

# PATENT SPECIFICATION

473,481



Application Date : March 18, 1937. No. 8118/36

Complete Specification Accepted : Oct. 14, 1937.

## COMPLETE SPECIFICATION

### Improvements in or relating to Fountain Pens

We, CONWAY STEWART AND COMPANY LIMITED, a British Company, of 75, to 82, Shoe Lane, London, E.C.4, and

5 ARTHUR STANLEY JONES, a British Subject, of 42, Cedar Gardens, Upminster, Essex, 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:—

10 This invention relates to fountain pens and refers more particularly to fountain pens in which the ink is drawn into the barrel by means of a plunger longitudinally slidably within said barrel, the longitudinal movement of said plunger being effected through the medium of a screw transmission upon rotation of an actuation element at the rear of the pen.

15 The primary object of the invention is the provision of an improved fountain pen of this kind having improved means for preventing, when the plunger is at the full in position, leakage of ink past said plunger to the bearing surface of said actuating element, and the invention consists broadly in the arrangement that, when the plunger approaches the full in position, a screw thread of relatively small pitch at the plunger end of the transmission meets a corresponding screw thread associated with the pen barrel, whereupon continued rotation of said actuating element effects screwed engagement of said two screw threads.

20 Further objects and advantages of the invention will appear hereinafter.

25 In order that the invention may be the more clearly understood, a pen in accordance therewith will now be described reference being made to the accompanying drawings wherein:—

30 Fig. 1 is a sectional elevation of the pen with the plunger at the position preparatory to drawing in ink.

35 Fig. 2 is an elevation partly in section showing the plunger at the normal position.

40 Referring to these drawings, the ink is adapted to be drawn into the barrel 1 of the pen by means of a plunger 2 which slides longitudinally within said barrel. The movement of this plunger 2 is

55 effected in response to the rotation of an actuating element 3 rotatably mounted at the rear end of the barrel 1, the transmission between said actuating element and said plunger consisting of two elongated screw threaded elements 4 and 5, the latter of which screws longitudinally into the former and has the plunger mounted at its extremity while the element 4 screws into said actuating element 3.

60 Thus, the friction between the plunger 2 and the inner surface of the barrel being sufficient to prevent or at least delay, the rotation of the plunger 2, when said actuating element 3 is rotated, the screw threaded elements 4 and 5 screw into and out of each other and said actuating element according to the direction of rotation of the latter, between an extended position (shown in Fig. 1) at which the plunger is at the forward end of the barrel and a collapsed position at which said plunger is at the rear end of said barrel.

65 More particularly, the screw threaded element 5 consists of a rod formed with four screw threads of deep pitch as shown, so that the rod at any point is of roughly square section; and the element 4 consists of a tube which mates with said rod 5 by virtue of its being internally flanged at its outer extremity, as at 6, so that its bore at this extremity has a substantially square cross section. In like manner the outer surface of the screw threaded element 4 is formed with four similar screw threads of deep pitch, and the actuating element 3 consists of a tube which mates with said tube 4 by virtue of its being internally flanged at its outer extremity as at 7. The elements 5 and 4 are prevented from screwing right out of engagement with one another by the inner end of the former element being flared slightly so that it cannot pass the flange 6, and similarly the elements 4 and 3 are prevented from screwing out of engagement with one another by the inner end of the former being flared so that it cannot pass the flange 7.

70 In construction, the mounting of the

[Price 1/-]

actuating element 3 in the end of the barrel 1 is effected by means of a tubular bearing element 8 which screws into the end of the barrel 1 as shown and in which  
 5 said actuating element 3 rotatably bears. Said actuating element is located in said bearing element by its outer end engaging an internal shoulder 9 on said  
 10 bearing element and a locating ring 10, screwed into said bearing element engaging an external shoulder on said actuating element. The rotation of said actuating element is effected by means of  
 15 a hand knob 11 secured to its outer end by being screwed on to it and locked by means of a pin 12.

The plunger 2, which is of cork or some other ink resisting material is mounted on a plunger carrier 13 which  
 20 is rigidly secured to the outer end of the element 5 by means of a pin. This plunger carrier 13 is provided with an external screw thread 14, and when the elements 5, 4, and 3 are screwed completely home into one another, continued  
 25 rotation of the element 3 causes the screw thread 14 to screw into engagement with an internal screw thread of the bearing element 8 until finally, as shown in Fig. 2 a shoulder on the plunger carrier 13 comes to rest on the outer end of the  
 30 bearing element 8 as in Fig. 2.

If desired the number of telescoping elements 5, 4, 3 may be increased, an  
 35 additional element or elements similar to the element 4 being provided in the series.

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

1. A fountain pen in which the ink is drawn into the barrel by means of a  
 45 plunger longitudinally slidable therein, the longitudinal movement of said plunger being effected through the medium of a screw transmission upon rotation of an actuating element at the  
 50 rear of the pen, wherein, when the plunger approaches the full in position a screw thread of relatively small pitch at the plunger end of the transmission meets a corresponding screw thread associated  
 55 with the pen barrel, whereupon continued rotation of said actuating element effects screwed engagement of said two screw threads.

2. A fountain pen according to claim  
 60 1, wherein said screw transmission operates by virtue of the rotation of said plunger being hindered by the friction between the same and the pen barrel, which friction permits rotation of said  
 65 plunger, when the two screw threads

meet thereby causing the latter to engage.

