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PROVISIONAL SPECIFICATION.

Improvements in Reservoir Pens.

BENJAMIN WILLIAM WARWICK, Engineer, of 134 Highbury Hill London, N. do hereby declare the nature of this invention to be as follows:—

This invention relates to that class of reservoir pens having a stylus. Persons inexperienced in writing with a stylographic pen hold it in the fingers at the same relative angle to the paper written upon as they usually hold an ordinary nib pen, and fail to write. To succeed in writing they must hold the stylo pen approximately vertical to the paper. Moreover this continued position cramps the fingers, and the use of the stylo pen is not favoured in schools.

My invention corrects these disadvantages of the stylographic pen. I place the stylus at an angle to the axis of the reservoir holder. I employ a hollow stem to be held in the fingers as usual, and across the end thereof and communicating with the reservoir is formed a short hollow head to hold the needle and writing point at the desired angle, say 45°, to bring this axis approximately vertical when in use. This second stem may be adjustable in reference to the axis of the reservoir holder, in order that its angle may be altered to suit the writer. This I accomplish by a friction tight and water tight joint with a passage for ink flow internally, or externally by a small flexible tube. This extra stem or head need not be greater in length than half an inch, and may be constructed to rotate to allow the writing point and needle to change their wearing sides.

The needle may have a spring behind it or not, and any method of feed or regulation for the flow of ink may be employed in combination therewith. This bi-axial pen is formed in screwed sections and provided with a removable end cover as usual.

I indicate several methods of construction which I may adopt to embody my invention. The additional axis may be formed in the solid material of the end section of the stylographic pen. It may be screwed into or on to it. It may rotate in it having a duct formed for ink supply. It may have a joint adjustable for angularity. The needle may have a spring action derived from a spiral spring, a flat spring, or a tympanum. The addition of this second head and axis to my pen need not disadvantageously affect the weight or size of the pen nor obscure the view of the writing when in use.

Dated this 28th day of December 1904.

BENJAMIN WILLIAM WARWICK.

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COMPLETE SPECIFICATION.

Improvements in Reservoir Pens.

BENJAMIN WILLIAM WARWICK of 134 Highbury Hill, London. N. Engineer. do hereby declare the nature of this invention and in what manner the same

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is to be performed, to be particularly described and ascertained in and by the following statement:—

The object of this invention is to secure to the user of a stylographic fountain pen the power to use it freely when holding it in the fingers at the same relative angle to the paper as a nib pen is held without altering the easy bend of the fingers or cramping them into a more vertical formation. This I accomplish by forming the writing point at an angle to the stem of the reservoir, the angle being about 40°, thus bringing the writing needle approximately vertical to the surface written upon, leaving the fingers at an easy writing angle.

I now proceed by drawings to shew how I form and construct these parts.

It will be obvious that there are other various methods in details than those herein shewn which might serve to embody my invention, but I shew typical forms upon which I shall mainly rely to secure the broad features of my invention.

Similar letters are employed throughout these drawings to denote parts performing similar functions.

Fig. 1 shews an enlarged section of a stylographic pen, the reservoir portion. A. A is shewn contracted in length and in broken cross section. D is the cover or cap with a ventilating hole. This cap will fit on the screwed point section B and cover as usual the writing point H and needle F in cross-head E Fig. 1, and Fig. 10. C C Fig. 1 denotes the air tube. G, Fig. 1 is a screw or plug carrying the needle F, shewn also enlarged in Fig. 2. An enlarged section of the cross-head E Fig. 1 is shewn in Fig. 3, and this gives a fair view of the invention.

Fig. 3 shews the end portion B of a stylographic pen without the screw joint; C is the air tube, J is the duct communicating with the cavity I of the cross-head E. H is the writing point. The top part of cavity I, Fig. 3, is threaded to take the screw G Fig. 1. and 2, holding the writing needle F Figs. 1, 2, 6, and 7.

Fig. 4. shews the writing needle F formed with a coil O secreted in the hollow of the screwed cap N. This cap N is intended to seat into the cavity I. Figs 3, 8, or 9.

Fig. 6. shews an oscillating needle F fixed in the block P, with a spiral O secreted behind it in the screw cap N. The block or stem P has a sufficiently large hole across it to allow of its oscillatory movement when held in position by the cross pin Q in the cap screw N. Fig. 6.

In Fig 8, E denotes the cross-head as before, formed with a tongue M, which is clamped by a screw, not shewn, through the hole L in the recessed end of the pen section B, Fig 8. The duct J communicates with B for supply of ink. The flat tongue M may move in its recess and the head E E be set up or down at a greater or lesser angle to suit the hand of the writer.

In Figs. 9 and 5 the idea intended to be disclosed is that the turret head E E shall be capable of rotary movement in the end portion K K of the pen section B, Figs 9. and 5. This end portion K K is shewn as a ring in plan in Fig. 5. with a duct J communicating with the inside groove in K K shewn in elevation in Fig. 9. The duct J in Fig. 5. communicates with B for ink supply. The object here is to provide a means of rotating the head E E with its writing point H in order that this latter, if its end wears unevenly, may be moved to a fresh wearing part, and so preserve a true end. The turret head E is snapped into the ring K K in the process of manufacture.

In Fig 7. I shew a method employing a tympanum T, to which is fixed a writing needle F, whose end appears through the point H when the screw N Fig. 7 is seated on R. When thus, the tympanum is clamped around its edge, and allows a slight oscillatory movement of the needle F.

