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PATENT SPECIFICATION



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416,648

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COMPLETE SPECIFICATION.

Improvements in Fountain Pens.

I, MARK SYDNEY FINBURGH, a Subject of the King of Great Britain, of 143, Holborn, London, E.C.1, 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 pens, or reservoir pens, of the self-filling type having a flexible sac arranged to be compressed and allowed to expand in order to draw ink into the barrel of the pen. Usually the sac extends the whole length of the pen barrel and itself forms the ink container and in some constructions of this kind the sac is arranged to be compressed through depression of a small knob at the end of the barrel. In these cases, however, as the sac must be of small diameter and it is difficult to compress it completely, the amount of ink which the pen can hold is very limited. Fountain pens have also been constructed with an air tube extending through the lower part of the barrel and opening at the lower end at the ink feeder and at the top end near the top of the barrel, a small compressible sac being attached to the end of the barrel remote from the nib and normally protected by a cover which must be unscrewed from the barrel and removed to allow the sac to be compressed by hand and released in order to draw ink through the tube into the barrel to provide a supply of writing fluid.

According to the invention a construction of this latter kind is combined with means for compressing the sac from the end of the pen barrel which consists of a spring which is caused to buckle, by endwise movement of a knob, to compress the sac and thus enable the pen to be filled by repeated depression and releasing of the knob. The pen comprises a nib section or nib holder to which is attached one end of the barrel which is formed in two parts, the lower part being preferably transparent and having along the centre thereof an air tube fitted into the nib holder, the end of the lower part of the barrel having fitted to it a com-

pressible sac which is compressed by means of a flat spring and presser plate, the spring abutting at one end against the lower part of the barrel and fitting at its other end into a depressible button which slides in the end of the upper half of the barrel which surrounds the sac and spring and has at its upper end a cover which screws on the end of the barrel to protect the depressible button.

An example of a construction according to the invention is illustrated in the accompanying drawing in which Fig. 1 is an elevation partly in longitudinal section of a complete pen constructed according to the invention, the spring and sac being in their normal positions, while Fig. 2 is a fragmentary view showing the position of the sac and spring when the knob is depressed.

The pen consists of the usual nib section or nib holder 1 in which is fitted a nib 2 and ink feeder 3 and to this nib holder 1 is screwed the pen barrel which consists of a lower part 4 and an upper part 5. The lower part 4 may be of transparent or partly transparent material and has through the centre thereof an air tube 6 which extends from an air hole 3a in the ink feeder 3 nearly to the top of the lower part 4 of the barrel as shown. The upper end of the lower part 4 of the barrel is provided with a reduced portion 7, which is screwed to receive the lower end of the upper part 5, and a further reduced portion 8 on to which is fitted one end of a compressible sac 9 of rubber or similar flexible material. A central bore 10 extends through the end of the part 4 so that the interior of the sac 9 is in communication with the interior of the lower barrel part 4.

In the upper end of the top part 5 of the barrel is fitted a depressible button 11 having a tubular depending portion 12 which slides in the end 13 of the barrel and is prevented from moving completely out by slightly flanging the lower end of the tubular portion 12 as shown at 14.

Within the interior of the top part 5 of the barrel is fitted a flat spring 15 of the shape shown, the lower end of the

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spring abutting against the top face 16 of the screwed part 7, while its upper end 17 extends into the tubular part 12 and abuts against the underside of the knob 11. This spring 15 carries a flat presser plate 18 which is in contact with the compressible sac 9 and is attached to the spring 15 by means which allow the plate 18 to be securely positioned on the spring 15 but do not rigidly secure the two members together, such as by forming the plate 18 with short arms 19 on its edges which are bent round the spring 15. The depressible knob 11 at the top end of the pen is protected by a cover 20 which screws on to the top end of the upper part 5 of the barrel and the nib is protected when the pen is not in use by the usual cap, which is not shown.

The operation of filling the pen is as follows:—The parts normally occupy the position shown in Fig. 1 and when the cap 20 is removed and the lower end of the pen is dipped into ink and the knob 11 depressed, the spring 14 buckles or distorts as shown in Fig. 2, thus compressing the sac 9 between the wall of the top barrel part 5 and the presser plate 18 and expelling the air from the pen through the air tube 6 and air hole 3a. On releasing the depressible knob the spring 15 regains its normal position and the sac 9 expands thus drawing ink up through the ink feeder 3 into the lower part of the barrel 4. The compression and expansion of the sac is then repeated by alternately depressing and releasing the knob until the lower part 4 of the barrel is filled with ink as can be seen through the transparent wall thereof.

In this manner it is possible to completely fill the pen by a simple movement of one finger on the end of the knob without the necessity of removing the upper part 5 of the end barrel to compress the sac 9 by hand.

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. A fountain pen provided with an air tube extending from the nib section through a portion of the barrel and a compressible sac attached to the barrel portion on its end remote from the nib section and compressible by means of a presser plate attached to a flat spring which is caused to buckle by depression of a knob slidable in the end of the barrel, substantially as described.

