

# PATENT SPECIFICATION

885,375



Inventor: HERBERT GESAJA OCHS

Date of filing Complete Specification: April 1, 1959

Application Date: January 15, 1958.

No. 23373/61

(Divided out of No. 885,374)

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Index at Acceptance:—Class 146(3), P9E2, P11(D2:G).

International Classification:—B43c.

## COMPLETE SPECIFICATION

### ERRATA

#### SPECIFICATION NO. 885,375

Page 2, line 14, after "said" (in the 1st occurrence) insert "feed"

Page 2, line 57, for "rodlike" read "rod-like"

THE PATENT OFFICE,  
2nd February, 1962

DS 60205/1(81)/R.153 200 1/62 PL

wherein the nib is positively located and anchored by means of inturned lugs formed at the rear end of said nib, each of which 20 lugs engages in a locating groove or slot formed in the periphery of said feed member and is held in said groove or slot by said outer sleeve-like member and wherein said outer sleeve-like member is provided in its 25 inner surface with an arcuate countersinking adapted to accommodate the nib and to limit the rearward movement of the feed member and nib relative to said sleeve-like member and to limit lateral or sideways 30 movement of the nib relative to the feed member and the sleeve-like member.

In order that the invention may be more clearly understood one particular embodiment thereof, as applied to a pen of the construction described in the specification of 35 our co-pending application No. 1427/58, (Serial No. 885,374) will now be described by way of example, with reference to the accompanying drawings in which Figure 1 is 40 a longitudinal section of the forward end of a pen in which the nib is fitted and Figure 2 is a section on the line II-II of Figure 1. Referring to this drawing the pen com-

formed at the extremities of the arc, as 60 shown in Figure 2. As will be understood the nib 8 fits on said feed member 1 with the lugs 7 engaging in said locating groove or slot 6 and thus longitudinal movement of said nib relative to said feed member is 65 positively prevented.

The sleeve like member of section 2 is provided in its inner surface with a shallow arcuate countersinking at 9 which not only accommodates the nib but also limits the 70 rearward movement of the feed member 1 and the nib 8 relative to the sleeve-like member or section 2 but also prevents lateral or sideways movement of the nib 75 relative to the feed member 1 and the sleeve-like member or section 2. Thus, in its fitted position the nib is positively located and anchored against both longitudinal and lateral movement.

For the purpose of removing the feed 80 member 1 and the nib, for example when the nib is to be replaced, said feed member is provided at its forward or outer end with an extraction hole 10 in which a key may 85 be inserted to remove said feed member and nib.

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## COMPLETE SPECIFICATION

### DRAWINGS ATTACHED

#### Improvements in or relating to Fountain Pens

We, CONWAY STEWART & COMPANY LIMITED, a British Company, of 36/44 Copperfield Road, London, E. 3, do hereby declare the invention for which we pray  
5 that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to improvements in  
10 and relating to fountain pens and has for its object to provide means for positively locating and anchoring the nib in its correct position in the pen.

The invention consists of a fountain pen  
15 having a nib held between an inner feed member and an outer sleeve-like member wherein the nib is positively located and anchored by means of inturned lugs formed at the rear end of said nib, each of which  
20 lugs engages in a locating groove or slot formed in the periphery of said feed member and is held in said groove or slot by said outer sleeve-like member and wherein said  
25 outer sleeve-like member is provided in its inner surface with an arcuate countersinking adapted to accommodate the nib and to limit the rearward movement of the feed member and nib relative to said sleeve-like member and to limit lateral or sideways  
30 movement of the nib relative to the feed member and the sleeve-like member.

In order that the invention may be more clearly understood one particular embodiment thereof, as applied to a pen of the construction described in the specification of  
35 our co-pending application No. 1427/58, (Serial No. 885,374) will now be described by way of example, with reference to the accompanying drawings in which Figure 1 is  
40 a longitudinal section of the forward end of a pen in which the nib is fitted and Figure 2 is a section on the line II-II of Figure 1. Referring to this drawing the pen com-

prises a rod-like feed member 1 which fits closely in a sleeve-like outer member or  
45 section 2. The feed member 1 is provided with a longitudinal ink feed groove 3, circumferential reservoir grooves 4 and an air intake groove 5 as and for the purpose described in the specification of our aforesaid  
50 co-pending application.

In accordance with the present invention the feed member 1 is further provided with an endless circumferential locating groove or slot 6, at the appropriate distance from  
55 its forward end, in which engages two inturned lugs 7 formed at the rear end of the nib 8 where of course said nib is of arcuate cross-section. The two lugs are preferably formed at the extremities of the arc, as  
60 shown in Figure 2. As will be understood the nib 8 fits on said feed member 1 with the lugs 7 engaging in said locating groove or slot 6 and thus longitudinal movement of said nib relative to said feed member is  
65 positively prevented.

