April 6, 1926. 1,580,093

H. J. UPTON

FOUNTAIN PEN

Filed June 11, 1925

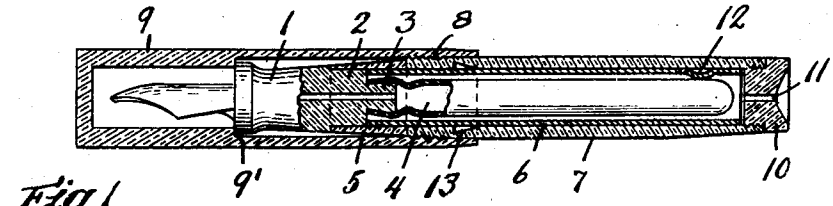

Fig. 1.

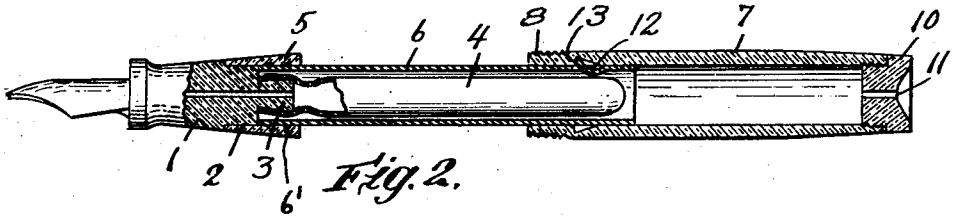

Fig. 2.

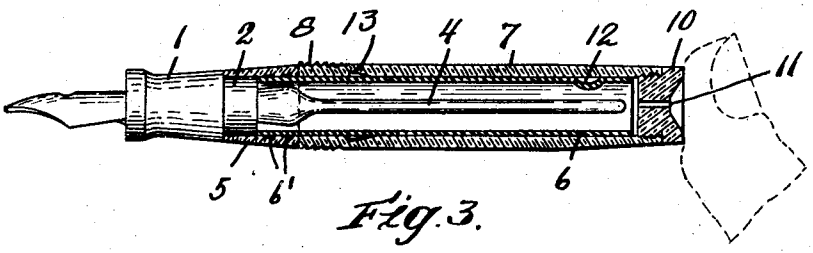

Fig. 3.

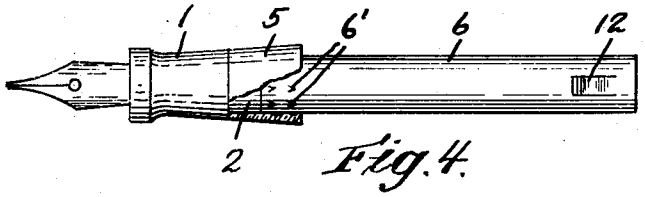

Fig. 4.

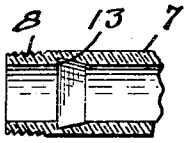

Fig. 5.

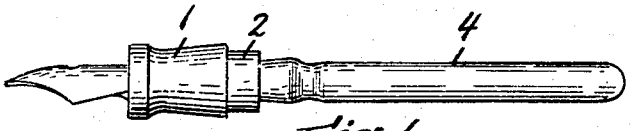

Fig. 6.

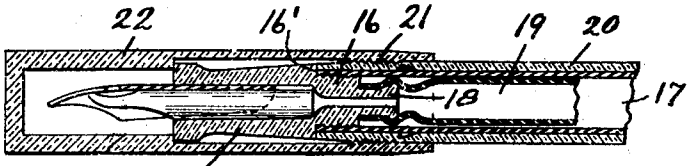

Fig. 7.

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UNITED STATES PATENT OFFICE.

HENRY J. UPTON, OF WEST MEDFORD, MASSACHUSETTS, ASSIGNOR TO CHILTON PEN COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

FOUNTAIN PEN.

Application filed June 11, 1925. Serial No. 36,314.

