

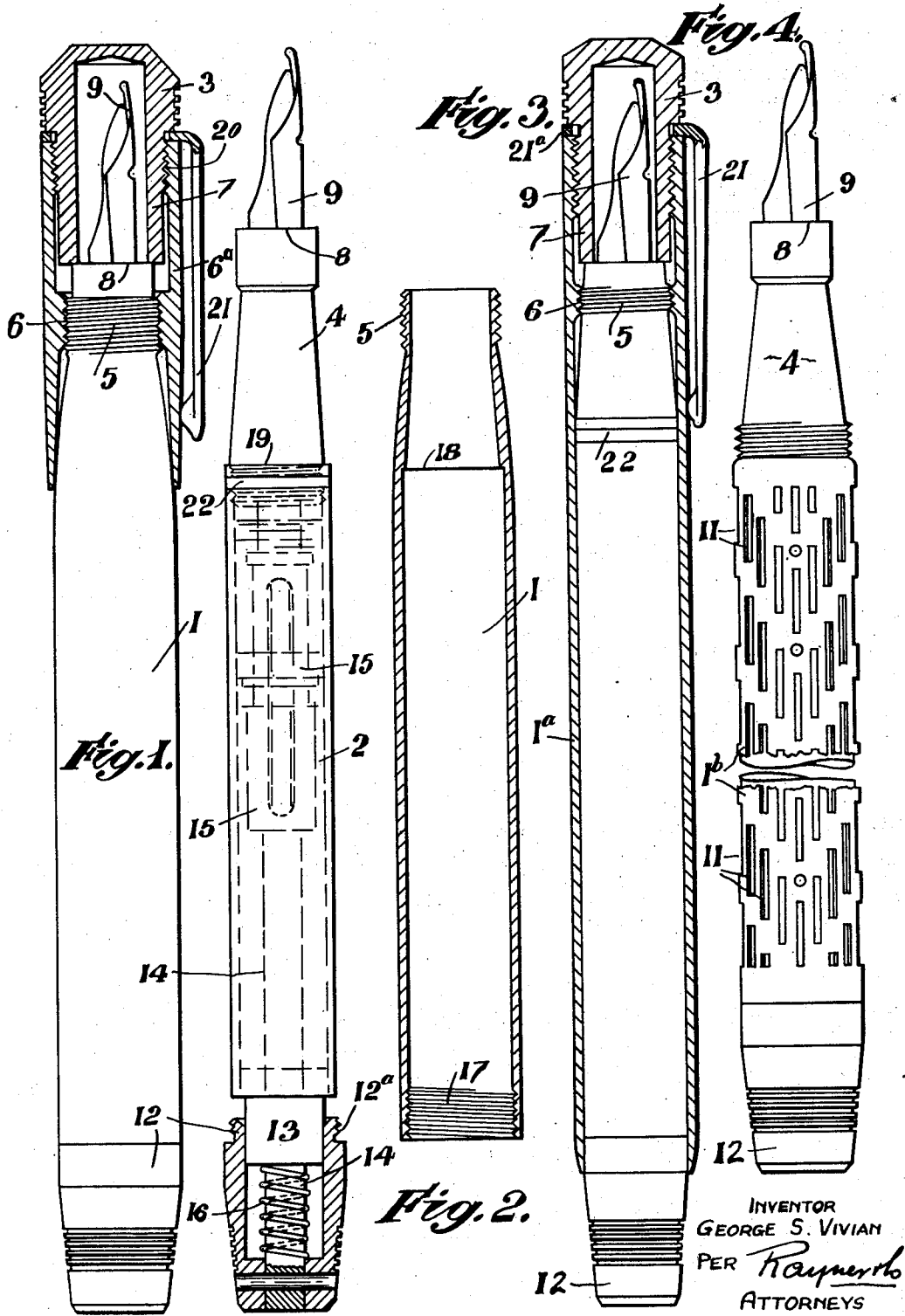
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RESERVOIR FOUNTAIN PEN

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# UNITED STATES PATENT OFFICE

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## RESERVOIR FOUNTAIN PEN

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This invention relates to improvements in self filling reservoir fountain pens either fitted with a nib or a stylus and has for its object to provide a simple and effective form of reservoir fountain pen which will enable the amount of ink in the reservoir to be seen at any time so that the user may know when the pen requires refilling. The invention concerns either self-filling or otherwise filled fountain pens.

In a convenient method of carrying my invention into practice as applied to a self-filling type of reservoir fountain pen I may employ a transparent or partly transparent or translucent reservoir in the form of a tube of transparent material such as celluloid, or other suitable composition or material. This tube is closed at one end with the usual nib or stylus section to which ink is fed from the reservoir. The other end is closed either permanently or by a removable cap. The reservoir may accommodate a suitable pump or other self-filling mechanism. For this purpose a rod may project through the closed end of the reservoir and be provided with a finger-piece so that the rod may be reciprocated or rotated to actuate the filling mechanism.

