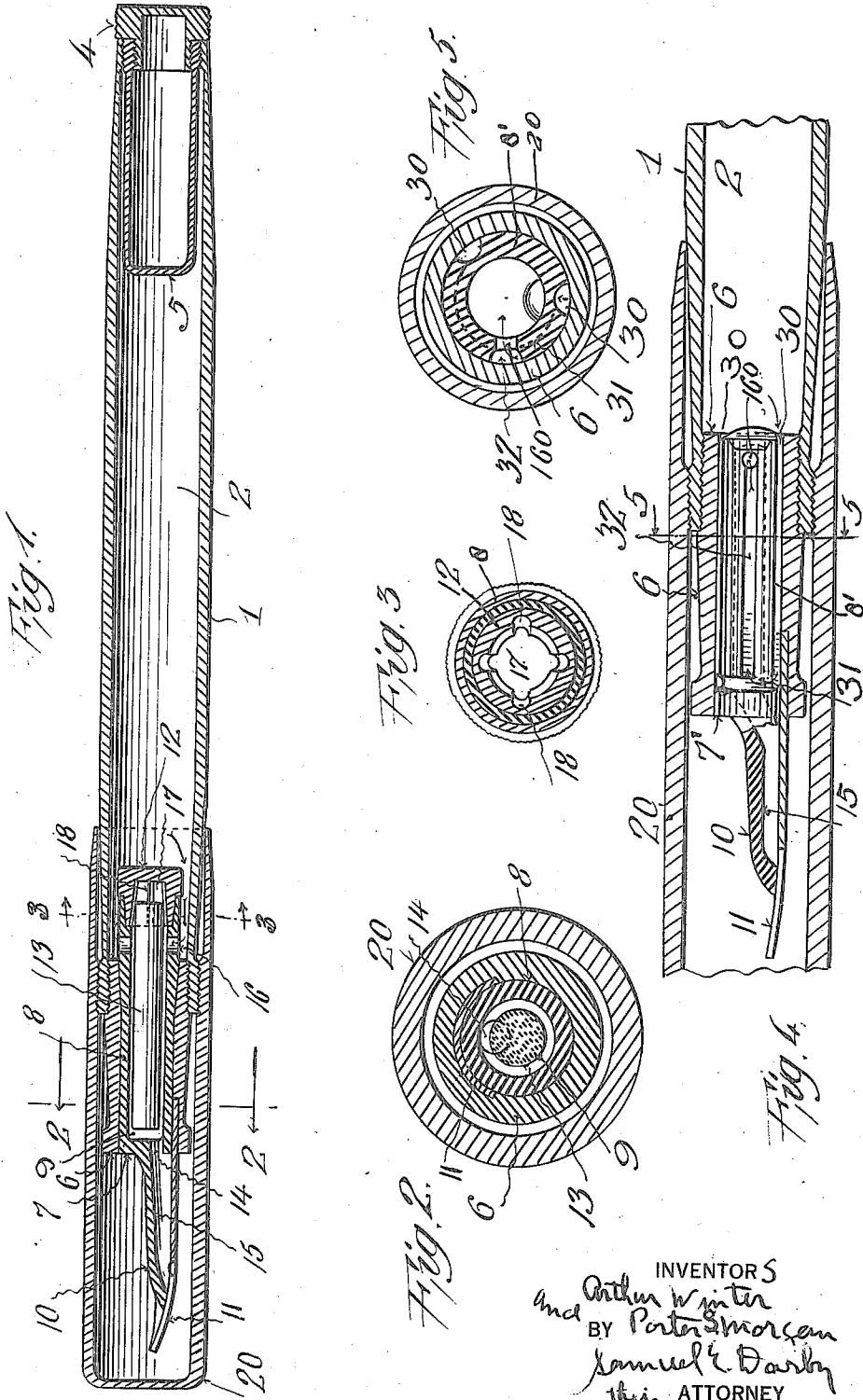


A. WINTER AND P. S. MORGAN.
 FOUNTAIN PEN.
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UNITED STATES PATENT OFFICE.

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FOUNTAIN PEN.

Application filed December 10, 1919. Serial No. 343,889.

To all whom it may concern:

Be it known that we, ARTHUR WINTER and PORTER S. MORGAN, citizens of the United States, and residents, respectively, of Jersey City, in the county of Hudson, State of New Jersey, and Norwalk, in the county of Fairfield and State of Connecticut, have made a certain new and useful Invention in Fountain Pens, of which the following is a specification.

This invention relates to fountain pens.

The object of the invention is to provide a fountain pen of a novel structure which is efficient in operation and economical to manufacture.

A further object of the invention is to provide a fountain pen designed to employ ink in its solidified or powdered form and to maintain a supply of writing fluid by replenishing the pen with any suitable liquid, such as water, or the like.

A further object of the invention is to provide a fountain pen which requires filling the same with water to obtain the writing fluid.

Other objects of the invention will be more fully set forth hereinafter.

The invention consists substantially in the construction, combination, location and relative arrangement of the parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally pointed out in the appended claims.

