

PATENT SPECIFICATION



Application Date: Nov. 16, 1943. No. 19137, 43.

569,286

Complete Specification Left: Oct. 26, 1944.

Complete Specification Accepted: May 16, 1945.

PROVISIONAL SPECIFICATION

Improvements in or relating to Ink Reservoir Pens

We, MENTMORE MANUFACTURING Co. LIMITED, a Company registered under the laws of Great Britain, and ARTHUR EDWARD ANDREWS, a Subject of the King of Great Britain, both of Tudor Grove, Well Street, Hackney, London, E.9, and WILLIAM FREDERICK JOHNSON, a Subject of the King of Great Britain, of 42, Bowness Road, Barnehurst, in the County of Kent, do hereby declare the nature of this invention to be as follows:—

This invention relates to ink reservoir pens of the kind in which the writing point is tubular with a fine hole there-through to which the ink is fed from the reservoir during writing.

Difficulties have been experienced with pens of the kind described in controlling the ink flow and it is an object of the present invention to provide a construction by which such difficulties shall be overcome.

According to the present invention an ink reservoir pen has a hollow point section with narrow slots extending lengthwise in the wall and an ink regulator member mounted within the point section and extending to the forward end of the ink reservoir.

Preferably the end of the point section has a continuous surface, the slots through its wall not extending to the tip. Preferably, also, the point section is of a non-corrodible metal, such for example as gold. Gold, however, is unsatisfactory for the actual writing point by reason of its softness. A feature of the present invention therefore consists of a point section having a tip of a hard wearing non-corrodible material such as iridium, or possibly a stainless steel.

One form of ink reservoir pen according to the present invention will now be described by way of example. The barrel is of vulcanite or other material employed for such purpose and of usual form. Within it is disposed the ink containing sac together with the usual apparatus for collapsing the sac in order to fill it. At the front end is a front section, which may be of the same material as the barrel, and it is secured thereto by co-operating threads in the usual way. The inner end

of the front section comprises a short spigot to which the front end of the sac is secured. The front section is bored from its inner end for a certain distance and this bore connects with a short bore of smaller diameter which, in turn, connects with a bore of slightly larger diameter extending to the front end of the section. The point section is hollow with its front end of conical shape and its rear end tubular and reduced so as to fit into the bore at the front end of the front section of the pen. It is of gold or other non-corrodible metal with a tip of iridium or other hard non-corrodible metal. Slots, for example four and equally spaced, extend longitudinally of the point section towards its tip and preferably partly into the iridium point. An ink regulator member comprises a rod conveniently of ebonite which is a loose fit within the reduced bore of the front section of the pen. It has a conical forward end to conform to the inner surface of the point section and it is held in place by a longitudinal depression in the wall of the rear part of the point section. This depression forces the ink regulator member against one side of the inner wall of the point section. This ink regulator member has a series of parallel grooves around its front end immediately behind the conical part. It also has a groove in its wall where it passes through the reduced bore of the front section of the pen.

In use the ink flows from the sac through the front section over the ink regulator member to the slots in the point section and thence to the tip.

A pen constructed as described above is found to operate satisfactorily and be free from difficulties experienced with the well-known stylo pens in which a wire extends through a hollow point section.

Various modifications may be made without departing from the invention. Thus, the point section may have its tubular rear end of the same diameter as the bottom of the conical end part so that there is no shoulder. It may be formed in two parts the conical end part being separate from the rearward tubular part

and being secured thereto as by welding. Instead of being secured frictionally in the front end of the front section of the pen it may be secured by screw threads.

5 In this connection the threading may be in a series of separate raised parts running longitudinally of the point section.

The point section may be made of such shape and size that its outer surface forms

10 a continuation of the surface of the front section of the pen. In this case it has a tubular rearward extension in which the longitudinal depression is formed. In

order to supply air to this depression or groove a circular channel is formed 15 between the front end of the front section of the pen and the rear face of the point section with small holes leading from the surface of the front section into said channel. 20

Dated this 16th day of November, 1943.

For the Applicants,
 RAWORTH, MOSS & COOK,
 75, Victoria Street, London, S.W.1,
 Chartered Patent Agents.

COMPLETE SPECIFICATION

Improvements in or relating to Ink Reservoir Pens

We, MENTMORE MANUFACTURING Co. LIMITED, a Company registered under the laws of Great Britain, and ARTHUR EDWARD ANDREWS, a Subject of the King

25 of Great Britain, both of Tudor Grove, Well Street, Hackney, London, E.9, and WILLIAM FREDERICK JOHNSON, a Subject of the King of Great Britain, of 42, Bowness Road, Barnehurst, in the County

30 of Kent, 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:—

35 This invention relates to ink reservoir pens of the kind in which the writing point is hollow or tubular, as distinct from a pen nib, to which point the ink is fed from the reservoir during writing.

40 Difficulties have been experienced with pens of the kind described in controlling the ink flow and it is an object of the present invention to provide a construction by which such difficulties shall

45 be overcome.

According to the present invention an ink reservoir pen has a hollow point section with a rounded tip and a narrow slot or slots extending lengthwise in its

50 wall and a rigid ink regulator member mounted within the point section and extending to the forward end of the ink reservoir.

Preferably the end of the point section 55 has a continuous surface, the slot or slots through its wall not extending to the tip. Preferably, also, the point section is of a non-corrodible metal, such for example as gold. Gold, however, is not entirely

60 satisfactory by reason of its softness and a point section having a tip of a hard wearing non-corrodible material such as iridium, or possibly a stainless steel is preferred.