The use of a transparent reservoir entails the use of a material which might not have the strength or hardness of the usual opaque materials employed in fountain pen manufacture. The external sheath serves to protect and enclose the transparent body of the reservoir at the same time concealing the same and provides a clean and decorative external appearance. The transparent body of the reservoir may be reinforced at one or both ends by a metal band or bands to prevent the material spreading where the nib section or cap is screwed or otherwise secured in position.

The interior of the sheath can be formed with an annular shoulder near one end adapted to abut against the said end of the transparent reservoir or a flange on the nib-section, the sheath being removable over the nib end of the pen but being adapted to be drawn into and held in position by the threaded engagement in its end remote from the nib of a cap mounted rotatably at the upper end of the reservoir, for example a cap fitted on the upper

end of a piston rod of a pump type of self-filling fountain pen.

The sheath may be formed with one or a plurality of slots or other perforations in order to expose the transparent reservoir without the necessity of removing the sheath which will give all the strength, neatness or decorative appearance of a non-transparent fountain pen with the advantage of a transparent reservoir to show the quantity of ink in the reservoir.

Methods of employing a transparent reservoir with a sheath to obtain one or more of these advantages are indicated by the embodiments illustrated in the accompanying sheet of drawing in which:—

Fig. 1 is an elevation view showing a detachable sheath fitted over the reservoir and the nib covering cap screwed on to the sheath, the cap being shown in section.

Fig. 2 shows the sheath removed from the reservoir, the sheath being shown in section and also a cap on one end of the reservoir for securing the sheath on the reservoir.

Fig. 3 is a sectional elevation view showing the nib covering cap and sheath combined for removal as a single unit, and

Fig. 4 is a broken outside elevation view showing the transparent reservoir accommodated in an apertured sheath.

Referring to the drawing in Figs. 1 and 2 a detachable sheath 1 of vulcanite, metal or other suitable material or composition is slipped over the transparent reservoir 2 so as to protect and conceal it in ordinary use. The sheath 1 may either be a sufficiently tight fit to remain normally in position or it may be secured by suitable means for example by screwing it into position. A pen cap 3 is arranged over the nib section 4 and may be secured by screwing it into position. For this purpose a screw-thread 5 may be formed on a convenient part of the sheath 1 and is adapted to engage with an internal screw-thread 6 in the pen cap. The pen cap is preferably arranged to prevent ink from the nib 9 flowing on to the exterior of the reservoir and the sheath when the pen is not in use. For this purpose the cap 3 can be formed with a concentric tubular part 7

adapted to abut against the annular ledge 8 forming the upper end of the nib-section 4, consequently engagement of the abutting parts 7 and 8 will prevent ink from flowing on to the sheath. In this embodiment the sheath 1 is pushed over the nib end on to the reservoir, but it will be apparent that if desired it can be pushed over the other end by merely keeping it the same internal diameter throughout its length and closing one end, the engagement of the threaded parts 5 and 6 and the abutting parts 7 and 8 holding the sheath on the reservoir. When the nib cap is removed the pen sheath may be easily withdrawn to permit the reservoir to be inspected and the quantity of ink therein to be ascertained.

If desired as shown in Fig. 3 the pen cap and detachable sheath may be formed in one piece or secured together so that the removal of the pen cap will withdraw the detachable sheath with it. The reservoir is then arranged so that the cap and sheath may be replaced by sliding it onto the other end of the reservoir when it will again conceal and protect the transparent pen body but will leave the nib uncovered for writing purposes. With such an arrangement the user automatically uncovers the transparent pen body each time the pen is used and is thus kept aware of the quantity of ink in the reservoir and at once knows when the pen requires refilling. The construction for this purpose can comprise a sheath 1a with the screw-threaded part 6 integral therewith and carrying the concentric tubular part 7. The sheath may be reversed and slipped over the cap 12 which is adapted to operate self filling mechanism as hereinafter explained.

In another arrangement as shown in Fig. 4, the sheath may be a perforated metal or other suitable hard tubular member 1b preferably having the perforations arranged in the form of a decorative design such as for example a plurality of longitudinal slots 11 which will facilitate inspection of the quantity of ink in the reservoir. Such sheaths can be of precious metal such as gold or silver or of other suitable material. The sheath then forms a protector for the transparent reservoir but at the same time permits the contents to be seen through the perforations and when made of metal may be relatively thin thus keeping down the size of the pen for any given reservoir capacity. Perforated sheaths of metal or other suitable material are preferably secured permanently in place on the reservoir but may be detachable if desired, for example in the same manner as the sheath 1.