3. A fountain pen according to claim 1 or 2, wherein, upon said two screw threads screwing home, surfaces respectively associated with the plunger and the barrel come into tight engagement thereby sealing the rear end of the barrel. 70

4. A fountain pen according to any of the preceding claims, wherein the screw thread associated with the plunger is an external thread on the rear end of the plunger carrying element and the screw thread associated with the barrel is an internal thread in section element in rigid relation with the barrel at the rear end. 80

5. A fountain pen according to claim 4, wherein said actuating element is mounted in said section element so as to be rotatable but not longitudinally movable therein. 85

6. A fountain pen according to any of the preceding claims, wherein the actuating element forms the element at one end of a series of elongated elements which screw longitudinally into one another, the elements at the other end of the series having the plunger mounted at its extremity. 90

7. A fountain pen according to claim 7, wherein said elements are three in number and the intermediate element is externally screw threaded and has interior projections at one end for engaging the external threads of one of the end elements, the other end element  
 100 having interior projections at one end of it for engaging the external screw threads of said intermediate element.

8. A fountain pen according to claim 7, wherein the screw threads on each  
 105 externally screwed element are four in number and the cooperating interior projections take the form of respective interior end flanges.

9. A fountain pen according to claim 7 or 8, wherein means are provided for preventing complete disengagement of said elements, said means consisting of a flange at the extremity of each externally  
 115 screwed element for engaging with the interior projection of the adjacent element.

10. A fountain pen according to any of claims 6—9, wherein the element carrying the plunger is the element of  
 120 smallest diameter.

11. A fountain pen substantially as herein described with reference to the accompanying drawings.

Dated this 18th day of March, 1937.

A. A. THORNTON,  
 Chartered Patent Agent,  
 7, Essex Street, Strand, London, W.C.2,  
 For the Applicants.

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

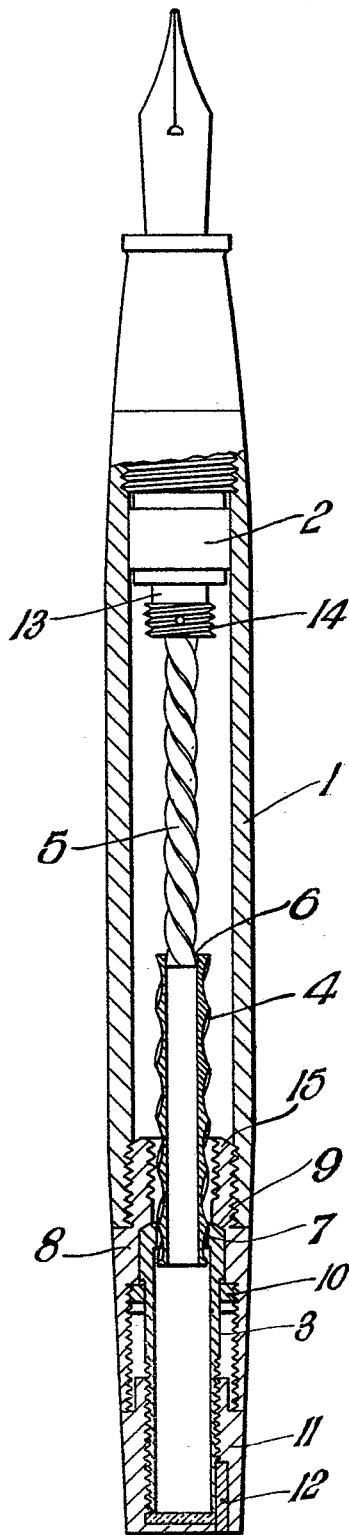


Fig. 1.

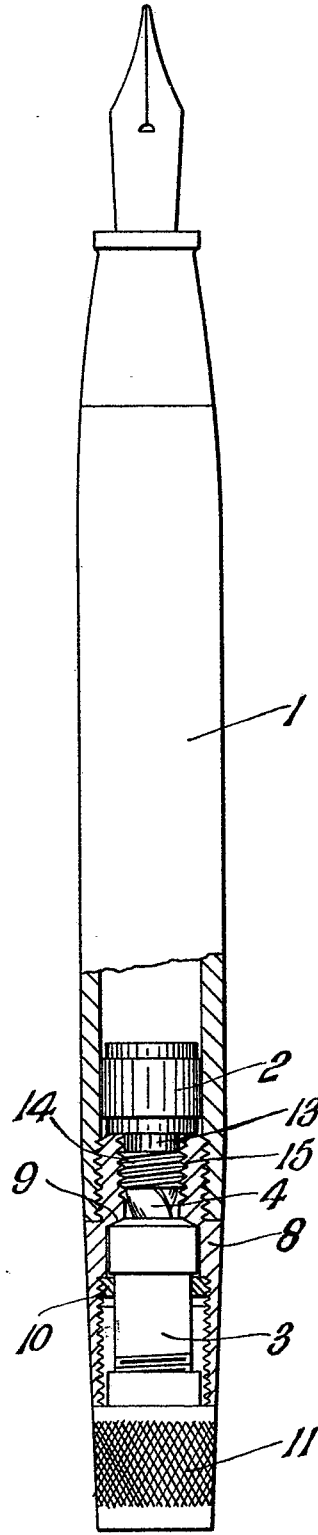


Fig. 2.