

# PATENT SPECIFICATION



Application Date: Sept. 30, 1925. No. 24,332/25.

256,814

Complete Left: June 30, 1926.

Complete Accepted: Aug. 19, 1926.

## PROVISIONAL SPECIFICATION.

### Improvements in or relating to Fountain or Reservoir Pens.

I, WILLIAM LIVSEY (British), of 13, Groveland Road, Wallasey, in the County of Chester, do hereby declare the nature of this invention to be as follows:—

This invention relates to improvements in fountain or reservoir pens of the piston or plunger self-filling type, and has for its object to provide a plunger self-filling pen the only loose member whereof is the nib cap or cover, the plunger actuating rod being normally contained in the barrel of the pen and only withdrawn therefrom prior to the pen being charged with ink.

In carrying out my invention, I provide a pen body or barrel in one end whereof the customary nib and feed are fitted. Slidably disposed within said body or barrel is a piston or plunger comprising a sleeve of cork, or other suitable material (which makes an ink and airtight connection with the inner bore of the barrel), and a partly tubular grooved or slotted portion of vulcanite, or the like, to which said sleeve is attached.

In an appropriate position in the barrel, I provide a transverse pin or stud which passes through the grooved or slotted portion of said piston or plunger and limits the longitudinal travel of the same.

A plunger actuating rod is normally housed in the tubular portion of said piston or plunger, and provided in said rod is a spiral groove or slot, preferably of differential pitch.

A transverse pin or lug is provided in the tubular portion of said piston or plunger at or near the end remote from the nib, which engages with or passes through said spiral slot in the plunger rod, the outer end of the latter protruding somewhat from the barrel so that it may be grasped by the fingers, and being

of such shape or configuration as to conveniently form an end cover or closure for the barrel.

When it is required to fill the pen, the plunger rod is rotated and, owing to the engagement of the transverse pin and the spiral groove or slot in the rod, the said rod is automatically withdrawn from its housing and comes to rest with the said transverse pin abutting against the end of said spiral groove or slot.

The plunger rod—carrying with it the piston or plunger—is now depressed, the nib end of the pen sealed in ink, and on the plunger being retracted a fresh charge of ink is drawn into the barrel.

The differential pitch of the spiral groove i.e. the steep inclination in the centre and the flattening of the ends, prevents unwanted relative movement between the plunger rod and the piston or plunger when the former is depressed. On the plunger-rod being rotated in the opposite direction, it automatically re-houses itself, and the pen is ready for use.

In a modified arrangement, a longitudinal slot is provided in the plunger rod with which a pin or lug in the tubular portion of said plunger may engage, locking means being provided at each end of said slot.

According to a further modification, the inner end of said plunger rod is provided with an enlarged screw-threaded portion adapted to engage with corresponding internally screw-threaded portions provided at each end of the tubular portion of the piston or plunger.

Dated this 29th day of September, 1925.

JOHN HINDLEY WALKER,  
139, Dale Street, Liverpool,  
Registered Patent Agent.

[Price 1/-]

## COMPLETE SPECIFICATION.

## Improvements in or relating to Fountain or Reservoir Pens.

I, WILLIAM LIVSEY (British), of 13, Groveland Road, Wallasey, in the County of Chester, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to fountain or reservoir pens, of the type wherein the ink charging operation is effected through the reciprocation of a piston or plunger disposed within the pen body or barrel, and said piston or plunger being provided with a tubular portion wherein an actuating rod is normally housed.

My pen is characterised by new or improved means whereby a piston or plunger actuating rod is telescopically or "withdrawably" connected with said tubular portion of the piston or plunger in order to effect its reciprocation, comprising a spiral or helical slot or groove—which is preferably of differential or variable pitch—formed in said piston or plunger actuating rod, and a lateral projection provided on said tubular portion or member of the piston or plunger, which projection extends into said rod slot or groove.