65 One form of ink reservoir pen according to the present invention will now be described by way of example and with

reference to the accompanying drawings, wherein:—

Fig. 1 shows in section the writing end 70 of one form of pen,

Fig. 2 is a section on the line 2—2 of Fig. 1,

Fig. 3 is an external view of the point section. 75

Fig. 4 shows, also in section, the writing end of a modified form of pen,

Fig. 5 shows a modified form of point section, and

Fig. 6 a further modification. 80

Referring to Figs. 1, 2 and 3 the barrel 1 is of vulcanite or other material employed for such purpose and of usual form. Within it is disposed the ink containing sac 2 together with the usual 85 apparatus for collapsing the sac in order to fill it. At the front end of the barrel is a front section 3 which may be of the same material as the barrel and it is secured thereto by co-operating threads 4 90 in the usual way. The inner end of the front section 3 comprises a short spigot 5 to which the front end of the sac 2 is cemented. The front section 3 is bored from its inner end for a certain distance 95 and this bore 6 connects with a short bore 7 of smaller diameter which in turn connects with a bore 8 of slightly larger diameter extending to the front end of the section. The bore 8 is threaded. The 100 point section 9 is hollow with its front end of conical shape and its rear end 10 tubular and threaded to screw into the bore 8 at the front end of the front section 3. It is of gold or other non- 105 corrodible metal with a tip 11 of iridium or other hard non-corrodible material. The tip is rounded. Slots 12 for example four and equally spaced extend longitudinally of the point section 9 towards 110 this tip and preferably partly into the iridium point 11. An ink regulator member 13 comprises a rod conveniently of vulcanite which may fit freely within

the reduced bore 7 of the front section 5 or may be a friction fit therein. It has a conical forward end 14 to conform to and is mounted close to the inner surface of the wall of the point section 9 and when it fits freely in the reduced bore 7 it is held in place by a longitudinal depression 15 in the wall of the rear part 10 of the point section. This depression 15 forces the ink regulator member 13 against one side of the inner wall of the rear part 10 of the point section. This ink regulator member has a series of parallel transverse grooves 16 around its front end. These grooves are in two batches 16¹ and 16² the front batch 16² extending as close to the tip as they can conveniently be produced. It also has a narrow longitudinal groove 17 which extends nearly to the tip of the conical forward end below the bottoms of the grooves 16. Diametrically opposite to the groove 17 is another groove 18 which is less deep but wider than the groove 17. This groove 18 extends to just beyond the end of the first batch of grooves 16¹ to a portion just inside the point section.

The rear end of the point section 9 is of the same diameter as the front end of the front section 3 so that there is no shoulder at the junction of the two and its outer surface forms a continuation of the front section of the pen. The wide groove 18 in the ink regulator member constitutes a passage to supply air to the interior of the sac when ink is fed from it through the narrower groove 17. Air is supplied to the groove 18 from the space 20 at the rear end of the point section. 21 are small holes through the wall of the point section to admit air to the space 20.

In use air supplied through the holes 21 to the space 20 is found to pass along the groove 18 to the sac of the pen while ink flows from the sac through the narrower groove 17 to the grooves 16 and to the slots 12 whence it flows over the tip 11.

In a modification of the invention shown in Fig. 4 the point section 9 is not shouldered and is frictionally held in the front section 3 as indicated at 22 and the ink regulator member 13 is stepped at 23. The groove 18 extends to the step 23.

While the construction described has been found satisfactory it will be understood that various modifications may be made without departing from the invention. Thus the point section may be made in two parts 9a, 9b as illustrated in Fig. 5, the two parts being secured together by welding. The threading on the point section, when used may be in a series of separate raised parts as shown at

24 in Fig. 6. The depression 15 then also constitutes an air vent.

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

1. An ink reservoir pen having a hollow point section with a rounded tip and a narrow slot or slots extending lengthwise in its wall and a rigid ink regulator member mounted within the point section and extending to the forward end of the ink reservoir.

2. An ink reservoir pen according to claim 1, wherein the end of the point section has a continuous surface, the slot or slots through its wall not extending to the tip.

3. An ink reservoir pen according to claim 1 or 2, wherein the ink regulator member has a series of parallel transverse grooves around its front end.

4. An ink reservoir pen according to claim 3, wherein the parallel transverse grooves are in two spaced batches, the front batch extending close to the tip.

5. An ink reservoir pen according to claim 3 or 4 wherein the ink regulator member has a narrow longitudinal groove extending from its rear end and below the bottoms of the transverse grooves.

6. An ink reservoir pen according to claim 5, wherein the ink regulator member has a second groove, for example diametrically opposite to the narrow longitudinal groove extending from the rear end to a position just inside the point section.

7. An ink reservoir pen according to claim 6, wherein the point section has an air space towards its rear end surrounding the ink regulator member and holes through its walls into this air space.

8. An ink reservoir pen according to any one of the preceding claims, wherein the point section is of non-corrodible metal.

9. An ink reservoir pen according to any one of the preceding claims, wherein the point section has a tip of hard wearing non-corrodible material such as iridium.

10. An ink reservoir pen substantially as described with reference to Figs. 1, 2 and 3 or Fig. 4 of the accompanying drawings.

11. An ink reservoir pen substantially as described with reference to Fig. 5 or 6 of the accompanying drawings.

Dated this 26th day of October, 1944.

For the Applicants,

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

