

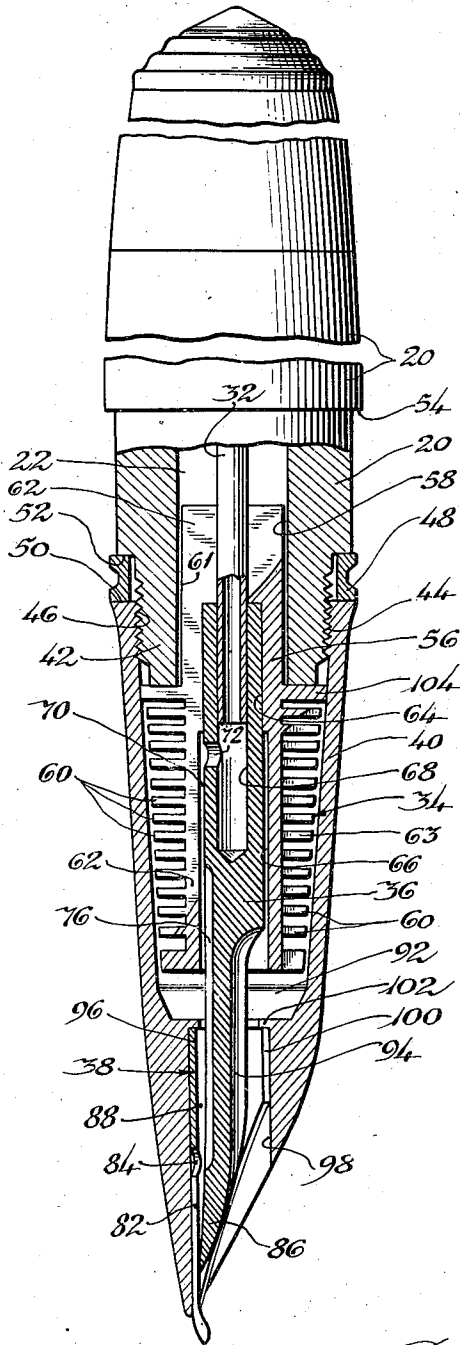
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FOUNTAIN PEN

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2,417,861

FOUNTAIN PEN

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6 Claims. (Cl. 120—50)

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My invention relates generally to fountain pens and more particularly to an improved pen point and means for mounting the pen point in ink receiving communication with the ink reservoir. The present invention represents an improvement over my prior patented invention disclosed and claimed in Letters Patent No. 2,016,106, issued October 1, 1935, and this application is a division of my copending application Serial No. 510,902, filed November 19, 1943, which has matured into Patent No. 2,375,770.

One of the most expensive elements in a fountain pen is the pen point or nib, which necessarily has a relatively high content of gold in proportion to any other metals which may be used. The well known anti-corrosive characteristic of gold makes it an almost indispensable element in the manufacture of pen points for fountain pens. Any practical construction by which the amount of gold required is reduced is extremely desirable, provided the writing characteristics or usefulness of the pen are not impaired.

The assembly of the nib and the feed bar is an operation which at present usually requires a high degree of skill, and any method of assembling these parts which could be practiced by a less skilled workman would also reduce the cost of manufacture.

A patent issued in the name of Marlin S. Baker on December 3, 1940, No. 2,223 541, relates to a fountain pen which is marketed by The Parker Pen Company of Janesville, Wisconsin, under the trade name of "Parker 51." In the fountain pen of this construction, the nib has a shank of considerable length which is mounted within an ink collector to form capillary ink passages which, through other capillary passages, are in communication with the ink reservoir. My present invention is also an improvement over the "Parker 51" construction in that the shank of the pen nib may be relatively short and is mounted independently of the ink collector. This reduces the cost of manufacture of such pens without destroying any of the advantages gained by the type of construction illustrated in the Baker patent.

Other objects and advantages will become apparent from the following description taken in connection with the accompanying drawing, in which:

The figure is a longitudinal sectional view of a fountain pen embodying my invention.

For a better and more complete understanding of the principles on which the ink collector of my improved pen operates, reference may be had to the aforementioned Baker patent and to Patent

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No. 2,187,528, issued January 16, 1940, to Russell T. Wing.

The fountain pen of my invention comprises a barrel section 20 forming an ink reservoir 22, which is adapted to be filled by any appropriate type of filling mechanism such as that shown by my prior Patent No. 1,904,358, issued April 18, 1933. In the arrangement shown, a breather tube 32 is provided, forming part of the filling mechanism employed.