In Fig 10. I shew the cross-head of the pen as a formed and curved neck E. E, for holding the writing needle F and point H at an angle to the reservoir

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axis. C is the air tube and B the end section of a fountain pen as hereinbefore described, screwed at R, with air tube C plugged at its inside end to carry the needle F, which may be formed with one of the spring actions already described. The curved form of the needle F shewn in Fig. 10 allows of a slight spring action and this takes the place of the secreted springs already referred to. The curved neck or head E E Fig. 10. may be formed from one piece of material or put together in sections friction tight or screwed. But I intend that this shall equally with the other methods described, illustrate my invention of placing the writing needle and axis at an angle to the stem of a reservoir pen to suit the hand of a user.

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:—

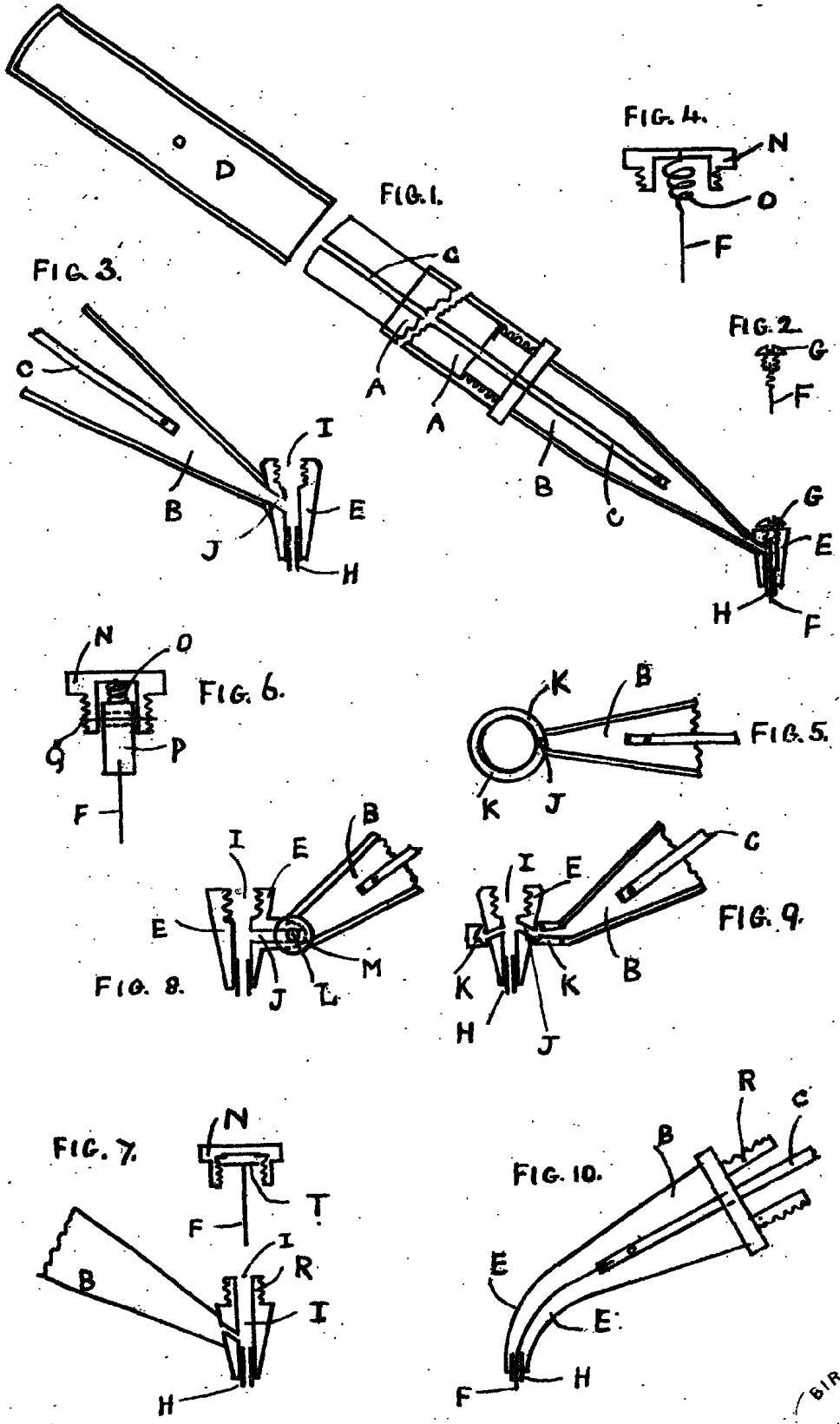
1. A reservoir pen with a writing stylus placed to make an angle with the axis of the reservoir.
2. A reservoir pen communicating with a secondary axis across it containing a removable stylus.
3. In reservoir stylographic pens having a cross-head to hold the needle the use of a spring needle or oscillating needle as shewn in Figs. 4. and 6.
4. In reservoir pens with a writing stylus placed to make an angle with the stem held in the hand and communicating with a reservoir the method of adjusting the angle shewn in Fig. 8.
5. In reservoir pens with a writing stylus placed to make an angle with the stem held in the hand and communicating with a reservoir the method of adjusting the writing point as shewn in Figs. 9 and 5.
6. A stylographic reservoir pen with the needle at an angle to the stem of the pen and being removable and having a spring tympanum substantially as shewn in Fig. 7.
7. In stylographic reservoir pens having fixed or oscillating needles the curved form shewn in Fig. 10. bringing the axis of the internal needle to make an angle with the stem held by the writer substantially as drawn and described.

Dated this 21st day of September 1905.

B. W. WARWICK.



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



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