Means are also provided to limit the longitudinal travel of the piston or plunger.

I will further describe my invention with the aid of the accompanying sheet of explanatory drawings, which illustrate, by way of example only, one mode of carrying same into effect.

Figs. 1, 2 and 3, are longitudinal sections of the pen.

In said drawings, *a* denotes a reservoir body or barrel, *b* a writing nib, and *c* a "feed" or feed bar. *d* is a piston or plunger sleeve of cork or other suitable material adapted to make a sliding ink and air-tight connection with the inner wall of the body or barrel *a*, which sleeve *d* is disposed around a spigot *e* depending from the bottom or floor *f* of a tubular member *g* wherein are formed diametrically opposed longitudinal slots *h* through which extends a transverse pin *j* the ends whereof are located in aligned holes or apertures in the body or barrel *a*.

Said plunger sleeve *d* is secured by means of a washer *k* screwed onto the lower screw-threaded end of spigot *e*.

Normally disposed within said tubular member *g* is an actuating rod or stem *l* in which is formed a spiral or helical slot or groove *m*, *m*<sup>1</sup>, *m*<sup>2</sup> of differential or variable pitch, the upper and lower ends *m*<sup>1</sup>, *m*<sup>2</sup> respectively, being substantially "flat".

A lateral pin or projection *n* positioned in the upper end of said tubular member *g* extends into said spiral or helical slot or groove *m* of stem *l* and the outer end of the latter projects somewhat in the form of a headpiece *o* from the upper end of the body or barrel, so that it may be grasped by the fingers and also constitutes a closure for the barrel.

Normally the parts are in the position illustrated in Fig. 1, the piston or plunger (comprising sleeve *d* and tubular member *g*) is in its uppermost position—the transverse pin *j* limits its outward travel—in the body or barrel, the helically slotted stem *l* being housed in the tubular member *g*, and as the pin or stud *n* lies in the flat upper portion *m*<sup>1</sup> of the spiral slot, the stem will not accidentally become outwardly displaced.

When it is required to charge the pen with ink, the headpiece *o* of stem *l* is turned and will move outward through the engagement of pin *n* with the spiral slot until the lower flat portion *m*<sup>2</sup> thereof has moved into engagement with said pin—see Fig. 2.

The plunger is now pressed downwardly by means of the headpiece *o* of stem *l* to the position shown in Fig. 3. The nib end of the pen is now immersed in ink and the plunger is pulled to the position shown in Fig. 2 when a charge of ink is induced in well known manner into the body or barrel below the plunger. Stem *l* is now rehoused as shown in Fig. 1.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In a self-filling fountain or reservoir pen of the type in which the ink charging operation is effected through the reciprocation of a piston or plunger disposed within the pen body or barrel, and provided with a tubular portion wherein an actuating rod is normally housed;

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means whereby said actuating rod is telescopically or "withdrawably" connected with said tubular portion of the piston or plunger in order to effect its reciprocation, comprising a spiral or helical slot or groove—which is preferably of differential or variable pitch—formed in said piston or plunger actuating rod, and a lateral projection provided on said tubular portion or member of the piston or plunger, which projection extends into said rod slot or groove.

2. In a fountain or reservoir pen as claimed in the preceding claim, means for limiting the travel of said piston or plunger, consisting of a transverse pin or stud carried by the pen body or barrel, which pen or stud engages or passes

through the grooved or slotted portion of said piston or plunger.

3. An embodiment of the fountain or reservoir pen claimed in either of the preceding claims, in which pen the upper end of the piston or plunger actuating rod constitutes a handle closure for the pen body or barrel.

4. A self-filling fountain or reservoir pen substantially as hereinbefore described and illustrated in the accompanying drawings.

Dated this 29th day of June, 1926.

JOHN HINDLEY WALKER,  
139, Dale Street, Liverpool,  
Applicant's Patent Agent.

[This Drawing is a reproduction of the Original on a reduced scale.]

