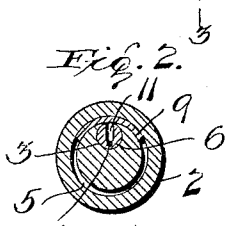
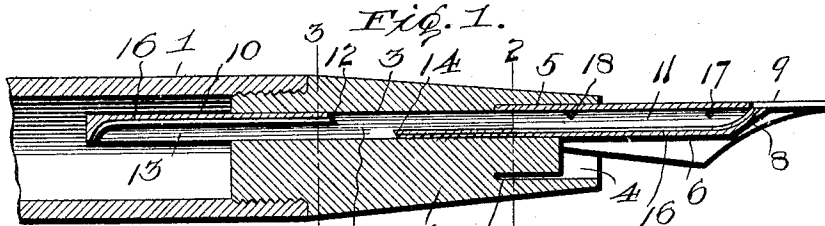


F. M. KEGRIZE.  
FOUNTAIN PEN.

APPLICATION FILED MAR. 20, 1905.



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# UNITED STATES PATENT OFFICE.

FRANK M. KEGRIZE, OF PHILADELPHIA, PENNSYLVANIA.

## FOUNTAIN-PEN.

No. 810,284.

Specification of Letters Patent.

Patented Jan. 16, 1906.

Application filed March 20, 1905. Serial No. 251,106.

*To all whom it may concern:*

Be it known that I, FRANK M. KEGRIZE, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Fountain-Pen, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to fountain-pens, and is in the nature of an improvement upon and a carrying forward of the construction disclosed in my prior patent, No. 757,664, dated April 19, 1904.

The object of the present invention is to simplify and improve fountain-pens and to correct such faults and eliminate such defects as have been found by test and experiment to exist in fountain-pens now in common use.

One of the objects of the invention is to provide for the immediate return of unused ink to the well as soon as the pen is raised from the writing position; also, to prevent the dropping of ink from the pen-nib during the writing operation.

Another object of the invention is to prevent the ink grooves and fissures from becoming perfectly dry during the time that the pen is out of use, also, to prevent the bursting of ink-bubbles around the pen-nib, and the consequent deposit of small splashes of ink over the surface of the nib.

A further object of the invention is to provide for a rapid and reliable movement of the ink to the nib and the return thereof to the well when the pen is lifted.

A further object is to provide a feeder which is applicable to all sizes of pen nibs and nozzles, and also to make provision whereby the feeder may be withdrawn rearwardly from the nozzle for examination and cleaning.

With the above and other objects in view, the nature of which will more fully appear as the description proceeds, the invention consists in the novel construction, combination, and arrangement of parts, as herein fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a longitudinal section through a sufficient portion of a fountain-pen to illustrate the nature of this invention. Fig. 2 is a cross-section through the same on the line 2 2 of Fig. 1. Fig. 3 is a cross-section taken on the line 3 3 of Fig. 1. Fig. 4 is a top plan view of the feeder detached. Fig. 5 is a bottom plan view of the same. Fig. 6 is a cross-section

taken through the nib and feeder-tongue. Fig. 7 is a cross-section taken on the line 7 7 of Fig. 4. Fig. 8 is a cross-section taken on the line 8 8 of Fig. 4. Figs. 9 and 10 are cross-sections similar to Figs. 7 and 8, respectively, showing the ink-grooves provided with auxiliary fissures.

Like reference-numerals designate corresponding parts in all the figures of the drawings.

Referring to the drawings, 1 represents the well or reservoir of a fountain-pen, and 2 the nozzle, removably fitted thereto, and which in carrying out the present invention is provided with a bore 3, extending entirely through the same lengthwise thereof and located eccentrically or to one side of the center of the nozzle, as shown in Figs. 1, 2, and 3.

The nozzle 2 is preferably tapered, and the outer end thereof is chambered out, as shown at 4, and also provided with an annular cut or groove 5, which forms a pen-nib-receiving recess in which the nib fits, as shown in Fig. 1.