The sleeve like member of section 2 is provided in its inner surface with a shallow arcuate countersinking at 9 which not only accommodates the nib but also limits the  
70 rearward movement of the feed member 1 and the nib 8 relative to the sleeve-like member or section 2 but also prevents lateral or sideways movement of the nib relative to the feed member 1 and the sleeve-  
75 like member or section 2. Thus, in its fitted position the nib is positively located and anchored against both longitudinal and lateral movement.

For the purpose of removing the feed  
80 member 1 and the nib, for example when the nib is to be replaced, said feed member is provided at its forward or outer end with an extraction hole 10 in which a key may be inserted to remove said feed member and  
85 nib.

It will be understood that the invention is not limited to the particular embodiment herein described, but may be modified without departing from the scope of the invention as defined in the appended claims.

WHAT WE CLAIM IS:—

1. A fountain pen having a nib held between an inner feed member and an outer sleeve-like member, wherein the nib is positively located and anchored by means of inturned lugs formed at the rear end of said nib, each of which lugs engages in a locating groove or slot formed in the periphery of said member and is held in said groove or slot by said outer sleeve-like member, and wherein said outer sleeve-like member is provided in its inner surface with an arcuate countersinking adapted to accommodate the nib and to limit the rearward movement of the feed member and nib relative to said sleeve-like member and to limit lateral or sideways movement of the nib relative to the feed member and the sleeve-like member.
2. A fountain pen according to claim 1, wherein said nib is provided with two lugs,

one positioned at each of the extremities of the arcuate cross section of the rear end of said nib.

3. A fountain pen according to either of claims 1 or 2, wherein the inner feed member is provided with an endless circumferential locating groove or slot.

4. A fountain pen according to any one of the preceding claims wherein the feed member is provided near its forward or outer end with an extraction hole in which a key may be inserted to extract said feed member and nib when the nib is to be replaced.

5. A fountain pen having means for positively locating and locking the nib substantially as herein described with reference to the accompanying drawings.

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PROVISIONAL SPECIFICATION

Improvements in or relating to Fountain Pens

We, CONWAY STEWART & COMPANY LIMITED, a British Company, of 36/44 Copperfield Road, London, E. 3, do hereby declare this invention to be described in the following statement:—

This invention relates to fountain pens. The object of the invention is the provision of an improved fountain pen and the nature of the invention will be understood from the following description of one embodiment thereof.

In accordance with this embodiment the pen comprises a rodlike feed member which fits closely into a sleeve-like outer member with the nib held between said members so as to project from one end thereof, hereinafter called the forward end. The sleeve-like member—usually called the section—is secured at its rear end to the mouth of the sac and is fitted to a barrel with the sac contained in it. The flow of the ink from the sac to the nib and the flow of air from the atmosphere back to the sac takes place by way of grooves in the surface of the feed member as will be hereinafter described.

The feed member at its forward end is cut off at an inclined angle and the section at its forward end is similarly cut off at an inclined angle except that the angle of inclination to the cross section is a little greater in the case of the feed member than in the case of the section, the latter being say 45 degrees. The nib is jammed between

the feed member and the section, with its point projecting forwardly from said feed member and section, said nib point being of course in line with the most forward points of said feed member and section. For securing said nib firmly in place, said nib is formed at its rear end (where it is of course arcuate in cross-section) with two inturned lugs at the ends of the arc, and the feed member is formed with a very narrow circumferential locating groove at the appropriate distance from its forward end. Said nib fits on said feed member with said lugs in said locating groove and thus longitudinal movement of said nib relative to said feed member is positively prevented. The section has a slight arcuate countersinking to accommodate the nib and this limits the rearward movement of the feed member and nib relative to the section and determines the assembled position.

Said feed member also has formed in its surface a plurality of (say twenty) narrow circumferential reservoir grooves closely spaced together. These start a little to the rear of the circumferential locating groove, and occupy a longitudinal space of say a little more than half an inch.

Extending longitudinally along the top of said feed member (i.e. in line with the point of the nib) is a narrow and deep ink groove cut in said feed member. This extends from the rear end of said feed member to a point close to the forward end, at least as far as

the slit in the nib, and consequently cuts through all the reservoir grooves and the nib locating groove. This ink groove is considerably deeper than said reservoir grooves and said nib locating groove.

Extending longitudinally along the top of said feed member is also a wide and shallow air groove. This extends, from the rear end of said feed member, far enough forward to cut through the two rearmost of the reservoir grooves. It may be shallower than said reservoir grooves.

Finally an air intake groove which is very wide and about the same depth as the reservoir grooves extends from the forward end of the feed member along the bottom thereof sufficiently far to cut through all the reservoir grooves.

In operation the ink flows from the sac along the air and ink grooves towards the forward end. As the ink groove is deep and very narrow, ink will be attracted along it by capillary attraction and air will not enter said ink groove once ink has got into it. The ink thus flows to the nib. In proportion as the ink leaves the sac air is drawn from the atmosphere through the air intake grooves and up round the two rearmost reservoir grooves into the air groove and along said air groove to the sac.

