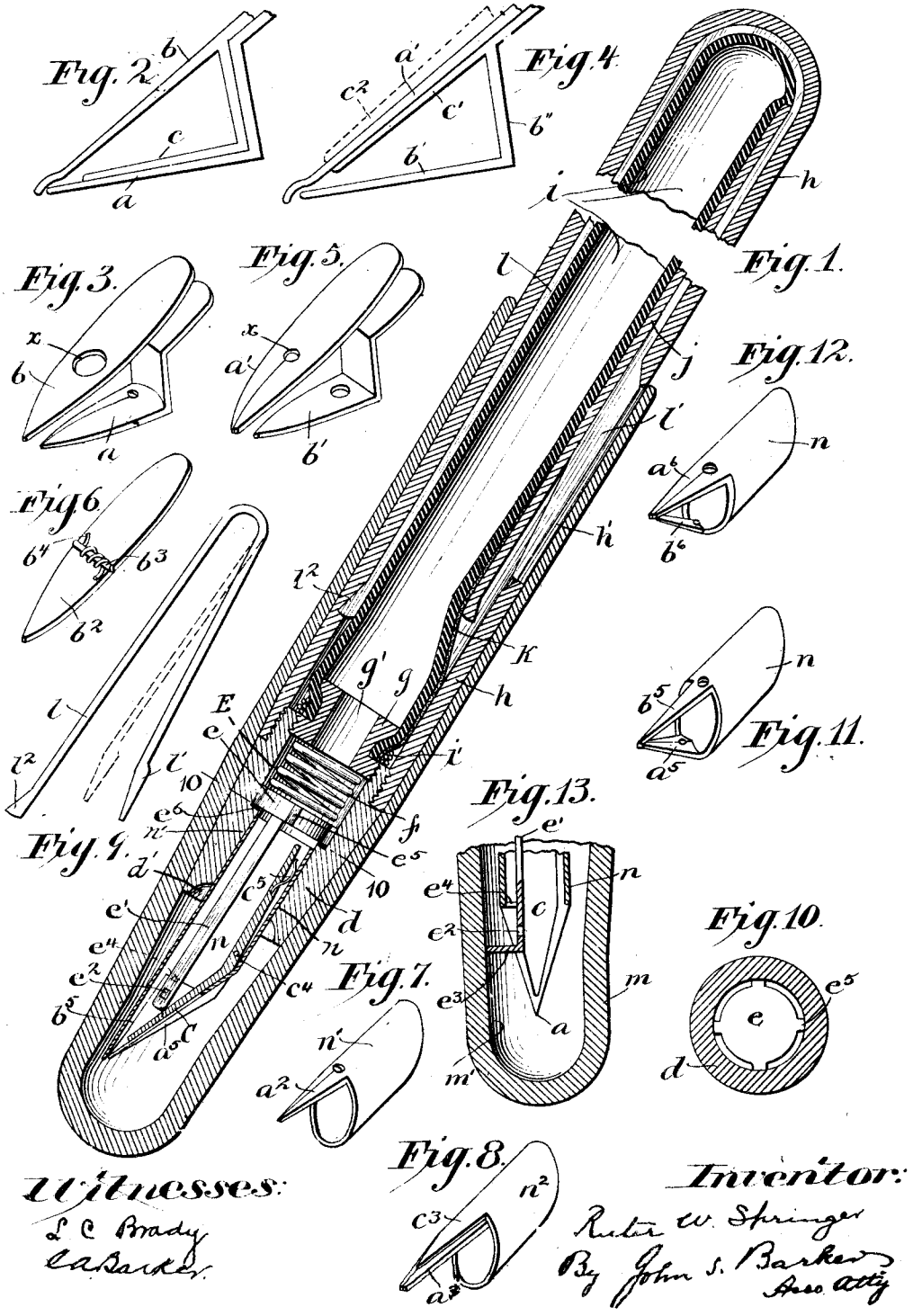
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FOUNTAIN PEN.

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1,104,566. Patented July 21, 1914.



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FOUNTAIN-PEN.

1,104,566 Specification of Letters Patent. Patented July 21, 1914.

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To all whom it may concern:

Be it known that I, RUTER W. SPRINGER, a citizen of the United States, residing at Springfield, in the county of Sangamon and State of Illinois, have invented certain new and useful Improvements in Fountain-Pens, of which the following is a specification.

The object of my invention is to provide certain improvements in fountain pens, so as to obviate many of the present defects, and adapt them to ordinary use, and especially to the use of shorthand writers.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a longitudinal vertical section, partly broken away, of my invention, the pen shown being similar to that illustrated in Fig. 11; Fig. 2 is an elevation of one form of pen embodying certain of my improvements; Fig. 3 is a perspective view of a pen having some of the features of the pen illustrated in Fig. 2. Fig. 4 is an elevation showing another form of pen embodying my improvements. Fig. 5 is a perspective view of a pen having some of the features of the one illustrated in Fig. 4. Fig. 6 is a detail perspective view illustrating a hinged nib that may be employed in the pen. Fig. 7 is a detail perspective view of one form of filling collar. Fig. 8 is a perspective view illustrating another form of filling collar. Fig. 9 is a detail view in elevation showing the spring employed as part of the filling mechanism. Fig. 10 is a cross sectional view taken on the line X—X of Fig. 1. Figs. 11 and 12 are detail perspective views illustrating other forms of filling collars. Fig. 13 is a detail sectional view of the nib end of the pen taken on a plane at right angles to that on which Fig. 1 is taken.