2. A fountain pen comprising a nib section or holder from one end of which projects the nib and ink feeder and secured at its other end to the lower end of the pen barrel which is formed in two parts, the lower part of the barrel having an air tube from the nib section extending therethrough nearly to the top thereof, while the upper part of the barrel contains a compressible sac fitting at one end over the reduced open end of the lower part of the barrel and a flat spring abutting at one end on the lower part of the barrel and at the other end fitting into a knob slidable in the top end of the barrel, the spring having non-rigidly attached thereto a presser plate which compresses the sac against the wall of the upper part of the barrel when the spring is buckled by endwise movement of the knob, substantially as described.

3. A fountain pen having self filling means constructed and operating in the manner described with reference to the accompanying drawing.

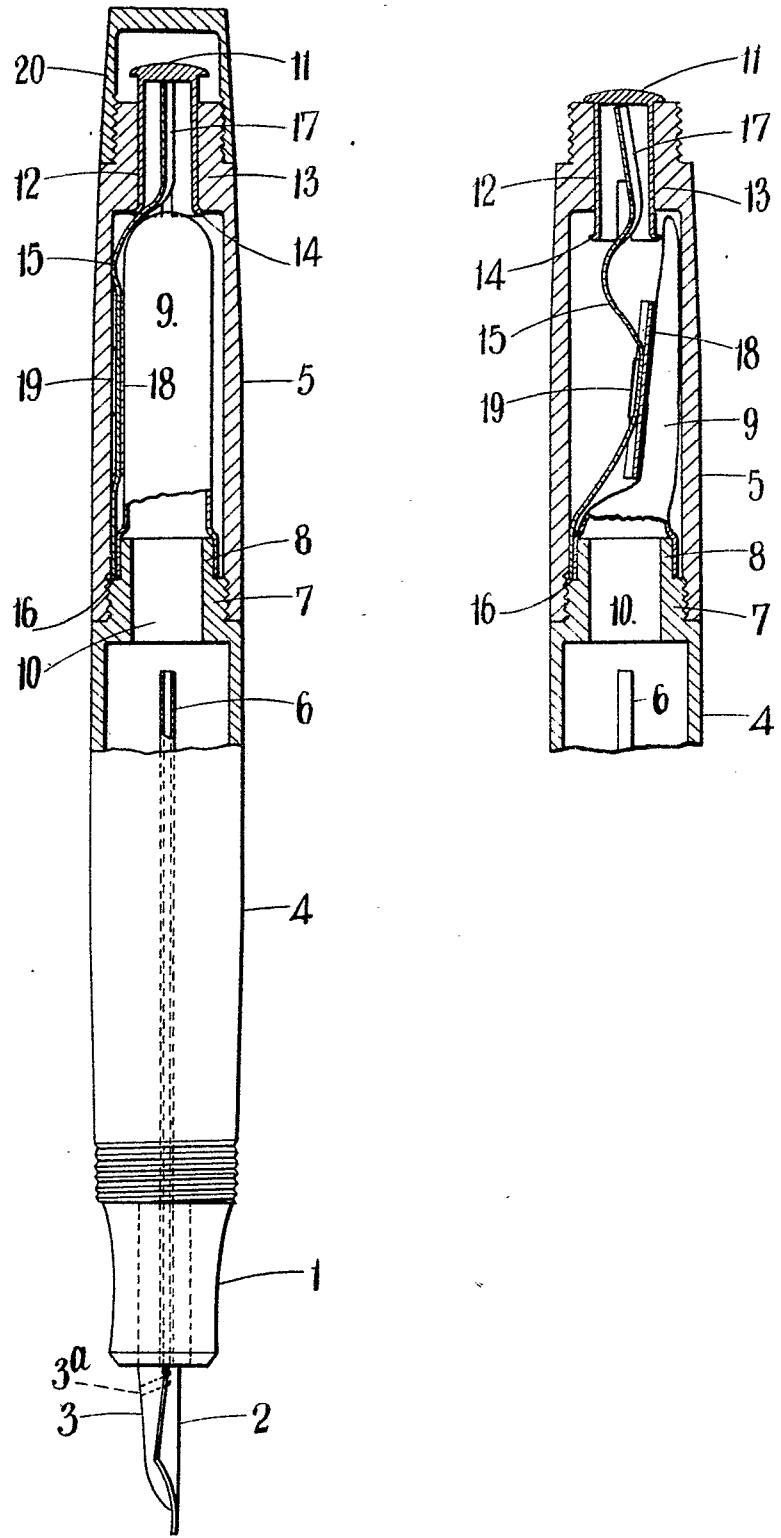
Dated this 8th day of May, 1934.

ARTHUR E. EDWARDS,
Chartered Patent Agent,
Lincoln House,

296—302, High Holborn, London,
Agent for the Applicant.

FIG. 1.

FIG. 2.



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