The feeder 6 comprises a body 7, corresponding in shape and size with the bore 3 in the nozzle, so that the feeder may be inserted in and readily withdrawn from the nozzle for examination and repair. The feeder is no larger at any point than where it fits into the nozzle. Therefore it may be withdrawn from the rear end of the nozzle when the latter is disconnected from the well, so as not to interfere with the nib.

At the front the body of the feeder is cut away on opposite sides to form a forwardly-projecting tongue 8, which is quite narrow or thin, with its sides flat and parallel, so as to extend substantially at right angles to the pen-nib 9, as shown in Fig. 6. In like manner the rear portion of the feeder is cut away to form a rear extension or tailpiece 10 of the same dimensions and shape in cross-section as the tongue 8, but by preference somewhat shorter.

In its upper side the feeder is provided with a top groove 11, extending from the forward extremity of the tongue 8 backward to the point 12, and in the under side a groove 13 is formed extending from the rear end of the tailpiece 10 forward to the point 14. These grooves 11 and 13 are slightly deeper than one-half the thickness or diameter of the feeder-body, and as they are cut to overlap each other at their inner ends a space 15 of enlarged area is left at the junction of the two grooves which serves to interrupt the flow of

ink and produce the balanced-gravity-feed principle disclosed in my said prior patent referred to.

5 The grooves 11 and 13 are both provided in their bottoms with one or more auxiliary capillary fissures 16, one of such fissures for each groove being shown in Figs. 7 and 8, and two fissures for each groove being shown in Figs. 9 and 10. These fissures run the entire length of the grooves 11 and 13 and find their exit at their inner ends in the space 15. The tailpiece 10 extends well back into the well 1.

15 In the outer portion of the tongue 8 the sides of the latter are pierced by oppositely-located air-holes 17, arranged near the upper edge of the tongue and at a point within the chambered end of the nozzle. Drain-notches 18 are provided in the upper edge of the feeder-tongue close up to the body of the feeder, as shown in Figs. 1 and 4.

20 Where the tongue portion of the feeder under the nib is wide or rounded it too nearly approaches the shape of the nib, resulting thereby in excessive capillary action and drawing an excess of ink under the nib and around the tongue, thus causing ink to drop from the pen upon the writing-surface. Where a special form of feeder—for example, 30 a broad and shallow one—is contrived to hold the excess of ink under the nib without in some way interfering with the gravity of the ink, the ink-holding chambers become filled with ink, and when the well is partially empty the expansion of air in the well will force an additional amount of ink under the nib, resulting in the same objection before noted. By cutting the tongue very narrow and flat on both sides, as above explained, the sides of the tongue act on a non-capillary principle. Should expansion of air take place in the well, caused by the heat of the hand, a small quantity of ink will be forced under the nib and around the feeder, and the flat sides of the 45 feeder will retain it there until used or returned to the well; but as the ink in my improved pen begins to work back into the well as the pen is moved from the writing position there can be no trouble even when expansion takes place, because owing to the non-capillary action externally and an absence of ink-holding contrivances at the feeder-tongue the tongue is not already covered with ink and the expansion cannot cause a sufficient quantity of ink to accumulate under the nib to allow a single drop to fall therefrom while writing.

50 Where the nib is provided with a hole to admit air, the movement of the ink is interfered with, it being compelled to work around the hole and thence to the nib-tip. Furthermore, while the pen is in the pocket the air-hole in the nib allows the feed-grooves to become perfectly dry. A dry feeder necessitates shaking the pen before the ink will be-