My first improvement relates to the pen proper. Ordinary pens are capable of making a line of variable width (*i. e.* "shading") on the down stroke only, or sometimes on an up stroke; but not on horizontal lines. The two writing points of the flexible "nib" spread horizontally only, lying in the same horizontal plane. I provide a third nib having its writing point in the same vertical plane with the line of junction of the first two nibs, that is, immediately above or below them,—this nib approaching the other two preferably at an angle of about thirty degrees. In Figs. 2 and 3 the third nib b is placed above the ordinary pen nibs a. In the form of pen illustrated in Fig. 2 an ink-feeding attachment c is provided, which is illustrated as being integral with the nib b and extending over the nibs a. In the pens illustrated in Figs. 4 and 5 the construction is reversed, the third nib b' being placed below the double nibs a'. In this arrangement the ink-feed, when employed, may be a thin strip or piece c' extending forward from the upright rear portion b'' of the single nib b', or, if preferred, it may be in the form of a separate piece c'. Flexibility at the upper end of the nib b may be given by cutting out a portion of the pen, as shown at x in Figs. 3 and 5; or the single nib may be hinged as shown in Fig. 6—where b^2 represents the single nib, b^3 the hinge, and b^4 the spring. In operation:— when the pen is pressed on the paper, the points of the double nibs spread apart horizontally, in the usual way, and the point of the single nib b, if above, is protruded forward beyond the double points, thus thickening the lines formed, in every direction. If the single nib b' is below the double nibs, the points of the latter are thrust out beyond it, and a thickened line is formed in the same manner.

My next improvement consists in means for preventing the adhesion of the ink to the inner surface of the pen holder, and the outer surface of the pen. When the pen rests against the pen-holder down to the lower end thereof, a capillary space is formed, which attracts the ink down to the lower end of the pen-holder, where it hangs in a little ring, threatening to stain the fingers. I break this capillary connection by cutting away a little of the inner edge of the pen-holder d, as indicated at d', Fig. 1.

My next point of improvement is especially applicable to self-filling fountain pens. Such pens are provided with some means for sucking the ink up into the handle. To fill them the end of the pen-holder (as well as the pen) must be inserted in the ink, while the suction is being produced. This dirties the end of the pen-holder so that it has to be wiped off after every filling. To obviate this, I provide an open tubular filling collar n which may be a part of the pen a^2, as shown at n' in Fig. 7, or a part of the ink-feed c^3, as shown at n^2 in Fig. 8, or in any other desired form. This tubular portion fits the pen holder quite snugly; and

may be further sealed by vaseline, or cement. The ink is drawn up through the tube and the pen-holder does not have to be dipped into the ink.

My next improvement consists in the ink-feeding device. This is best shown in Fig. 1 where said ink-feeding device is designated C. It is a rigid tongue pivoted at c^4 to the tubular pen, n, which is here shown, preferably a little back of the bend in the double nibs a. A spring c^5 holds the tongue in engagement with the nibs a. When the pen is pressed on the paper the rear end of the feeding tongue is given a slight motion, thus facilitating the flow of the ink.

My next improvement consists in devices for sealing the magazine tube so that the ink shall not escape when the pen is carried in the pocket. Back of the opening in the lower end of the handle, which is intended for the reception of the pen proper, is a slightly enlarged chamber E, containing a valve e and its operating spring f. A small collar g, having an ink passage g', is screwed into the upper end of the point section d of the pen-holder, pressing the spring against the valve. The valve has small projections e^5, as shown in Fig. 10, permitting the ink to pass around the valve; and a small packing ring e^6 is interposed between the valve and its seat. The valve is air-tight, and the ink-chamber is thus hermetically sealed, and ink cannot possibly be forced out by the warmth of the body or by any other ordinary means. An operating rod e' preferably attached toward the right hand side of the valve, as shown, passes down into the tubular pen n; and, turning to the right at e^3, projects outward so as to be struck by the point cover m at its contracted portion m', when the said cover is placed in position. The valve rod e' has a small hole e^2, near its lower end; and a small lug e^4 on the rim of the tube n is bent inward to engage in said hole when the valve is open. In operation:—when the pen is removed from the pocket, the point cover is drawn off, and the lower end of the point cover, or the finger nail, is used to press the projecting part e^3 of the valve rod back and upward for writing. When the pen is to be replaced in the pocket, the point cover m, as it is placed over the writing point, strikes the projecting portion of the valve rod, automatically disengages it, and allows the valve e to close. The ink is thus securely confined in the upper portion of the pen-holder, and the pen may be carried in any position, or even dropped, without the ink spilling. Before covering the pen point, the handle may be inverted and tapped gently on the table, so as to jar as much as possible of the ink out of the writing point.