The invention is particularly applicable to reservoir fountain pens having pump actuated filling mechanism of the type described in my Patent No. 1,862,586, June 14, 1932. For this purpose I have shown in

Figs. 1 and 2 the cap 12 slidable on a concentric bush 13 on the appropriate end of the reservoir 1, this cap being fixed to a piston rod 14 slidable through the bush 13 and operatively connected to the self-filling mechanism 15. A coiled compression spring 16 is provided between the cap 12 and bush 13. In order to secure the sheath over the reservoir the cap 12 is threaded as at 12a externally for engagement in a threaded part 17 in one end of the sheath 1. An annular ledge 18 is formed in the sheath toward its other end adapted to abut against an annular ledge 19 at the junction of the reservoir and nib section. It will be apparent that the shoulders 18 and 19 will be pressed closely against each other as the cap 12 is threaded into the sheath 1 at the same time compressing the spring 16.

It is preferred that the concentric tubular portion 7 of the pen cap shall be threaded as a separate unit into the tubular part 6a containing the screw-threaded part 6, for example by threading the median part of the portion 7 as at 20 into a correspondingly threaded open upper end of the part 6a. A pocket clip 21 can be formed with a collar part 21a gripped between the cap parts 7 and 6a.

The transparent tube forming the reservoir is shown reinforced by a metal band 22 clamped around the said part of the reservoir, the nib section 4 being threaded or plugged into such reinforced part.

A reservoir fountain pen according to this invention may be constructed to have a relatively large ink capacity in which the ink is contained within a transparent or partly transparent reservoir which may form the pen body and which may be readily inspected to ascertain the quantity of ink therein but which is normally concealed and protected by means of a sheath or cover which prevents damage to the reservoir and provides a pleasing and decorative external appearance to the pen.

I claim:—

1. A fountain pen comprising a transparent reservoir, a sheath fitted detachably over the reservoir, a nib cap detachably secured to the sheath, a cap at the end of the reservoir remote from the nib detachably screwed into one end of the sheath so as to secure the sheath on to the reservoir, spring means being provided with said latter cap to draw the sheath tightly on to the reservoir, and a shoulder inside the sheath adapted to abut against a shoulder on the reservoir.

2. In a self filling fountain pen a transparent reservoir, a nib section receiving cap at one end of the reservoir and a self filling mechanism operating cap at the other end of the reservoir, a protective sheath slidably fitted over the reservoir and detachably connected to said filling mechanism operating

cap whereby the said sheath is secured completely over the reservoir by said filling mechanism operating cap.

3. In a self filling fountain pen a transparent reservoir, a nib section receiving cap at one end of the reservoir and a self filling mechanism operating cap at the other end of the reservoir, a protective sheath slidably fitted over the reservoir and threaded detachably to a thread on said filling mechanism operating cap whereby the said sheath is secured completely over the reservoir by said filling mechanism operating cap.

4. In a self filling fountain pen a transparent reservoir, a nib section receiving cap at one end of the reservoir and a self filling mechanism operating cap at the other end of the reservoir, a protective sheath slidably fitted over the reservoir and detachably connected to said filling mechanism operating cap, a nib section enclosing cap screwed to said sheath, an annular abutment within said cap adapted to be drawn against the free end of the nib section receiving part of the pen by the threaded engagement of the said sheath with the filling mechanism operating cap.

5. A self filling fountain pen comprising a transparent reservoir, a sheath fitted detachably over the reservoir, a nib cap detachably secured to the sheath, a cap at the end of the reservoir remote from the nib cap detachably screwed into one end of the sheath so as to secure the sheath on to the reservoir and operatively connected to self filling mechanism, spring means being provided with said latter cap to draw the sheath tightly on to the reservoir, and a shoulder inside the sheath adapted to abut against a shoulder on the reservoir.

6. A self filling fountain pen comprising a transparent reservoir, a sheath fitted detachably over the reservoir, a nib cap detachably secured to the sheath, a cap at the end of the reservoir remote from the nib cap detachably screwed into one end of the sheath so as to secure the sheath on to the reservoir and adapted to actuate self filling mechanism, spring means being provided with said latter cap to draw the sheath tightly on to the reservoir.

7. In a self filling fountain pen a transparent reservoir, a nib section receiving cap at one end of the reservoir and a self filling mechanism operating cap at the other end of the reservoir, a protective sheath slidably fitted over the reservoir, and detachably connected to said filling mechanism operating cap whereby the said sheath is secured completely over the reservoir by said filling mechanism operating cap, and a plurality of apertures in said sheath partly exposing the reservoir.

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