The reservoir grooves are for the purpose of providing an ink storage capacity to take care of any surges or pressure differences which would push more ink out of the sac than is required for writing. Thus, if an ink surge takes place from the sac along the ink groove, the excess ink will be accommodated in these reservoir grooves. Said reservoir grooves are narrow and the material between them forms baffles so that excess ink will be safely maintained in said reservoir grooves.

The invention has the following advantages: The inclined forward end of the section forms a hood for the nib so that a small nib can be used, and this is positively located in place by the locating groove.

The feed member is in close contact with the hood and does not comprise several parts.

Storage capacity is provided to take care of any excess surges of ink, and said storage capacity will empty itself back into the sac

when the pen is not in use, either up-ended or lying on the desk, this being due to the suction caused by the ink flowing to the closed end of the sac, aided by gravity when the pen is up-ended.

An overflow control is provided which shuts off all air supply to the sac when the ink storage capacity is overflowing into the air intake. Thus, if more ink is pushed down from the sac than the reservoir grooves can accommodate, the ink will flow out of the reservoir grooves into the air intake groove. This will stop the flow of air to the sac and so stop also the flow of ink from the sac. If further writing is carried on with the pen in this state ink will be drawn directly out of the air intake groove to the nib through the reservoir grooves, as the outside pressure will be higher than the air pressure in the sac.

In a preferred embodiment of the invention, the ink groove may have a width of .004" to .008" depending on flow required and a depth of at least .048" if the reservoir grooves have a depth of .035". The air groove may have a width of .048", but not less than .035", and a depth depending on ink and air flow required, of .015"—.030". The air intake groove may have a width of .080", depending on the diameter of the feed member, and a depth of .020"—.050" depending on the size of air bubble required to be released: also the speed of filling decided upon. The reservoir may have a depth .020"—.035", depending on the amount of ink storage, which furthermore controls the number of grooves required. The width of the reservoir grooves can be from .010"—.025". The ink groove should terminate in the nib slot.

When the invention is applied to fountain pens other than those of the hooded nib type the feed member and section may be formed at their forward ends in the standard manner, or the feed member at its forward end may have the configuration of a spoon.

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This drawing is a reproduction of  
the Original on a reduced scale.

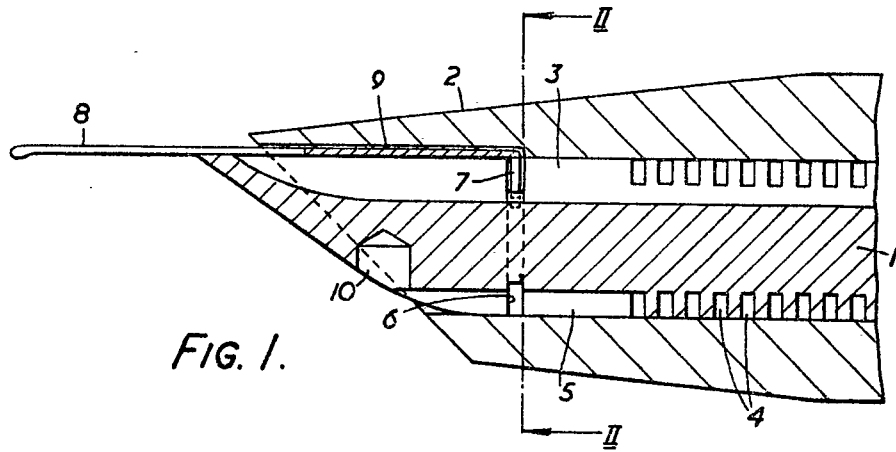


FIG. 1.

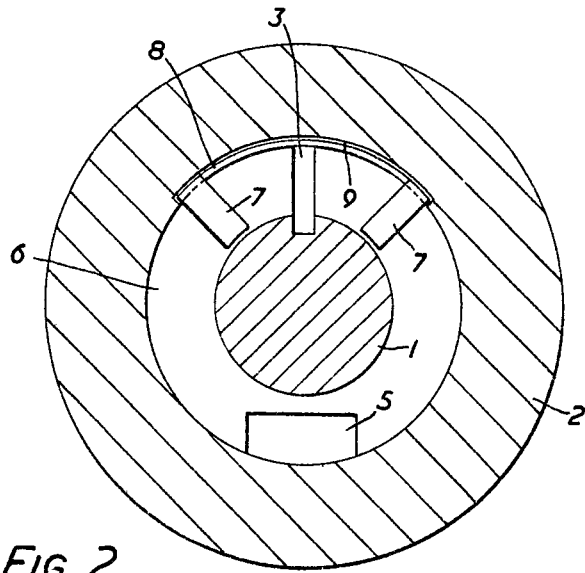


FIG. 2.