In my improved pen, the ink feeding mechanism comprises an ink collector 34, a feed bar 36, a nib 38, and an outer shell 40. The barrel 20 is provided at its lower end with an extension 42 having a reduced outer diameter and threads at 44. (In this specification, and in the appended claims, the words "lower" and "upper" used in describing the various elements are to be considered with respect to a pen held in writing position—nearly vertical.) The shell 40 has internal threads at 46 and is adapted to be threaded onto the extension 42. A cap retaining ring 48 is held between end 50 of the shell 40 and a shoulder 52 formed on the barrel 20. A second shoulder 54 on the barrel restricts the inward movement of the cap which may be of the same type as that shown in the Baker patent.

The ink collector 34 is also of the type shown in the Baker patent, and functions according to the principles described therein and also in the Wing patent to prevent flooding of the pen under varying conditions of use. It is formed with an extension 56 which has a slip fit in a bore 58 in the extension 42 of the barrel 20. The ink collector 34 is provided with a plurality of circumferential fins 60. The extension 56 has a flattened portion 61 to create a primary capillary channel in communication with the reservoir 22. A capillary ink slot 62 is cut for approximately the full length of the ink collector 34 and is in communication with the channel formed by the flat portion 61 and also with the reservoir 22. It also provides a path for ink flow between the spaces formed between the fins 60. A slot 63, wider than the ink slot 62, is formed preferably on the opposite side of the collector, and provides a path for air flow between the spaces formed between the fins 60. The collector is bored at 64 to receive the upper end of the feed bar in a sliding fit sufficiently tight to insure that the feed bar shall be held frictionally in position as shown in the drawing. A second and slightly larger bore 66 concentric with the bore 64 and surrounding the feed bar 36 is formed in the ink collector 34 and with the feed bar forms a channel 70, the

function of which will become more fully apparent hereinafter.

The feed bar 36 receives the lower end of the breather tube 32 with a force fit in bore 68, the latter communicating with the air return channel 70 formed by the bore 66 and the surface of the feed bar 36 through a port 72.

A capillary ink duct 76 is provided in the face of the feed bar, at the left in the drawing. At its lower end, the duct 76 communicates with the usual slit 82 and opening 84 in the nib 38. The feed bar 36 can be so shaped that its lowermost tip portion 86 rests against the face of the nib adjacent to the writing point, with a downwardly narrowing space 88 between the nib and the portion of the feed bar immediately above the lower end. The shell 40 can be relieved slightly adjacent to the lower end of the nib so as to permit some flexure of the nib. The arrangement is preferably such that the duct 76 feeds the ink directly to the slit 82 in the nib so as to provide for ready flow of the ink, and the space 88 is adapted to maintain a small supply of ink in position adjacent to the end of the nib for insuring instant writing action when desired.

In the arrangement shown, ink is fed from the reservoir 22 to the writing tip by way of the capillary duct 62 in the ink collector, the spaces between the fins 60, the channel 70, the duct 76, the capillary space 88, and the slit 82. The ink in the reservoir is replaced by air from an air space 92 just below the ink collector, the air from such space being adapted to rise in bubbles along the slot 63, and then through the capillary channel 70, port 72, into the bore of the air tube 32. The air space 92 is in communication with the atmosphere through a slot 94 in the feed bar 36.

The shank portion 96 of my improved nib is cylindrical in form and is of slightly greater outside diameter than the inside diameter of the bore 98 in the lower end of the shell 40 into which the nib is pressed. The shank is split at 100, however, so as to enable it to be compressed readily for movement into the bore 98 and into engagement with the wall or shoulder 102 which serves to position the nib longitudinally. When the nib is released after insertion into position, it has a strong frictional engagement with the bore 98 so as to be held securely in position. It can, however, be readily removed for repairs or for exchange, if desired. Portions of the shoulder 102 engage and frictionally grip the feed bar 36 and aid in holding the latter in position.