To all whom it may concern:

Be it known that I, HENRY J. UPTON, a citizen of the United States, and resident of West Medford, county of Middlesex, State of Massachusetts, have invented an Improvement in Fountain Pens, of which the following is a specification.

This invention relates to fountain pens of the so-called non-leakable type, in which, when the pen is not in use, the cap is threaded onto the holder and seats against the end of the pen section, so that the chamber enclosing the pen is ink tight, also to the type having a collapsible ink sack, more particularly of the specific type shown in the patent La France No. 1528379, in which a metal inner tube is provided which encloses the sack and on which a section of the outer barrel is slidably mounted, so arranged that the air may be temporarily confined within said section and the section may be slid on the tube, so as to raise the air pressure therein and collapse the sack, which may then be permitted to expand and become filled with ink, while the pen section is immersed therein.

While the construction of said prior patent contains various important advantages, it has been found, in the form illustrated, to have certain objectionable features in that, when the pen was not in use, and was, for example, being removed from the pocket by grasping the cap, the outer barrel section was liable to slip on the metal inner tube, so that it would have to be pushed back in place, and in pushing it back there was danger of closing the air vent, so as to cause the sack to be compressed sufficiently to expel some of the ink therein. The displacement of the movable barrel section was also liable to take place while removing the cap, if the user happened to grasp the slidable barrel section, instead of the barrel section which extends beyond the cap and is fixed to the portion on which the cap is threaded.

To prevent the liability of displacement of the slidable barrel section when the pen was not in use, or its parts were in the non-leakable position, means were later devised, whereby, after the filling operation had been performed, said section could be locked with relation to the cap or the pen portion to which it was attached when enclosing the pen section, but the specific means produced was not entirely satisfactory in that it was necessary to turn the slidable barrel section on the metal tube to lock it relatively thereto, thereby involving a similar unlocking movement before the section could be drawn out on the tube preliminary to the performance of the filling operation.

The objects of the present invention are to provide an improved construction, whereby the slidable barrel section will be locked to all other parts of the pen, when the parts are in the non-leakable position, so that relative displacement thereof will be impossible, and whereby the necessity of grasping the pen barrel at any particular point, when unscrewing the cap, will be avoided.

I accomplish these objects by means of the construction hereinafter described and illustrated in the accompanying drawing, in which:

Fig. 1 is a central longitudinal section of a fountain pen showing an embodiment of my invention.

Figs. 2 and 3 are similar views, respectively, showing the positions of the parts at the beginning and at the end of the sack collapsing operation.

Figs. 4, 5 and 6 are detail views of different parts of the pen.

Fig. 7 is a sectional view of a modified form of the invention.

As shown in the drawing, the pen section 1 is of common form and has a cylindrical portion 2 at its inner end, from which the neck portion 3 extends, the latter being adapted to receive the mouth of the rubber sack 4, which is drawn thereover, so as to form a tight connection therewith. A barrel section 5 is provided, into the outer end of which the portion 2 of the pen section is fitted, forming an air tight connection therewith and into the inner end portion of which one end portion of a thin tube 6, preferably of metal, is tightly fitted, and, in order that the connection therebetween may be rigid and practically permanent, minute projections or prongs 6′ are forced out beyond the surface of the tube, as indicated in Figs. 3 and 4, which slightly penetrate the inner surface of the section 5. Other means for making this connection permanent may be employed, but this means has been found to be inexpensive

and practical. The outer surfaces of the pen and barrel sections are continuous and form a finger hold when the pen is in use, the pen section being removable from the barrel section to permit renewal of the ink sack. The opposite portion of the tube 6 from the pen section is extended to or beyond the opposite end of the ink sack, and completely encloses the same, the end thereof being open.

