

101,895

PATENT



SPECIFICATION

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PROVISIONAL SPECIFICATION.

**Improvements in or relating to Fountain Pens.**

I, CECIL BRISTOW, of 20, St. German's Road, Forest Hill, London, Works Manager, do hereby declare the nature of this invention to be as follows:—

This invention relates to fountain pens and especially to self-filling fountain pens of the type in which a tube feed is employed. The object of this invention is to provide an improved construction of pen of this type.

According to this invention the tube feed is cylindrical in form and closed at its lower end, being provided with a port below the nib. Within the tube is disposed a cylinder having a longitudinal groove which is adapted to extend from the barrel of the pen to the port beneath the nib or to be connected with said port so that the ink may pass to the underside of the nib.

With tubular feeds as hitherto constructed the flow of ink to the nib is liable to be intermittent on account of the air being barred from admittance by the ink choking the passage and neither one can pass the other until the pen is jarred.

With a tubular feed the end of the feed is dipped into the ink when it is desired to fill the pen, the end of the holder not touching the ink. With other forms of feed the flow of ink is more regular but the end of the holder has to be dipped into the ink when it is desired to refill the pen requiring it to be cleaned each time after filling to prevent soiling the fingers or inking the inside of the nib protector when closed for the pocket.

The feed bars mostly used at the present time are either in the form of a loose rod passing through the tubular nib holder which allows the ink to pass between the rod and the wall of the nib holder with the addition of a spiral wire to facilitate capillary attraction by allowing the ink to travel along the spirals and pass under air bubbles that collect along the bar and the spiral also serves as a wedge to hold the bar in position, or

Another and perhaps more generally used feed-bar is made from a solid rod which fits the inner end of the nib holder tightly and has a groove or grooves along it to form a channel for the ink to pass out of and the air to pass into the reservoir and the kind of grooves mostly used are one deep saw cut with three smaller and shallower cuts in the bottom of the larger groove and it is known that with grooves of this kind the ink will pass along the three grooves and the air will enter through the larger space above the ink grooves without a stoppage by either an air bubble or a blob of ink, the reason being that the air bubble will not extend itself into the small grooves and so the ink is allowed to pass, and a blob of ink will extend itself along the smaller grooves and so allow the air to pass.

I prefer to use this form of channel for my feed and the method by which I obtain these cuts or grooves through the hole of my tubular feed combined with the fact that the feed is tubular and is open to the air only beyond the end of the pen holder forms the principal feature of this invention.

[Price 6d.]



In carrying out this invention the inner end of the nib holder is bored to fit tightly around the inner end of the feed bar or a packing is provided so that in filling or when writing, no air or ink can pass between. The other or outer end is bored slightly larger to allow space enough for the heel of the nib to be securely held in position between the feed bar and the inner wall of the nib holder. 5

It will now be seen that both ink and air must pass either into or out of the reservoir through the feed tube and it is therefore not necessary to dip the end of the pen holder into the ink when filling and it is only necessary to dip the nib and feed into the ink to fill the pen with ink and to prevent air being drawn in, thus embodying the advantages of both systems of tube and grooved bar feeds. 10

In the accompanying drawings.

Fig. 1 is a longitudinal section of one form of feed made in accordance with this invention; 15

Fig. 2 is a cross section;

Fig. 3 is a longitudinal section of a modified construction;

Fig. 4 is a longitudinal section of another construction;

Fig. 5 is a plan view of Fig. 4;

In the construction shown in Figs. 1 and 2 the feed bar *a* is provided with a longitudinal groove *b* and smaller grooves *c c c*. This bar is adapted to fit a cylindrical feed tube *d* which is closed at *e* but provided with a port *f* which is adapted to be covered with the nib *g* shown in dotted lines. The cylindrical tube *d* is preferably formed from a solid piece of vulcanite or like material, the hole being drilled. The bar *a* is preferably made with a coned shaped end *h* to fit the end of the drilled hole in the tube *d* when the parts are assembled, the groove *b* leads to the port *f* in the tube *d*. 20 25

In the form shown in Fig. 3 the underside of the tube *d* is cut away as at *j* so that the feed bar *a* is exposed.

In the form shown in Figs. 4 and 5 the tube feed *d* is fashioned with a curved end *k* which is scooped out on the upper side to form the port *f*. The base of the scooped out part may be provided with grooves *c' c' c'* to form extensions of the grooves *c c c* in the bar *a*. The feed bar when inserted in the tube *d* extends as far as the duct or port *f*. 30

With a fountain pen provided with an ink feeding device made in accordance with this invention a soft rubber reservoir can be attached to the feed when so desired to simplify the construction of the pen holder. The grooves in the feed bar *a* may be shallower where they are opposite the port or opening *f* than further back so as to reduce the flow of ink to the nib. 35

The nib for use with this feed should preferably have a small hole say  $\frac{1}{32}$ " diameter which hole should be over the opening in the feed. 40

Although by experiment I have found that the grooved bar is the most desirable of the various ways of obtaining capillarity through the tube I do not bind myself to this method of obtaining capillarity as a tube feed with other capillary means will fill the pen without dipping the holder in the ink. Other capillary means such as a spiral wire—horse hair, hogs bristles or grooves cut differently to the ones I have described might be employed. In some cases one or two grooves cut in the bottom of the large groove or one, two or three grooves cut in a shallow groove or the grooves might be cut spirally or grooves might be cut in the wall of the tube to obtain capillary attraction. 45 50

Dated this 13th day of January, 1916.