My improved pen may be assembled rapidly and easily without requiring the services of a highly skilled craftsman. The feed bar 36 is placed in position in the ink collector 34, and the breather tube 32 is positioned in the collector and the feed bar. The collector and its associated parts are then slipped into the shell 40 with a flange 104 on the ink collector engaging, in a sliding fit the inner surface which may be cylindrical in this upper portion, and to control the angular position of the parts, care being taken to position the tip 86 of the feed bar in proper angular relation to the shell. The extension 42 of the barrel is then screwed into the shell 40 with the ring 48 in place, serving to press downward the collector, the feed bar, and the air tube to their proper longitudinal position and to secure the parts in their operative positions, as shown in the drawing. The shank 96 of the nib may then be compressed and pushed upwardly with the tip of the nib placed in proper angular alignment with the feed bar into position in the shell

40 about the lower end of the feed bar, the upper end of the nib being positioned by engagement with the shoulder 102. It is apparent that the nib can be changed readily without disturbing the other parts of the pen, this being a highly desirable feature. It will be appreciated, however, that in use the nib is held strongly in position without danger of accidental displacement.

I have found that my construction makes possible the use of a nib with a short shank portion, and thereby effects a very substantial saving in the material of the nib. By mounting the nib at the lower end of the feed bar, which at its upper end projects into the ink collector, and which at an intermediate portion has a capillary duct crossing the air space 92, excellent feed of ink to the nib is obtained.

While I have shown and described a particular embodiment of my invention, it will be apparent that variations and modifications thereof may be made without departing from the underlying principles of the invention. I therefore desire, by the following claims, to include within the scope of my invention all such variations and modifications by which substantially the results of my invention may be obtained through the use of substantially the same or equivalent means.

I claim:

1. In a fountain pen, the combination of a barrel, a tubular member having a bore in its lower end and removably connected with said barrel so as to form an extension thereof, an ink collector removably mounted in said tubular member and dividing the space so as to provide an ink reservoir in the barrel above the collector and an air space in the tubular member below the collector, a feed bar removably mounted in an opening in the lower end portion of said ink collector, and a resilient nib mounted in the bore in the lower end portion of said tubular member, said nib being expanded against the wall of the bore due to its resiliency and being held within the bore solely by its frictional engagement with the wall thereof, said ink collector and said feed bar and said nib being arranged to provide capillary duct means leading from said ink reservoir through said air space and to the lower end of said nib.

2. In a fountain pen, the combination of a barrel, a tubular member removably connected with said barrel so as to form an extension thereof, an ink collector removably mounted in said tubular member and dividing the space so as to provide an ink reservoir in the barrel above the collector and an air space in the tubular member below the collector, a feed bar removably mounted in an opening in the lower end portion of said ink collector, and a resilient nib mounted in the lower end portion of said tubular member so as to be held firmly in position solely by frictional engagement therewith but so as to be readily removable downwardly therefrom, said ink collector and said feed bar and said nib being provided with communicating capillary ducts leading from said ink reservoir through said air space and to the lower end of said nib.

3. In a fountain pen, the combination of a barrel, a tubular member removably connected with said barrel so as to form an extension thereof, an ink collector removably mounted in said tubular member and dividing the space so as to provide an ink reservoir in the barrel above the collector and an air space in the tubular member below the collector, a feed bar removably mounted in an opening in the lower end portion

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of said ink collector, and a nib having a shank portion in the form of a cylinder adapted to be compressed for entering the lower end portion of said tubular member so as normally to be held in position by friction and so as to be readily removable downwardly without disturbing the cooperating parts, said ink collector and said feed bar and said nib being arranged to provide capillary duct means leading from said ink reservoir through said air space and to the lower end of said nib.

4. In a fountain pen having a nib, a cup-like finger grip portion overlying said nib, means mounting said nib comprising a bore in the lower end of said grip portion, a wall separating said bore from the upper end of said grip portion, an opening in said wall connecting said bore and the upper end of said grip portion, and a feed bar extending through said opening, said nib being frictionally secured in said bore with its shank surrounding said feed bar and abutting said wall.

5. In a fountain pen having a nib, a hollow finger grip shell portion overlying said nib, and means mounting said nib comprising a bore in the lower end of said grip portion, a peripheral

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internal shoulder at the upper end of said bore, and said nib having a straight shank portion to frictionally engage the internal surface of said bore and abut said shoulder.

6. In a fountain pen, in combination, an ink reservoir, an ink collector, a feed bar, a nib mounted at the lower end of said feed bar and spaced from said collector, a shell portion enclosing said ink collector and said feed bar and overlying said nib except for the writing tip thereof, and a nib receiving recess in the lower end of said shell portion and having its wall frictionally engaged by the shank portion of said nib.

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The following references are of record in the file of this patent:

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Number	Name	Date
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2,016,106	Dahlberg -----	Oct. 1, 1935
2,223,541	Baker -----	Dec. 3, 1940
1,904,358	Dahlberg -----	Apr. 18, 1940