A barrel section 7 is provided, which is slidably mounted on the tube 6 and has a practically air tight connection therewith, in all positions thereon, said barrel section being slidable into engagement with the adjacent end of the section 5 and its end portion next the section 5 being of slightly greater external diameter than that of the adjacent portion of the latter, or of any portion of the pen section. An external screw thread 8 is formed on the end portion of the section 7, next the section 5, which is adapted to receive the internal thread of the cap 9, said cap being provided with an internal shoulder 9′, arranged to seat against the end of the pen section, when the cap has been screwed onto the section 7 to a sufficient extent. The cap and the slidable barrel section 7 are thus secured together and the pen section 1 and barrel section 5 are clamped therebetween, and incidentally the pen in the discharge end of the pen section is enclosed in an ink tight chamber, as shown in Fig. 1. The bore of the cap beyond its shoulder 9′ is of slightly greater diameter than the external diameter of any portion of the pen section or the section 5, so that, when the cap is placed in position on the adjacent end of section 7, it will not engage either section 1 or 5, except where it seats against the end of the pen section, so that, when the cap is unscrewed, there will be no tendency to displace either section with relation to the barrel section 7.

A screw plug 10 is removably threaded in the opposite end of the section 7, so as to close the same, said plug having a normally open vent passage 11 therethrough, the outer end of which is flared to permit ready closing of the passage by pressing the finger thereon, as shown in Fig. 3. The screw plug is employed primarily as a matter of convenience in manufacture.

A spring finger 12 is formed from the metal of the tube, or is otherwise secured thereto adjacent its open end, opposite the pen section, said finger being adapted to engage an annular internal shoulder 13 formed in the barrel section 7, adjacent its opposite end, when the section has been drawn out on the tube 6 to its fullest extent.

When not in use, the parts will be in the position of Fig. 1, in which position any pull on either the cap or the section 7, will be resisted by the other. For example, if the section 7 is set into a pocket clip, it may be pulled therefrom by pulling on the cap, and if the cap is provided with a clip which engages the pocket the section will be supported by the cap.

Also if it is desired to use the pen, the cap may be unscrewed by grasping the barrel section 7 at any point beyond the end of the cap, and, in doing this, there will be no tendency to displace the section 7 on the metal tube 6. The cap is also adapted to be placed on the opposite end of the section 7, when the pen is in use, as is customary.

The filling operation will be performed in precisely the same manner as that described in said prior patent. That is, after the cap has been removed, the section 7 will be drawn out on the tube 6 to the position of Fig. 2, in which position the spring finger 12 will engage the shoulder 13 and prevent further movement in this direction. Then, by holding the section 5 in one hand and pressing a finger of the other hand against the end of the plug 10, so as to close the vent passage 11, and then pressing the section 7 down on the tube 6, the air within the section 7 will be compressed, collapsing the sack, as shown in Fig. 3. The pen section will then be dipped into the ink and the compressed air will be liberated permitting the sack to expand and become filled with ink.

With the above described construction the pen section 1 and relatively fixed barrel section 5 together, or separately, provide a smooth finger hold, when the pen is in use, which is unmarred by the thread for securing the cap, with which one or the other has previously been provided, this thread in the present construction being located above the portion which is naturally grasped by the writer.

My invention may be variously modified without departing from the spirit thereof, another form thereof being illustrated in Fig. 7, in which a construction is shown which omits the part corresponding to the finger-hold section 5. In this form a pen section 15 is provided of sufficient length and diameter to provide a suitable finger hold when writing. At its inner end, it is provided with a screw threaded cylindrical portion 16 of reduced diameter, forming a shoulder 16′, and the tube 17, corresponding to tube 6, is screwed thereon into abutment with the shoulder 16′. Beyond the portion 16, the section is provided with the usual neck 18, to which the ink sack 19 is connected in the usual manner. The barrel 20 is slidably mounted on the tube 17, in the same manner as the section 7 previously described, and its pen section end is arranged to abut with the shoulder 16′. The adjacent

portion of the barrel is provided with an external screw thread 21 to receive the cap 22, as before described, the cap seating internally against the end of the pen section when screwed onto the barrel. The operation of filling is identical to that previously described, but, in case the ink sack has to be renewed, the tube 17 must be unscrewed from the pen section, while, in the previously described construction, the pen section is withdrawn from the end of the tube, as indicated in Fig. 6.