My next improvement consists in the automatic filling device. This feature of the invention is described and claimed in my application No. 330,843, filed August 16, 1906, as a division of this case, but the description thereof is herein retained in order to show its relation to the other features of the invention. A small rubber tube i closed at its upper end, is stretched over the knob-like upper end of the collar g and tied with a small thread or rubber i'. To the side of this tube i which is next the back surface of the pen-holder, are cemented, or vulcanized, a small tape k and a flat bar j. The tape is to prevent undue stretching of the rubber tube i below the lower end of the bar j. This tube i is covered by the upper section h of the pen-holder, which is screwed into the lower section d. This upper section h has a small opening h', directly over the bar j. A strong steel spring l, having a slight enlargement l' made to fit the opening h', is thrust into the handle h and engages therewith, so as to be securely held at its other end l^2. The spring is preferably made so that, when free, it opens out considerably more than it is able to do when in the handle h, so that perhaps from two to eight pounds pressure will be required to further collapse it. Thus the opening h', which does not lie in such a position as to be easily struck by the fingers, is fairly well protected against accident. A weaker spring may be used for a lady's pen, which would not be subjected to such hard usage. The point cover m is made long enough to cover this opening when the pen is closed, but not long enough to reach it when the pen is open. In operation:—to fill the pen the tubular part n is dipped into the ink, the thumb, for an instant, presses the door l' and releases it again, and the pen is ready for further writing, without unscrewing or shifting any parts; using any extraneous apparatus; or having to wipe off the lower end of the handle.

Fig. 11 represents, in perspective, a three-nib pen a^5, b^5, similar to that shown in Fig. 1, working on the same principle as the form shown in Figs. 2 and 3, and applied to or formed integral with a tubular filling collar n. Fig. 12 similarly shows a pen a^6, b^6, of the same principle as that shown in Figs. 4 and 5, but attached to or made integral with a tubular filling collar n.

Having thus fully described my invention, and the manner of making and using it, I claim as my invention:

1. A three-pointed writing pen, having two ordinary flexible nibs, whose writing points are in the same horizontal plane, and adapted to spread apart when pressed on a writing surface, and having a third nib with its point in the same vertical plane with the junction of the first two nibs.

2. A three-pointed pen, having two ordinary flexible nibs, with their writing points

in the same horizontal plane, and adapted to spread apart when pressed on a writing surface, and having the third nib above them.

3. A three-pointed pen, having three nibs so arranged with reference to one another that the planes separating adjacent nibs intersect each other adjacent to the point of the pen whereby when pressed upon a writing surface their points will spread in different directions upon the writing surface.

4. A three-pointed writing pen, having two ordinary flexible nibs with their writing points in the same plane below, and the third nib approaching them at an angle from above.

5. A three-pointed pen, having two ordinary flexible nibs with their writing points in the same horizontal plane, and having the third nib above the other two, combined with an open tubular body.

6. In a fountain pen, in combination with a reservoir handle, a pen proper having its rear end formed into a tube adapted to facilitate filling.

7. In a fountain pen, the combination with a reservoir handle, a self-filling device, and a pen having nibs and a tubular portion adapted to facilitate filling.

8. A fountain pen, comprising a writing point, a reservoir for a supply of ink, a point cover, a valve for closing the reservoir and preventing ink from passing to the writing pen, means for automatically forcing the valve forward to the position to close the reservoir, and connections for operating the said valve and holding it in open position, such connections being arranged to be acted on by the point cover when applied to the pen, permitting the means for closing the valve to operate.

9. A fountain pen, comprising a writing point, a cover for the point, a reservoir for a supply of ink, an air-tight valve for closing the reservoir and preventing ink from passing to the point, a spring acting upon the valve tending to automatically force it to closing position, and a connection for operating the valve and holding it in open position extending from the valve to a position where it may be engaged by the user of the pen, and also arranged to be acted on by the point cover when it is applied to the pen, so as to permit the spring to act and automatically close the valve.

10. In a fountain pen, a rigid centrally pivoted spring-controlled ink-feed for the writing point.

11. A fountain pen, having a tubular pen-shaped point provided with a spring-controlled ink feed.

12. A fountain pen, provided with a writing pen having a tubular portion, and a reservoir, and with a spring closed valve to the reservoir, said fountain pen being provided with a centrally pivoted ink-feed, and said valve having operating connections extending downward through the said tubular portion of the writing pen.

13. A fountain pen having a cap and provided with an inwardly opening valve, and with a spring pressing the valve to its closed position, said valve having a catch adapted to hold the valve open, and to be struck by the cap so as to release the catch and allow the valve to close.

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

RUTER W. SPRINGER.

Witnesses:
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