Referring to the drawings:—

Fig. 1 is a view in longitudinal section of a pen embodying our invention.

Fig. 2 is an enlarged sectional view on the line 2—2 of Fig. 1, looking in the direction of the arrows;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1, looking in the direction of the arrows;

Fig. 4 is a fragmentary view of the nib portion of the fountain pen of a slightly modified construction embodying our invention;

Fig. 5 is a sectional view, taken on the line 5—5 of Fig. 4, and looking in the direction of the arrows.

The same part is designated by the same reference character wherever it occurs throughout the several views.

It is among the special purposes of our present invention to provide a pen equipped

with ink making material, that is, a material which, when provided with a suitable liquid, such as water, will form a writing fluid, and wherein the ink making material is positioned between the pen point and the usual barrel of the fountain pen, the fluid being supplied to the fountain pen barrel in the usual or in any desired manner.

In accordance with our invention, we show in the drawings the usual fountain pen provided with the barrel 1 containing the usual chamber 2 for a suitable fluid, such as water. Water may be supplied to the chamber 2 in any suitable manner and while we have shown and will now describe one means for allowing the chamber 2 to be filled, we do not desire to be limited or restricted in this respect.

In the arrangement shown we provide an end block 4 provided with interior threads adapted to screw into and close the end of the barrel 1. If desired, and as shown, the block may have incorporated therewith a chamber 5 to store additional or extra ink pencils, powder, or the like.

In this instance, the block 4 is provided with exterior threads which screw into and engage interior threads located at the end of auxiliary chamber 5, said chamber being provided with exterior threads which engage interior threads of the barrel 1.

The foregoing arrangement, however, is confined to details to which our construction is not directed. The opposite end of the barrel 1 is provided with interior threads to receive therein the usual nib support 6.

The nib or feeder illustrated at 7 is of a special construction and consists of a cylindrical portion 8 with a hollow chamber 9 therein and an extension 10 located under the pen point 11, in the usual well known manner.

The nib or feeder 7 is inserted into the nib support 6 in the usual well known manner and extends rearwardly out of the same into the chamber 2 of the barrel 1 and is provided with a cap 12 adapted to removably close the upper end of the cylinder 8.

The ink material which, in the form shown, is illustrated as an ink stick 13, soluble in suitable liquids, such as water, is located in the chamber 9 of the nib 8 and a port 14 leading out of the chamber 9 communicates with the duct 15 feeding the pen 11 in the usual well known manner.

The removable cap 12 is provided to permit the insertion of new ink

material 13 when replenishment is required. Two or more ports or passages 16 are provided in the cylinder 8 to permit the fluid contained in chamber 2 to enter the chamber 9 at the approximate top thereof and pass down the chamber 9 when the pen is in use, dissolving in its passage a sufficient quantity of the ink 13 to supply, through the port 14 and duct 15, writing fluid to the pen 11.

As shown, the cap 12 is provided with a chamber 17 with beveled walls so that where an ink pencil, such as illustrated at 13, is employed, it may be removed from the chamber 9 or supplied thereto by forcing the cap 12 over the ink stick 13 without touching the hands or fingers to the ink stick to be stained thereby. Likewise, the beveled walls of the chamber 17 of cap 12 are grooved, as indicated at 18, to permit the fluid contained in the chamber 9 to flow into the chamber 17 when the pen is tilted to its inoperative position, such as when normally carried in the pocket. With this arrangement it will be apparent that upon again tilting the pen into its writing position, in addition to the fresh supply of water or other suitable fluid through the ports 16, an initially prepared writing fluid from the chamber 17 is likewise supplied to the pen point. It is obvious that if the pen remains in non-use a long period of time, the solution contained in the chamber 17 is apt to become strong, and in this instance the fresh supply of water or similar fluid from chamber 2 of barrel 1 likewise serves to effect a dilution of the solution and tend to maintain the strength of the solution supplied the pen uniform.

The pen, if desired, may be provided with the usual cap 20 for enclosing the pen point when the pen is in non-use.

Many modifications and changes in detail may be made without departing from the spirit and scope of our invention as defined in the claims. For example, and referring to Figs. 4 and 5, we show a slight modification wherein we provide means for insuring the writing fluid contained in the nib or feeder, being retained therein when the pen is inverted to its non-use position. In this arrangement the feeder 81 is practically completely enclosed by the nib support 6 and is provided with one or more grooves 30 to permit the fluid from chamber 2, when the pen is inverted to its writing position, to flow through the grooves 30 to the annular passage 31 which communicates with groove 32 similarly formed in the wall of the nib cylinder portion 7. The groove 32, however, does not extend to the rear end of the nib but terminates at the port 160, which leads into the interior of the nib which contains the ink stick or ink solution in the manner hereinbefore set forth. It will be observed that the groove 32 and the

port 160 are closed by the inner wall of the nib support 6 to render the same out of communication with the cylinder 2 of barrel 1, except through the grooves 30. The cylinder 8' in this arrangement may likewise be provided with a removable cap to permit the insertion of the ink material 13 in the manner hereinbefore described in connection with Fig. 1. The operation of the pen disclosed in Figs. 4 and 5 is believed to be apparent from the foregoing description. When it is desired to use the pen, the pen is held in its normal writing position, whereby the fluid contained in chamber 2 flows downwardly in grooves 30 to annular passage 31 and is forced upwardly through groove 32 into the port 160 and, consequently, the top of the chamber 9 of the nib 8, flowing past the ink material, dissolving a sufficient quantity thereof to provide a writing fluid, and out of the chamber 9 through duct 15, to the pen 11 in the usual well known manner.