I claim:

1. A fountain pen comprising a pen section having a resilient ink sack connected to its inner end, a tube enclosing said sack and having an air tight connection with said pen section at one end, the opposite end of said tube being open, a barrel section mounted on said tube and having an air tight slidable connection therewith, the end of said barrel section opposite the pen section being normally open and adapted to be closed to confine the air therein, and a cap adapted to enclose the pen section and the adjacent end portion of the barrel, said cap and the enclosed end portion of the barrel having inter-engaging means for attaching one to the other.

2. A fountain pen comprising a pen section having a resilient ink sack connected to its inner end, a tube enclosing said sack having an air tight connection with said pen section at one end and being open at its opposite end, a barrel section mounted on said tube and having an air tight slidable connection permitting movement thereof between an abutting position with said pen section and a position in which it is nearly withdrawn from the tube, the end of said barrel section opposite the pen section being normally open and adapted to be temporarily closed to confine the air therein, and a cap adapted to enclose said pen section and the adjacent end portion of said barrel section, said cap having an internal shoulder arranged to seat against the outer end of the pen section and said cap and the portion of the barrel section enclosed thereby being correspondingly screw threaded to secure them together and seat the cap against the pen section.

3. A fountain pen comprising a pen section having a resilient ink sack attached to the inner end thereof, a tube enclosing said sack and having an air tight connection with said pen section, a finger hold section mounted on said tube and abutting at one end with said pen section, a barrel section mounted on said tube and having a slidable air tight connection therewith and movable thereon between a normal position in which it encloses said tube and abuts at one end with the opposite end of said finger hold section and a position in which it is nearly withdrawn from the tube, the opposite end of said barrel section being normally open and adapted to be closed to confine the air therein, and a cap enclosing said pen section, said finger hold section and the adjacent portion of said barrel section, and having a threaded connection with the enclosed portion of said barrel section to connect the same thereto and to seat the cap against said barrel section.

4. A fountain pen comprising a pen section having a resilient ink sack attached to the inner end thereof, a tube enclosing said sack and having an air tight connection with said pen section, a finger hold section mounted on said tube and abutting at one end with said pen section, a barrel section mounted on said tube and having a slidable air tight connection therewith and movable thereon between a normal position in which it encloses said tube and abuts at one end with the opposite end of said finger hold section and a position in which it is nearly withdrawn from the tube, the opposite end of said barrel section being normally open and adapted to be closed to confine the air therein, and a cap enclosing said pen section, said finger hold section and the adjacent portion of said barrel section, the enclosing portion of said cap being of greater internal diameter than the diameter of either said pen section or said finger hold section, and said cap having an internal seat arranged to engage the end of said pen section and an internal screw thread connection with the portion of said barrel section which it encloses.

5. A fountain pen comprising a finger hold section, a pen section fitted within one end thereof, a resilient ink sack connected to the inner end of said pen section, a tube enclosing said ink sack and having one end portion fitted within said finger hold section and rigidly connected thereto and having its opposite end open, a barrel section mounted on and having an air tight slidable connection with said tube permitting movement thereon between a position in which one end of the section abuts with said finger hold section and a position in which it is nearly withdrawn from the tube, the opposite end of said barrel section being normally open and adapted to be closed to confine the air therein, and its end portion next the finger hold section having an externally threaded portion and a cap adapted to be threaded thereon and to enclose the pen and finger hold sections.

6. A fountain pen comprising a pen section having a resilient ink sack connected to the inner end thereof, a tube enclosing said sack and open at one end and having an air tight connection at its opposite end with the inner end of said pen section, a barrel section mounted on said tube and

having an air tight, slidable connection therewith permitting movement between a position in which one end engages said pen section and a position nearly withdrawn therefrom, the opposite end of said barrel section being normally open and adapted to be closed to confine the air therein, and a cap having one end portion adapted to enclose said pen section without substantial frictional engagement therewith, and having an internal threaded connection with the adjacent end portion of said barrel section and an internal shoulder at the inner end of said portion for engaging the end of said pen section to clamp the same between the cap and the barrel section.

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

HENRY J. UPTON.