MEWBURN, ELLIS & PRYOR,  
70 & 72, Chancery Lane, London, W.C.,  
Chartered Patent Agents.

## COMPLETE SPECIFICATION.

## Improvements in or relating to Fountain Pens.

I, CECIL BRISTOW, late of 20, St. Germans Road, but now of The Chestnuts, Brockley View, Forest Hill, London, Works Manager, 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:—

5 This invention relates to fountain pens of the type in which a cylindrical tube feed is provided with a feed bar having longitudinal grooves which extend from the barrel of the pen to the nib so that the ink may pass to the underside of the nib. The object of this invention is to provide an improved pen of this type. In pens of this type as hitherto constructed the feed tube extends in  
10 tubular form through its length and is turned up to meet the underside of the nib.

In a pen made in accordance with this invention the feed tube is closed at the nib end and is provided with an elongated port on the side beneath the nib and the inner feed bar or capillary conductor which extends to the end of the  
16 feed tube is thereby exposed to the underside of the nib for a considerable length allowing a free passage for both air and ink equal to the ordinary grooved bar feed.

In carrying out this invention the inner end of the nib holder is bored to fit tightly around the inner end of the feed tube or a packing is provided so that  
20 in filling or when writing no air or ink can pass between. The other or outer end is bored slightly larger to allow space enough for the heel of the nib to be securely held in position between the feed tube and the inner wall of the nib holder.

It will now be seen that both ink and air must pass either into or out of the  
25 reservoir through the feed tube and it is therefore not necessary to dip the end of the pen holder into the ink when filling and it is only necessary to dip the nib and feed into the ink to fill the pen with ink and to prevent air being drawn in, thus embodying the advantages of both systems of tube and grooved bar feeds.

30 In the drawings filed with the Provisional Specification:—

Fig. 1 is a longitudinal section of one form of feed made in accordance with this invention;

Fig. 2 is a cross section;

Fig. 3 is a longitudinal section of a modified construction;

35 Fig. 4 is a longitudinal section of another construction;

Fig. 5 is a plan view of Fig. 4;

In the construction shown in Figs. 1 and 2 the feed bar *a* is provided with a longitudinal groove *b* and smaller grooves *c c c*. This bar is adapted to fit a cylindrical feed tube *d* which is closed at *e* but provided with a port *f* which  
40 extends beyond the upper end *d'* of the feed tube *d* and is adapted to be covered with the nib *g* shown in dotted lines. The cylindrical tube *d* is preferably formed from a solid piece of vulcanite or like material, the hole being drilled. The bar *a* is preferably made with a coned shaped end *h* to fit the end of the drilled hole in the tube *d* when the ports are assembled, the groove *b* leads to  
45 the port *f* in the tube *d*.

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the scooped out part may be provided with grooves  $c^1 c^1 c^1$  to form extensions of the grooves  $c c c$  in the bar  $a$ . The feed bar when inserted in the tube  $d$  extends as far as the duct or port  $f$ .

With a fountain pen provided with an ink feeding device made in accordance with this invention a soft rubber reservoir can be attached to the feed when so desired to simplify the construction of the pen holder. The grooves in the feed bar  $a$  may be shallower where they are opposite the port or opening  $f$  than further back so as to reduce the flow of ink to the nib. 5

The nib for use with this feed should preferably have a small hole say  $1/32''$  diameter which hole should be over the opening in the feed. 10

Although by experiment I have found that the grooved bar is the most desirable of the various ways of obtaining capillarity through the tube, I do not bind myself to this method of obtaining capillarity as a tube feed with other capillary means will fill the pen without dipping the holder in the ink. Other capillary means such as a spiral wire, horse hair, hogs' bristles in the groove 15 and used in addition to or without the smaller grooves, or grooves cut differently to the ones I have described might be employed. In some cases one or two grooves cut in the bottom of the large groove, or one, two or three grooves cut in a shallow groove or the grooves might be cut spirally.

Having now particularly described and ascertained the nature of this invention and in what manner the same is to be performed, I declare that what I claim is:— 20

1. A fountain pen of the type described, characterised in that the feed tube is closed at its lower end and has an elongated port on the nib side through which the ink is fed to the nib. 25

2. A fountain pen as claimed in Claim 1, further characterised in that the feed bar is exposed for a considerable length to the underside of the nib.

Dated this 11th day of July, 1916.

MEWBURN, ELLIS & PRYOR,  
70 & 72, Chancery Lane, London, W.C.,  
Chartered Patent Agents. 30

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