From the foregoing it will be observed that we have provided a fountain pen which, for a long period of time, while it is in use, the only replenishment required is a liquid solution, such as water, which is available at practically all places, and certainly in many instances where a writing fluid is not available. Powdered ink or ink sticks are now well known in the art and a stick of the size contemplated for use in connection with our invention will supply a writing fluid, when taken in connection with the liquid supply, an exceedingly long time and the insertion of a new ink stick is facilitated by the structures herein disclosed.

Having now set forth the objects and nature of our invention and having shown and described structures embodying the principles thereof, what we claim as new and useful and desire to secure by Letters Patent is:—

1. In a fountain pen, the combination with a fluid chamber and a pen, of an ink chamber positioned between said fluid chamber and said pen and provided with an inlet from said fluid chamber, a removable cap for said chamber, an outlet to said pen, and a soluble ink stick located in said ink chamber.

2. In a fountain pen, the combination with a fluid chamber and a pen, of a removable ink chamber positioned between said fluid chamber and said pen and provided with an inlet from said fluid chamber and an outlet to said pen, soluble ink material located in said ink chamber and means for limiting fluid access to said ink chamber.

3. In a fountain pen, the combination with a fluid chamber and a pen, of a removable ink chamber positioned between said fluid chamber and said pen and provided with an inlet from said fluid chamber and an outlet

to said pen, a soluble ink stick located in said ink chamber, means for admitting a limited amount of fluid to said ink chamber.

4. In a fountain pen, the combination with a fluid chamber and a pen, of a removable ink chamber positioned between said fluid chamber and said pen and provided with an inlet from said fluid chamber and an outlet to said pen, and soluble ink material located in said ink chamber and a removable cap for said ink chamber.

5. In a fountain pen, the combination with a fluid chamber and a pen, of a removable ink chamber positioned between said fluid chamber and said pen and provided with an inlet from said fluid chamber and an outlet to said pen, means for regulating the flow of fluid, a soluble ink stick located in said ink chamber, and a removable cap for said ink chamber.

6. In a fountain pen, the combination with a fluid chamber and a pen, of an ink chamber positioned between said fluid chamber and said pen and provided with an inlet from said fluid chamber, and an outlet to said pen, soluble ink material located in said ink chamber, and means for collecting and retaining in said ink chamber the ink solution contained therein when said fountain pen is inverted.

7. In a fountain pen, the combination with a fluid chamber removable and a pen, of an ink chamber positioned between said fluid chamber and said pen and provided with an inlet from said fluid chamber, and an outlet to said pen, a soluble ink stick located in said ink chamber, and means for collecting and retaining in said ink chamber the ink solution contained therein when said fountain pen is inverted.

8. In a fountain pen, the combination with a fluid chamber and a pen, of a removable ink chamber positioned between said fluid chamber and said pen and provided with a regulating inlet from said fluid chamber and a restricted outlet to said pen, soluble ink material located in said ink chamber, and means for collecting and retaining in said ink chamber the ink solution contained therein when said fountain pen is inverted.

9. In a fountain pen, the combination with a fluid chamber and a pen, of a removable ink chamber positioned between said fluid chamber and said pen and provided with an inlet from said fluid chamber and an outlet to said pen, a removable cap for said chamber, a soluble ink stick located in said ink chamber, and means for collecting and retaining in said ink chamber the ink solution contained therein when said fountain pen is inverted.

10. In a fountain pen, the combination with a fluid chamber and a pen, of a removable ink chamber positioned between said fluid chamber and said pen and provided with an inlet from said fluid chamber and an outlet to said pen, soluble ink material located in said ink chamber, a removable cap for said ink chamber, and means for collecting and retaining in said cap the ink solution contained in said ink chamber when said fountain pen is inverted.

11. In a fountain pen, the combination with a fluid chamber and a pen, of a removable ink chamber positioned between said fluid chamber and said pen and provided with an inlet from said fluid chamber and an outlet to said pen, a soluble ink stick located in said ink chamber, a removable cap for said ink chamber, and means for collecting and retaining in said cap the ink solution contained in said ink chamber when said fountain pen is inverted.

12. In a fountain pen, the combination with a fluid chamber and a pen, of a removable ink chamber positioned between said fluid chamber and said pen and provided with an inlet from said fluid chamber and an outlet to said pen, a soluble ink stick located in said ink chamber, a removable cap for said ink chamber, said cap being provided with converging interior walls provided with grooves substantially as and for the purpose described.

In testimony whereof we have hereunto set our hands on this 2nd day of December A. D. 1919.

ARTHUR WINTER.
PORTER S. MORGAN.