gin to flow. By forming air-holes through the sides of the tongue, as hereinabove described, the ink has a clear passage-way down the groove and the nib is not weakened, and thereby made too soft and undesirable in use. With 70 air-holes in the sides of the tongue the action of admitting air-bubbles is more positive and regular, for when a certain quantity of ink is contained either in the inside groove or on the outer surface of the tongue the action of the ink is to close the holes and prevent more 75 air from entering. In other words, the air-holes are automatically closed to the further entrance of air either by the ink covering the holes from the inside or from the outside, and no more air can enter through the holes until sufficient ink is used in writing to uncover the holes. When the pen is inverted, the ink immediately returns to the well, dropping from the inner end of the feeder, while the 85 outer end of the feeder receives one bubble after another from the well to compensate for the ink returning to the well, and the bubbles instead of bursting in the air-hole in the nib, as formerly constructed, and making little splashes of ink inside of the cap when placed over the pen, said bubbles burst in the upper portion of the feed-groove, and thereby soil nothing outside thereof.

95 If a fountain-pen has been idle for some time without the nib being covered by the cap, the ink dries around the feed-tongue, caking the same with a crusty deposit of dry ink-sediment. Should the pen be used thereafter to write a few words and then immediately placed in the pocket, the ink around the outside of the feed-tongue will run back to that portion of the well outside of the feed-tongue and just inside of the outer edge of the nozzle. The ink cannot 105 work back into the well, because every approach is choked with sediment, and therefore the ink overflows and runs down the outside of the nozzle, soiling the cap, nozzle, fingers, and clothing. This serious objection is overcome in my invention by providing the drain-notches in the upper surface of the feed-tongue just inside the outer end of the nozzle. As soon as the pen is raised said notches drain the ink from the outside into 115 the groove inside of the feeder and leave the pen in a perfectly neat condition, with no possibility of overflow. These notches, owing to their location, do not act as air-holes at any time, being almost continuously closed 120 by a portion of the ink, said notches being shallow enough not to allow air-bubbles to pass through them.

125 The use of the auxiliary capillary fissures in connection with the ink-grooves and the interrupting space retains the advantage of the balanced-gravity principle set forth in my said prior patent and causes the ink to respond promptly in flow to the inclination of the pen in its several positions. The air- 30

bubbles also move outward and inward with more celerity as the ink passes around and under them. A continuous groove with fissures leading from the well to the nib will cause the ink to flow too freely, whereas by interrupting the continuity of the groove-fissures and terminating the fissures at the enlarged junction of the grooves the flow of ink is nicely balanced and automatically controlled in both directions. Single fissures are sufficient for all purposes, except where a very stiff pen is used, in which case two fissures are preferable, more than two being unnecessary when the feeder is constructed with grooves deep and narrow.

By locating the bore in the nozzle eccentrically or to one side of the center and making the feeder relatively small in cross-section the feeder is adapted to be used with equally good results in connection with large or small pen-nibs, retaining in all cases each and every one of the advantages above particularly described.

Having described the invention, I claim—

1. A fountain-pen feeder of uniform depth from end to end and having its forward portion reduced in width to form a narrow tongue with parallel flat sides which extend substantially at right angles to the nib of the pen, said feeder having top and bottom grooves and fissures located in said grooves, said fissures and grooves all terminating at their inner ends in an enlarged interrupting space.

2. A fountain-pen feeder comprising a

body portion and a tongue extending forward therefrom and, together with the body portion, being grooved to conduct the ink to the pen-nib, the tongue being provided near its outer end with air-holes extending through the sides of the tongue adjacent to the upper edge thereof.

3. A fountain-pen feeder having its body formed with a top groove in its forward portion and a bottom groove in its rear portion, each of said grooves being provided with auxiliary capillary fissures, and an enlarged interrupting space being left at the junction of said top and bottom grooves.

4. A fountain-pen feeder formed with a top groove in its forward portion and a bottom groove in its rear portion, said grooves terminating at their inner ends in an interrupting space formed by the junction of the grooves, both grooves being provided with capillary fissures which also terminate and lead into said space.

5. A fountain-pen feeder having a groove formed in its upper side under the pen-nib and provided with a drain formed in the upper edge of the feeder and leading from the outside of the feeder inward to the groove and located within the nozzle of the pen.

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

FRANK M. KEGRIZE.

Witnesses:

AARON GANS,  
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